

1.1.1

CURRICULA DEVELOPED AND IMPLEMENTED HAVE RELEVANCE TO THE LOCAL, REGIONAL, NATIONAL, AND GLOBAL DEVELOPMENTAL NEEDS, WHICH IS REFLECTED IN THE PROGRAMME OUTCOMES (POS) AND COURSE OUTCOMES(COS) OF THE PROGRAMMES OFFERED BY THE INSTITUTION

LOCAL NEEDS

TOURISM AND ECONOMIC DEVELOPMENT (2018 Batch onwards)

SUBJECT CODE- 01311

**Total hours – 90 hrs
Credits -5**

Unit - I

Tourism – Meaning – Types, Functions, Volume and Components of Tourism.

Unit - II

Significance of Tourism – Socio economic importance of Tourism – Travel agency – Travel agents – Travel guides – Travel documents – Pass port and other formalities..

Unit - III

Growth of Tourism – Causes for growth of Tourism – Economic and social factors – Transport, accommodation, locality – Medical tourism and its significance.

Unit - IV

Development of Tourism in India – Pre-Independence and Post-Independence periods – Role of Private sector and public sector – Five year Plans and Tourism – New policy on Tourism Management Strategy – Tourism policy analysis – Tourism legislation.

Unit - V

Tourism promotion – Functions of advertising agencies – Support activities – Public Relations – Tourism as an instrument of archiving Economic gains – Tamil Nadu Tourism – Important Tourism centres - Chennai, Ooty, Kodaikanal, Kanniyakumari, Tanjore, Rameshwaram, Kanjeeपुरam.

Recommended Text:

1. Boserop – women’s role in economic Development.
2. Gosh, S.K. Women in a changing society. Asia Publishing House

Reference Books:

1. Jain Devaki - Women in a developing Economy.
2. Kapur Promila - Changing status of the working women in India Vikas.
3. Ranade – S.N and Ramachandran. P. Women and employment.
4. Srinivasan. N – Status of women, Oxford University Press.

Course Outcomes

CO1	Paraphrase concepts related to tourism in general
CO2	Enumerate various types of tourism with special reference to medical tourism
CO3	To appraise the various policies and principles adopted with respect to tourism
CO4	Analyze the role of tourism with respect to economic growth and development of our country
CO5	Elaborate the importance and significance of various tourists spots in Tamil Nadu

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	3	1	1	1	2	3	3
CO2	2	3	3	3	2	3	3
CO3	1	2	2	2	3	3	3
CO4	2	3	2	3	1	3	3
CO5	2	2	3	3	2	3	3

Correlation levels: 1- Weak 2-Medium 3-High

ELEMENTS OF INSURANCE

SUBJECT CODE-01414

Total hours- 90 hrs
Credits -5

Course Description – The course deals with the types of insurance.

UNIT – I

Introduction to Insurance – Types of insurance – Principals of Insurance

UNIT – II

Salient Features of IRDA Act – Administration of IRDA ACT – Regulatory measures of IRDA

UNIT – III

Life Insurance Products – Term, Whole life, Endowment.

UNIT – IV

Introduction to general Insurance – Fire, Marine and Motor Insurance.

UNIT – V

Government and Insurance Companies – LIC India – Private Players in Insurance.

Recommended Texts:

1. Dr. N. Premavathy, Elements of Insurance, Sri Vishnu Publications
2. Dr. A. Murthy, Elements of Insurance, Margam Publications, Chennai.
3. M.N. Mishra Insurance, Principals & Practice, S. Chavels Co.Ltd

Course Outcomes

CO1	Demonstrate comprehensive knowledge and understanding of Basic elements of Types, Principles in Insurance.
CO2	Analyze, interpret and evaluate Administration and salient features of IRDA and its regulatory functions.
CO3	To critically evaluate and analyse Life Insurance and its various Products, Term, Whole life, Endowment. And understand its long term benefits to individuals in the economy.
CO4	To understand the benefits, and impact of General Insurance, Fire, Marine, and Motor insurance, on reducing risk and providing cover.
CO5	To evaluate government insurance companies,,LIC, and Private Players, in Insurance industry.

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	3	3	2	3	3	3	3
CO2	3	3	3	3	3	3	3
CO3	3	3	1	3	3	3	3
CO4	3	3	2	3	2	3	3
CO5	3	2	3	3	3	3	3

Correlation levels: 1- Weak 2-Medium 3-High

MARKETING

SUBJECT CODE-01207

Total hours- 90 hrs

Credits- 5

Course Description-The student would be able to understand and comprehend the marketing eco system.

UNIT – I

Nature, scope and significance of marketing – Basic concepts of marketing – Different types of markets – consumer and market, consumer co-operatives and consumer councils, modern marketing – Marketing environment.

UNIT – II

Product – New product – Product planning and development, product life cycle – marketing of manufactured goods - consumer goods - industrial goods – classification – characteristics and channels of distribution.

UNIT – III

Price- pricing objectives and price determination – Basic methods of setting prices – pricing strategies and policies - pricing strategy of new products.

UNIT – IV

Marketing structure – wholesale and retail – basic whole sale distribution structure - function and services of wholesale – Retail distribution – Basic retail structure - large, Medium and small scale retail institutions – super markets, departmental and chain store.

UNIT – V

Promotional programme - advertising and sales promotion efforts – social economic effects of advertising personal selling – salesmanship – Nature and function of salesman – Recruitment – sales organization and selling methods.

Recommended Texts:

1. Kotlar, Philip, Marketing Management, Prentice Hall, New Delhi.
2. Stanton, Etzel, Walker, Fundamentals of Marketing, Tata-McGraw Hill, New Delhi.
3. Marketing - J.Jaishanker.
4. Rajan and Ranjan Marketing
5. Marketing Management by C.P. Gupta

Reference Books:

1. Saxena, Rajan, Marketing Management, Tata-McGraw Hill, New Delhi.
2. McCarthy, E.J., Basic Marketing: A managerial approach, Irwin, New York.
3. Kootz, O'Donnell , Weighrich : Essentials of Management.
4. Marketing Management by Dr. A. Murthy

Course Outcomes

CO1	To explain the marketing concepts
CO2	To outline the stages involved in a product life cycle.
CO3	To illustrate the objectives of pricing, classify and analyse the pricing strategies.
CO4	To summarise the marketing structure and its functions
CO5	To explain the promotional programmes and examine its effects.

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	3	2	3	2	2	3	3
CO2	3	2	3	2	2	3	3
CO3	3	3	3	3	3	3	3
CO4	3	2	3	2	2	3	3
CO5	3	3	3	2	2	3	3

Correlation levels: 1- Weak 2-Medium 3-High

ENTREPRENEURIAL DEVELOPMENT

SUBJECT CODE- 01103

Total hours- 90 hrs

Credits - 5

Course Description-The student would be able to understand who is an entrepreneur, what are his/her functions, what is the kind of support he/she gets from government and non government agencies if he/she becomes one. At the end of the course, the student would be able to conceive a business idea, write a project proposal and get fully equipped to become an entrepreneur.

UNIT – 1

Entrepreneurship - Meaning - Role and importance of entrepreneurship – Characteristics of entrepreneurs – Relationship between entrepreneur, entrepreneurial and entrepreneurship - Functions of entrepreneurs – Types of entrepreneurs.

UNIT – II

Evolution of Indian entrepreneurship - Role of entrepreneurship in economic development in India .

UNIT - III

Policies and programmes of government and non-government organizations in entrepreneur development.

UNIT –IV

Small scale Enterprises – Small scale industries and Indian economic development - Small scale industries and entrepreneurial development - Concessions – Incentives and subsidies to small industries - SIDBI.

UNIT – V

Project appraisal – Classification of projects – Formation of business idea – Contents of project report.

Recommended Books:

1. Srinivasan N.P. & C.B. Gupta Entrepreneurial Development.
2. Dr. V. Radha Entrepreneurial Development.
3. Jayashree Suresh - Entrepreneurial Development.
4. Prassanna Chandra - Entrepreneurial Development
5. Bhattacharya H – Entrepreneurial Development

Reference Books:

1. Vasanth Desai Problems & Prospects of small industries in India.
2. Khan - Management of small scale industries.
3. Dr. N. Premavathy - Entrepreneurial Development
4. J.M. Parkin - How to Finance small Business Enterprises.

Course Outcomes

CO1	To explain the meaning, functions of entrepreneurs and classify their types..
CO2	To demonstrate the evolution of entrepreneurs and explain their role in economic development..
CO3	To evaluate the policies and programmes of government and non-government organizations in entrepreneurial development.
CO4	To examine the role, of small scale enterprises in economic development in the light of incentives given by the government.
CO5	To be able to conceive a business idea and prepare a project report.

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	3	2	3	2	2	3	3
CO2	3	2	3	2	2	3	3
CO3	3	3	3	2	3	3	3
CO4	3	3	3	2	3	3	3
CO5	3	3	3	1	2	3	3

Correlation levels: 1- Weak 2-Medium 3-High

ENTREPRENEURIAL DEVELOPMENT

COURSE DESCRIPTION- Students create and can apply logically in an entrepreneurial approach of thoughts to categorize and generate trade opportunity.

UNIT – 1

Entrepreneurship - Meaning - Role and importance of entrepreneurship – Characteristics of entrepreneurs – Relationship between entrepreneur, entrepreneurial and entrepreneurship - Functions of entrepreneurs – Types of entrepreneurs.

UNIT – II

Evolution of Indian entrepreneurship - Role of entrepreneurship in economic development in India

UNIT - III

Policies and programmes of government and non-government organizations in entrepreneur development.

UNIT –IV

Small scale Enterprises – Small scale industries and Indian economic development - Small scale industries and entrepreneurial development - Concessions – Incentives and subsidies to small industries - SIDBI.

UNIT – V

Project appraisal – Classification of projects – Formation of business idea – Contents of project report.

Recommended Books:

1. Srinivasan N.P. & C.B. Gupta Entrepreneurial Development.
2. Dr. V. Radha Entrepreneurial Development.
3. Jayashree Suresh - Entrepreneurial Development.
4. Prassanna Chandra - Entrepreneurial Development
5. Bhattacharya H – Entrepreneurial Development

Reference Books:

1. Vasanth Desai Problems & Prospects of small industries in India.
2. Khan - Management of small scale industries.
3. Dr. N. Premavathy - Entrepreneurial Development
4. J.M. Parkin - How to Finance small Business Enterprises.

COURSE OUTCOMES:

CO1	To understand the importance of the entrepreneur in modern competitive world.
CO2	To analyze /find out the current aspects of polices andprogrammes of Government and Non-Government orgsansations to pick up the pace to construct a superior business plans to accomplish successful pathway.
CO3	Collect and examine information to assess the attractiveness of latest trade opportunities in regards to the marketplace and the industry.
CO4	He / She will design a Good Business Plan.

Mapping of CO v/s PO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	2	2	2	2	2	2	2	2	2	2	2
CO2	2	2	2	2	2	2	2	2	2	2	2
CO3	2	2	2	2	2	2	2	2	2	2	2
CO4	2	2	2	2	2	2	2	2	2	2	2

Correlation levels: 1- Weak 2-Medium 3-High

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	2	3	3
CO2	3	2	3	3	2
CO3	3	2	3	2	3
CO4	2	2	3	2	2

Correlation levels: 1- Weak 2-Medium 3-High

HUMAN RESOURCE MANAGEMENT

Course Description- HRM analyses and evaluates human workforce as a resource with respect to public and private sector

UNIT - I:

Human Resource Management: The philosophy of Management Concepts – Objectives – Functions – Evolution of Management – Development Theory and Management.

UNIT – II :

Job Analysis Design and Evaluation: Concepts – Methods of Job Analysis – Job Description – Specialization – Job Design – Job Enlargement – Job Enrichment – Job Evaluation.

UNIT – III :

Recruitment and Selection: Concepts – Sources of Recruitment – Methods of Recruitment – Selection: Concepts – Selection Process – Selection Tools – Application Blank – Training and Development: Concepts – Ascertaining Training Methods – Methods of Training and Development – Transfers – Types of Transfers

UNIT - IV :

Promotion and Career Planning: Concepts – Criteria for Promotion – Demotion – Career Planning: Concepts – Stages in Career Planning – Specific Problems and solutions thereof.

UNIT - V :

Motivation: Concepts - Theories of Motivation - Motivation Techniques.

BIBLIOGRAPHY -Recommended Text

1. Gray. S. Becker: Human Capital
2. NCAER: South India: Human Development Report

Books for Reference

1. C.B. Gupta (2013): Essentials of Human Resource Management, Sultan Chand, 13th Edition.
2. P.C.Tripathi: Human Resource Development, Sultan Chand and Sons Educational Publishers, New Delhi.
3. Dr.A.Moorthy (2008): Human Resource Management, Margham Publications, 1st Edition.
4. P.L.Rao (2004): Comprehensive Human Resource Management, Excel Books, 1st Edition
5. C.B. Gupta (2010): Personnel Management, Sultan Chand, 1st Edition.
6. Snell/Bohlander (2007): Human Resource Management, Cengage Learning India (P) Ltd.
7. Dr.J.Jayasankar (2008): Human Resource Management, Margham Publications, 1st Edition.

ECONOMICS OF TOURISM

Course Description: **Tourism** brings with it tremendous **economic value for a country**. It touches and impacts several industries directly and many more indirectly through tourism spend. Tourism is one of the important sources of employment generation and foreign exchange earnings for a country.

UNIT - I

INTRODUCTION: History of Tourism - The Introduction of Annual Holidays - Paid Holidays and Mass Tourism - Basic Travel Motivators - Factors influencing Growth of Tourism
- Different Types of Tourism.

UNIT - II

ECONOMIC SIGNIFICANCE OF TOURISM: Tourism and Foreign Exchange Earnings - Tourism and Employment - Tourism and Labour - Capital Ratio - Tourism and Regional Development - Tourism and National Income - Tourism and Tax Revenues.

UNIT - III

TOURISM PROMOTION: Origin of Advertising - Selection of Advertising Agency - Public Relation Techniques - Tourism Publicity - Modern Information Techniques in Tourism.

UNIT - IV

SUSTAINABLE TOURISM: Sustainable Tourism Development - Indicator of Sustainability - The concept of rural Tourism - Rural Tourism and Sustainability - Medical Tourism - Local Participation and Tourism Development.

UNIT - V

TOURISM AND THE STATE: Tourism Promotion and the Role of State - MANILA Declaration on Domestic Tourism - World Tourism Organization (WTO) - India Tourism Development Corporation (ITDC) - Tamil Nadu Tourism Development Corporation (TTDC) - ITDC and TTDC role in promoting tourism.

Books for Reference

1. A.K. Bhatia : Tourism Development - Principles & Practices
2. A.K. Bhatia : International Tourism
3. Pushpinder S. Gill: Dynamics of Tourism
4. Bezbaruah, M.P : Frontiers of New Tourism
5. Ghosh, B : Tourism and Travel Management
6. Malhotra : Growth and Development of Tourism

Course Outcomes

CO1	To understand the history of tourism and factors influencing the growth of tourism
CO2	To explain the economic significance of tourism
CO3	To identify the modern information techniques used in tourism
CO4	To analyze the local participation in tourism development
CO5	To understand the role of WTO,ITDC,TTDC in promoting tourism

Mapping of CO v/s PO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	2	3	3	1	3	2	3	3	3
CO2	3	3	3	1	2	1	3	1	3	2	3
CO3	2	2	3	3	2	2	3	1	2	3	2
CO4	3	3	2	2	1	3	3	1	3	3	3
CO5	3	3	3	2	2	3	3	3	3	2	1

Correlation levels: 1- Weak 2-Medium 3-High

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	2	3
CO2	2	3	2	3	2
CO3	3	1	3	2	2
CO4	2	3	3	3	2
CO5	3	2	2	2	3

Correlation levels: 1- Weak 2-Medium 3-High



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Allied Paper –II -BUSINESS COMMUNICATION [Local level]

Course Code : 2106207	Credits : 5
L:P:T:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Explain the Role and Importance of Business Communication to ensure the smooth flow of precise information through the Corporate/Entrepreneurial hierarchy.
CO2	Identify and apply the features of various types of Business Letters in the context of Corporate/Entrepreneurial perspectives.
CO3	Outline and understand the techniques and nuances of Modern Methods of Business Communication.
CO4	Design and develop a procedural system of Corporate Correspondence with Government, Directors, Shareholders, Financial Institutions and Vendors.
CO5	Preparation/ Drafting of various Statutory/Non-Statutory Reports and use of updated technological methods of Reporting.
CO6	Develop a clear understanding of the crucial role of Business Communication in Decision Making and success of the business enterprise.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	3	-	3	2	2	3	1
CO2	1	-	2	2	3	1	1
CO3	2	-	2	1	1	2	3
CO4	1	-	2	1	1	2	1
CO5	3	-	3	1	1	3	1
CO6	2	-	1	2	1	1	-

S.No.	CONTENTS OF MODULE	Hrs	Cos
1	UNIT – I Business communication – meaning – importance – types – directions – network – process – barriers to effective communication – importance of interpersonal skills, listing skills and emotional intelligence in workplace Layout of business letter – structure of business letter – Date, Salutation, Subject, Body, complementary close, enclosures- Essentials of good business letter	18	1
2	UNIT – II	18	2

Signature of the HOD

Signature of the Principal



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	Trade enquiries and replies - quotations - Orders - Complaints and Settlement Trade references and status enquiries – collection Letters - Circular letters, Application for appointments and resume.		
3	UNIT – III Internal Correspondence – circular, notices, note preparation, announcements, memo, press release Communication before and after meeting – notice and agenda, minutes – Do’s and Dont’s while drafting minutes	18	3
4	UNIT – IV Corporate Correspondence - Correspondence with Directors - Shareholders – Government agencies and others	18	4
5	UNIT – V Reports - kinds - Annual report - Report by individuals and committees - Report on meeting – Role of technology in Business Correspondence – E-mail- writing effective emails, tips and conventions of mail, Social media communication – ethics and limitations.	18	5,6

TEXT BOOKS:

1. Pal, Rajendra., & Korlahalli, J. S. (2016) Essentials of Business Communication. Sultan Chand & Sons, New Delhi, India. (ISBN: 978-81-8054-729-4)
2. Raghunathan, N. S., & Santhanam, B. (2019) Business Communication, Margham Publications, Chennai, Tamil Nadu, India.
3. Raman, Meenakshi., & Singh, Prakash. (2019) Business Communication. 2nd Ed. Oxford University Press, US. (ISBN: 978-01-9807-705-3)
4. Kalia, Shalini., & Agarwal, Shailja. (2019) Business Communication - A Practice Oriented Approach. Wiley Education, New Delhi, India. (ISBN: 978-81-2655-479-9)

REFERENCE BOOKS:

1. Chaturvedi, P. D. & Chaturvedi, Mukesh. (2020) The Art and Science of Business Communication: Skills, Concepts, Cases and Applications. Pearson Education, New Delhi, India. (ISBN: 978-93-3258-738-0)

Note: Latest edition of the books to be referred

Signature of the HOD

Signature of the Principal

Course Title: Operations Research

Course	B Sc (Maths) MPC & MAN
Exam Hours	03

Credits	05
CIA Marks	50
ESE Marks	50

Course objectives

- **To formulate and analyzing the Linear Programming Problem from the real-world problems.**
- **Develop mathematical skills to analyze and solve network models arising from a wide range of applications.**
- **The student get knowledge about the scope and application of operations research in business and industry.**

Course outcomes: At the end of the course, students will be able to

CO1	Able to formulate linear programming problems and solve using Graphical, Simplex method.
CO2	Able to analyze and solve Transportation using appropriate method.
CO3	Able to analyze and solve Assignment problems and Game theory.
CO4	Able to design and solve Networks Models using CPM, PERT.
CO5	Estimate optimum solution for sequencing problems.

CONTENTS OF MODULE

Unit -1: Linear programming – Formulation – Graphical solution – Simplex method – Simple applications. Big-M method.

Unit -2: Linear programming - Principle of Duality – Primal – Dual relation -Dual simplex method – Simple applications. **Transportation Problem:** Finding initial solution by North West Corner Rule – Vogel’s Approximation method and Matrix minimum method – Procedure for finding optimal solution – Both minimisation and maximisation cases – Unbalanced and degenerate transportation problems.

Unit -3: Assignment Problem: Formulation – Minimisation cases – procedure for getting optimum solution – Unbalanced problem – Maximisation problem – Problems with restrictions. **Game Theory:** Two Person Zero-Sum game with saddle point – without saddle point –dominance rule – Solving 2 x n or m x 2 game by graphical method.

Unit -4: Networks: Rules for network construction – Critical Path Method - Time calculation sin PERT – PERT algorithm (Crashing excluded) – Related problems.

Unit -5: Sequencing Problem – n jobs through 2 machines – n jobs through 3 machines – n jobs through m machines. Graphical method.

Recommended Text :

P.K. Gupta and D. S. Hira, Operations Research, S. Chand & Co.

Reference Books:

1. *KanthiSwaroop, P.K. Gupta, Manmohan*, Operations Research –Sultan Chand & sons.
2. *H.A. Taha*, Operations Research Prentice Hall of India, New Delhi
3. *Sundaresan, Ganapathy Subramanian, Ganesan.*, Resource Management Technique – Meenakshi Agency.

Mapping of Course Outcomes to Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	3	2	1	2	3	2	2	2	3
CO2	2	3	2	1	2	3	3	3	3	2
CO3	3	3	1	2	1	3	2	3	2	3
CO4	3	3	3	3	2	3	3	3	3	3
CO5	3	2	3	2	3	3	2	3	3	2

3 – High

2 – Medium

1 - Low

FIRST SEMESTER

Course Title: **NUTRITIONAL BIOCHEMISTRY (CORE PAPER –I)**

	Credits : 04
L:T:P:S : 3:0:1:0	CIA : 50 Marks
Exam : 03 Hours	ESE : 100 Marks

Course Outcomes: At the end of the Course, the Student will be able to:

CO NUMBER	CO Statement
CO1	Cognizance of basic food groups viz. Carbohydrates, proteins and lipids and their nutritional aspects as well as calorific value
CO2	Identify and explain nutrients in foods and the specific functions in maintaining health.
CO3	Exposure to the nature and biomedical significance of vitamins and minerals present in food
CO4	Analyzing the biological importance of major and minor trace elements (Minerals) in the food
CO5	Understanding the correlation between importance of nutrients and life style disorders viz. diabetes mellitus, renal failure and cardiovascular diseases Apply knowledge of the role of nutrition and healthy diet for disease prevention.

Mapping of Course Outcomes to Program Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	3	3	1	3	3	3	3
CO2	3	3	1	3	3	3	3
CO3	3	3	2	2	3	3	3
CO4	3	3	2	2	3	3	3
CO5	3	3	1	3	3	3	3

Correlations : 3 Strong 2 Medium 1 Low

S.No	Content of Module	Hrs	Cos
MO1	Definition of Nutrition. Basic food groups - Energy yielding, Body building and protective foods. Basic concepts of energy expenditure, Unit of energy, BMR- Factors affecting BMR, Measurements of energy food Stuffs by bomb calorimeter. Calorific value of proteins, carbohydrates and fats, RQ of foods. SDA.	12	CO1
MO2	Nutritional aspects of carbohydrates. Significance of fibre in the diet; Nutritional Aspects of proteins - Dietary sources, RDA, Physiological role; significance of essential aminoacids, Protein energy malnutrition in children; Nutritional Aspects of lipids – Dietary sources, RDA, Physiological role; significance of essential fatty acids, MUFAs, and PUFAs.	13	CO2
MO3	Vitamins- Classification. function, RDA dietary source & deficiency diseases of water soluble vitamins Vit B1, B2, B5,B6, B9 and B12 and Fat soluble vitamins – A, D, E& K	17	CO3
MO4	Minerals- Dietary source, RDA, function & deficiency symptoms of Calcium, Phosphorus, Iron, Iodine, Sodium, Chlorine and Potassium- Supplementation of calcium, Iron rich foods	18	CO4
MO5	Diabetes mellitus-Definition. Symptoms and types. Dietary management for Diabetes Mellitus.Renal failure- Definition, Causes and types (acute & chronic). Dietary management for renal failure patients	15	CO5

RECOMMENDED BOOKS

1. Sharma, D. S. (2017). *Nutritional Biochemistry*. CBS Publishers and distributors - ISBN 10: 8123925271 / ISBN 13: 9788123925271
2. Srilakshmi, B. (2019). *Dietetics* - (Multi Colour Edition ed.). New Age International Publishers - ISBN 10: 9386649209 / ISBN 13: 9789386649201
3. B.Srilakshmi, B. (2017). *Food Science* (Multi Colour Edition ed.). New Age International Publishers - ISBN 10: 8122438091 / ISBN 13: 9788122438093

REFERENCE BOOKS

1. Sathyanarayana. (2017). *Biochemistry*. Elsevier - ISBN: 9788131236017
2. Swaminathan. (2005). *Advanced Textbooks of food and Nutrition*. BAPP CO PRESS.
3. Krause's. (2013). *Food, Nutrition, & Diet Therapy* (11th ed.). W.B. Saunders - ISBN-10 : 0721697844, ISBN-13 : 978-0721697840



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PG DEPARTMENT OF BIOTECHNOLOGY

Course Title: Core Practical – I: Cell Biology

Course Code : 1912207	Credits : 03
L: T: P: S : 0:0:3:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

On taking this course the students will be able to apply the techniques involved in cell biology for studying the different types of blood cells and learn cell fractionation

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Enumerate the different types of blood cells using appropriate techniques.
CO2	Analyze the stages of mitotic and meiotic cell divisions.
CO3	Utilize the techniques involved in cell biology for preservation of specimen.
CO4	Explain the working of different types of microscopes.
CO5	Demonstrate the working principle of cell fractionation.

Mapping of Course Outcomes to POs/PSOs:

CO/PO/PS O	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO 1	2	2	1	2	2	3	1	2	2	3	3	1
CO 2	2	2	2	2	2	3	2	2	2	3	2	1
CO 3	3	2	2	2	1	2	1	2	3	2	3	2
CO 4	3	2	2	2	1	3	2	2	3	3	3	1
CO 5	2	2	2	2	1	3	2	2	3	2	2	1



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Arumbakkam, Chennai – 600 106

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	1. Introduction to microscopy 2. Epithelial cell preparation from onion peel and buccal cavity. 3. Measuring size of cells using micrometry. 4. Differential leukocyte Count	15	CO1 CO4
2	5. Enumeration of RBC by haemocytometer 6. Enumeration of WBC by haemocytometer	15	CO1 CO2 CO4
3	7. Enumeration of prokaryotic cell 8. Mitosis preparation from onion root tip	15	CO3 CO4
4	9. Meiosis – from grasshopper testis/ Flower buds 10. Permanent slide preparation- stem section. 11. Cell fractionation (nucleus, mitochondria- Demonstration).	15	CO4 CO5

REFERENCE BOOKS:

1. K.V. Chaitanya, (2013), *Cell and molecular biology: Lab manual*, PHI publishers. ISBN 978-81-203-800-4

Course Code	Course Title	Category	L	T	P	S	Credits
	VERMITECHNOLOGY	Part IV: NME -I	2	0	0	0	2

Year	Semester	CIA	ESE	Exam Hours
First	First	50	50	03

LEARNING OBJECTIVES:

On learning this course Students will be able to develop skills and self employability to prepare the vermicompost in a limited space and demonstrate and describe the various methods of decomposing process. The students will also get the knowledge on vermiculture and production of bio-manure and will get self-employment. They will also turn towards organic farming; will help to maintain a pollution free environment.

COURSE OUTCOMES

At the end of the Course, the Student will be able to:

	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)
CO1	Understand the scope of Vermiculture techniques and apply different wastes for vermicompost	K1,K2 &K3
CO2	Discuss the role of local species of earthworm in vermitechology and vermicompost production	K1 & K2
CO3	Design and apply the knowledge for the construction of various vermibeds for compost production and Procedure for vermicompost a bio-manure	K3 & K4
CO4	Evaluate the quality and quantity of vermicompost	K5
CO5	Create and apply methods to reduce the bio-enemies of earthworms during vermicomposting process	K6

K1 - Remember

K-2 - Understand

K3 - Apply

K4 - Analyze

K-5 - Evaluate

K-6 - Create

MAPPING OF COURSE OUTCOMES TO PO/PSO:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	3	3	2	3	3	3	3	3	3	3	3	3	3
CO2	3	2	3	3	3	2	3	3	3	3	3	3	3
CO3	3	3	2	3	3	3	2	3	3	3	2	3	3
CO4	3	3	2	3	3	3	3	3	3	3	2	3	3
CO5	3	3	3	2	3	2	2	2	2	2	3	2	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

S. NO	CONTENTS OF MODULE	Hrs.	COs
1	MODULE – I VERMITECHNOLOGY 1.1. Introduction: Definition and concept of vermiculture. 1.2. Influence of soil organisms in vermiculture- bacteria, earthworms, entomofauna mites etc. 1.3. Litter degradation and decomposition. 1.5. Problems in vermiculture and remedial solutions.	06	CO1
2	MODULE – II 2.1. Types of earthworms: Endemic and exotic species of earthworms. 2.2. Ecological classification of earthworms- epigeic, anecic and endogeic forms. 2.3. Physical, chemical and biological changes caused by earthworms in soil- drilospheres and vermicasts.	06	CO2
3	MODULE – III 3.1 Vermicomposting- Vermicomposting materials, Vermicomposting methods (raised bed method and pot method). 3.2 Establishment of vermiculture unit: materials required and maintenance of vermiculture unit.	06	CO3
4	MODULE – IV 4.1. Vermicompost- harvesting of vermicompost- quality, properties and advantages over chemical fertilizers, packing and marketing- cost benefit analysis.	06	CO4
5	MODULE – V 5.1. Natural enemies of earthworms- pets, parasites and pathogens affecting earthworms. 5.2. Use of earthworms in food and medicine- ayurvedic and unani medicine. 5.3 Recycling of food wastes in vermiculture. 5.4. Application and scope of vermiculture.	06	CO5

TEXT BOOKS:

- Jordan E.L and Verma P.S (2009). *Invertebrate Zoology*, S. Chand & Company, ISBN:9788121903677
- Gupta P.K (2008). *Vermicomposting For Sustainable Agriculture*, Agrobios, ISBN:9788177542349

REFERENCE BOOKS:

- Edwards C.A (2011). *Vermiculture Technology: Earthworms, Organic Wastes, and Environmental Management*, CRC Press, ISBN:978143980987
- Subba Rao N.S (1995). *Soil Microorganisms and Plant Growth*, Science Publishers, ISBN:9781886106185

WEBSITES:

- <https://technology4agri.wordpress.com/2013/02/12/vermiculture-an-introduction/>
- https://vermiculture.com/vermiculture/?doing_wp_cron=1574957760.9421699047088623046875

Course Code	Course Title	Category	L	T	P	S	Credits
	GARDENING	VALUE ADDED COURSE	30	0	0	0	2

LEARNING OBJECTIVES:

After completion of this course, student will be able to gain knowledge and importance of gardening. They will be able to be successful Entrepreneurs.

S. NO	CONTENTS OF MODULE	Hrs.	COs
1	MODULE – I Gardening – Introduction, features, and types 1.1 Scope and introduction to gardening. 1.2 Different kinds of gardens (Indoor and Outdoor). 1.3 Gardening features, and the importance of the garden. 1.4 Tools used in gardening: Axe, crowbar, Hoe, Hosepipe, knives, labels, Lawnmower, Pickaxe, pruning shear, Saw, Secateurs, Sieve, spade and Shovel, Sprinklers/rainbirds, Sickle, Sword, Trowel, Watering can and pots/containers.	6	CO1
2	MODULE – II Different types of Gardens and their importance 2.1 Home garden – suitable plants for home gardening 2.2 Detailed aspects of roof garden, terrace garden, and vertical garden 2.3 Advantages and limitations in establishing different types of gardens 2.4 Importance, features, and maintenance of commercial gardening	6	CO2
3	MODULE – III Different kinds of plants suitable for gardening 3.1 Suitable plants for different kinds of gardens. 3.2 Different shade-loving plants for home gardening. 3.3 Suitable annuals, perennials, and flowering trees for commercial/ornamental gardening. 3.4 A detailed description of potted plants such as outdoor, foliage, flowers, creepers, climbers, etc.	6	CO3
4	MODULE – IV 4.1 Soil and its preparation: Physical texture and composition of the soil, soil types, soil pH, preparation of beds, and preparation of soil mixtures/garden soil. 4.2 Fertilizers, Organic Manures, and Substrates: Fertilizers; Farm Yard Manure (FYM), compost, leaf mold, bone meal, Oilcakes, wood ash, charcoal, peat moss, Sphagnum Moss, shredded bark, sawdust, and wood shavings; Vermiculite and Vermicompost. 4.3 Potting, Repotting, and Transplantation: Types of pots, Plants suitable for pot culture, Potting, Repotting, and Transplantation.	6	CO4

	4.4 Pruning: Introduction, objectives; Types and seasons of pruning, special pruning techniques, differential pruning technique, pruning of flowering and fruit plants		
5	MODULE – V Plant Propagation techniques 5.1 Introduction to plant propagation 5.2 Asexual Propagation / vegetative propagation: Concept, advantages, disadvantages/limitations; propagation by specialized vegetative structures (Bulb, Tubers, root, stem corm, Rhizome, runner, offset, suckers, etc.) 5.3 Types of propagation- Cutting, layering, grafting, and budding.	6	CO5

TEXT BOOKS:

1. Pramila Mehra (2019). *Teach Yourself Gardening*, Hind Pocket Books, ISBN : 9353494516

REFERENCE BOOKS:

1. Kevin Espiritu (2019). *Field Guide To Urban Gardening*, Cool Springs Press, ISBN : 076036396X

WEBSITES:

1. https://agritech.tnau.ac.in/horticulture/horti_Landscaping_vertical%20gardening.html

SIXTH SEMESTER

Course Title: CORE PROJECT P8-MINI PROJECT WORK
(For Students admitted from 2018 onwards)

Course Code	: 18-19XXXX	Credits	: 05
L:T:P:S	: 0:0:5:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

Students will be able to:

- *Implement the solution for the chosen problem using the concepts and the techniques learnt in the curriculum.*
- *Develop software applications*
- *Record the research results for a given problem*
- *Identify, formulate and implement computing solutions.*
- *Design and conduct experiments, analyze and interpret data.*
- *Analyze a system, component or process as per needs and specification.*
- *Work on multidisciplinary tasks and will be aware of the new and emerging disciplines.*
- *Demonstrate skills to use modern tools, software and equipments to analyze problems.*

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	Demonstrate a sound technical knowledge, skills and attitude of their selected project topic.
CO 2	Understand problem identification, formulation and solution.
CO 3	Design solutions to complex problems utilizing a systems approach.
CO 4	Communicate with engineers and the community at large in written and oral forms.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	3	2	3	3	3
CO 2	3	3	3	2	2	3
CO 3	3	3	3	2	3	3
CO 4	2	3	3	3	3	3

3-Strong 2-Medium 1-Low

Procedure:

- The Head of the Department will assign an Internal Guide for each student.

- As soon as the student gets project, the student should submit the contact details of the organization to their guide.
- During regular intervals, student should report about his/her progress of the project work..
- After the submission of the final report, an external examiner will evaluate the project document and conduct the viva voce examination.

*******End of Sixth Semester*******

Course Title : Complex Analysis II

Course	M Sc Maths
Exam Hours	03

Credits	04
CIA Marks	50
ESE Marks	50

Course objectives

- Explain the meaning of basic concepts, theorems and methods within the parts of complex analysis described by the course content
- Use concepts, theorems and methods to solve and present solutions to problems within the parts of complex analysis described by the course content in order to solve applied problems and to communicate with the help of mathematical language, even in other contexts.

Course outcomes: At the end of the course students will be able to

CO1	Explore the properties of normal families of analytical functions.
CO2	Analyze the boundary behaviour and the behaviour at an angle of a polygon of a conformal mapping.
CO3	Investigate the properties of an elliptic function.
CO4	Examine the Weierstrass theory.
CO5	Able to extend the domain over which a complex function is defined.

COs	CONTENTS OF MODULE
CO1	<p>UNIT-I : Riemann Zeta Function and Normal Families :</p> <p>Product development – Extension of $\zeta(s)$ to the whole plane – The zeros of zeta function – Equicontinuity – Normality and compactness – Arzela’s theorem – Families of analytic functions – The Classical Definition</p> <p>Chapter 5 : Sections 4.1 to 4.4, Sections 5.1 to 5.5</p>
CO2	<p>UNIT-II : Riemann mapping Theorem : Statement and Proof – Boundary Behaviour – Use of the Reflection Principle. Conformal mappings of polygons : Behaviour at an angle Schwarz-Christoffel formula – Mapping of a rectangle.</p> <p>Harmonic Functions : Functions with mean value property – Harnack’s principle.</p> <p>Chapter 6 : Sections 1.1 to 1.3 (Omit Section 1.4)</p> <p>Sections 2.1 to 2.3 (Omit section 2.4), Section 3.1 and 3.2</p>
CO3	<p>UNIT-III : Elliptic functions : Simply periodic functions – Doubly periodic functions</p> <p>Chapter 7 : Sections 1.1 to 1.3, Sections 2.1 to 2.4</p>

CO4	<p>UNIT-IV : Weierstrass Theory : The Weierstrass \wp-function – The functions $\zeta(s)$ and $\sigma(s)$ – The differential equation – The modular equation $\lambda(\tau)$ – The Conformal mapping by $\lambda(\tau)$.</p> <p>Chapter 7 : Sections 3.1 to 3.5</p>
CO5	<p>UNIT-V: Analytic Continuation: The Weierstrass Theory – Germs and Sheaves – Sections and Riemann surfaces – Analytic continuation along Arcs – Homotopic curves – The Monodromy Theorem – Branch points.</p> <p>Chapter 8 : Sections 1.1 to 1.7</p>
<p>Recommended Text Book :</p> <p>Lars V. Ahlfors, Complex Analysis, (3rd edition) McGraw Hill Co., New York, 1979</p>	
<p>Reference Books :</p> <ol style="list-style-type: none"> 7. H.A. Priestly, Introduction to Complex Analysis, Clarendon Press, Oxford, 2003. 8. J.B.Conway, Functions of one complex variable Springer International Edition, 2003 9. T.W Gamelin, Complex Analysis, Springer International Edition, 2004. 10. D.Sarason, Notes on complex function Theory, Hindustan Book Agency, 1998 11. Ponnuswamy, Foundations of Complex Analysis, Narosa 12. Karunakaran Complex Analysis, Alpha Science 	
<p>e-Resources:</p> <ol style="list-style-type: none"> 3. http://ebooks.lpude.in/complexanalysis. 4. https://nptel.ac.in. 	

Mapping of Course Outcomes to Program Outcomes and Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6		PSO1	PSO2	PSO3
CO1	3	3	2	-	-	2		3	2	3
CO2	3	3	2	-	-	2		3	2	3
CO3	3	3	2	-	-	2		3	2	3
CO4	3	3	2	-	-	2		3	2	3
CO5	3	3	2	-	-	2		3	2	3

Medium 1 - Low

**3 –
High
2 –**

Course Title: Linear Algebra

Course	M. Sc (Maths)
Exam Hours	03

Credits	04
CIA Marks	50
ESE Marks	50

Course Objectives

Students will acquire knowledge about the Linear Transformations, Invariant spaces, Jordan and Canonical form, Hermitian and normal Operators.

Course Outcomes: At the end of the Course, the Student will be able to

CO1	Recall the definition of vector spaces, Explain Linear transformation by matrices, demonstrate characteristic polynomials, characteristic vectors and minimal polynomials
CO2	Explain Invariant subspaces, Diagonalization of linear operators.
CO3	Explain cyclic subspaces, Jordan Canonical form and discuss its applications.
CO4	Define symmetric and Hermitian forms and Explain Sylvester's theorem.
CO5	Explain hermitian and normal operators and discuss its applications

COs	CONTENTS OF MODULE
CO 1	UNIT-I: Review of Vector spaces - Linear Transformations Representation of Transformations by Matrices - Linear Functionals - Algebra of Polynomials- Determinants - Properties of determinants - Characteristic Polynomials - Characteristic values - Characteristic vectors - minimal Polynomials. Chapter 3: 3.1, 3.2,3.4,3.5 Chapter 4 : 4.1,4.2 Chapter 5: 5.4 Chapter 6: 6.1,6.2,6.3
CO 2	UNIT-II: Invariant subspaces - Direct sum Decompositions - Diagonalization of linear operators - Primary Decomposition Theorem Chapter 6 : 6.4-6.8
CO 3	UNIT-III: Cyclic Vectors - Cyclic subspaces - Cyclic Decomposition Theorem - Generalised Cayley - Hamilton Theorem- Rational form - Jordan Canonical form. Chapter 7: 7.1-7.3
CO 4	UNIT-IV: Bilinear forms - positive - definite, symmetric and Hermitian forms - Sylvester's theorem Chapter 9 : 9.3 Chapter 10: 10.1-10.3

CO 5	UNIT-V: Spectral representation of symmetric, Hermitian and normal operators – Applications Chapter 9: 9.5, 9.6
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Contents and treatment as in
Kenneth Hoffman and Ray Kunze, Linear Algebra. Prentice Hall of India Private Ltd. New Delhi 2005.

Reference Books

1. Michel Artin, Algebra. Prentice Hall of India Private Ltd. New Delhi 1994.
2. S.H. Friedberg, A.J.Insel, L.E. Spence Linear Algebra, 4thEdition, Prentice Hall.

Mapping of Course Outcomes to Program Outcomes & Program Specific Outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6		PSO1	PSO2	PSO3
CO1	3	3	2	1	1	2		3	3	2
CO2	3	3	2	1	1	2		3	2	3
CO3	3	3	1	1	1	2		3	1	2
CO4	3	3	1	1	1	2		2	2	2
CO5	3	2	1	2	1	2		3	2	2

Correlation levels: 1- Weak 2-Medium 3-High

6. B. R. Bhat, Modern Probability Theory (3rd Edition), New Age International (P) Ltd, New Delhi, 1999

Mapping of Course Outcomes to Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6		PSO1	PSO2	PSO3
CO1	3	3	2	1	2	2		3	3	2
CO2	3	2	2	1	2	2		2	2	3
CO3	3	3	2	1	1	1		3	2	2
CO4	3	2	1	2	2	2		2	2	2
CO5	3	2	1	1	2	2		2	3	3

3 –
High
2 –

Medium 1 – Low

Course Title: Wavelets

Course	M.Sc Maths
Exam Hours	03

Credits	4
CIA Marks	50
ESE Marks	50

Course objectives

- Understand basic concept of discrete Fourier transform.
- Understand the fundamental concepts of wavelets on Z_n , Z and R .
- Understand the concepts wavelets and differential equations

Course outcomes: At the end of the course, students will be able to

CO1	Able to Solve problems on discrete Fourier transforms.
CO2	Able to understand the concepts of Wavelets on Z_n
CO3	Able to understand the concepts of Wavelets on Z
CO4	Able to understand the concepts of Wavelets on R
CO5	Demonstrate the concepts of Wavelets and Differential Equations.

CONTENTS OF MODULE
<i>UNIT-I: The Discrete Fourier Transforms</i>
<i>UNIT-II: Wavelets on Z_n</i>
<i>UNIT-III: Wavelets on Z</i>
<i>UNIT-IV: Wavelets on R</i>
<i>UNIT-V: Wavelets and Differential Equations</i>

Recommended Text:

Michael W.Frazier, An Introduction to Wavelets through Linear Algebra, Springer Verlag, Berlin, 1999

CHAPTERS	SECTIONS
Chapter 2	2.1 to 2.3
Chapter 3	Sec. 3.1 to 3.3
Chapter 4	Sec. 4.1 to 4.7
Chapter 5	Sec. 5.1 to 5.5
Chapter 6	Sec. 6.1 to 6.3

Reference Books:

1. C.K.Chui, An Introduction to Wavelets, Academic Press, 1992.
2. E.Hernandez and G.Weiss, A First Course in Wavelets, CRC Press, New York,1996.
3. D.F.Walnut, Introduction to Wavelet Analysis, Birhauser, 2004

Mapping of Course Outcomes to Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6		PSO1	PSO2	PSO3
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CO1	3	3	1	1	1	2		3	3	3
CO2	3	3	2	1	1	2		3	2	2
CO3	3	2	1	2	1	1		2	2	3
CO4	3	2	2	1	1	2		2	3	2
CO5	3	3	1	2	1	2		3	2	3

3 –
High
2 –

Medium 1 - Low

Course Title: DATA STRUCTURES AND ALGORITHMS

Course	M. Sc Maths
Exam Hours	03

Credits	04
CIA Marks	50
ESE Marks	50



**DWĀRAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE
(AUTONOMOUS)**

College with Potential for Excellence

Linguistic Minority Institution. Affiliated to University of Madras

Department: MICROBIOLOGY		Academic Semester: 2022- 2023 (ODD SEMESTER)	
Semester: III	Section: A	Course Code: 2026320	Course: Principles of Bioprocess Technology and Pharmaceutical Microbiology
Course Instructor: Dr.P.Vidya		Contact Hours /week:	No. of credits: 4
CIA:50		ESE : 50	Exam Hours: 03

Prerequisites if any:

Code No	Course Name	Description	Semester
2026320	Principles of Bioprocess Technology and Pharmaceutical Microbiology		III

Sl No	CONTENTS OF MODULE	Hrs	Cos
1	Introduction to Bioprocesses: Traditional and modern applications of fermentation technology- Interaction between; Microbiology and Biochemistry - Range of fermentation processes - primary and secondary metabolites - components of fermentation process; Microbial growth kinetics, Batch culture, Continuous Culture, Fed – Batch – Types, applications, fermentation kinetics	9	CO1
2	Upstream Processing: Screening methods for industrial microbes - strain selection and improvement- Media requirements& Medium formulation, Rheology of fermentation broth- Sterilization - batch and continuous heat sterilization of liquid media, filter sterilization of liquid media and Air, Bioreactor design and operation, Fermentation monitor and control	9	CO2
3	Downstream processing: Role and importance of downstream processing in biotechnological processes. Economics and downstream processing in Biotechnology, Primary Separation and Recovery Processes-- Cell disintegration- Extraction-Purificatio- Drying and crystallization	9	CO3

4	Overview of Pharmaceutical microbiology: Ecology of microorganisms: Atmosphere, water, skin, respiratory flora of workers, raw materials, packaging, building equipment and their control measures; Design and layout of sterile manufacturing unit; Contamination and Spoilage of Pharmaceutical products: sterile injectable and non-injectable, ophthalmologic preparation, implants	9	CO4
5	Production of Pharmaceutical products & Quality assurance: Vaccines – Immunodiagnostic - immuno-sera – immunoglobulin - Antibiotics: Penicillin, Griseofulvin, Metronidazole; Enzymes- Streptokinase, Streptodornase; Quality assurance and quality management in pharmaceuticals: In – Process, Final - Product Control and Sterility tests; Regulatory aspects: BIS (IS), ISI, ISO, WHO and US certification.	9	CO5

Content delivery:	Point Presentation, Quiz and Assignments
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Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Recognize the history , rudiments and notions of bioprocess technology and illustrate the industrial method of fermentation for various primary and secondary metabolites
CO2	Execute screening of industrially important microbes, strain improvement,media formulation, sterilization and analyze various parameters to be monitored and controlled during fermentation processes and develop a strategy for fermenter design
CO3	Understand the ethics of major unit operations followed in downstream processing for various economically important products
CO4	Assess the source of contamination and device safe working practices in pharmaceutical industry and to articulate with antimicrobial preservation of pharmaceutical formulations during production and in products
CO5	Formulate antibiotics , therapeutic enzymes and immunological products and apply Standard protocols in pharmaceutical industry - IP, BP, USP and EP

Mapping of Course Outcomes to Program Outcomes and Program Specific Outcome:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	1	2	1	1	3	2	2	3	3
CO2	3	2	2	3	2	2	3	2	1	3	3
CO3	3	2	1	1	1	1	3	1	2	3	3
CO4	3	3	3	2	3	2	3	2	3	3	2
CO5	3	2	2	2	1	1	3	3	2	3	3
CO6	3	2	1	3	2	1	2	2	1	3	3
CO7	3	2	3	2	3	3	2	3	2	2	3

Correlation levels: 1- Weak 2-Medium 3-High

COURSE DELIVERY PLAN - Principles of Bioprocess Technology and Pharmaceutical Microbiology

Lectur e #	Module #	Topics	Instruct ional Hours	Date of Completion	RBTL Level	Faculty Sign	HOD Sign
1.	1	Introduction to bioprocessess	9	26- 07- 2022	K1	<i>Jms.</i>	<i>Jms.</i>
2.		Traditional and modern applications of fermentation technology		28- 07- 2022	K3		
3.		Interaction between; Microbiology and Biochemistry		01- 08- 2022	K4		
4.		Range of fermentation processes - primary and secondary metabolites - components of fermentation process		02- 08- 2022	K5		
5.		Microbial growth kinetics		03- 08- 2022	K2		
6.		Batch culture, Continuous Culture, Fed – Batch		04- 08- 2022	K6		
7.		Applications and fermentation kinetics		08- 08- 2022	K5		
8.	2	Screening methods for industrial microbes	9	10- 08- 2022	K3	<i>Jms.</i>	<i>Jms.</i>
9.		Upstream Processing: Strain selection and improvement		16- 08- 2022	K4		
10.		Media requirements & Medium formulation		18- 08- 2022	K6		
11.		Rheology of fermentation broth		20- 08- 2022	K2		
12.		Sterilization - batch and continuous heat sterilization of liquid media		23- 08- 2022	K1		
13.		Filter sterilization of liquid media and Air		25- 08- 2022	K1		
14.		Bioreactor design and operation		26- 08- 2022	K3		
15.		Fermentation monitor and control		30- 08- 2022	K4		
16.		Downstream processing: Role and importance of		01- 09- 2022	K5		

		downstream processing in biotechnological processes.					
17.	3	Economics and downstream processing in Biotechnology	9	09- 09- 2022	K6	Jmt.	Jmt.
18.		Primary Separation		12- 09- 2022	K1		
19.		Recovery Processes		13- 09- 2022	K4		
20.		Cell disintegration		14- 09- 2022	K2		
21.		Extraction- Purification		21- 09- 2022	K5		
22.		Drying and crystallization		26- 09- 2022	K4		
23.		Ecology of microorganisms: Atmosphere, water		28- 09- 2022	K2		
24.		Ecology of microorganisms: skin, respiratory flora of workers		29- 09- 2022	K2		
25.		Ecology of microorganisms: packaging, building equipment and their control measures;		30- 09- 2022	K3		
26.		Design and layout of sterile manufacturing unit		03- 10- 2022	K6		
27.	4	Contamination and Spoilage of Pharmaceutical products	9	06- 10- 2022	K4		
28.		Contamination and Spoilage of Pharmaceutical products: Sterile injectable and non-injectable		10- 10- 2022	K5		
29.		Contamination and Spoilage of Pharmaceutical products: ophthalmologic preparation, implants		12- 10- 2022	K4		
30.		Introduction to Production of Pharmaceutical		14- 10- 2022	K2		

		products & Quality assurance					
31.	5	Production of Pharmaceutical products & Quality assurance: Vaccines – Immunodiagnostic – immuno-sera – immunoglobulin	9	17- 10- 2022	K3	Jmc.	Jmc.
32.		Antibiotics: Penicillin, Griseofulvin, Metronidazol		25- 10- 2022	K5		
33.		Enzymes- Streptokinase, Streptodornase;		07- 11- 2022	K4		
34.		Quality assurance and quality management in pharmaceuticals		08- 11- 2022	K5		
35.		In – Process, Final - Product Control and Sterility tests		08- 11- 2022	K3		
36.		Regulatory aspects: BIS (IS), ISI		09- 11- 2022	K2		
37.		Regulatory aspects: ISO, WHO and US certification.		10- 11- 2022	K2		

TEXT BOOKS:

1. Tim Sandle, Madhu Raju Saghee (2017). *Cleanroom Management in Pharmaceuticals and Healthcare* (2nd Edition) Euromed Communications; ISBN: 978-0957349193.
2. Madhu Raju Saghee, Tim Sandle, Edward C. Tidswell (2011). *Microbiology and Sterility Assurance in Pharmaceuticals and Medical Devices* (2017 ed) United kingdom, Business Horizons, ISBN: 978-8190646741
3. P. F. Stanbury, Peter F. Stanbury, Allan Whitaker, Stephen J (2010) Hall Principles of Fermentation Technology (3rd ed). Butterworth-Heinemann. ISBN:0750645016

REFERENCE BOOKS:

1. Michael E. Aulton, Kevin M. G. Taylor. (2017). *Aulton's Pharmaceutics: The Design and Manufacture of Medicines* (5th ed) Elsevier, ISBN: 978-0702070051
2. Bjorn K. Lydersn , Nancy A. D'Elia, Kim L. Nelson (2011) *Bioprocess Engineering* (5th ed). Wiley - Interscience; ISBN: 0471035440.

Jmc.

Course Instructor

H. H. H.

Dept. IQAC Coordinator

Jmc.

HOD

THIRD SEMESTER

Course Title: CORE THEORY T10-DOT NET PROGRAMMING (For Students admitted from 2020 onwards)

Course Code	: XX29319 XX29213(A) (XX-Year of admission)	Credits	: 04
L:T:P:S	: 3:1:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- To understand .NET Platform and its core functionalities.
- To develop windows and web applications with Microsoft SQL and Visual Studio.
- To understand and develop user defined Applications using MVC framework.
- To strengthen Object Oriented Programming using advance VB.NET concepts

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Explore Microsoft .NET Integrated Development Environment (IDE)
CO2	Understand the basic concepts of VB.NET framework.
CO3	Developing programs using VB .NET.
CO4	Illustrate and implement the concepts of Class and objects, Inheritance, Overloading, Exceptions and File Handling in VB.NET
CO5	Building ASP.NET Programming through Web Server Controls, Validation Controls and DataList Web Server Controls.
CO6	Apply ADO.NET and OLEDB concepts for establishing connectivity among applications with reduced code complexity and develop network applications

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	3	3	2	3
CO2	3	3	1	2
CO3	3	3	1	2
CO4	3	2	1	3
CO5	3	2	2	2
CO6	3	3	3	2

3-Strong 2-Medium 1-Low

SI No.	Contents of Module	Hrs	COs
1	Introducing Microsoft .NET:- Microsoft .NET platform: .NET Enterprise Servers, .NET framework and .NET Building block Services - .NET Namespaces. Common Type System(CTS), Common Language Specification(CLS) and CLR Execution (Class loader, verifier, JIT compilers).	12	CO1
2	VB.Net Basics: VB Dot Net Framework Basics - Visual Studio Environment – Data Types , Variables, constants ,Operators and Expressions – Decisions and Conditions - Loops - Sub Procedures and Functions – Built-in functions - Arrays - Structures- Enumerators – Delegates and Events.	12	CO2,CO3
3	VB.Net Advanced: Windows Forms and Basic Controls - Timer control - Graphics and Animation: The Graphics Environment – Simple Animation – Scroll Bar Controls - Menus and Status Bars- Multi Form applications - Class and Objects - Inheritance - Exception Handling.	12	CO3,CO4

4	ASP.NET Basics: ASP.NET Language Structure - Page Structure - Page event, Properties & Compiler Directives. Basic Web Server Controls: TextBox, Label, Button, CheckBox, RadioButton and LinkButton. Validation Controls: RequiredValidator, CompareValidator and RegularExpressionValidator. DataListWebserver Controls: ListBox, CheckedList, RadioButtonList, DropDownList and Data Grid control.	12	CO5
5	Working with Data: Benefits of ADO.NET, ADO.NET Architecture, Main classes in ADO.NET, Developing a Windows/Web application using database. OLEDB Connection class, Command class, Transaction class, DataAdaptor class, DataSet class. ASP.NET Advanced: MVC Pattern, Life Cycle, Controllers, Actions, Views, Data Model. Model Binding, using Databases. Request and Response Objects, Cookies.	12	CO6

Text Books:

1. Jeff Prosize, Programming Microsoft .NET - Microsoft Press, 1st Edition, 2009.
2. Visual Basic.Net Black Book by Steven Holzner Dreamtech Press
3. The Complete Reference Visual Basic .NET Jeffery R. Shapiro Tata McGraw Hills
4. Thuan Thai, .NET Framework, O'Reilly publications, 3rd edition, 2009

Reference Books:

1. David S Platt, Introducing Microsoft .NET ,Microsoft press, 3rd Edition, 2003
2. Murach's Beginning Visual basic .Net By Anne Bohem
3. Freeman, Adam, Pro ASP.NET MVC, aprèss, 2013
4. Paul Yao, David Durant, Programming .NET Compact Framework 3.5, PearsonEducation, 2nd Edition, 2010.

E-References:

1. http://www.nptelvideos.com/visualbasic_net/visualbasicnet_video_tutorials.php
2. <http://www.nptelvideos.com/video.php?id=1775&c=21>
3. <https://freevideolectures.com/course/3002/dot-net-tutorial/1>
4. http://www.philadelphia.edu.jo/academics/qhamarsheh/uploads/Lecture_14_Introduction_to_ASP.pdf
5. <http://sigc.edu/department/computerscience/studymet/AdvancedASP.NET.pdf>

SECOND SEMESTER

Course Title: CORE THEORY T6-MOBILE APPLICATION DEVELOPMENT (For Students admitted from 2020 onwards)

Course Code	: XX29210 (XX-Year of admission)	Credits	: 04
L:T:P:S	: 3:1:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- To introduce Android platform and its architecture.
- To learn activity creation and Android UI designing.
- To be familiarized with Intent, Broadcast receivers and Internet services.
- To work with SQLite Database and content providers.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define Android applications, download and install Android Studio, work in development environment and to execute the First Android Application.
CO2	Illustrate the use of activities, fragments and intents in Android to invoke Built-in Applications and use of notification in Android.
CO3	Design and implement the user interfaces using basic widgets, views, view groups and layouts of Android.
CO4	Work with user interface to handle pictures and menus and explain data storage options using the internal and external storage using Shared Preferences, files, SQLite database and Content Providers.
CO5	Illustrate the formation of SMS and E-mail in the mobile phones and demonstrate the Location Based Services (LBS) and consumption of Web Services in Android using JSON and Sockets.
CO6	Developing Android Services by establishing communication between a service and an activity and illustrating the steps for publishing Android applications.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	2	3	3	2
CO2	3	2	2	3
CO3	3	3	2	2
CO4	3	3	2	3
CO5	3	3	3	2
CO6	3	3	2	2

3-Strong 2-Medium 1-Low

SI No.	Contents of Module	Hrs	COs
1	Introduction to Android – Features of Android-Architecture of Android-Obtaining the Required Tools- Creating First Android Application - Anatomy of Android Application-Components of Android Application-Lifecycle of Activity. Intents: Creating Intents, Types of Intents, Intents returning result, Intent Filters, Calling Built-In Application Using Intents and Displaying Notifications using PendingIntent. Fragments: Lifecycle of Fragment, Types of Fragments and how to create and use fragments.	12	CO1,CO2
2	Screen Layouts: Linear, Table, Relative, Absolute and Grid. Basic Views: Toast, TextView, EditText, Button, AutoCompleteTextView, CheckBox, ToggleButton,	12	CO3

	ImageButton, RadioButton, SeekBar, ListView, ImageView, DatePicker and TimePicker- Adapting to Display Orientation - Creating the views programmatically.		
3	Menus: OptionsMenu, ContextMenu and PopupMenu. Data Persistence: Saving and Loading using Shared Preferences - Persisting Data to Files - SQLite Database: Create, Insert, Delete, Update and Select queries. Content Provider: Creating and using Content Provider.	12	CO4
4	Sending SMS - Sending E-Mail- Location – Based Services: Displaying Maps - Getting Location Data. Networking: Consuming Web Services Using HTTP - Consuming JSON Services - Sockets Programming.	12	CO5
5	Developing Android Services: Lifecycle of Service, Types of service and Creating own services. Threading: Worker thread and Async thread. Publishing Android Applications: Preparing for Publishing - Deploying APK Files.	12	CO6

Text Book:

1. J.F. DiMarzio, “**Beginning Android Programming with Android Studio**”, 4th Edition, Wiley Publications, 2017.

Reference Books:

1. Wei Meng Lee, “**Beginning Android 4 Application Development**”, Wiley Publications, 2013.
2. Anubhav Pradhan, Anil V Deshpande, ‘Mobile Applications Development’, First Edition.
3. Barry Burd ‘Android Applications Development all in one for Dummies’, First Edition.
4. “Teach Your self Android Application Development in 24 hours” First Edition, SAMS.
5. Rick Boyer, “**Android 9 Development Cookbook**”, 3rd Edition, Packt Publishing, 2018.
6. Reto Meier and Ian Lake, “**Professional Android**”, 4th Edition, Wiley Publishers.

E-References:

1. <http://developer.android.com/>
2. <https://www.tutorialspoint.com/android/index.htm>
3. <https://abhiandroid.com/>

FIRST SEMESTER

Course Title: CORE THEORY T1-PRINCIPLES OF DATABASE MANAGEMENT SYSTEMS (For Students admitted from 2020 onwards)

Course Code	: XX29101 (XX-Year of admission)	Credits	: 04
L:T:P:S	: 3:1:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- To understand the fundamentals of data models and conceptualize and depict a database system using ER diagram
- To make a study of SQL and relational database design.
- To know about data storage techniques and query processing.
- To impart introductory knowledge on NoSQL.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Explain difference between file system and database system, the basic concepts of data models and its classification like ER model, relational model, network model, object oriented model and case study as ER model.
CO2	Discuss the relational database terminologies; analyze types of keys in relational database system. Understand the Relational algebra and improve the performance of database by normalization and hence the types of normal forms.
CO3	Implementation of Relational Database in Oracle SQL, analyzing of DDL, DML and DRL statements, Joins, Group functions and Integrity Constraints with syntax and examples.
CO4	Demonstrate the types of PL/SQL statements with examples and hence discuss the purpose of Cursors, Triggers, Procedures and Functions in PL/SQL with its implementation.
CO5	Apply the database tuning methodologies on Indexes, Database Design, and Queries. Explain the Transaction States and properties of Transactions and acquire the basic knowledge about concurrency techniques over databases.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	3	2	3	3
CO2	3	3	3	3
CO3	3	3	2	2
CO4	3	2	2	2
CO5	3	2	2	2

3-Strong 2-Medium 1-Low

Sl No.	Contents of Module	Hrs	COs
1	Introduction to Databases- Characteristics of the Database -Advantages of using DBMS - Categories of Data Models-Schemas and Instances -Three-Schema Architecture-Data Independence- Conceptual Modeling using ER Model: Entities and Attributes, Entity types and Entity sets, Relationship types, Degree of a Relationship Type, Weak Entity types, Notations for ER diagrams, Naming Conventions, An Example ER diagram.	12	CO1
2	Relational Model Concepts: Domains, Attributes, Tuples, Relations, Types of Keys- Relational Algebra: Unary Operations, Operations from Set Theory, Cartesian product, Division and Rename. Normalization: Purpose of Normalization – Functional Dependencies –First Normal Form, Second	12	CO2

	Normal Form, Third Normal Form-Boyce-Codd Normal Form (BCNF).		
3	Basic SQL: Attribute Data types and Domains in SQL -DDL Commands- DML Commands-Select statement using where, in, between, order by, like, distinct, relational operators and logical operators- Numeric functions-Character functions-Date functions- -SQL Group functions - SQL Set Operators – Commit-Rollback-Integrity Constraints in SQL.	12	CO3
4	Nested Query-Inner Joins-Outer Joins-Format of PL/SQL Block-Decision making statements in PL/SQL-Looping Statements in PL/SQL-Implicit Cursor- Explicit Cursor- Built-in Exceptions -User-Defined Exceptions.	12	CO4
5	Indexing: Types of Indexing - Transaction and System Concepts: Transaction States, The System Log, Commit point of a Transaction, Desirable properties of Transactions- Concurrency Control: Two-phase locking technique.	12	CO5

Text Books:

1. Ramez Elmasri and Shamkant B. Navathe, “**Fundamentals of Database Systems**”, 7th Edition, Pearson Education, 2017. (Units I,II,V)
2. Sharad Maheswari and Ruchin Jain, “**Introduction to SQL and PL/SQL**”, Firewall Media, 2016. (Units III,IV)

Reference Books:

1. Avi Silberschatz, Henry F. Korth and S. Sudarshan. “**Database System Concepts**”, 6th Edition, McGraw Hill.
2. Raghurama Krishnan and Johannes Gehrke, “Data Base Management Systems”, TMH 3rd Edition,2003
3. Majumdr, Bhattacharyya,” Data Base Management Systems”, TMH ,96.

E-References:

1. <https://nptel.ac.in/courses/106/105/106105175/>
2. <https://www.db-book.com/db6/slide-dir/index.html>
3. <https://beginnersbook.com/2015/04/dbms-tutorial/>
<https://www.technolamp.co.in/2011/09/database-management-systems-dbms-imp.html>

SECOND SEMESTER

Course Title: **CORE THEORY ELECTIVE 1-INTRODUCTION TO MULTIMEDIA**
(For Students admitted from 2020 onwards)

Course Code	: XX29213(B) (XX-Year of admission)	Credits	: 04
L:T:P:S	: 4:0:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- This course aims to introduce the fundamental elements of multimedia.
- It will provide an understanding of the fundamental elements in multimedia.
- The emphasis will be on learning the representations, perceptions and applications of multimedia.
- Software skills and hands on work on digital media will also be emphasized.
- On completion of the subject, the students will understand the technologies behind multimedia applications and master the skills for developing multimedia projects.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Describe the types of media and define multimedia system.
CO2	Describe the process of digitizing (quantization) of different analog signals (text, graphics, sound and video).
CO3	Use and apply tools for image processing, video, sound and animation.
CO4	Apply methodology to develop a multimedia system.
CO5	Apply acquired knowledge in the field of multimedia in practice and independently continue to expand knowledge

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	3	3	3	3
CO2	2	3	3	2
CO3	3	2	3	3
CO4	2	2	2	2
CO5	2	2	2	3

3-Strong 2-Medium 1-Low

Sl No.	Contents of Module	Hrs	COs
1	Introduction to Multimedia: What is multimedia, Components of multimedia, Web and Internet multimedia applications, Transition from conventional media to digital media. Computer Fonts and Hypertext. Usage of text in Multimedia, Families and faces of fonts, outline fonts, bitmap fonts International character sets and hypertext, Digital fonts techniques.	12	CO1
2	Audio Fundamentals and Representations : Digitization of sound, frequency and bandwidth, decibel system, data rate, audio file format, Sound synthesis, MIDI, wavetable, Compression and transmission of audio on Internet, Adding sound to your multimedia project, Audio software and hardware.	12	CO2
3	Image Fundamentals and Representations: Colour Science , Colour, Colour Models, Colour palettes, Dithering, 2D Graphics, Image Compression and File Formats :GIF, JPEG, JPEG 2000, PNG, TIFF, EXIF, PS, PDF, Basic Image Processing [Can Use Photoshop], Use of image editing software, White balance correction, Dynamic range correction, Gamma correction, Photo Retouching.	12	CO3

4	Video and Animation: Video Basics , How Video Works, Broadcast Video Standards, Analog video, Digital video, Video Recording and Tape formats, Shooting and Editing Video (Use Adobe Premier for editing), Video Compression and File Formats . Video compression based on motion compensation, MPEG-1, MPEG-2, MPEG-4, MPEG-7, MPEG-21, Animation: Cell Animation, Computer Animation, Morphing.	12	CO4
5	Multimedia Authoring: Multimedia Authoring Basics, Some Authoring Tools, Macromedia Director & Flash .	12	CO5

Text Books:

1. Tay Vaughan, "Multimedia making it work", Tata McGraw-Hill, 2008.
2. Rajneesh Aggarwal & B. B Tiwari, "Multimedia Systems", Excel Publication, New Delhi, 2007.

Reference Books:

1. Li & Drew, "Fundamentals of Multimedia" , Pearson Education, 2009.
2. Fred Halsall , "Multimedia Communications: Applications, Networks, Protocols and Standards", Addison Wesley, 2000
3. Parekh Ranjan, "Principles of Multimedia", Tata McGraw-Hill, 2007
4. Anirban Mukhopadhyay and Arup Chattopadhyay, "Introduction to Computer Graphics and Multimedia", Second Edition, Vikas Publishing House.

E-References:

1. Anatomy of a Sound Board. PC Magazine Online Located at: <http://www.zdnet.com/cshopper/features/9510/feature2/sub3.html>
2. Berinato, S. (1997). Streaming video enters spotlight. PC Week Online. [On-line]. Available: <http://www8.zdnet.com/pcweek/news/0728/28video.html>
3. CyberTech Information Group. (1997). Streaming video. [On-line]. Available: <http://www.web-ads.com/cbertech/vivofree.html>



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அரும்பாக்கம், சென்னை – 600 106.

தமிழ்த்துறை
பாடத்திட்டம் - 2022 - 2023
(2020 - 2021 கல்வியாண்டு முதல்)
OUTCOME BASED EDUCATION

பட்டப்படிப்பு – முதலாம் ஆண்டு – முதற்பருவம் (First Semester)
(செய்யுள், சிறுகதைகள், நாடகம், மொழிப்பயிற்சி, இலக்கிய வரலாறு)

Course Code : 23AT16101 / 2335101	Credits : 03
L:T:P:S : 4:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Outcomes: At the end of the Course, the Student will be able to:

CO1	மகாகவி பாரதியாரின் தமிழ், கண்ணன் என் அரசன்; பாவேந்தர் பாரதிதாசனின் நூலைப்படி; நாமக்கல் கவிஞர் வெ. இராமலிங்கம்பிள்ளையின் புதிய சமுதாயம், தூய்மை சோதி; கவிஞராயிறு தாராபாரதியின் வெறுங்கை என்பது மூடத்தனம் ஆகிய கவிதைகளிலிருந்து தமிழின் ஆழம், அரசனின் ஆளுமைத் திறம், சமுதாயப் பார்வை, தன்னம்பிக்கையின் ஆழம், ஆகியன அறியப்பெற்றன. இவற்றின் மூலம் படித்தல் திறன், கவிதை வாசிப்புத் திறன், கவிதை இயற்றும் திறன் ஆகியன சிறப்பாக வெளிப்பட்டன.
CO2	ஈரோடு தமிழன்பனின் வசப்படுவாயா வள்ளுவ? எனும் கவிதையிலிருந்து வள்ளுவரின் சிறப்பையும் திருக்குறளின் சிறப்பையும் அறிந்து கொள்ளப்பட்டன. கவிக்கோ அப்துல் ரகுமானின் ஐந்தாண்டுக்கு ஒருமுறை, கேள்வி, சித்திர மின்னல்கள், பெயர் ஆகிய கவிதைகளிலிருந்து படிமம், தொன்மம் போன்ற கவிதை உத்திகள் அறிந்து கொள்ளப்பட்டன. கவிப்பேரரசு வைரமுத்துவின் கேள் மனமே கேள், நா.முத்துக்குமாரின் தூர், நாட்டுப்புறப்பாடலான அன்புள்ளம் கொண்ட அம்மாவுக்கு மகள் எழுதும் கடிதம் ஆகிய கவிதைகளிலிருந்து மனித உள்ளத்தின் தன்மையும் பழமையின் சிறப்பும் வறுமையின் திறமும் அறியப்பெற்றன. இவற்றின் மூலம் மரபுக்கவிதையும் வசன கவிதையும் இயற்றும் திறன், நாட்டுப்புறப் பாடல் இயற்றும் திறன் ஆகியன வெளிப்பட்டன.



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CO3	கவிமணி தேசிக விநாயகம் பிள்ளையின் புத்தனும் ஏழைச் சிறுவனும், உமார்கய்யாம் பாடல்கள், த.கோவேந்தனின் சமூகம், ஓடிக்கொண்டிரு, ஆற்றல் ஆகிய மொழிபெயர்ப்புக் கவிதைகள், இரா.தண்டாயுதம் இயற்றிய மலேசிய நாட்டுப்புறப் பாடல்கள், வால்ட்விட்மனின் என்பாடத் துவக்கம், என்னை நானே பாடுகிறேன் ஆகிய கவிதைகளின் வழி அயல்நாட்டுக் கவிஞர்களின் அறிமுகமும் மொழிபெயர்ப்புத் தன்மையும் உயரிய சிந்தனையும் பெறப்பட்டன. பாரதிதாசனின் வீரத்தாய் நாடகம் வழி நாடகம் படித்தல் திறனும் நடிப்புத் திறனும் வெளிப்பட்டன.
CO4	புதுமைப்பித்தனின் பொன்னகரம், அறிஞர் அண்ணாவின் செவ்வாழை, ஜெயகாந்தனின் உண்மை சுடும், அம்பையின் பயணம், சோ.தர்மனின் சோகவனம் ஆகிய சிறுகதைகளிலிருந்து சிறுகதை படித்தல் திறனும் சிறுகதை இயற்றும் திறனும் வெளிப்பட்டன.
CO5	கலைச்சொற்கள், வல்லினம் மிகும் இடங்கள், வல்லினம் மிகா இடங்கள், எழுத்துக்களின் வேறுபாடு, ஒலி வேறுபாடு, பொருள் வேறுபாடு, நேர்காணல் முதலான மொழிப்பயிற்சிகளின் வழி மொழியைப் பிழையின்றி எழுதவும் பேசவும் அறிந்து கொள்ளும் திறன்கள் வெளிப்படுத்தப்பட்டன. பாடம் சார்ந்த தமிழ் இலக்கிய வரலாறுகளின் மூலம் தமிழ் இலக்கியங்களின் வரலாற்றை அறிந்து கொள்ளும் திறன் வெளிப்பட்டது.

பட்டப்படிப்பு – முதலாம் ஆண்டு – இரண்டாம் பருவம்
(செய்யுள், உரைநடை, மொழிப்பயிற்சி, இலக்கிய வரலாறு)

Course Code : 23AT16204 / 2335201	Credits : 03
L:T:P:S : 4:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	மீனாட்சி சுந்தரம்பிள்ளையின் சேக்கிழார் பிள்ளைத்தமிழ், தமிழ்விடு தூது, முக்கூடற் பள்ளு முதலான சிற்றிலக்கியங்கள் படிக்கப்பட்டன. மரபு வடிவிலான யாப்புடன் அமைந்த பாடல்கள் புணைய பயிற்சி பெறப்பட்டது.
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CO2	செயங்கொண்டாரின் கலிங்கத்துப் பரணி, புகழேந்திப் புலவரின் நளவெண்பா ஆகிய இலக்கியங்கள் படிக்கப்பட்டன. இதன்மூலம் பண்டைய வரலாறுகளும் வரலாற்று மூலங்களும் படிக்க ஊக்குவிக்கப்பட்டது. புராணங்களில் காணப் பெறும் மனித வாழ்வின் விழுமியங்களையும் வாழ்வியல் முறைகளையும் உணரச் செய்யப்பட்டு வாழ்க்கையைச் செம்மையாக வாழ ஆலோசனை பெறப்பட்டது.
CO3	உமறுப்புலவரின் சீறாப்புராணம், கவியரசு கண்ணதாசனின் இயேசுகாவியம் ஆகியவற்றின் மூலம் இஸ்லாமிய கிறித்துவ சமயங்களின் சிந்தனைகளும் இறைத்தூதர்களின் வரலாறுகளும் பெறப்பட்டன.
CO4	இரா.பி.சேதுப்பிள்ளையின் பாரதப்பண்பாடு, சாமி.சிதம்பரனாரின் ஒற்றுமையே உயர்ந்த பண்பு, கலீல் ஜிப்ரானின் அன்பு, ஏ.கே.செட்டியாரின் தென்னாப்பிரிக்காவில், கணினித் தமிழ் ஆகிய கட்டுரைகளின் வழி உரைநடை வாசிப்புத் திறனும் கட்டுரை எழுதும் திறனும் பெறப்பட்டன.
CO5	ஒரு பொருள் குறித்த பல சொற்கள், பல பொருள் குறித்த ஒரு சொல், அகரவரிசைப்படுத்தல், திணை, காலம், பால், இடம், எண் ஆகிய தொடர்பிழை நீக்கம், இலக்கணக் குறிப்பு ஆகிய மொழிப்பயிற்சி வாயிலாக பிழையின்றி எழுதவும் பேசவும் பயிற்சிகள் பெறப்பட்டன. பாடம் சார்ந்த தமிழ் இலக்கிய வரலாறுகளின் மூலம் தமிழ் இலக்கியங்களின் வரலாற்றை அறிந்து கொள்ளும் திறன் பெறப்பட்டது.

பட்டப்படிப்பு – இரண்டாம் ஆண்டு – மூன்றாம் பருவம்
(செய்யுள், மொழிப்பயிற்சி, இலக்கிய வரலாறு)

Course Code : 22AT16307	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	திருஞானசம்பந்தரின் கோளறு பதிகம், மாணிக்கவாசகரின் அறிவுறுத்தல், திருவெம்பாவை, ஆண்டாளின் வாரணமாயிரம் ஆகிய இலக்கியங்களின் வழி பக்திச் சிறப்பை உணரப்பட்டன. பக்தி இலக்கிய வளர்ச்சிக்கு நாயன்மார்களும் ஆழ்வார்களும் ஆற்றிய பணிகளும் அவர்களுடைய வரலாறுகளும் சிந்தனைகளும் அறியப்பட்டன. மரபுக் கவிதைகள் வாசிக்கும் பயிற்சியும் இயற்றும் பயிற்சியும் பெறப்பட்டன.
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CO2	கம்பரின் வாலிவதைப் படலத்தின் வழி இராமாயணக் கதையும் கம்பரின் கவித்துவமும் அறிந்து கொள்ளப்பட்டன. இதிகாசங்கள் வழி பண்டைய வாழ்வியல் உண்மைகள் உணரப்பட்டன. மரபுக் கவிதைகள் வாசிக்கும் பயிற்சியும் இயற்றும் பயிற்சியும் பெறப்பட்டன.
CO3	சித்தர் பாடல்கள் வழி சித்தர்கள் கூறும் மெய்ஞ்ஞானக் கூறுகளையும், உடலியல், உளவியல் கூறுகளையும் அறிந்து கொள்ளப்பட்டன. சேக்கிழாரின் மெய்ப்பொருள் நாயனார் புராணம் வழி மதம், இனம், மொழி கடந்து மாந்தர்கள் உள்ளத்தில்தான் இறைவன் குடி கொண்டிருக்கின்றான் என்ற உண்மை உணரப்பட்டது. இதன் மூலம் மெய்ஞ்ஞானத்திறன் பெறப்பட்டது.
CO4	இராமலிங்க அடிகளின் திருவருட்பா, டி.வி.ராதாகிருட்டிணன் பதிப்பித்த திருக்கோளூர் பெண்பிள்ளை ரகசியம் ஆகிய பாடல்களின் வழி வாழ்வியலில் பொதிந்துள்ள உண்மைக் கூறுகள் உணரப்பட்டன. வாழ்வியல்முறை அறிந்து கொள்ளப்பட்டன.
CO5	விண்ணப்பக் கடிதங்கள், புகார் கடிதங்கள் ஆகிய மொழிப்பயிற்சியின் வழி கடிதம் எழுதும் திறன் பெறப்பட்டது. பாடம் சார்ந்த தமிழ் இலக்கிய வரலாறுகளின் மூலம் தமிழ் இலக்கியங்களின் வரலாற்றை அறிந்து கொள்ளும் திறன் பெறப்பட்டது.

பட்டப்படிப்பு – இரண்டாம் ஆண்டு – நான்காம் பருவம்

(செய்யுள், மொழிப்பயிற்சி, இலக்கிய வரலாறு)

Course Code : 22AT16408	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	நற்றிணை, குறுந்தொகை, கலித்தொகை, புறநானூறு ஆகிய சங்க இலக்கியங்களின் தேர்ந்தெடுக்கப் பெற்ற பாடல்கள் மூலம் சங்க இலக்கியக் காலத்திலிருந்து தமிழின் மேன்மையும் சிறப்பும் மாந்தர்களின் வாழ்வியலும் உணரப்பட்டது. சங்க இலக்கியம் படிப்பது உறுதி செய்யப்பட்டது. மரபு வடிவிலான யாப்புடன் அமைந்த பாடல்களைப் புணைய பயிற்சி பெறப்பட்டது. இதனால் இலக்கியம் படைக்கும் ஆற்றல் பெறப்பட்டது.
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CO2	சிறுபாணாற்றுப்படையின் வழி மன்னர்கள் மற்றும் புலவர்களின் வாழ்வியல் முறைகள் அறிந்து கொள்ளப்பட்டன. எட்டுத்தொகை, பத்துப்பாட்டு ஆகிய இலக்கியங்களின் வரலாறுகளும் அவற்றில் இடம்பெற்றுள்ள செய்திகளும் அறியப்பட்டன.
CO3	திருத்தக்கதேவர் இயற்றிய சீவகசிந்தாமணியில் காந்தருவ தத்தையார் இலம்பகத்தின் வழி காப்பியத்தின் கதை அறிந்து கொள்ளப்பட்டது. ஐம்பெருங்காப்பியங்களையும் ஐஞ்சிறு காப்பியங்களையும் படிப்பதன்வழி தொன்று தொட்ட தமிழரின் வாழ்வியல் முறைகளைக் கடைபிடிக்க ஏதுவாகிறது.
CO4	இளங்கோவடிகள் இயற்றிய சிலப்பதிகாரத்தில் இடம்பெறும் புகார் காண்டம் பகுதி வழி காப்பியக் கதை அறிந்து கொள்ளப்பட்டது. அக்கால மணமுறை குறித்தும் அறிந்து கொள்ளப்பட்டது. திருக்குறள் அறத்துப்பாலில் உள்ள காலம் அறிதல், இனியவை நாற்பது, நாலடியார், அறநெறிச்சாரம் ஆகிய இலக்கியங்களிலிருந்து அறநெறிக் கருத்துக்கள் அறியப்பட்டன. மனித வாழ்வியலில் அறநெறி சார்ந்து வாழும் முறை அறியப்பட்டன.
CO5	தமிழிலிருந்து ஆங்கிலத்திற்கும் ஆங்கிலத்திலிருந்து தமிழிற்கும் மொழிபெயர்ப்புப் பயிற்சி பெற்றதன் வழி மொழிபெயர்க்கும் ஆற்றல் பெறப்பட்டது. தமிழிலும் ஆங்கிலத்திலும் பிழையின்றி எழுதவும் பேசவும் பயிற்சி பெறப்பட்டது. பாடம் சார்ந்த தமிழ் இலக்கிய வரலாறுகளின் மூலம் தமிழ் இலக்கியங்களின் வரலாற்றை அறிந்து கொள்ளும் திறன் பெறப்பட்டது.

Course Title: ALLIED COURSE V: PRACTICAL II –OUTDOOR TRAINING

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Do physical exercises which keep them healthy.
CO2	Do basic drill movements.
CO3	Play various games which require physical strength.
CO4	Follow commands properly and coordinate with team mates.
CO5	Showcase life saving skills and self defense tactics.

Mapping of Course Outcomes to Program Outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	2	2	3	3	3	2
CO2	3	3	3	2	3	3	3
CO3	2	2	3	3	2	3	3
CO4	3	3	2	2	3	2	3
CO5	3	3	2	3	3	3	2

List of activities student must indulge in

1. Drill- Parade, march past, turnings, salute (All the 5 Semesters)
2. Physical Training (All the 5 Semesters)
 - Running
 - Stretching Exercises
 - Cardio Training
 - Endurance Training
 - Muscle Building Exercises (Pushups, Sit-ups, Chin-ups, etc.)
3. Yoga (4th semester)
4. Self Defense Training (2nd semester)
5. Swimming (1st Semester)
6. Games (4th and 5th Semester)

Internal evaluation

The student need to perform the Parade individually and in the contingent to make sure the effective assessment of Drill movements and synchronization within the contingent.

Breakup of Marks for internal evaluation

- 10 Marks for Performance in Drill Examination.
- 10 Marks for Performance in other activities assessed by the trainers in the relevant Semesters of those particular activities, compiled by the internal examiner
- 10 Marks for attendance for outdoor training
- 05 Marks for confirmation to dress code and turnout
- 05 Marks for discipline

External Evaluation

Students progress in learning drill movements and march past will be assessed both individually and as part of contingent.

Apart from the Parade students performance will also be measured in terms of physical activity tests such as Running 700 meters, push-ups, sit-ups and Chin-ups.

A person with substantial experience in outdoor training and Parade will be invited as the External Examiner. Both internal and external examiner will assess the performance of the student in the evaluation.

Breakup of Marks for External Examination

External 30 Marks (10 Marks for Parade; 10 Marks for Physical Test; & 10 Marks for turnout)

Internal 30 Marks (10 Marks for Parade; 10 Marks for Physical Test; & 10 Marks for turnout)



DEPARTMENT OF SOCIOLOGY

Bachelor in Sociology

(B.A)

Programme Code: 43

Sociology Syllabus (CBCS)

Outcome Based Education Pattern

2020-21

C-Chidambarathan

Dr C Chidambaranathan

Head of the Department

B.A. DEGREE COURSE IN SOCIOLOGY (Choice Based Credit System)

(With Effects From 2020-2021)

First Semester

Subjects	C r e d i t	In str uc ti on ho ur s	E xa m H ou r	Max.Marks		
				Ext.Mark	Int.mark	Tota l
Part-I Language Paper-I	3	4	3	60	40	100
Part-II English Paper-1	3	4	3	60	40	100
Part III Core Subject Paper-I: Principles of Sociology I	5	6	3	60	40	100
Core Subject Paper II : Indian Society	5	6	3	60	40	100
Allied I Paper-1: Social Psychology	4	6	3	60	40	100

Part-IV 1. Basic Tamil 2. Introduction to Sociology	2	2	3	60	40	100
2. Skill based subject (Elective) (Soft Skills)	2	2	3	50	50	100

Second Semester

Subjects	C r e d i t	Inst ruct ion hou rs	Ex am Ho ur	Max.Marks		
				Ext. Mark	Int. mark	Total
Part-I-Language Paper- II	3	4	3	60	40	100
Part-II -English Paper- II	3	4	3	60	40	100
Part III Core Subject Paper-III : Principles of Sociology - II	5	6	3	60	40	100
Core Subject	5	6	3	60	40	100

Paper IV : Social problems in India						
Allied I Paper-2: Social Anthropology	4	6	3	60	40	100
Part-IV 1. Basic Tamil 2. Social Problems	2	2	3	60	40	100
2. Skill based subject (Elective) (Soft Skills)	2	2	3	50	50	100

THIRD SEMESTER

Course components	Subjects	Credit	Inst. hours	Exam hour	Max. Mark		
					Ext. Mark	Int. Mark	Total
Part – I	Language Paper- III	3	6	3	60	40	100
Part – II	English Paper – III	3	6	3	60	40	100
Part –III Core Courses	Paper- V: Classical Social Thinkers I	4	6	3	60	40	100
	Paper - VI : Social Movements in India	4	6	3	60	40	100

Allied Subject – III	Social Demography	4	6	3	60	40	100
Elective - I	Sociology of Sanitation (Or) Sociology of Tourism	3	6	3	60	40	100
Part - IV Soft Skills - III		2		3	50	50	100
3. Environmental Studies					Examination will be held in IV Semester		

FOURTH SEMESTER

Course components	Subjects	Cre dit	Ins t. ho urs	Ex am ho ur	Max. Mark		
					Ext. Mark	Int. Mark	Total
Part – I	Language Paper- IV	3	6	3	60	40	100

Part – II	English Paper – IV	3	6	3	60	40	100
Part –III Core Courses	Paper- VII: Classical Social Thinkers II	5	6	3	60	40	100
	Paper – VIII: Research Methodology and Statistics	5	6	3	60	40	100
Allied Subject – IV	Political Sociology	4	6	3	60	40	100
Part - IV Soft Skills– IV		2		3	50	50	100
3. Environmental Studies		2	6	3	60	40	100

FIFTH SEMESTER

Course components	Subjects	Credit	Inst. Hours	Exam hour	Max. Mark		
					Ext. Mark	Int. Mark	Total
Part – III Core Courses	Paper- IX Rural Sociology	5	6	3	60	40	100
	Paper – X Urban Sociology	4	6	3	60	40	100
	Paper – XI Industrial Sociology	4	6	3	60	40	100
	Paper – XII Sociology of Development	4	6	3	60	40	100
Elective II	Sociology of Industry and work (or) Social Welfare in India	3	6	3	60	40	100
Part – IV	Value Education	2					

SIXTH SEMESTER

Course components	Subjects	Credit	Inst. hours	Exam hour	Max. Mark		
					Ext. Mark	Int. Mark	Total
Part III Core courses	Paper- XIII Medical Sociology	4	6	3	60	40	100
	Paper – XIV Communication, Media and Society	4	6	3	60	40	100
Elective - III	Sociology of Consumer Behaviour (Or) Disaster and Social Crisis (Or)	3	6	3	60	40	100

	Sociology of Gender and Sexuality						
Project Cum Viva Voce		14			60	40	100
Part V	Extension Activities	1					

PRINCIPLES OF SOCIOLOGY I

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Course Code :	Credits : 05
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

To study the basic concepts of sociology

To explain the features of social institutions and process of socialisation

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of sociology and identify its relationship other social sciences. (K1)
CO2	Illustrate the relationship between the individual and society and explain the theories of society. (K2)
CO3	Explain the features of different social institutions and illustrate its types.(K2)
CO4	Classify the different social groups and differentiate its characters. (K4)
CO5	Criticize the theories of socialization and evaluate its agencies. (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	2	2	3	2	3	2	3	3	3	2	3	2
CO4	3	3	3	2	2	3	2	2	2	3	3	3	2	3	2
CO5	3	3	3	3	2	3	3	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	UNIT-1 Introduction 1.1 Origin, Definition, nature and scope of sociology 1.2 Relationship between sociology and other social sciences (Anthropology, Psychology, Economics, History and Political Science) 1.3 Uses of Sociology	18	CO1
2	Unit- II: Individual and Society 2.1 Definition and characteristics of society 2.2 Theories of origin of Society	18	CO2

	2.3 Relationship between individual and society		
3	Unit-III: Social Institutions 3.1 Marriage: Types of Marriage: Polygyny- Polyandry- Monogamy, Functions. 3.2 Family : Theories of Family, Types of Family; Patriarchal and Matriarchal Families- Functions of Family. 3.3 Religion : Elements of Religion – Social Functions of Religion	18	CO3
4	Unit- IV: Groups 4.1 Classification of Group 4.2 Definition, characteristics and functions of primary, secondary and reference groups.	9	CO4
5	Unit- V: Socialization 5.1 Definition and theories of socialization 5.2 Types of socialization 5.3 Agencies of socialization: family- peer group- school- religion- mass media	18	CO5

TEXTBOOKS:

BOOKS FOR STUDY

Applebaum, Richard P. William J. Chambliss. Sociology. Addison - New York

Wesley Educational, 1997.

Rao Shankar C N. Sociology: Primary Principles. New Delhi: S. Chand, 1990.

BOOKS FOR REFERENCE

Caplow, Theodore. Elementary Sociology. New Jersey: Prentice Hall, 1971.

Duncan, O.D., & Mitchell, R., A New Dictionary of Sociology, London: Routledge,

Kegan Paul 1978.

Harlambos, M, Sociology : Themes and Perspectives. New Delhi: Oxford University Press, 1980.

Inkeles, Alex, Foundations of Modern Sociology. New Jersey: Prentice Hall, 1982.

MacIver, R.M. & Page, C. H., Society : An Introductory Analysis. London: Macmillan, 1974.

Ogburn, W.F. & Nimkoff, M. F., Handbook of Sociology. New Delhi: Eurasia, 1966.

Robertson, Ian, Sociology. New York: Worth, 1977.

WEB RESOURCES

<http://ocw.mit.edu/courses/anthropology/21a-219-law-and-society-spring-2003/studymaterials/hobasicconcepts.pdf>

http://www.sagepub.com/upm-data/45619_4.pdf

JOURNALS

<http://www.asanet.org/>

<http://www.britisoc.co.uk/>

<http://www.sociology.org/>

INDIAN SOCIETY

Course Code :	Credits : 05
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES

To study the structural composition of Indian society

To understand the social processes of Indian society

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the cultural and ethnic composition of Indian society.(K1)
CO2	Classify the roots of Hindu social organizations (K2)
CO3	Explain the features of class and caste in india. (K3)
CO4	Point out the characteristic features of marriage and family. (K4)
CO5	Compare the social changes in India. (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	3	3	3	3	2	2	2	3	3	3	3	3	2
CO2	3	3	3	3	3	3	2	2	2	3	3	3	3	3	2
CO3	3	3	2	3	2	3	2	2	3	3	3	3	3	3	2
CO4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	Unit- I: Cultural and ethnic composition of Indian Society 1.1 Linguistic and racial composition 1.2 Religious and ethnic groups 1.3 Tribes of India	18	CO1
2	Unit- II: Roots of Hindu Social Organization 2.1 Varnashrama Dharma 2.2 Doctrine of Karma 2.3 Purusharthas	18	CO2
3	Unit- III: Caste and Class in India	18	CO3

	<p>3.1 Definition and characteristics of caste</p> <p>3.2 Theories of origin of caste</p> <p>3.3 Caste in modern India: changing trends and new identities</p> <p>3.4 Interface of caste and class</p>		
4	<p>Unit-IV: Marriage and Family</p> <p>4.1 Marriage: Hindu, Christian, Islam: Forms and Divorce Practices.</p> <p>4.2 Joint Family: Characteristic features and Functions, Changing Trends in Joint Family System</p>	18	CO4
5	<p>Unit-V: Social Change in India</p> <p>5.1 Islamization,</p> <p>5.2 Westernization,</p> <p>5.3 Sanskritization,</p> <p>5.4 Secularization,</p> <p>5.5 Industrialization</p> <p>5.6 Globalization</p>	18	CO5

BOOKS FOR STUDY

Ahuja, Ram. Society in India: Concepts, Theories and Changing Trends. Jaipur: Rawat, 1999.

Kapadia, K.M., Marriage and Family in India. New Delhi: Oxford University Press, 1966.

BOOKS FOR REFERENCE

Hutton, J. K., *Caste in India: Its Nature, Function, and Origin*. New Delhi: Oxford University Press, 1977.

Prabhu, P.H., *Hindu Social Organization*. Madras: Popular Prakasham, 1970.

Singh, Yogendra, *Modernization of Indian Tradition*. New Delhi: Thompson Press, 1973.

Srinivas, M.N., *Social Change in Modern India*. Madras: Allied Publishers, 1970.

Shah A.M., *The structure of Indian Society: Then and Now*. New Delhi, Routledge, 2010.

Venugopal, *Religion and Indian Society: A Sociological Perspective*. New Delhi, Gyan, 1999.

Rao Shankar, *Sociology of Indian Society*. New Delhi: S Chand, 2006.

Jayabalan N., *Indian Society and Social Institutions*, New Delhi, Atlantic, 2001.

WEB RESOURCES

<http://www.hinduwedding.info/marriage-ceremony.html>

http://dev.epw.in/system/files/pdf/1961_13/25/sanskritization_and_westernizationa_dynami_c_vie_w.pdf

<http://voiceofdharma.org/books/imwat/ch6.htm>

SOCIAL PSYCHOLOGY

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Course Code :	Credits : 04
L:T:P:S : 0:0:6:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

To understand the importance of social psych.ology.

To study the personality, culture , collective behavior etc.,

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Recall the importance and methods of social psychology .(K1)
CO2	Illustrate the types and traits of personality.(K2)
CO3	Explain the functions and characteristics of leadership. K3)
CO4	Explain the types and causes of prejudice and aggression. (K4)
CO5	Compare and criticize the principles and techniques of propaganda. (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	3	2	3	2	3	2	3	3	3	3	3	3
CO2	3	3	2	3	2	3	2	2	2	3	3	3	3	3	3
CO3	3	3	2	3	2	3	2	2	3	3	3	3	3	3	3

SI NO	CONTENTS OF MODULE	Hrs	COS
1	Unit- I: Introduction 1.1 Scope and nature of social psychology 1.2 Methods of social psychology	18	CO1

	1.3 Importance of social psychology		
2	Unit- II: Personality and culture 2.1 Personality types and traits 2.2 Influence of culture on personality	18	CO2
3	Unit: III: Collective Behaviour 3.1 Crowd 3.2 Mobs 3.3 Riots	18	CO3
4	Unit-IV: Leadership 4.1 Characteristics of Leadership 4.2 Types of leader 4.3 Functions of leader	18	CO4
5	Unit- V: Aggression and prejudice 5.1 Types and causes of aggression	18	C05

	5.2 Types and causes of prejudice		
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Text Books:

- Bhatia Hansraj. (1974) Elements of social psychology, somaiya publications, bombay.
 Kimball Young (1963) Handbook of social psychology, routledge and kegan paul, London.
 Lindgren, Henry Clay (1998) Social Psychology, Wiley Eastern Publications, New Delhi-1998.

References

- Adinarayanan, S.P., Social Psychology, Longman, India.
 Aronson. Elliot, Wilson D. Timothy and Akery M. Robert (1997) Social Psychology, Longman Publishers.
 Baron, A. Robert Boon Byrne (1998) Social Psychology, Prentice Hall of India, India.

PRINCIPLES OF SOCIOLOGY-II

Course Code	:		Credits	:	05
L:T:P:S	:	0:0:6:0	CIA Marks	:	40
Exam Hours	:	03	ESE Marks	:	60

LEARNING OBJECTIVES:

To study the fundamental concepts of sociology

To understand the characteristic features of different social elements.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of social processes(K1)
CO2	Illustrate the factors and agencies of social control(K2)
CO3	Explain the forms of social stratification (K3)
CO4	Point out the features and forms of social mobility (K4)
CO5	Criticize the factors of social change (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

SI NO	CONTENTS OF MODULE	Hrs	COS
1	Unit I: Social Processes 1.1 Co-operation 1.2 Competition 1.3 Conflict 1.4 Accommodation 1.5 Assimilation	18	CO1
2	Unit II: Social Control	18	CO2

	<p>2.1 Meaning and Definition of Social Control</p> <p>2.2 Factors and Agencies of Social Control</p>		
3	<p>Unit III: Social Stratification</p> <p>3.1 Caste : Meaning, Definition, and Forms (Brahmin, Kshatriya, Vaishya and Sutras)</p> <p>3.2 Class: Meaning, Definition, and Forms (Upper Class, Middle Class and Lower Class)</p> <p>3.3 Gender: Meaning, Definition, and Social Construction of Gender, Gender Inequality</p>	18	CO3
4	<p>Unit IV: Social Mobility</p> <p>4.1 Meaning, Definition</p> <p>4.2 Features and Forms of Social Mobility</p>	18	CO4
5	<p>Unit V: Social Change</p>	18	CO5

	5.1 Evolution, Progression and Deterioration		
	5.2 Factors of Social Change- Biological, Physical and Cultural.		

BOOKS FOR STUDY

- Applebaum, Richard P., William J., Chambliss. Sociology. Addison - New York: Wesley ,1997.
- Caplow, Theodore. Elementary Sociology. New Jersey: Prentice Hall Inc. 1971.
- Inkeles, Alex. Social Change, Reading in Modern Society. NY : Prentice Hall, 1982.
- International Encyclopaedia of Sociology Vol.. I and II.
- Johnson, Harry, M., Sociology - A Systems Introduction. New Delhi: Allied, 1966.
- MacIver, R.M. & Page, C.H., Society: An Introductory Analysis. London: Macmillan, 1974.
- Thio, Alex. Sociology – A Brief Introduction. New York, Addison-Wesley Education, 1997.
- Tumin, Melvin. Social Stratification – The forms and functions of Inequality. New Jersey: Prentice Hall, 1978.

BOOKS FOR REFERENCE

- Abraham Francis, John Henry Morgan, Sociological Thought. Cambridge, Macmillan, 1985.
- Duncan, O.D & Mitchell, R., A New Dictionary of Sociology. London: Routledge Kegan Paul, 1979.
- Haralambos, M., Sociology - Themes and Perspectives. New Delhi: Oxford University Press. 1980.
- Ogburn, W.F. & Nimkoff, M. F., A Handbook of Sociology. New Delhi: Eurasia, 1966.
- Robertson, Ian. Sociology. New York, Worth, 1977.
- Schaefer Richard, T., Robert P Lamm. Sociology. New Delhi: McGraw Hill Company, 1998.

Rao Shankar, C N., Sociology: Primary Principles. New Delhi, S. Chand, 1990.

WEB RESOURCES

http://faculty.upj.pitt.edu/dsantoro/davis_moore.htm

http://www.sagepub.com/ritzerintro/study/materials/reference/77708_8.1r.pdf

JOURNALS

<http://www.inoso.org/>

<http://www.jsswnet>

SOCIAL PROBLEMS IN INDIA

Course Code : Credits : 05

L:T:P:S : 0:0:6:0 CIA Marks : 40

Exam Hours : 03 ESE Marks : 60

LEARNING OBJECTIVES:

To study about the different kinds of social problems in Indian Society.

To understand the characteristic features of Indian social problems.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Recall the causes and types of social problems(K1)
CO2	Classify the types and causes of Unemployment(K2)
CO3	Solve the problems of women and children(K3)
CO4	Analyse the origin and development of Terrorism in India(K4)
CO5	Evaluate the extent of crime in India (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

SI NO	CONTENTS OF MODULE	Hrs	COS
1	<p>Unit- I: Introduction</p> <p>The Concept of Social Problem- Characteristics of Social Problems- Causes and Types of Social Problems- Social Problems and Social Disorganization.</p>	18	CO1
2	<p>Unit-II: Poverty and Unemployment</p> <p>The Concept- Incidence and Magnitude- Causes of Rural Poverty- Problem of the Poor and the Pains of Poverty- Strategies for Alleviating Poverty.</p> <p>Present Features of Unemployment in India- Types- Causes -Consequences.</p>	18	CO2
3	<p>Unit-III: Problems of women and children</p> <p>Women's Harassment- Nature, Extent and Characteristics of Violence Against Women. Domestic</p>	18	CO3

	<p>violence- female infanticide-dowry.</p> <p>Concept and Types of Child Abuse - Incidence of Child Abuse- Causes of Child Abuse - Problem of Child Labour.</p>		
4	<p>Unit-IV: Terrorism</p> <p>The Concept- Characteristics- Objectives- Origin and Development of Terrorist Movement. Mass Support- Support Base - Terrorism in India</p>	18	CO4
5	<p>Unit-V: Crime and Delinquency</p> <p>5.1 Meaning- Types- Causes 5.2 Extent of Crime in India 5.3 Penology and Rehabilitative measures.</p>	18	CO5

Text Books:

- Bhattacharya, S.K., Social Problems in India, Regency Publications, New Delhi, 1994.
- Ahuja Ram, Crime against Women, Rawat Publications, Jaipur, 1987

References:

- Attachand, Poverty and Underdevelopment, Gian Publishing House, Delhi, 1987.
- Prasad, Population Growth and Child Labour, Kanishka Publishers distributors, New Delhi, 2001.

- Kattakayam and Vadackumchery, Crime and Society, A.P.H, Publishing Corporation, New Delhi, 1999.
- Kohli and Sharma, Poverty Alleviation and Housing Problem, Anmol Publications, Pvt. Ltd, New Delhi, 1997
- Kempe, R.S and Kempe C.H., Child Abuse, Fontana, London, 1978.

SOCIAL ANTHROPOLOGY

Course Code :	Credits :	04
L:T:P:S : 0:0:6:0	CIA Marks :	40
Exam Hours : 03	ESE Marks :	60

LEARNING OBJECTIVES:

To study about the religious and cultural aspects of anthropology

To understand the scope and branches of anthropology

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the scope of social anthropology (K1)
CO2	Classify the cultural elements in primitive society (K2)
CO3	Explain the kinds of marriage and kinship (K3)
CO4	Analyse the political organization of primitive society(K4)
CO5	Evaluate the origin and development of religion (K5)

SI NO	CONTENTS OF MODULE	Hrs	COS
1.	Unit-I: Introduction 1.1 Meaning and scope of Anthropology 1.2 Branches of Anthropology	18	CO1
2.	Unit-II: Culture 2.1 Attributes of culture 2.2 Culture traits 2.3 Culture complex 2.4 Culture area 2.5 Culture integration 2.6 Enculturation and transculturation	18	CO2
3.	Unit-III: Marriage and Kinship 3.1 Marriage: Typology by mate selection – levirate and sororate- hypergamy and hypogamy 3.2 Types of decent 3.3 Kinship: consanguinal and affinal 3.4 Kinship: tribe, class, moiety and phratry 3.5 Kinship Behaviour: joking and avoidance relationship	18	CO3

4.	<p>Unit-IV: Economic Organization</p> <p>4.1 Property: Primitive communism- Individual- collective</p> <p>4.2 Stages of Economy: Food gathering – Hunting –Fishing – Pastoralism- Cultivation</p> <p>4.3 Systems of Trade Exchange: reciprocity- redistribution- barter and market</p>	18	CO4
5.	<p>Unit- V: Political Organization</p> <p>5.1 Brand, Tribe and State</p> <p>5.2 Kinship and cheifdom</p> <p>5.3 Primitive law and justice</p> <p>5.4 Types of punishment</p>	18	CO5
6.	<p>Unit-VI: Religion:</p> <p>6.1 Magic : types and functions of magic</p> <p>6.2 Magico- religious functionaries: Shaman- Priest- medicine man- sorcerer</p>	18	CO6

BOOKS FOR REFERENCE

Aron, Raymond, Main Currents in Sociological Thought. Part 1 and 2. London: Penguin, 1967.

Coser, Lewis, A., Masters of Sociological Thought: Ideas in Historical and social context. New York : Harcourt Brace Jovanovidi, 1971.

Craib Ian. Classical Social Theory. Great Britain: Oxford University Press, 1997.

Hearn, Frank, Reason and Freedom in Sociological Thought. U.S.A: Allen and Unwin, 1985.

Timasheff, Sociological Theory: its nature and growth. New York: Random House, 1976.

WEB RESOURCES

http://www.sagepub.in/upm-data/44172_1.pdf

<http://theory.routledgesoc.com/category/profile-tags/ideal-types>

<http://faculty.frostburg.edu/phil/forum/Marx.htm>

SOCIAL MOVEMENTS IN INDIA

Course Code :	Credits	: 04
L:T:P:S : 0:0:6:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

LEARNING OBJECTIVES:

To study the different forms of movements.

To know the importance of new social movements in Indian society

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the characteristics of social movements (K1)
CO2	Explain the impact of Socio-Religious movements (K2)

CO3	Evaluate the movements of sub-altern groups.(K3)
CO4	Appraise and criticize the movements in marginalized groups (K5)
CO5	Analyse the contemporary social movements.(K4)

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit- I: Introduction 1.1 Definition and Characteristics of Social Movements 1.2 Types of social movements 1.3 Social movements and social change	18	CO1
2.	Unit-II: Socio- Religious and National Movements 2.1 Brahma Samaj and Arya samas 2.2 Civil Disobedience Movement 2.3 Quit India Movement	18	CO2
3.	Unit-III: Social Reform Movements 3.1 Self respect Movement in Tamil Nadu 3.2 SNDP Movement in Kerala	18	CO3

	3.3 Non-Brahmin Movement in Maharashtra		
4.	Unit-IV: Peasant and Tribal Movements 4.1 Telegana Movement 4.2 Naxalbari Movement 4.3 The Santal Movement 4.4 Jarkhand Movement	18	CO4
5.	Unit- V: New Social Movements 5.1 Dalit Movement 5.2 Women's Movement 5.3 Environmental Movement	18	CO5

Text Books

Rao M.S.A (1979) Social Movements in India, Manohar, New Delhi.

Rao M.S.A (1979) Social Movements and Social Transformation, McMillan, New Delhi.

Banks, J.A (1992) The Sociology of Social Movements, McMillan, London.

References:

Desai, A.R (1979) Peasant Struggle in India, OUP, India.

Desai, A.P (1987) Social Background of Indian Nationalism, Popular Prakasam, Bombay.

Dhanagare, D.N. (1983) Peasant Movements in India: 1920-50, OUP, Delhi.

Oomen, TK(1990), Protest & Change: Studies in Social Movements, Sage India Pvt. Ltd., Delhi.

Selliot, Elmer (1995) From Untouchable Dalit: Essays on The Ambedkar Movement, Manohar, New Delhi.

SOCIAL DEMOGRAPHY

Course Code : Credits : 04

L:T:P:S : 0:0:6:0 CIA Marks : 40

Exam Hours : 03 ESE Marks : 60

LEARNING OBJECTIVES:

To study the scope and importance of social demography

To understand the population processes and structure

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Recall the importance of Social Demography (K1)
CO2	Classify the sources of population data(K4)
CO3	Explain the different population theories(K3)
CO4	Illustrate the population processes and structure(K2)
CO5	Evaluate the population policies and programs(K5)

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit-I: Introduction 1.1 Definition 1.2 Nature, Scope and importance of Social Demography.	18	CO1
2.	Unit-II: Sources of Population Data	18	CO2

	<p>2.1 Census</p> <p>2.2 Vital Registration</p> <p>2.3 Sample Surveys.</p>		
3.	<p>Unit-III: Population Theories</p> <p>3.1 Malthusian Theory of Population, 3.2 Biological Theories- Thomas Saddler, Thomas Doubleday, Spencer and Gini.</p> <p>3.3 Theory of Demographic transition.</p>	18	CO3
4.	<p>Unit-IV: Population processes and structure</p> <p>4.1 Population Structure- Age and Sex, Size and distribution</p> <p>4.2 concepts- fertility, fecundity, factors influencing fertility, measures of fertility</p> <p>4.3 morality, types, causes and measures.</p> <p>4.4 Migration- Types, Push and Pull factors in migration.</p>	18	CO4
5.	<p>Unit-V: Population policies and programmes:</p> <p>5.1 Fertility, Mortality, Migration influencing policies.</p> <p>5.2 Family planning in India.</p>	18	CO5

Text Books:

6. Merton, Robert k., Sociological Theory and Social Structure. Indian Ed. New Delhi: Ameerind Publishing co., 1968.

RESEARCH METHODOLOGY AND STATISTICS

Course Code : Credits : 05

L:T:P:S : 0:0:6:0 CIA Marks : 40

Exam Hours : 03 ESE Marks : 60

LEARNING OBJECTIVES:

To study the scientific methods and techniques in social research

To know the tools and report writing of data collection

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the steps involved in social research (K1)
CO2	Classify the types of research design (K4)
CO3	Explain the different techniques of data collection (K3)
CO4	Illustrate the sampling methods (K2)
CO5	Evaluate the social statistics(K5)

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	UNIT-I: SCIENCE AND SCIENTIFIC METHODS- 1.1 What is Scientific Research	18	CO1

	<p>1.2Types, Importance and uses</p> <p>1.3Steps in Social Research</p> <p>1.4Theory and Facts- Hypothesis.</p>		
2.	<p>UNIT-II: RESEARCH DESIGN</p> <p>2.1Meaning</p> <p>2.2Types – Descriptive, Explorative, Experimental ,Diagnostic and Comparative</p> <p>2.3Functions of research design.</p>	18	CO2
3.	<p>UNIT-III: TECHNIQUE AND TOOLS OF DATA COLLECTION:</p> <p>3.1Schedule Questionnaire, Interview, Observation, Case Study</p> <p>3.2Content analysis ,Social Survey, Projective technic.</p>	18	CO3
4.	<p>UNIT-IV: SAMPLING METHODS AND REPORT WRITING:</p> <p>4.1Types- Probability and Non-Probability Sampling</p> <p>4.2 Report writing- Steps</p>	18	CO4
5.	<p>UNIT-V: STATISTICS</p> <p>5.1Meaning- Scope and importance of statistics in Social Research.</p> <p>5.2 Measures of Central Tendency- Mean- Median- Mode-</p> <p>5.3Measures of Dispersion- Range- Quartile – Standard Deviation-</p>	18	CO5

	5.4 Correlation and Regression. Role of Computers in Research.		
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Text Books:

- Kothari C.R., Research Methodology – Methods and Techniques, wiley eastern limited, Madras, 1985.
- Goode, Williams and Hatt Paul : Methods in Social Research, McGraw- Hill Book Company, London 1981.

REFERENCES:

- Young Pauline V: Scientific Social Surveys and Research. PHI.
- Mitchall, Mark and Jamina Jolley, Research Design Explainer, Holt, Rinehart and Winston inc., New york, 1988.
- Gane, Mike: On Durkheim’s Rules of Sociological Method, Routledge, London, 1988.
- Boalt, Gunnar: The Sociology of Research, Southern Illinois University Press, London, 1969.
- Blalock, J.R., Hubert, M. Social Statistics, Mc Graw Hill. International Editions, Washington, 1981.
- Hunt, Morton: Profiles of Social Research, Russell Sage Foundation, New York, 1920.
- Kothari, C.R., Quantitative Techniques, Vikas Publishing House (Pvt) Ltd. New Delhi – 1978.
- Michael S. Lewis – Beck, (Ed) Experimental Design & Methods, Sage Publications, Toppan, Publishing United Kingdom, 1990.

POLITICAL SOCIOLOGY

Course Code : Credits : 04
L:T:P:S : 0:0:6:0 CIA Marks : 40

Exam Hours : 03

ESE Marks : 60

LEARNING OBJECTIVES:

To study the basic political system in India.

To study the trends in political scenario.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Recall the contribution of Karl Marx and Max Weber in Political Sociology(K1)
CO2	Illustrate the Aristotle's classification of political system(K2)
CO3	Evaluate the merits and demerits of Political system (K5)
CO4	Distinguish between power and authority(K4)
CO5	Explain the different ways of acquiring legitimacy(K3)

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	UNIT – I: INTRODUCTION 1.1 Origin and growth of political sociology 1.2 Definition, nature and scope 1.3 Founding fathers – Karl Marx and Max Weber – their contributions	18	C01
2.	UNIT – II: BASIC POLITICAL SYSTEMS 2.1 Meaning of political systems	18	CO2

	<p>2.2 Aristotle's classification of political systems</p> <p>2.3 Theocratic, Monarchical, Democratic and Totalitarian systems and their relative merits and demerits.</p>		
3.	<p>UNIT – III: INFLUCENCE, POWER AND AUTHORITY</p> <p>3.1 Meaning and types</p> <p>3.2 Characteristics of power</p> <p>3.3 Distribution of power</p> <p>3.4 Various theories of political elites</p> <p>3.5 Authority – different ways of acquiring legitimacy.</p>	18	CO3
4.	<p>UNIT – IV: POLITICAL CULTURE AND POLITICAL SOCIALIZATION</p> <p>4.1 Meaning and dimensions of political culture</p> <p>4.2 Meaning and types of political socialization</p> <p>4.3 Agencies of political socialization and their role.</p> <p>4.4 Political Participation – Meaning and Types</p> <p>4.5 Political Apathy</p>	18	CO4

	4.6 Psychological, Social, and Political determinants of participation		
5.	<p>UNIT – V: POLITICAL PARTIES AND PRESSURE GROUPS</p> <p>5.1 Political parties – features and functions</p> <p>5.2 Structures of political parties</p> <p>5.3 Meaning of pressure groups and their relationship with political parties</p> <p>5.4 Types of pressure groups and their role.</p>	18	CO5

Text Book

1. A.K. Mukhopadhyay (1980), Political Sociology, K.P.Begchi&Company, Calcutta.

Reference Books

1. Ali Ashaf and Sharma B.N., (2001), Political Sociology, University Press, Hyerabad.
2. Bhattacharyya.D.C. (2002), Political Sociology, Vijoya Publishing House, Kolkata.
3. Padhy, K.S., (1989), Political Sociology –A Perspective Analysis, Discovery Publishing House, New Delhi.
4. Anthony Orun, (1983), Introduction to Political Sociology, Prentice Hall Inc., Englewood Cliffs, New Jersey.

5.Harold J.Laski, (1978), A Grammar of Politics, George Allen & Unwin publishers Ltd, Great Britain.

RURAL SOCIOLOGY

Course Code : Credits : 05

L:T:P:S : 0:0:6:0 CIA Marks : 40

Exam Hours : 03 ESE Marks : 60

LEARNING OBJECTIVES:

To study the rural social structure and dynamics.

To study the rural social institutions and problems.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the importance of rural sociology(K1)
CO2	Explain the characteristic feature of village pattern and settlement(K3)
CO3	Analyse the changing features of village social structure (K5)
CO4	Evaluate the role and functions of rural social institutions (K5)
CO5	Criticize the problems faced by the rural society (K6)

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	UNIT- I: INTRODUCTION 1.1 Meaning of Rural Sociology 1.2 Nature and Scope	18	CO1

	1.3Importance of the study of Rural Sociology in India.		
2	<p>UNIT-II: RURAL SOCIETY</p> <p>2.1Characteristics of rural society</p> <p>2.2Rural –urban Society: Differentials and Continuum</p> <p>2.3 Village patterns and characteristics</p> <p>2.4Emergences of villages</p> <p>2.5Types of villages</p> <p>2.6 village settlement patterns-Types and pattern of Dwelling.</p>	18	CO2
3.	<p>UNIT-III: RURAL SOCIAL STRUCTURE AND DYNAMICS</p> <p>3.1Caste and social structure in rural India</p> <p>3.2Dominant Caste</p> <p>3.3Sanskritization</p> <p>3.4 Jajmani System</p> <p>3.5 Changing features of village social structure</p> <p>3.6Traditional caste and village community</p> <p>3.7Panchayat Raj</p>	18	CO3
4.	<p>UNIT-IV: RURAL SOCIAL INSTITUTIONS</p> <p>4.1Characteristics and Functions- Rural Economy</p>	18	CO4

	4.2 Family and Marriage 4.3The Polity 4.4 Rural Education 4.5 Rural Religion.		
5.	UNIT-V: RURAL PROBLEMS 5.1Poverty and indebtedness 5.2Child Labour 5.3 Unemployment 5.4Illiteracy 5.5Migration 5.6Health and Sanitation problems.	18	CO5

Text Books

1. Desai A.R. (ed) Rural Sociology in India, Popular Prakastian, Bombay.

Reference Books:

1. Vidyut Joshi (1987) Submerging Villages: Problems and prospects, Ajanta Publications, Delhi.
2. Desai, I.P and Banwarilal Choudhry (ed) (1977) History of Rural Development in Modern India, Vol.II. Impex India, New Delhi.
3. Mishra P.S. (1994) Changing Pattern of village Family in India: A Sociological Study, Ajanta Publications, Delhi.
4. Kumar Aravind (ed) (1998) Encyclopedia of Rural Sociology.

URBAN SOCIOLOGY

Course Code :

Credits : 04

L:T:P:S : 0:0:6:0

CIA Marks : 40

Exam Hours : 03

ESE Marks : 60

LEARNING OBJECTIVES:

To study the urban social structure.

To study the urban planning and criticize it.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Recall the importance of urban sociology
CO2	Classify the types and forms of cities and towns
CO3	Explain the ecological theories
CO4	Analyse the principles and agencies involved in urban planning
CO5	Evaluate the urban social problems

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit-I: Introduction 1.1 Nature, Scope and importance of Urban Sociology 1.2 Urbanisation and Sub-urbanisation 1.3 Urbanism as a way of life 1.4 Rapid urbanisation in India and its implications	18	CO1
2.	Unit-II: Urban Structure	18	CO2

	<p>2.1 Typology and morphology of urban areas</p> <p>2.2 Origin and growth of town and cities</p> <p>2.3 Types and forms of cities in pre-industrial, industrial and post-industrial periods.</p>		
3.	<p>Unit-III: Urban Ecology</p> <p>3.1 Ecological system and ecological elements</p> <p>3.2 Ecological theories: concentric zone theory- sector theory- multiple nuclei theory</p>	18	CO3
4.	<p>Unit-IV: Urban Planning</p> <p>4.1 Role of sociology in urban planning</p> <p>4.2 Principles of Urban planning</p> <p>4.3 Agencies involved in urban planning</p> <p>4.4 case study: Chandigarh</p>	18	CO4
5.	<p>Unit-V: Urban Problems</p> <p>5.1 Urban migration and population density</p> <p>5.2 housing problem</p> <p>5.3 slums</p> <p>5.4 environmental problems –</p> <p>5.5 urban crimes.</p>	18	CO5

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Text Books:

Grint N.P and S. Fava, Urban Society

Rao, M.S.A (1974) Urban Sociology in India, Orient Longman, New Delhi.

Marris Phillip (1968) Urban Sociology, George Allen and Unwin Ltd., London.

Sharma Ramnath (1998) A Text Book of Urban Sociology, Rajhans Press Publication, India.

References

Sharma Rajendra. K (1997) Urban Sociology, Atlantic Publishers, New Delhi.

Flangan G. William, (1999) Urban Sociology, Allyn and Bacon,...

Fava F. Sylvia, (1968) New Urbanism in World Perspectives: A Reader, T.Y. Cowell, New York.

INDUSTRIAL SOCIOLOGY

Course Code	:	Credits	:	04
L:T:P:S	:	CIA Marks	:	40
Exam Hours	:	ESE Marks	:	60

LEARNING OBJECTIVES:

To study the importance of industrial sociology.

To understand the evolution of industries and its consequences.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the approaches of industrial sociology
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CO2	Identify the evolution of industries
CO3	Analyse the role and structure of Industrial organizations
CO4	Explain the relationship between organization of labour and labour welfare
CO5	Classify the causes and consequences of Industrial conflict

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit- I: Introduction 1.1 Scope and importance of Industrial Sociology. 1.2 Approaches to the study of Industrial Sociology. 1.3 Socio-industrial thought – Taylor, Mayo, Maslow, Mclelland	18	CO1
2.	Unit-II: Evolution of Industry 2.1 Manorial System 2.2 Guild system 2.3 Domestic System 2.4 Factory system	18	CO2
3.	Unit-III: Industrial Organization 3.1 Structure of Industrial Organization. 3.2 Formal and informal organizations. 3.3 Line and staff organization	18	CO3

	3.4 Roles and relationship: Managers, Supervisors and Workers		
4.	Unit – IV: Organisation of Labour and labour welfare 4.1. Origin and growth of trade union in India 4.2 Functions of trade union 4.3 Trade unions in India: problems and issues 4.4 Social security and labour welfare measures	18	CO4
5.	Unit – V: Industrial conflict 5.1 Types of industrial conflict 5.2 Causes and consequences 5.3 Methods of settling industrial disputes	18	CO5

Text Books:

Monappa Arun, Industrial Relations in India, Tata McGraw Hill, New Delhi.

Mongia. J.L. Readings in Indian Labour: and Social Welfare

Pascal Gisbert (1972), Fundamentals of Industrial Sociology, Tata McGraw Hill, New Delhi.

Reference Books

Bose S.N. Indian Labour Code, Eastern Law House Pvt. Ltd., Calcutta

Malik. P.C. The Industrial Law, Eastern Book Co. Lucknow

Moorthy, M.N. Principles of Labour Welfare.

SOCIOLOGY OF DEVELOPMENT

Course Code :	Credits : 04
L:T:P:S : 0:0:6:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

To study the Social development and indicators.

To understand the relationship between social movements and development.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Distinguish economic growth and development
CO2	Identify the relationship between culture and development
CO3	Analyse the importance of social movements in development
CO4	List out the different kinds of developmental disparities
CO5	Evaluate the economic development and social opportunities

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit-I: Introduction 1.1 Definition and meaning of development 1.2 Economic growth and development 1.3 Social development and social indicators 1.4 Ecology and sustainable development	18	CO1

2.	<p>Unit-II: Culture and Development</p> <p>2.1 Development and displacement of tradition 2.2 Culture as a facilitator of development 2.3 Culture impediments for development</p>	18	CO2
3.	<p>Unit-III: Social Movements and Development</p> <p>3.1 Chinese Movement –Mao 3.2 Peasant Movement – Mexico-Emiliano Zapata 3.3 Backward Class Movement and Protective Discrimination</p>	18	CO3
4.	<p>Unit- IV: Development Disparities in India</p> <p>4.1 Social disparity: Education and Health 4.2 Gender Disparity 4.3 Economic Disparity 4.4 Rural – Urban disparity</p>	18	CO4
5.	<p>Unit-V: Economic reforms and development</p> <p>5.1 Structural adjustment in India 5.2 Economic development and social opportunities 5.3 Interdependence between market and governance 5.4 Global divisions</p>	18	CO5

Text Books:

1. Derez, Jean and Amartya Sen., (1996) India: Economic Development & Social Opportunities, UP, New Delhi.
2. Giddens, Anthony (2001) Sociology, 4th Edition, Blackwell pub Ltd, Oxford.
3. Harrison (1989) The Sociology of Modernization and Development, OUP, New Delhi.
4. Sharma, SL (1986), Development: Socio-Cultural Dimensions, Rawat Pub Jaipur.
5. UNDP (2000) Human Development Report, OUP, New Delhi.

MEDICAL SOCIOLOGY

Course Code :	Credits :	04
L:T:P:S : 0:0:6:0	CIA Marks :	40
Exam Hours : 03	ESE Marks :	60

LEARNING OBJECTIVES:

To study the need of social epidemiology

To understand the sociological perspective of health and health care

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Identify the relationship between medicine and sociology
CO2	Differentiate communicable and non-communicable diseases
CO3	Analyse the socio-cultural practice bearing on health in India
CO4	Evaluate the relationship between population and health in India
CO5	Point out the health and social problems

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit-I: Health and Society 1.1 The emerging relationship between medicine and sociology	18	CO1

	1.2 social perspectives of health and health care.		
2.	Unit-II: Communicable and Non-Communicable diseases 2.1 Tuberculosis, Malaria 2.2 Heart diseases, diabetes and Cancer.	18	CO2
3.	Unit- III: Social Epidemiology 3.1 Socio- Cultural factors bearing on health in India 3.2 Common occupational diseases, incidence and prevention of occupational diseases.	18	CO3
4.	Unit-IV: Health Education 4.1 Preventive and protective hygienic Habits. 4.2 Sociology of Health Policy in India. 4.3 Population and health in India.	18	CO4
5.	Unit-V: Health and Social Problems 5.1 Relevance of sex Education revelation of AIDS and HIV 5.2 Aging –Social Gerontology	18	CO5

Text Books:

1. Cockerham, William, C (1978) Medical Sociology, Englewood Cliffs. Prentice Hall.

Reference books:

1. Dak T.M.(1991) Sociology of Health in India, Kaveri Printers Private Ltd., New Delhi.
2. Graham Scombler (1987) Sociological theory and Medical Sociology, Tavistock Publication: London and New York.

COMMUNICATION, MEDIA AND SOCIETY

Course Code : Credits : 04

L:T:P:S : 0:0:6:0 CIA Marks : 40

Exam Hours : 03 ESE Marks : 60

LEARNING OBJECTIVES:

To study the scope and importance of communication.

To understand the impact of mass media in society.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the sociological approaches to communication
CO2	Explain the theories and models of communication
CO3	Classify the different forms of communication skills

CO4	Analyse the impact of mass media
CO5	Evaluate the effects of media on social change

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	<p>Unit-I: Introduction</p> <p>1.1 Definition, scope and functions of communication 1.2 Dimensions of communication 1.3 Sociological approaches to communication 1.4 Relationship between communication, popular culture and society</p>	18	CO1
2.	<p>Unit-II: Models and theories of communication</p> <p>2.1 Models of Communication: Lasswell's formula- Linear Model – Circular Model- Spiral Model – ABX Model- Conceptual Model 2.2 Theories of communication: Harold Inns- Marshal McLuhan- Jurgen Habermas – Baudrillard- John Thompson.</p>	18	CO2
3.	<p>Unit-III: Communication Skills</p> <p>3.1 Oral Skills 3.2 Writing Skills 3.3 Imaging Skills 3.4 Understanding and Responding Skills</p>	18	CO3
4.	<p>Unit-IV: Mass Media and Advertisement</p>	18	CO4

	4.1 Definition and types of advertisement 4.2 Techniques of advertisement 4.3 Advertisement in different media		
5.	Unit-V: Media and Social Change 5.1 Role of print media in social change 5.2 Impact of TV and Films on society 5.3 Impact of Information Technology on Society 5.4 Influence of media on children and youth	18	CO5

Text Books

1. Simms James (1995) Communication, OUP, UK.
2. Kumar J. Kavel (1998), Mass Communication in India, Jaico Books, India.
3. Hornik R. (1988) Development Communication: Information, Agriculture and Nutrition in Third World, New York and London: Longman.

Reference Books

1. Burgoon.M., (ed) (1983) Communication Year Book II Transaction Books, New Jersey.
2. Greedon, Pamela, (ed) (1983) Women in Mass Communication, Sage Publications, New Delhi.
3. Hornik. R. (1988) Development Communication: Information, Agriculture and Nutrition in Third World, New York and London: Longman.
4. Michael W. Gambel and Gamble (1989) Introducing Mass Communication, McGraw Hill, New York.
5. Ronald D. Farra (1997) Mass Communication, McGraw Hill, New York.

NME I INTRODUCTION TO SOCIOLOGY

Course Code : Credits : 04
 L:T:P:S : 0:0:6:0 CIA Marks : 40
 Exam Hours : 03 ESE Marks : 60

LEARNING OBJECTIVES:

- To study the basic concepts of sociology.
- To understand the importance of socialisation.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the relevance of Sociology in contemporary society
CO2	Identify the relationship between individual and society
CO3	Explain the contribution of sociological thinkers about social institutions
CO4	Recall the characteristic features and functions of culture
CO5	Classify the stages and agencies of socialization

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit –I: Sociology 1.1 Meaning & Definition 1.2 nature, and Relevance of sociology in contemporary society	18	CO1
2.	Unit- II: Society 2.1 Definition and characteristics of society	18	CO2

	2.2Origin of Society:Social Contract Theory 2.3Relationship between individual and society		
3.	Unit-III: Social Institutions 3.1Comte: Social Static and Dynamic 3.2Spencer: Organic Analogy 3.3Durkheim: Suicide	18	CO3
4.	Unit- IV: Culture 4.1Definition, characteristics and functions of culture. 4.2Cultural Lag.	18	CO4
5.	Unit- V: Socialization 5.1Meaning, Definition 5.2stages and Agencies of Socialization. 5.3Cooley’s Looking Glass Self	18	CO5

Text Books:

- Bottomore, T.B (1972), Sociology: A Guide to Problems and Literature, George Allen and Unwin, Bombay.
- Gisbert, Pascal.(1973), Fundamental of Sociology, Orient Longman, New Delhi.
- Thomson, Harry. M (1995), Sociology: A Systematic Introduction, Allied Publishers, India.

References :

- Leonard Broom, Principles of Sociology, Media Promoters and Publication Pvt. Ltd., Bombay, 1993.
- Ogburn and Nimkaff, A Handbook of Sociology, Eurasia Publication House, New Delhi, 1966.
- Gisbert, Pavsocal, Fundamentals of Sociology, Orient Longman, Bombay.

Course Code : Credits : 04

L:T:P:S : 0:0:6:0 CIA Marks : 40

Exam Hours : 03 ESE Marks : 60

LEARNING OBJECTIVES:

To study about social problems.

To understand the causes and consequences of social problems.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Knowing about the basic concept of Social Problems
CO2	Identify the causes and consequences of Poverty
CO3	Explain the results of unemployment and its types
CO4	Analyze the problems of women
CO5	Explore the problems of children

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit- I: Introduction 1.1 Meaning, Definition and features of Social Problem	18	CO1
2.	Unit-II: Poverty 2.1 Meaning, Causes and Consequences of Poverty.	18	CO2

3.	Unit-III: Unemployment 3.1 Meaning, Types, Causes and Consequences of Unemployment.	18	CO3
4.	Unit IV: Problems of Women 4.1 Women Trafficking, Domestic Violence and Sexual Harassment	18	CO4
5.	Unit-V: Problems of Children 5.1 Child sexual abuse, Child Labour and Child Trafficking	18	CO5

Text Books:

- Bhattacharya, S.K., Social Problems in India, Regency Publications, New Delhi, 1994.
- Ahuja Ram, Crime against Women, Rawat Publications, Jaipur, 1987

References:

- Attachand, Poverty and Underdevelopment, Gian Publishing House, Delhi, 1987.
- Prasad, Population Growth and Child Labour, Kanishka Publishers distributors, New Delhi, 2001.
- Kattakayam and Vadackumchery, Crime and Society, A.P.H, Publishing Corporation, New Delhi, 1999.
- Kohli and Sharma, Poverty Alleviation and Housing Problem, Anmol Publications, Pvt. Ltd, New Delhi, 1997
- Kempe, R.S and Kempe C.H., Child Abuse, Fontana, London, 1978.

Electives

Sociology of Tourism

Course Code :	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

This course aims to provide

To study the basic concepts of sociology of tourism

To explain the features and types of tourism and its effect on society

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic knowledge on tourism. (K1)
CO2	Illustrate the lessons on social aspects of tourism (K2)
CO3	Explain the features of understanding tourism as a socio-economic force in social development. (K2)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	2	2	3	2	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	UNIT-I: Introduction to Sociology of Tourism	07	CO1

	<p>1.1 Meaning and Definition of Sociology of Tourism.</p> <p>1.2 Sociological Perspective on Tourism.</p> <p>1.3 Significance of Sociology of Tourism.</p>		
2	<p>UNIT - II: Tourism in India</p> <p>2.1 Tourism Opportunities in India 2.2 Types: Eco-tourism, Health Tourism; 2.3 Religious Tourism; Educational Tourism. Tourism Policies in India.</p>	08	CO2
3	<p>UNIT - III: Tourism and Social Change</p> <p>3.1 Effects of Tourism on Society. 3.2 Tourism and Cultural Exchange.</p> <p>3.3 Impact of Tourism on Locals.</p>	07	CO3

TEXTBOOKS:

1. Apostolopoulos, Y., Leivadi, S & Yiannakis, A., (eds.) 2000, The Sociology of Tourism: Theoretical and Empirical Investigations, London: Routledge.
2. Archer, B.H., 1973. The Impact of Domestic Tourism, Cardiff University of Wales Press,
3. Basawaraj, Gulshetty. 2016. Sociology of Leisure and Tourism Study Lambert publication Bezbaruah, M.P., 1999.
4. "Tourism - Current Scenario and Future Prospects", Yojana, Vol.43.
5. Bhatia, A.K., 2003. Tourism Development, Principles and Practices, New Delhi: Sterling Publishers Pvt. Ltd.
6. Brahmankan, E.B., 1998. Travel and Tourism as a Career, Vol.37, .11.
7. Brij, Bhardwaj, 1999. "Infrastructure for Tourism Growth", Yojana, Vol.43. Chib, S.N., 1981. Perspectives on Indian Tourism-I, Vol.77, .19. -11, Vol.77, .20
8. Chile, Som, N., 1981. Perspectives of Tourism in India, Sarder Patel

- Memorial Lectures, Publications Division, Government of India,
9. Cohen, Erik 1984. The sociology of tourism: approaches, issues, and findings. Annual Review of Sociology 10:373-392.
 10. Dharma Rajan, S., 1999. "Tourism - An Instrument for Development", Yojana, Vol.43, .8. Jacobsen, Jens Kr. Steen. 2000. Anti-tourist attitudes. Annuals of Tourism Research.
 11. Kaul, R.N., 1987. Dynamics of Tourism, New Delhi: a Trilogy K. Publication Pvt., Ltd. Lajipathi Rai, H., 1993. Development of Tourism in India, Rupa Books Pvt., Ltd.
 12. Selvafri, M., 1989. Tourism Industry in India, Bombay. Himalaya Publishing House. Sharma, K.C., 1996. Tourism Policy Planning Strategy, Jaipur. Pointer Publishers.

Sociology of Sanitation

Course Code :	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

The content of the course will enable the students:

1. To understand the role of the public in sanitation
2. To make aware the health and sanitation conditions in India
3. To understand the social aspects of sanitation and social ordering

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of sociology of sanitation and its scope. (K1)
CO2	Illustrate the programmes and policies of sanitation. (K2)
CO3	Explain the social construction of health and sanitation. (K4)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	2	2	3	2	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	UNIT - I :Health and Sanitation 07Hrs 1.1 Social Aspects of Health and Illness. 1.2 Origin and Scope of Sociology of Sanitation 1.3 Problem of Environmental Sanitation in India	08	CO1
2	UNIT - II: Sanitation in India 06Hrs 2.1 Sulabh Sanitation Movement 2.2 Sanitation Policies and Programmes 2.3 Sanitation in Tamilnadu, a Regional Analysis	08	CO2

	UNIT - III : Sanitation and Society		
	07Hrs		
3	3.1 Social Construction of Hygiene and Sanitation 3.2 Scavenging Castes and Social Deprivation 3.3 Sanitation and Dignity of Women	08	CO3

TEXTBOOKS:

1. Akram, Mohammad. 2015. *Sociology of Sanitation*. Delhi: Kalpaz Publications. Chatterjee, Meera. 1988. *Implementing Health Policy*, New Delhi: Manohar Publications.
2. Dalal, Ajit, Ray Shubha, 2005. (Ed). *Social Dimensions of Health*, Rawat.
3. Gupta, Giri Raj (ed.). 1981. *The Social and Cultural Context of Medicine in India*, New Delhi: Vikas Publishing House.
4. Jha, Hetukar. 2015. *Sanitation in India*. Delhi: Gyan Books.
5. Nagla, B K. 2015. *Sociology of Sanitation*. Delhi: Kalpaz Publications.
6. Nagla, Madhu. 2013. *Gender and Health*, Jaipur Rawat Publications Pais,
7. Richard. 2015. *Sociology of Sanitation*. Delhi: Kalpaz Publications.
8. Pathak, Bindeshwar. 2015. *Sociology of Sanitation*. Delhi: Kalpaz Publications.
9. Saxena, Ashish. 2015. *Sociology of Sanitation*. Delhi: Kalpaz Publications.

Sociology of Work and Industry

Course Code :	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

To study the basic concepts of industrial sociology

To explain the dimensions of work and its hazards

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of work, occupation and alienation. (K1)
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CO2	Explain the gender and work in the informal sector. (K4)
CO3	Illustrate the nature and types of industrial hazards and its vulnerability. (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	2	2	3	2	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	Unit I: Interlinking Work and Industry 1.1 Concept of work and occupation 1.2 Work in industrial society 1.3 Alienation: Causes and Consequence	07	CO1
2	Unit- II: Dimensions of Work 2.1 Gender: Women and Industry, Gender Discrimination in Work	08	CO2

	2.2 Nature of Unpaid Work and Forced Labour 2.3 Informal sector in developing countries		
3	Unit III: Risk, Hazard and Disaster 3.1 Nature and Types of Industrial Risk, Hazard and Disaster 3.2 Dimensions and Trends of Vulnerability and Exposure	07	CO3

References:

1. Bell, Daniel. 1976, *The Coming of Post-Industrial Society*, London: Heineman, Introduction, Pp.12-45
2. Breman, Jan. 2003, "The Informal Sector" in Veena Das, (ed.) *The Oxford India Companion to Sociology and Social Anthropology*, New Delhi: OUP, Pp.1287-1312
3. Coser, 1990, "Forced Labour in Concentration Camps" in Erikson, K. and S.P.Vallas (eds.) *The Nature of Work: Sociological Perspectives*, New Haven and London: American Sociological Association, Presidential Series and Yale University Press, Pp. 162-69
4. Devine, Fiona. 1992, "Gender Segregation in the Engineering and Science Professions: A case of continuity and change" in *Work, Employment and Society*, 6 (4) Pp.557-75.
5. Edgell, Stephen. 2006, "Unpaid Work-Domestic and Voluntary work" in *The Sociology of Work: Continuity and Change in Unpaid Work*. New Delhi: Sage, Pp.153-181
6. Erikson, Kai. 1990. "On Work and Alienation" in Erikson, K. and S.P. Vallas (eds.) *The Nature of Work: Sociological Perspectives*. New Haven and London: American Sociological Association, Presidential Series and Yale University Press, Pp. 19-33
7. Etzioni, A. and P.A. Jargowsky. 1990, "The false choice between high technology and basic industry" in K. Erikson and P. Vallas (eds.) *The Nature of Work: Sociological Perspectives*, New Haven and London: Yale University Press, Pp. 304-317
8. Freeman, Carla. 2009, "Femininity and Flexible Labour: Fashioning Class through Gender on the global assembly line" in Massimiliano Mollona, Geert De Neve and Jonathan Parry (eds.) *Industrial Work and Life: An Anthropological Reader*, London: Berg, Pp.257-268
9. Grint, Keith. 2005, "Classical Approaches to Work: Marx, Durkheim and Weber" in *The Sociology of Work: An Introduction*. Polity Press. Cambridge. Pp. 90-112
10. Kumar, Krishan. 1999, *From Post-industrial to Post-modern society*, Oxford: Blackwell Publishers Ltd., Chapter 2 and 6, Pp 6-35 and 154-163
11. Laughlin, Kim. 1995, Rehabilitating Science, Imagining "Bhopal" in George E. Marcus (ed.) *Techno scientific Imaginaries: Conversations, Profiles and Memoirs*, Chicago: University of Chicago Press, Pp. 277-302
12. Ramaswamy E. A. and Uma Ramaswamy. 1981, *Industry and Labour*, New Delhi: Oxford University Press, Chapter 3, Pp.33-65
13. Talib, Mohammad. 2010, *Writing Labour- Stone Quarry workers in Delhi*. New Delhi: OUP, Chapter 1, Pp. 23-54

14. Taylor, Steve. 1998, "Emotional Labour and the new Workplace" in Thompson and Walhurst (eds.) *Workplace of the Future*. London: Macmillan, Pp. 84-100
15. Uberoi, J.P.S. 1970, "Work, Study and Industrial worker in England" in *Man, Science and Society*. IAS: Simla. Pp 34-452.
16. Zonabend, Françoise. 2009, "The Nuclear Everyday" in Massimiliano Mollona, Geert De Neve and Jonathan Parry (ed.) *Industrial Work and Life: An Anthropological Reader*, London: Berg, Pp 167-185

Social Welfare in India

Course Code :	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

1. To understand the basic concepts in social welfare
2. To study the different welfare programmes and policies in India
3. To understand the process of social change and development through social welfare.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of social welfare and identify its agencies. (K1)
CO2	Exemplify the welfare measures of SCs, STs OBCs and minorities. (K4)
CO3	Enlighten the social welfare in Education and Health sector. (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	2	2	3	2	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	<p>Unit I: Introduction</p> <p>1.1 Meaning and Scope of Social Welfare Approach</p> <p>1.2 Concepts - Welfare State, Re-distribution, Democracy, Accountability and Transparency</p> <p>1.3 Agencies of Social Welfare – Government and Non-government</p>	09	CO1
2	<p>Unit II: Welfare Programmes in India</p> <p>2.1 Welfare of Scheduled Castes and Scheduled Tribes</p> <p>2.2 Welfare of Other Backward Classes</p> <p>2.3 Welfare of Minorities</p>	07	CO2
3	<p>Unit III: Social Welfare and Development</p> <p>3.1 Social welfare and Social Legislations</p>	07	CO3

	3.2 Social Welfare Needs: Right to Education; Health care		
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References:

1. Abuja, Ram. 2001. *Social Problems in India*. Jaipur: Rawat Publications. Chowdhry, P.D. 1983. *Social Welfare Administration*. Delhi: Atma Ram Sons. Desai, A.R. 1979. *Rural India in Transition*. Bombay: Popular Prakashan.
2. Dummett, M. 2013. *Breaking the silence: Child sexual abuse in India*. New York, NY: Human Rights Watch.
3. Dwivedi, R. M. 2005. *Poverty and development programmes in India*. New Delhi: New Century Publications.
4. Friedlander, Walter.A.1961. *Introduction to Social Welfare*. New York: Prentice Hall Inc. Goel, S.L. & Jain, R.K. 1988. *Social Welfare Administration: Theory and Practice*, (Vol. I & II). New Delhi: Deep and Deep Publications
5. Jayal, N. G. 2002. *Democracy and the state: Welfare, secularism and development in contemporary India*. New Delhi: Oxford Univ. Press.
6. Madan, G.R. 1990. *Indian Social Problems*. Vol.2. New Delhi: Allied Publishers
7. Mamoria, C. B.1981. *Social Problems and Social Disorganisation in India*. Allahabad: KitabMahal.
8. Pandya, R. 2008. *Women welfare and empowerment in India: Vision for 21st century*. New Delhi: New Century Publications.
9. Patti, R.J. 2000. *The Handbook of Social Welfare Management*. Sage Publications. Sachidev, D.R. 2003. *Social Welfare Administration in India*. Allahabad: KitabMahal. Seth, M. 2001. *Women and development: The Indian experience*. New Delhi: Sage.
10. Sharma, R.N.1993. *Urban Sociology* Delhi: Surjeet Publications.
11. Sivaramakrishnan, K.C. et al.1996. *Urbanisation in India. Basic services & People's*
12. *Participation*. New Delhi: Institute of Social Sciences and Concept publishing co.
13. Talwar, P. P., &Goel, O. P. 1990. *Non-governmental organisations for greater involvement in health and family welfare programmes in India*. New Delhi: National Institute of Health & Family Welfare.
14. Tribhuvan, Robin.D. (Ed).2000.*Studies in Tribal, Rural and Urban Development*. vol.1&2. New Delhi: DPH

Sociology of Gender and Sexuality

Course Code :	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

To study the basic concepts of gender inequality

To explain the features of gender differences in social institutions

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of gender and identify its social construction. (K1)
CO2	Outline the gender differences and inequalities in society. (K4)
CO3	Analyze the resistance of power and subordination towards the gender. (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5

CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	2	2	3	2	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	<p>Unit I: Gender as a Social Construct</p> <p>1.1 Gender, Sex and Sexuality, Gender stereotyping and socialization, Gender role and identity</p> <p>1.2 Gender stratification and inequality, Gender discrimination and patriarchy, Production of Masculinity and Femininity,</p>	08	CO1
2	<p>Unit II: Gender: Differences and Inequalities</p> <p>2.1 Class, Caste</p> <p>2.2 Family, Work</p> <p>2.3 Third Gender</p> <p>Sexual violence</p>	07	CO2
3	<p>Unit III: Gender, Power and Resistance</p> <p>3.1 Power and Subordination</p> <p>3.2 Resistance and Movements (Chipko/ Gulabi Gang)</p>	08	CO3

TEXTBOOKS:

References:

1. Kandiyoti, Deniz. 1991. "Bargaining with Patriarchy" in Judith Lorber and Susan A. Farrell (eds.). 1991. The Social Construction of Gender. Newbury Park, Calif: Sage Publications (pp 104-118).
2. Mangala Subramaniam. 2004 The Indian Women's Movement - - Contemporary Sociology Vol. 33, No. 6, Nov.
3. Newton, Esther. 2000. "Of Yams, Grinders and Gays: The Anthropology of Homosexuality" in Margaret Mead Made Me Gay: Personal Essays, Public Ideas. Durham: Duke University Press (pp 229-237)
4. Palriwala, Rajni, 1999. "Negotiating Patriliney: Intra-household Consumption and Authority in Rajasthan

- (India)", in Rajni Palriwala and Carla Risseuw (eds.). 1996. *Shifting Circles of Support: Contextualizing Kinship and Gender in South Asia and Sub-Saharan Africa*. New Delhi: Sage Publications (pp 190-220).
5. Rege, S. 1998. "Dalit Women Talk Differently: A Critique of 'Difference' and Towards a Dalit Feminist Standpoint Position." *Economic and Political Weekly*, Vol. 33, No. 44 (Oct.31-Nov. 6, 1998)(pp39-48)
 6. Sherry Ortner. 1974. "Is male to female as nature is to culture?" M.Z. Rosaldo and L. Lamphere (eds.) *Women, culture and society*. Stanford: Stanford University Press (pp 67-87)
 7. Stanley, L. 2002. 'Should Sex Really be Gender or Gender Really be Sex', in S. Jackson and S. Scott (eds.) *Gender: A Sociological Reader*, London: Routledge (pp31-41).
 8. U. Kalpagam. 2000. *The Women's Movement in India Today-New Agendas and Old Problems - Feminist Studies Vol. 26, No. 3, Autumn, 2000*
 9. Uberoi, Patricia "Feminine Identity and National Ethos in Indian Calendar Art" In *Economic and Political Weekly Vol. 25, No. 17 (Apr. 28,1990)*, (pp WS 41-48).
 10. Whitehead, A. 1981, "I'm Hungry Mum": The Politics of Domestic Budgeting" in K. Young et al. (eds.) *Of Marriage and the Market: Women's Subordination Internationally and its Lessons*. London: Routledge and Kegan Paul (pp.93-116).

Disaster and Social Crisis

Course Code :	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

1. To create awareness regarding the natural disasters and disaster management.
2. To understand the historical development of India's disaster management policy.
3. To study the social crises and their impacts

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of disaster and identify its emergency and relief system. (K1)
CO2	Classify the types, causes and effects of disaster. (K4)
CO3	Explain the features of social crisis and illustrate its management. (K3)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	3	2	3	3	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	<p>UNIT I: Introduction</p> <p>1.1 Disaster and Social Crisis</p> <p>1.2 Emergence of Study of Disaster Management and Social Crisis</p> <p>1.3 Natural Disasters; Disaster Victims; Disaster Relief System and Responses</p>	07	
2	<p>UNIT II: Types, Causes and Effects of Disasters</p> <p>2.1 Earthquake and Tsunami</p> <p>2.2 Tropical Cyclones</p> <p>2.3 Droughts and Floods</p>	08	

3	<p>UNIT III: Social Crisis and Management</p> <p>3.1 Nature and Types of Social Crisis</p> <p>3.2 Terrorism; Communalism and Casteism</p> <p>3.3 Role of the Government and NGOs in Crisis Management</p>	08	
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Reference:

1. Arick, Auf Der Heide. 2002. *Disaster Response: Preparedness and Co-ordination* Online Book: The Center for Excellence in Disaster Management and Humanitarian Assistance.
2. Goel, S.L. and Ram Kumar J T (ed.). 2001. *Disaster Management*, Deep & Deep, New Delhi.
3. Sinha,Prabhas Chandra (ed). 2006. *Disaster Management Process Law, Policy and Strategy*, SBS, New Delhi.
4. Sinha,Prabhas Chandra (ed). 2006. *Disaster Relief Rehabilitation and Emergency humanitarian Assistance*, SBS, New Delhi.
5. Sinha, Prabhas Chandra (ed). 2006. *Disaster Mitigation Preparedness Recovery and Response*, SBS, New Delhi.

Sociology of Consumer Behaviour

- Students will be able to recall the external factors influencing consumer behaviour
- Students will be able to compare and contrast the decision making process for an existing new product.

Course Code :	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

To enlighten with the introductory knowledge of Sociology of Consumer Behaviour

To explain the causes and kinds of consumer behaviour

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of consumer behaviours and its importance. (K1)
CO2	Describe the factors influences the consumer behaviour. (K5)
CO3	Analyze the different types of buying behavior and decision process. (K4)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	2	2	3	2	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	Unit-1 Introduction 1,1 Meaning of Consumer Behaviour 1.2 Scope – Psychological, Social, Cultural and Economic Aspects 1.3 Importance of Consumer Behaviour 1.4 Buyer- Seller- Consumer	08	CO1
2	Unit-2 Factors Influencing Consumer Behaviour	08	CO2

	1.1 Situational Factors- Time, Environment and Credit and Debit 2.2 Social Factors- Family, Reference group, Culture and social Class		
3	Unit-III Consumer Buying-Decision Process 3.1 Buying- Decision for Existing Product- 5 Steps 3.2 Types of Buying Behaviour- Complex, Dissonance Reducing, Habitual and Variety Seeking	08	CO3

TEXTBOOKS:

- 1 Consumer Behaviour., Barra and Kazmi., Excel Books., New Delhi., 2004
- 2 Marketing., 13th Edition., Etzel, Walker and Stamina., Tata-McGraw Hill ., New Delhi., 2004

Course Title: NME PAPER I: INTRODUCTION TO SUPPLY CHAIN MANAGEMENT

Course Code : 45103	Credits : 2
L:T:P:S : 2:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able to develop a sound understanding of the important role of supply chain management in today's business environment, the current trends, tools & equipment and kindle an interest to choose SCM as a career option.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Outline the key concepts relating supply chain management and logistics management
CO2	Identify the main drivers of supply chain performance and explain their role in supply chain
CO3	Recommend the best mode of transportation under various situation and determine the various factors affecting transportation
CO4	Explain the role of warehouse and the various types of warehouses
CO5	Determine the importance of material handling and list out the various tools and equipment used for material handling & Summarize the role of information technology in SCM

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	-	1	1	2	3	-	2	2	-	2	2	2
CO2	-	2	2	2	3	2	2	1	1	1	3	3
CO3	-	3	3	3	3	2	2	2	1	3	2	2
CO4	-	2	3	3	3	2	2	1	-	2	3	2

CO5	-	2	3	3	3	3	3	3	3	3	2	3
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MODULE	CONTENTS OF MODULE	Hours	COs
I	Supply Chain Management – Introduction, Definition, Objectives, Importance, Functions – SCM as a profession - SCM Vs Logistics	6	CO1
II	Key concepts in SCM - Enablers of supply chain performance - Linking supply chain and business performance – Supply Chain Performance Measures.	6	CO1 CO2
III	Transportation selection – Modes of transportation – Modes of Distribution – Factors affecting network effectiveness – Indian Transport Infrastructure	6	CO3
IV	Value information and Order Management - Distribution Requirement Planning - Just-In-Time system - Warehousing and materials Handling Management - Automated Warehousing System	6	CO4 CO5
V	Information Technology in SCM – Web-based supply chain – E-business and SCM – Benchmarking	6	CO5

TEXT BOOKS:

1. Shah, J. (2016). *Supply Chain Management – Text and cases*. New Delhi, India: Pearson India Education Services.
2. Chopra, S. & Meindl, P. (2019). *Supply Chain Management-Strategy Planning and Operation*. Noida, India: PHI Learning

REFERENCE BOOKS:

1. Natarajan, L. (2018). *Logistics and Supply Chain Management*. Chennai, India: Margham Publications

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. <https://www.inboundlogistics.com/cms/index.php>
2. <https://supplychaindigital.com/>
3. <https://www.supplychainbrain.com/>

4. <https://www.scmr.com/>
5. <https://www.logisticsmgmt.com/>

Course Title: NME II - E-COMMERCE

Course Code : 45206	Credits : 2
L:T:P:S : 2:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to improve his knowledge on the concept of e-commerce, its applications and development and the challenges faced while entering into/managing an e-business.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Develop an in-depth knowledge about the concept of E-Commerce and list out the benefits and limitations of the same.
CO2	Understand the application of various E-Commerce applications like E-Marketing, E-Shopping, E- Advertising
CO3	Gain an insight on the role played by Electronic Data Inter-change in the modern world
CO4	Maximize the usage of electronic payment systems like payment using credit cards, debit cards, electronic wallets etc.
CO5	Identify and understand the usage of e-marketing techniques

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	2	1	1	1	3	1	1	2	-	3	2	2
CO2	2	1	1	1	3	1	1	1	-	2	2	3
CO3	2	1	3	3	3	3	3	3	1	3	3	3
CO4	2	2	2	3	3	3	2	3	2	3	3	3
CO5	2	2	3	3	3	3	3	3	2	2	3	3

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to E-Commerce: Definition, Classification of E-Commerce: B2B, B2C, C2B, C2C, Benefits, Limitations, Traditional Commerce Vs E-Commerce, Resources required for Successful implementation of E-Commerce, Threats to E-Commerce Transactions, Disputes.	6	CO1
II	E-Commerce Applications: Entertainment – E-Marketing – E-Advertising and its techniques: Banners, Sponsorships, Portals, Online Coupons - Online Trading – E-Shopping – Mobile Commerce: Advantages, Problems and Future of M-Commerce.	6	CO2
III	Electronic Data Interchange (EDI): Applications – Security and Privacy Issues – Software Implementations – Value Added Networks – Internal Information System – Work-flow Automation and Coordination – Customization – Supply Chain Management	6	CO3
IV	Electronic Payments Systems: Electronic Payment System: Special features required in payment system for e-commerce, Types of e-payment System: E-cash & currency servers, e- cheques, credit cards, smart cards, electronic purses & debit cards - Advantages - Issues of EPS.	6	CO4
V	E-Marketing Techniques: Search Engines, Directories, Registrations, Solicited targeted E-mails, Interactive sites, Banners, Advertising, Spam Mails, E-mail, Chainletters. Applications of 5P's (Product, Price, Place, Promotion, People)	6	CO5

TEXT BOOKS:

1. Dr. Abirami Devi. K & Dr. Alagammai, M. (2019). *E-Commerce*. Chennai, Tamil Nadu, India: Margham Publications.
2. Dr.Raydu, C.S (2018). *E-Commerce & E-Business*. Mumbai, India: Himalaya Publishing House.

REFERENCE BOOKS:

1. Dr. Arora, S. (2020). *E-Commerce*, Chennai , Tamil Nadu, India: Taxmann Publications.
2. Dr.PandeyU.S & Saurabh,S.(2014). *E-Commerce and Mobile Commerce Technologies*. New Delhi. India: Sultan Chand & Sons Private Limited.
3. Bansal, R. Bansal, S. & Bansal, S. (2016). *E-Commerce*. New Delhi, India: Kalyani Publications.
4. Murthy, C.S.V. (2019). *E-Commerce (Concepts, Models, Strategies)*. Mumbai, India: Himalaya Publishing House

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. <https://irp-cdn.multiscreensite.com/1c74f035/files/uploaded/introduction-to-e-commerce.pdf>.
2. <https://saif4u.webs.com/E-ommerce-Notes.pdf>
3. https://backup.pondiuni.edu.in/storage/dde/dde_ug_pg_books/E-%20Commerce.pdf.

Course Title: CORE VI - BUSINESS LAW

Course Code : 45308	Credits : 4
L:T:P:S : 5:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to gain knowledge on the legal framework in which a business is expected to function

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the basic requirements of the Indian contract Act, 1872
CO2	Illustrate how parties can discharge their contract by agreement.
CO3	Understand the general principles and the nature of obligations underlying Contracts of Indemnity & Guarantee and bailment & pledge.
CO4	Point out transactions involving Sale of Goods Act, 1930
CO5	Categorize and understand the various nuances of Intellectual Property Rights and Competition Law in India

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	1	2	3	2	2	1	1	1	1	1	3	1
CO2	1	1	3	2	1	1	1	-	1	1	2	1
CO3	1	1	1	1	1	1	1	1	-	1	1	1
CO4	1	1	3	1	2	1	1	1	2	2	3	1
CO5	1	2	3	2	1	1	1	3	-	1	3	-

MODULE	CONTENTS OF MODULE	Hours	COs
I	<p>Indian Contract Act, 1872 - Essentials of a Contract and Concepts</p> <p>Contract & Agreement: Definition, Meaning, Characteristics – Classification of contracts - Essentials of valid contract - Offer and essentials of valid offers – Acceptance and essentials of Acceptance - Communication of Offer and Acceptance - Revocation of Offer and Acceptance – Consideration - Essentials of Consideration – Stranger to contract – No Consideration no Contract - Contractual Capacity Effects of Minors - Persons of Unsound mind - Persons disqualified from contracting by any other law</p>	20	CO1
II	<p>Indian Contract Act, 1872- Essentials, Performance, Discharge and Breach of Contract</p> <p>Free Consent - Coercion - Undue Influence - Fraud - Misrepresentation – Mistake - Legality of Object - Performance of Contract - Discharge of Contract, By Agreement, By Operation of law, By Breach, By Performance, By Impossibility, By Lapse of time-Breach of Contract-Remedies for Breach of Contract-Quasi Contracts.</p>	15	CO2
III	<p>Indemnity, and Guarantee, Bailment and Pledge</p> <p>Indemnity - Right of indemnity holder when sued and Right of indemnifier - Time of Commencement of indemnifier's liability - Guarantee - Essential features - Kinds of Guarantee - Bailment – Requisites of bailment-Classification–Duties and Rights of Bailor and Bailee - Pledge - Rights and Duties of Pledger and Pledgee – Pledge by Non-Owners-Law of Agency-Lien-Rights relating to Lien - Hypothecation - Charge - Mortgage</p>	10	CO3
IV	<p>Sale of Goods Act, 1930</p> <p>Sale and Agreement to Sell – Meaning - Distinction - Essentials of a contract of sale - Hire Purchase – Pledge – Mortgage – Hypothecation – Lease – Goods: Classification of Goods, Passing of Property in Goods - Conditions and Warranties, Distinction, Express and implied conditions & warranties - Doctrine of Caveat emptor - Transfer of ownership in goods including sale by non-owners - Rights of an unpaid Seller, Buyer's right, Seller's right – Remedies for breach of contract of sale – Auction sale</p>	15	CO4

V	Competition Law, 2002 and Intellectual Property Act Concept of Competition - Need & Importance of Competition Law - Features - Anti Competitive Agreements – Abuse of dominant position – Combinations – CCI (Competition Commission of India) Intellectual Property – Meaning, Types, Overview of Law governing IPR for Copyrights, Trademarks, Patents and Geographical Indications	15	CO5
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TEXT BOOKS:

1. Kapoor, N.D. (2020). *Elements of Merchantile Law*. New Delhi. India: Sultan Chand and Sons
2. Sreenivasan, M.R. (2020). *Business Law*. Chennai, India: Margham Publications.
3. Kuchcal, M.C. (2018). *Mercantile Law*, New Delhi. India: Vikas Publishing House Pvt. Ltd.

REFERENCE BOOKS

1. Arora, S. (2021). *Business Law*, New Delhi. India: Taxman Publications.
2. Dhingra, J. (2019). *Business Law*, New Delhi. India: Kalyani Publishers.
3. Bose, D.C. (2019). *Business Law*, New Delhi. India: PHI Learning Pvt. Ltd.
4. Charantimath, N.A. (2017). *Business Law*. Mumbai, India: Himalaya Publishing House.

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. <https://www.icaai.org>
2. <https://www.icsi.in>
3. www.cramerz.comwww.digitalbusinesslawgroup.com
4. <http://swcu.libguides.com/buslaw>
5. <http://libguides.slu.edu/businesslaw>
6. www.cramerz.com
7. www.digitalbusinesslawgroup.com
8. <http://swcu.libguides.com/buslaw>

Course Title: CORE VII: BANKING THEORY AND PRACTICE

Course Code : 45309	Credits : 4
L:T:P:S : 5:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to get an overview of Indian Banking system, gain knowledge on the technological concepts prevalent in the banking industry, be acquainted with the services under retail and wholesale banking, and be familiarized with negotiable instruments,

Course Outcomes: At the end of the course, the student will be able to:

CO1	Explain the conceptual framework of banking and the role of RBI
CO2	Recall and understand the various functions of commercial banks and its loan system
CO3	Develop the knowledge on various aspects of retail banking and customer grievances and redressal
CO4	Understand the various services provided by banks under wholesale banking
CO5	Know the laws governing the banks under the Negotiable Instruments Act

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	2	3	1	2	1	1	1	3	3	1	3	1
CO2	2	3	1	1	1	2	1	3	3	1	3	1
CO3	3	2	2	2	1	2	1	3	3	1	3	2
CO4	3	3	2	2	1	2	1	3	3	1	3	2
CO5	3	3	2	2	1	1	1	3	1	1	3	1

MODULE	CONTENTS OF MODULE	Hours	COs
I	<p>Banking in the Indian Context - Banking Regulation Act, 1949: Definition of Banking, Licensing, Opening of branches, Functions of Banks, Inspection - Other Forms of Business Permitted for a Banking Company - Businesses Prohibited for a Banking Company - Maintenance of Liquid Assets - Submission of Monthly Returns - Restrictions on Advances - Role of RBI and their functions - Reserve Banks Powers on Inspection - Reserve Banks Powers to Issue Direction</p> <p>- Reserve Banks Power to Control Advances - Tools of Monetary Control-Regulatory Restrictions on Lending-Current affairs-Money market- Financial Inclusion.</p>	12	CO1
II	<p>Commercial Banks and Financial awareness - Functions of commercial banks - Primary, Secondary and Modern Functions - Loan System - Classification of Loans and Advances -Secured and Unsecured - Guaranteed Advances – Types of Borrowings – Precautions to be taken by a banker-General Principles of Sound – Advances – Advances against Goods - Advances against Documents of Title to Goods - Important Documents of Title to Goods –Credit Information Bureau (India) Limited (CIBIL) - Fair Practices Code for Debt Collection – Banking Codes and Standard Board of India (BCSBI) - Role and Functions of BCSBI - Fair Practices Code for Debt Collection-Codes of BCSBI – Precautions taken by banker.</p>	20	CO2
III	<p>Retail Banking: Retail asset - Secured loans and Unsecured loans - Retail Liabilities: Branch Banking - Savings Bank Accounts, Recurring Deposit or Cumulative Deposit Accounts, Current Accounts - Types of customers (Individuals, Firms, Trusts and Companies) - CASA - Legal Aspects of Entries in the Passbook – Effect of Wrong Entries in favor of the Banker - Effect of False Entry in the Pass Book - Closing of a Bank Account - Importance of customer relations – Customer grievances and redressal - Ombudsman - Know Your Customer (KYC) norms</p>	18	CO3

IV	Wholesale Banking - Financial solutions to corporate - Capital Market - Custody Group - Structured Finance and Portfolio Management Project Finance - Strategic Solutions – Syndication and advisory - Credit Monitoring - Credit Risk Management - Cash management services - Group Style of Credit - Cash Credit System - Commitment Charge - Overdrafts - Loan System - Classification of Loans and Advances - Secured and Unsecured - Guaranteed Advances – Types of Borrowing – IMPS – SWIFT – NEFT - RTGS	15	CO4
V	Negotiable Instruments Act,1881 - Definition of Negotiable Instrument - Characteristics of negotiable instrument - Promissory Note -Definition, Features of Promissory Note - Definition of Bills of Exchange, Features, Types - Bill of Exchange and Promissory Note - Holder and Holder in Due Course-Payment in Due Course – Holder for Value – MICR Cheque - Definitions - Distinguishing Features of Cheque - Crossing, Types of crossing - Endorsement, Types of endorsement – Material Alteration - Paying Banker - Rights and Duties – Statutory Protection - Dishonour of Cheques - Role of collecting banker	10	CO5

TEXT BOOKS:

1. Santhanam, B. (2012) *Banking Theory Law & Practice*. Chennai, Tamil Nadu: Margham Publications.
2. Sundaram, K.P.M & Varshney, P.N. (2014) *Banking Law Theory and Practice*. New Delhi, India: Sultan Chand &Co.
3. Muraleedharan, D. (2014). *Modern Banking Theory and Practice*, New Delhi, India: PHI Learning Pvt. Ltd.

REFERENCE BOOKS:

1. Maheswari, S.N. (2014). *Banking Law Theory and Practice*. New Delhi. Kalyani Publications
2. Gordon,E.&Natarajan,K.(2016).*BankingTheoryLawandPractice*.Mumbai,India:Himalaya Publishing House.
3. Tandon, D & Tandon, N (2015). *Management of Banks*. New Delhi, India: Taxmann Publications.
4. Shekhar, K. C. & Shekhar, L. (2013). *Banking Law Theory and Practice*. New Delhi,India: Vikas Publishing

Note: Latest Edition to be used.

WEB RESOURCES

1. <http://www.lawcommissionofindia.nic.in/>
2. <http://www.rbi.org/>
3. <http://www.bankingombudsman.org/>
4. <http://www.allbankingsolutions.com/Banking-Tutor/Pledge-vs-Hypothecation-vs-Mortgage.htm>
5. <https://indianmoney.com/articles/relationship-between-the-banker-and-customer>

<https://financialservices.gov.in/sites/default/files/Negotiable%20Instruments%20Act1881>

Course Title: CORE XI - CORPORATE LAW

Course Code : 45413	Credits : 4
L:T:P:S : 5:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to gain knowledge on the procedures of company formation, meetings and quorum, process of profit distribution and maintenance of company accounts and understand the legal framework of LLP and IBC.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the procedures relating the formation of a company and raising share capital.
CO2	Explain the process of profit distribution and maintenance of accounts.
CO3	Demonstrate the importance of meetings and the quorum required for a meeting and the resolutions that have to be taken depending upon the business decisions.
CO4	Get an insight over Limited Liability Partnership Act, 2008
CO5	Understand the framework of Insolvency and Bankruptcy Code Act.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	2	2	3	2	2	1	1	3	2	2	3	3
CO2	1	1	3	3	2	1	1	3	2	2	3	2
CO3	1	1	1	1	1	1	1	3	1	2	3	1
CO4	1	1	1	3	1	1	1	1	1	2	2	2
CO5	1	2	3	2	1	1	1	3	3	3	3	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	<p>Introduction and Basics, Company Formation, Share Capital, Shareholders and Members (as per the Companies Act, 2013) Introduction - Characteristics of a company - Lifting of corporate veil - Types of companies including one person company, small company and producer company – Association not for profit, illegal association - Formation of company – Promoters, their legal position - Pre-incorporation contract and provisional contracts - Online registration of a company - Memorandum of Association - Doctrine of Ultra Vires - Articles Of Association Contents & Alteration, Distinguish between MoA and AoA - Share capital and shareholders – Prospectus - Statement in Lieu of Prospectus – Meaning, Types of capital - Concept of issue and allotment - Rights and Bonus issue - Dematerialisation of shares - Criteria to become a member, Rights of members - Declaration of Beneficial Interest - Difference between members and shareholders.</p>	20	CO1
II	<p>Profit Distribution & Accounts Profits and Divisible Profits – Declaration and Payment of Dividend – Unpaid Dividend – IEPF in case of Unpaid Dividend – Punishment for failure to pay Dividend - Right to Dividend - Books of Accounts – Consolidation of Accounts - Financial Statements – Reopening of Financial Statements – Voluntary revision of Financial Statements</p>	20	CO2
III	<p>Company Meetings and Management Composition of the board – Introduction to committees - Powers and liabilities of Directors – Number of directors, Types of Directors, Qualification of directors, DIN - Types of company meetings – Quorum - Minutes of meetings – Agenda - Proxies - Voting & Poll - Resolution - Ordinary and Special</p>	10	CO3
IV	<p>The Limited Liability Partnership Act, 2008 Salient Features, Difference between LLP & Partnership, LLP & Company – Formation & Administration of LLP – Compliances under LLP Corporate Social Responsibility Applicability - Policy Drafting – Procedure to be followed by company - Intimation to ROC - Computation of amount to be spent - Purpose for which amount can be spent- consequences of non – Compliance.</p>	10	CO4

V	Insolvency and Bankruptcy Code (IBC) Insolvency and Bankruptcy - A Comparison - Legal Framework for Insolvency and Bankruptcy In India - Objectives of the Code - Structure of the Code - Applicability of the Code - Features of the Code - Institutional Framework under the Code - Voluntary Liquidation under Chapter V - Benefits of IBC	15	CO5
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TEXT BOOK:

1. Kapoor, N.D. (2020). *Elements of Company Law*. New Delhi, India: Sultan Chand & Sons.
2. Sreenivasan, M.R. (2020), *Company Law as per Companies Act, 2013*. Chennai, India: Margham Publications

REFERENCE BOOKS:

1. Kapoor, G.K. & Dhamija, S. (2021). *Company Law*. New Delhi, India: Taxmann Publications
2. Bagriyal, A.K. (2019). *Company Law*. New Delhi, India: Vikas Publishing House Pvt. Ltd.
3. Maheswari, S.N. & Maheswari, S.K (2016). *Company Law*. Mumbai, India: Himalaya Publishing House
4. Garg, K.C, Dhingra, J. & Gupta, V. (2020). *Company Law and Secretarial Practice*. New Delhi, India: Kalyani Publications

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. ICSI Study Material for IBC - <https://www.icsi.edu/media/webmodules/CompanyLaw.pdf>

Course Title: CORE XII - BUSINESS COMMUNICATION

Course Code : 45414	Credits : 4
L:T:P:S : 5:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to improve his verbal and written communication and presentation skills and train and prepare for placements.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Apply communication tools, strategies, and principles to make communication more effective
CO2	Develop an understanding about appropriate verbal skills of communication and presentation skills
CO3	Prepare various forms of business letters, reports, business proposals and forms of internal communication tools
CO4	Explain and illustrate the various interpersonal communication including etiquette and netiquette
CO5	Groom and prepare themselves for placements through various stages

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	3	3	1	2	2	2	3	2	1	3	2	1
CO2	3	3	1	2	2	2	2	2	1	3	2	1
CO3	3	2	1	2	2	1	2	2	1	2	1	1
CO4	3	1	1	2	3	1	2	3	2	1	2	1
CO5	3	1	1	2	3	1	2	3	1	1	2	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to communication: Importance of Business Communication- Types and Effectiveness - Seven Cs of Communication. Using technology to improve business communication - Cross-cultural communication and their challenges in a global field – Technical writing – Executive Summary/Abstract Writing	12	CO1
II	Verbal Communication Effective Public Speaking - Body Language - When, What, How, To Whom to Speak - Presentation skills - Delivering the business presentation using visual aids, Handouts - Glossophobia and Low confidence - Mastering listening skills - Conversational Skills - Criss-Cross communication: upward, downward, lateral, formal, informal, grapevine.	20	CO2
III	Business Correspondence (Written) Guidelines to business communication - Formal & informal Writing - Tools of Business writing - Business Letter, Claims & Response to Claims (Accept, Reject, Partially Accept) – Report writing - Business Proposals - Circular, Notice, Memorandum.	18	CO3
IV	Interpersonal Communication Netiquette (email & online), Telephone Etiquette, Social Etiquette, Dress Etiquette (Corporate Dressing) - Effective Team Communication - Team building, Team spirit – Time management - Agenda, Minutes of meetings – Podcasts – Feedback - Importance of Feedback, Kinds: No Feedback, Positive, Negative, Specific feedback, Constructive Criticism.	17	CO4
V	Placement Grooming Cover Letter, Resume Writing, Pre-Placement Talk, Tests: Aptitude, Technical. Group Discussions, Personal Interview.	8	CO5

TEXT BOOKS:

1. Nawal, M. (2020). *Business Communication*. New Delhi, India: Cengage
2. Rath, P., Shalini, K. & Ray, D. (2018). *Corporate Communication*. New Delhi, India: Cengage
3. Gupta, C.B. (2019). *Essential Business Communication*. New Delhi, India: Cengage
4. Rajendra Pal & Korlahalli J.S. (2015). *Essentials of Business Communication*. New Delhi, India: Sultan Chand & Sons.
5. Taylor, S. (2005). *Communication for Business*. New Delhi, India: Pearson India Education Services.

REFERENCE BOOKS

1. Jain,N. & Mukherji,S. (2020). *Effective Business Communication*. New Delhi, India: McGraw Hill India Pvt. Ltd.
2. Mohan, K. Mohan, R.C. & Nirban, V.S. (2020). *Business Correspondence & Report Writing*. New Delhi, India: McGraw Hill India Pvt. Ltd.
3. Rai, U. & Rai, S.M. (2019). *Business Communication*. Mumbai, India: Himalaya Publishing Pvt. Ltd.
4. Bovee, C.L., Thill, J.V. & Raina, R.L. (2018). *Business Communication Today*. New Delhi, Pearson India Education Services

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. www.businesscommunication.org

SEMESTER V

Course Title: CORE XIII - **BASICS OF COST ACCOUNTING**

Course Code : 45515	Credits	4
L:T:P:S : 6:0:0:0	CIA Marks	: 50
Exam Hours : 03	ESE Marks	: 50

Learning Objectives:

On taking this course the student will be able to possess in-depth knowledge about the basic cost concepts and its objectives, apply cost control and reduction techniques in practical, determine stock levels for efficient materials management, compute labour costs, analyze the implication of overheads and their effective apportionment, prepare the cost ledger and reconcile the cost and financial statements.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Demonstrate the basic concept of cost and cost accounting and how to compute the cost of a product by preparing a cost sheet and quotation for a production industry.
CO2	Discover the need for fixing stock levels for production and its computation. Prepare stores ledger to value of closing stock and the cost of goods sold or sent for production
CO3	Understand the different wage payment systems and their computation, the concept of labour cost and labour turnover and their computation
CO4	Develop knowledge regarding overheads and the concept of allocation and apportionment of overheads to various departments on a suitable basis.
CO5	Create cost ledger and identify the reasons for disagreement of profit and prepare the reconciliation statement

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	1	2	3	3	2	2	2	3	2	3	2	2
CO2	2	2	2	3	1	3	1	2	2	1	2	1
CO3	3	3	2	3	2	2	1	2	2	2	1	1
CO4	2	2	3	3	1	1	1	2	3	3	2	1
CO5	-	1	3	3	1	2	1	2	1	3	2	1

MODULE	CONTENTS OF MODULE	Hours	COs
I	CAS-1: Meaning, nature and scope of Cost Accounting, Cost analysis, Concepts and Classifications, Differences between Cost and Management accounting, Cost and Financial accounting, Cost control and Cost reduction: Meaning, Importance and Distinction- Techniques of cost control – Cost Sheet: Purpose, Preparation of cost sheet, tender and quotation	20	CO1
II	CAS-6: Material purchase control: Level, aspects, need and essentials of material control - Stock level determination - Maximum, Minimum, Reorder, Danger and Average - Stores control - Stores Department, EOQ, Stores records, ABC analysis, VED analysis - Material costing: Issue of materials: FIFO, LIFO, Weighted Average Method – Other methods: HIFO, Simple Average Method, Market price, Base stock method and Standard Price method	20	CO2
III	CAS-7: Labour: Essentials of a good wage system, Methods of Wage Payment: Time Rate, Piece Rate, Taylor, Halsey and Rowan - Different types of Bonus plan: Gantt’s task and bonus plan, Merricks multiple piece rate system - Causes of Labour Turnover, Methods of calculating labour turnover: Separation method, Replacement and Flux method - Methods of reducing labour turnover	20	CO3
IV	CAS-3: Overheads: Meaning and Definition, Importance of overhead costs, Classification of overhead costs, Codification of overheads – Departmentalisation of overheads – Methods of apportionment of overheads: Primary and Secondary apportionment – Under-absorption and over-absorption of overheads - Machine hour rate: Meaning, Importance and Computation	15	CO4
V	Preparation of cost ledger – Integral & Non-Integral Accounts - Reconciliation of Cost and Financial Accounts	15	CO5

PROPORTION OF THEORY WILL BE 20% AND PRACTICAL 80%

TEXT BOOK:

1. Khan, M.Y. & Jain, P.K. (2017). *Cost Accounting*. New Delhi, India: McGraw Hill (India) Pvt. Ltd.
2. Maheswari, S.N. & Mittal, S.N (2021). *Cost Accounting Principles and Practice*. New Delhi, India: Shree Mahavir Book Depot
3. Lal, J. & Srivastava, S. (2020). *Cost Accounting*. New Delhi, India: McGraw Hill (India)Pvt. Ltd

REFERENCE BOOKS:

1. Reddy, T.S. & Hariprasad Reddy, Y.T. (2020). *Cost Accounting*, Chennai, India: Margham Publications
2. Jain, S.P & Narang, K. L. (2019). *Cost Accounting*. New Delhi, India: Kalyani Publications
3. Singh, M. & Chauhan, M. (2020). *Cost Accounting*. Mumbai, India: Himalaya Publishing House.
4. Dr. Gupta, S., Dr. Reeta & Dr. Rao, R.P. (2020). *Cost Accounting*. New Delhi: India: Sultan Chand & Sons

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. www.cost-accounting-info.com
2. www.introtocost.info
3. <https://fasab.gov/resources/managerial-cost-accounting-resources>

Course Title: CORE XVI: CUSTOMS AND GOODS & SERVICE TAX

Course Code : 45518	Credits : 4
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able to acquire knowledge on the concept of goods and service tax, its implementation and applications in the current business environment and its registration and payment procedures through the electronic ledger.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the concept of Indirect Tax and Custom Laws and exemption of duties
CO2	Build knowledge on concepts of GST and the implementation of GST in India
CO3	Classify the Goods and services exempted from tax and understand the procedures of registration and collection of tax
CO4	Develop knowledge about Input Tax credit, tax credit in special circumstances and Reverse Charge Mechanism
CO5	Understand the taxability procedures on goods and services, advanced ruling and e-invoice

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	3	2	2	3	1	2	3	2	2	2	3	1
CO2	3	3	2	3	2	2	3	3	2	3	3	2
CO3	3	3	2	3	2	2	3	3	2	3	3	3
CO4	3	3	2	3	2	2	3	3	2	2	3	3
CO5	3	2	2	3	2	2	3	3	2	2	3	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to indirect tax and customs Introduction, Features of indirect tax , Role of indirect taxation, Merits and demerits of indirect tax – Customs law, Basic concepts, Territorial Waters, Types of custom duties, Levy and collection of custom duties, Exemptions from duty	15	CO1
II	Goods and Services Taxes (theory only) Genesis of GST in India, Concepts of GST, Need for GST, Benefits of GST, Framework of GST as introduced in India, Constitutional provisions, GST network. GST Council, GST Registration – Individuals Liable to get Registered – Compulsory Registration – Registration Procedure – GSTN.	15	CO2
III	Place, Time, Value of supply (theory only) Concepts of supply, Classification, Goods and services, Place of supply: within state, interstate, import and export – Time of supply – Valuation, Registration GSTN, Composite and mixed, Goods exempt from tax, List of services exempt from tax, HSN Code – SAC Code.	20	CO3
IV	Input tax credit and reverse charge mechanism Eligible and ineligible input tax credit, Doctrine of Unjust Enrichment, Apportionment of credit and blocked credit, Tax credit in respect of capital goods & special circumstances, Reversal, Reverse Charge Mechanism, Taxability of E-commerce – Taxability of OIDAR - E- way bills	15	CO4
V	Taxation under GST (Theory only) GST Returns – Types of GST Returns – GSTR1 (Outward Supply) – GSTR2 A&B (Inward Supply) – GSTR3B (Consolidated summary Return) – GSTR9 (Annual Return), Anti- profiteering, Payment of tax, Interest, Penalty, Interest on delayed payment of tax, Zero- rated supply	25	CO5

TEXT BOOK:

1. Reddy, T.S. & Murthy, A. (2019). *Business Taxation (Goods & Service Tax-GST)*. Chennai, India: Margham Publishers.
2. Datey V S. & Sachdeva, K. (2018), *Principles of GST and Customs Law*. Chennai, India: Taxmann Publications
3. Saha, R.G., Dr. Shah, D. & Dr. Usha Devi, N. (2020). *GST (Indirect Taxes)*. Mumbai, India: Himalaya Publishing House

REFERENCE BOOK:

1. Dr. Mehrotra, H.C. & Prof. Agarwal, V.P.(2018). *Goods & Service Tax (GST)*. Agra, India: Sahitya Bhavan Publication
2. Bansal, K. M. (2021). *GST & Customs Law*. Chennai, India: Taxmann Publication.
3. Dr. Varadharaj, S. (2019) *Indirect Taxation (GST and Customs)*. Chennai: India. Sri Rudhra Learning.

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. <https://icmai.in/upload/Students/Syllabus2016/Inter/Paper-11-Jan2021.pdf>
2. <https://www.icsi.edu/media/webmodules/Reading%20Material%20Indirect%20Tax.pdf>
3. https://www.researchgate.net/publication/333448381_indirect_tax_GST_book/link/5cee5bb2a6fdcc18c8e9b70f/download

Course Title: CORE XVIII: COSTING METHODS AND TECHNIQUES

Course Code : 45621	Credits : 4
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to understand the costing procedures in various industries like job, process, contract and service and gain knowledge on the emerging trends in cost management and its applications.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the job costing procedures and determine the economic batch quantity
CO2	Identify the operating costing procedures in various service industries and Apply the operating cost techniques
CO3	Analyze the various industries using a process costing and prepare process accounts
CO4	Understand the contract costing system and ascertain notional profits for various contracts
CO5	Build knowledge regarding new costing techniques and apply those techniques for effective cost management

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	1	2	2	3	-	2	1	2	2	3	2	2
CO2	2	3	3	3	1	2	1	3	2	3	3	2
CO3	1	2	2	3	1	3	2	2	1	2	1	2

CO4	2	2	3	3	1	2	1	3	2	2	1	1
CO5	2	2	1	1	2	1	1	3	2	3	2	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	Job & Batch Costing Job Costing: Meaning, Definition of job, Features, Objectives, Merits & demerits – Job Costing Procedures - Batch Costing: Meaning, Determination of Economic Batch Quantity (EBQ)	15	CO1
II	Operating Costing: Meaning, Application of operating costing method, Operating cost units – Operating costing in Transport, Power Supply, Cinema Theatre, Hospital and Lodging house.	15	CO2
III	Process Costing: Meaning of Process costing, Characteristic features, Types of industries using process costing, Advantages of process costing, Disadvantages of process costing–Difference between process costing & job costing - Important aspects of process costing – Process Losses-Normal, Abnormal loss & gain - Process a/c's involving two or three accounts - Scrap value (Excluding inter-process profits and equivalent production)	20	CO3
IV	Contract costing: Characteristic features of contracts and contract costing, System of contract costing - Recording of costs of a contract – Recording of value and profit on contracts – Profit/loss on contracts - Meaning of Notional profit, Computing notional profit based on different phases of completion-Meaning of escalation clause - Need and Importance	25	CO4
V	Emerging trends in cost accounting (Theory only): Target costing: Features, Advantages, Methodology, Methods of establishment of target costs – Activity Based Costing–Problems with traditional costing, concept and usefulness of activity based, cost allocation and stages under ABC - Life cycle: Meaning of life cycle, Characteristics of life cycle, Importance and benefits, Product life cycle costing concept	15	CO5

PROPORTION OF THEORY WILL BE 20% AND PRACTICAL 80%

TEXT BOOK:

1. Khan, M.Y. & Jain, P.K. (2017). *Cost Accounting*. New Delhi, India: McGraw Hill (India) Pvt. Ltd.
2. Maheswari, S.N. & Mittal, S.N (2021). *Cost Accounting Principles and Practice*. New Delhi, India: Shree Mahavir Book Depot
3. Lal, J. & Srivastava, S. (2020). *Cost Accounting*. New Delhi, India: McGraw Hill (India) Pvt. Ltd.

REFERENCE BOOKS:

1. Reddy, T.S. & Hariprasad Reddy, Y.T. (2020). *Cost Accounting*, Chennai, India: Margham Publications
2. Jain, S.P & Narang, K. L. (2019). *Cost Accounting*. New Delhi, India: Kalyani Publications
3. Singh, M. & Chauhan, M. (2020). *Cost Accounting*. Mumbai, India: Himalaya Publishing House.
4. Dr. Gupta, S., Dr. Reeta & Dr. Rao, R.P. (2020). *Cost Accounting*. New Delhi: India: Sultan Chand & Sons

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. www.cost-accounting-info.com
2. www.introtocost.info
3. <https://fasab.gov/resources/managerial-cost-accounting-resources>

Course Title: ELECTIVE II: (B) COMPUTERIZED ACCOUNTING SYSTEM

Course Code : 45623 (B)	Credits : 5
L:T:P:S : 2:0:4:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able increase his employability skills in the area of accounting through the practical application of the concepts of financial accounting using Tally Prime.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the Basic Concepts of Tally
CO2	Apply the various concepts of Accounting in Tally.
CO3	Post the Order Processing activities using Tally.
CO4	Post GST entries and prepare the GST return using Tally.
CO5	Illustrate the payroll process in Tally.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	3	2	2	2	1	2	3	2	-	1	2	2
CO2	3	3	3	3	2	2	3	3	2	2	2	2
CO3	3	2	2	3	2	2	3	2	1	1	2	2
CO4	3	3	2	2	2	2	3	3	3	2	3	2
CO5	3	2	2	2	2	2	3	3	2	2	2	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to Basic Accounts – Introduction to Tally – Gateway of Tally - Company Creation - Accounts Info – Group – Ledger – Single ledger Creation – Multiple Ledger Creation – Inventory Info – Inventory Creation – Stock Group - Units of Measures – Accounting Voucher – Inventory Voucher	20	CO1
II	Cost Centre and Cost Category – Batch wise Details – Price List – Multiple Currency – Bill of Material – Budget and Control – Multiple Godown	20	CO2
III	Order Processing – Sales Order Processing – Purchase Order Processing –Receipt Note – Delivery Note – Order reference – Rejection In – Rejection Out.	20	CO3
IV	Enabling GST – Defining Details – Creation of GST Ledgers – Posting Entry using GST details – GST Reports – ITC Claim – GST Tax Payments – E-filling of GST returns – Vendor TDS.	10	CO4
V	Payroll Administration – Pay Heads – Pay Group –Payroll Voucher – Employee TDS.	20	CO5

REFERENCE BOOKS:

1. Ahamed, R.P. Tally. ERP 9. Chennai, India: Margham Publications.
2. Tally. ERP 9 Auditors' Edition Statutory Audit Reference Book. (2011). Tally Solutions Pvt Ltd.

Note: Latest Edition of the Reading to be used.

WEB RESOURCES

1. Tally. ERP 9 Auditors' Edition Statutory Audit Reference Book, Tally Solutions Pvt. Ltd.
Available at:
<http://mirror.tallysolutions.com/Downloads/Presentations/Chartered%20Accountants/Manuals/StatAuditReferenceBook.pdf>

ASSESSMENT

CIA – Attendance - 5 Marks, Practicals - 30 marks; Internal Test – 15 marks

ESE – Practical Examination for 100 marks (30 marks for VIVA, 20 marks for Record and 50

marks practicals in Lab)

Course Title: ELECTIVE III: (A) ENTREPRENEURIAL DEVELOPMENT AND START UP

Course Code : 45624 (A)	Credits : 5
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able to understand the concept of entrepreneurship, identify significant changes and trends which create business opportunities, analyze the environment for potential business opportunities and provide conceptual exposure on converting idea to an entrepreneurial firm

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the basic concepts of entrepreneurship
CO2	Develop a B-Plan by the evaluation of business ideas and conduct of feasibility study
CO3	Understand the various institutions providing support to entrepreneurial ventures
CO4	Analyze the favorable environment required to run the venture successfully and the role of the government
CO5	Criticize the challenges faced by women and rural entrepreneurs

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO	PSO
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	1	2	3	4	5	6	7	1	2	3	4	5
CO1	2	2	3	3	3	2	1	1	1	2	1	3
CO2	2	2	3	3	3	2	2	1	-	1	2	3
CO3	1	2	1	1	2	2	1	1	1	-	2	3
CO4	1	2	3	2	3	3	1	1	3	2	1	3
CO5	1	2	3	2	3	2	1	1	1	1	-	3

MODULE	CONTENTS OF MODULE	Hours	COs
I	Concept of Entrepreneurship: Entrepreneur - Meaning - Evolution - Functions of an entrepreneur - Traits of an Entrepreneur - Classification of Entrepreneurs – Myths on entrepreneurs – Concept of Intrapreneur – Entrepreneur Vs Intrapreneur - Concept of entrepreneurship – Factors promoting Entrepreneurship – Factors affecting entrepreneurial growth - Reasons for promoting Entrepreneurship - Barriers to entrepreneurship - Reasons of failure	15	CO1
II	Start Up - An Overview: Business Model - Generation of Ideas - Sources of New Ideas - Methods of Generating Ideas, Opportunity Recognition – Feasibility Study: Market, Technical/Operational, Financial, Legal & Social - Opportunity Assessment–Developing an effective Business Plan–Execution of Business Plan - Student Start-up Policy – Government Schemes to support start-ups – Coworking Spaces – Business Accelerators	20	CO2
III	Resource Mobilization & Institutional Support: Angel investors – Crowd-funding - Venture Capital Funds – Stock Market – Supply Chain Finance - Institutional support to entrepreneurs – Need - DIC, TANSIM, NSIC, MSMEDI, SSIC, SIDCO, SIPCOT, IIC, KVIC - Entrepreneurial Development Programs (EDP)– Objective, Need and Relevance of EDPs – Problems of EDPs	15	CO3

<p style="text-align: center;">IV</p>	<p>Managing Environments: Economic, Technological and Social Environment – Business Cycles – Industry Cycles - Role of Government in promoting entrepreneurship – Policies and Schemes for promotion of MSME in India – Incentives, subsidies & tax concessions – Supporting institutions -Failure, Causes and Preventive Measures – Turnaround Strategies.</p>	<p style="text-align: center;">20</p>	<p style="text-align: center;">CO4</p>
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V	Development of Women Entrepreneurship & Rural Entrepreneurship: Women Entrepreneurs – Concept –Growth – Challenges in the path of women entrepreneurship – Development of women entrepreneurship – Opportunities to Women Entrepreneurs – Initiatives, policies & schemes for women entrepreneurs – Grassroot entrepreneurship through Self- Help Groups (SHGs) - Rural entrepreneurship – Need, Importance, Types – Rural Industrialization: Advantages & types – Opportunities for rural entrepreneurs – Risks and problems faced by rural entrepreneurs	20	CO5
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TEXT BOOK:

1. Charantimath, P.M. (2019). *Entrepreneurship Development and Small Business Enterprises*. New Delhi: India. Pearson India Education Services
2. Desai, V. (2019). *Dynamics of Entrepreneurial Development and Management*, Mumbai: India. Himalaya Publishing House.
3. Gordon, E & Natarajan, K. (2020). *Entrepreneurship Development*. Mumbai, India: Himalaya Publishing House Pvt. Ltd.

REFERENCE BOOKS:

1. Fisher, S. & Duane, J. (2016). *The Startup Equation: A Visual Guidebook To Building Your Startup*. New Delhi, India: McGraw Hill (India) Pvt. Ltd.
2. Barringer, B.R. & Ireland, D.R. (2020). *Entrepreneurship: Successfully Launching Ventures*. New Delhi, India: Pearson Education
3. Holt, D.H. (2016). *Entrepreneurship*. New Delhi, India. Pearson Education

Note: Latest Edition of the reading to be used

WEB RESOURCES

1. <https://openstax.org/details/books/entrepreneurship>
2. <https://www.entrepreneur.com/>
3. <https://openpress.usask.ca/entrepreneurshipandinnovationtoolkit/chapter/chapter-1-introduction-to-entrepreneurship/>
4. <https://vtechworks.lib.vt.edu/bitstream/handle/10919/70961/Chapter%206%20Entrepreneurship%20-%20Starting%20a%20Business.pdf?sequence=11&isAllowed=y>

ELECTIVE III: (B) MARKETING MANAGEMENT

Course Code : 45624 (B)	Credits : 5
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able to understand the concepts of marketing and consumer behaviour and gain knowledge on the currently prevalent marketing environment.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the concepts and approaches in marketing and analyze the role of marketing in economic development
CO2	Identify the various factors influence consumer behaviour and locate Market Information system
CO3	Determine the elements of marketing mix and develop a new product plan
CO4	Apply different methods of pricing and create a channel of distribution
CO5	Recognize the E-marketing tools and evaluate the impact of social media marketing

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	3	3	2	2	3	2	2	2	3	-	1	3
CO2	3	3	3	2	3	1	1	3	2	3	-	3
CO3	3	2	3	3	2	2	2	2	1	2	1	3
CO4	2	2	3	2	1	3	1	3	2	1	2	2
CO5	3	2	3	2	3	1	2	3	2	1	2	3

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to Marketing : Marketing: Definition, Nature, Scope and Features of Marketing, Importance of Marketing - Concepts and Approaches to Marketing - Product vs. Service Marketing – Market: Classification of market - Role of Marketing in Economic Development - Innovations in Marketing - Meta marketing.	15	CO1
II	Consumer Behaviour: Definition of Consumer behavior, An overview of consumer behavior, Significance - Buying motives - Determinants of consumer behavior – Decision-making process - Market Segmentation, Bases of segmentation - Marketing Research, Process – MIS, Need for Marketing Information System.	20	CO2
III	Product & Marketing Mix strategies: Product, Features of a product – Classification of goods – Service product - Elements of marketing mix (7P's) - Product Line – Product positioning - Product differentiation - New product Development – Product Life cycle stages and strategies – Product Portfolio Management Framework – BCG Matrix, Ansoff Matrix - Branding - Packaging and labeling.	20	CO3
IV	Value design - Pricing, Place & Promotional strategies: Pricing: Objectives, Factors influencing pricing decisions, Kinds of pricing, Methods of pricing - New product pricing strategy- Channels of Distribution, Importance, Levels, Channel Members –Promotion – Communication Mix – Basics of Advertising, Sales Promotion and Personal Selling.	20	CO4
V	Development & Issues in Marketing: E-commerce: Significance of E-Commerce – e-Marketing, Tools of e- marketing, e-Tailing, Types of E-Tailers, Advantages of e-tailing - Shopping malls – Social Media Marketing, Importance of Social Media, Advantages and Disadvantages - Services Marketing – Intrusive Marketing - Green Marketing - Rural marketing – Direct Marketing – B2B & D2C marketing - Consumer Protection – Consumerism in India.	15	CO5

TEXT BOOK:

1. Kotler, P (2016). *Marketing Management*. New Delhi, India: Pearson Education
2. Pillai, R.S.N. & Bagavathi. (2018). *Modern Marketing Principles*. New Delhi, India: S.Chand & Co.

REFERENCE BOOKS:

1. Sontakki, C.N. (2018). *Marketing Management*. New Delhi, India: Kalyani Publishers
2. Dr. Jayasankar, J. (2013). *Marketing*. Chennai, India: Margham Publications
3. Karunakaran. K. (2017). *Marketing Management Text and cases in Indian context*. India: Himalaya Publishing House.
4. Sherlekar, S.A & Krishnamoorthy, R. (2018). *Marketing Management Concepts and Cases*. Mumbai, India: Himalaya Publishing House.

Note: Latest edition of the reading to be used

Mumbai WEB RESOURCES

1. www.learnmarketing.net
2. www.marketingprofs.com
3. www.marketmotive.com
4. www.marketing91.com

Course Title: ELECTIVE III: (C) HUMAN RESOURCE MANAGEMENT

Course Code : 45624 (C)	Credits : 5
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

This course will facilitate the student to gain knowledge on the concept of human resources and methods to make optimum use of human capital and also explore the knowledge of recent trends such as E HRM, Human Resource Audit and their contemporary issues.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the basic concept of human resource management and its evolution and challenges
CO2	Articulate human resource planning using quantitative and qualitative dimensions
CO3	List the methods of training and explain its role towards human resource development
CO4	Explain performance appraisal methods and their link with compensation.
CO5	Understand the concept of employee health, safety, digital HRM and the welfare measures of the employees.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	1	1	1	1	1	1	1	2	3	-	1	3
CO2	3	1	1	1	1	3	1	3	2	3	-	3
CO3	3	1	1	1	2	3	3	2	1	2	1	3
CO4	3	1	1	1	2	3	3	3	2	1	2	2
CO5	3	2	2	2	2	3	3	3	2	3	3	3

MODULE	CONTENTS OF MODULE	Hours	COs
I	Human Resource Management - Concept and functions, Role, Status and competencies of HR manager, HR policies, Evolution of HRM, Emerging challenges of Human Resource Management - Workforce diversity, Empowerment, Downsizing, VRS, Work Life Balance	15	CO1
II	Human Resource Planning - Quantitative and qualitative dimensions, Job analysis – Job description & job specification – Recruitment, concept & sources – Selection, concept & process - Test & interview – Placement - Induction & socialization, Retention - Artificial Intelligence in Talent Acquisition: Meaning, Role, Benefits, Application and Challenges of AI based Recruitment.	15	CO2
III	Training and Development - Concept and importance, Role specific and competency-based training, Training and development methods: Apprenticeship, Understudy, Job Rotation, Vestibule Training, Case Study, Role Playing, Sensitivity Training, In-basket, Management Games, Conferences and Seminars, Coaching and Mentoring, Management Development Programs, Training Process Outsourcing	20	CO3
IV	Performance appraisal & Employee Engagement Performance appraisal: Nature, objectives and process, Performance management, Methods of Performance Appraisal, Potential appraisal, Employee counseling, Job changes - Transfers and promotions - Human Resource Audit – Compensation, Concept and policies, Base & supplementary compensation, Individual, group & organization incentive plans, Fringe benefits, Performance linked compensation, Employee Stock Option, Pay Band Compensation System, Job Evaluation Employee Engagement: Meaning, Definition, Types, Importance, Factors; Benefits, Impact on performance, Methods to promote employee engagement.	20	CO4
V	Employee Health and Safety; - Employee welfare - Social Security (excluding legal provisions) - Employer-employee relations: An overview, Grievance handling & redressal - Industrial disputes, Causes & Settlement machinery - Digital HRM – Digital Workforce - Human Resource Information System & Digital HRM – Artificial Intelligence in Talent Acquisition - Impact of HRM practices on organizational performance - HR Audit, Contemporary issues in Human Resource Management	20	CO5

TEXT BOOK:

1. Khanka, S.S. (2019). *Human Resource Management – Text and Cases*. New Delhi, India: S. Chand Publishing.
2. Durai, P. (2020). *Human Resource Management* New Delhi, India: Pearson India Education Services.
3. Dr. Jayashankar, J. (2013). *Human Resource Management*, Chennai:India, Margham Publications.

REFERENCE BOOKS

1. Rao, V.S.P. (2020). *Human Resource Management*. Chennai, India: Taxmann Publications
2. Aswathappa, K. (2017). *Human Resource Management Text and Case*. New Delhi, India: McGraw Hill (India) Pvt. Ltd
3. Gupta, S.K. & Joshi, R. (2020). *Fundamentals of Human Resource Management*. Chennai, India: Kalyani Publishers.

Note: Latest Edition of the reading to be

used WEB RESOURCES

1. https://www.researchgate.net/publication/305954894_Human_Resource_Management_Theory_and_Practice/link/57a740ce08aee07544c130bd/download
2. http://www.opentextbooks.org.hk/system/files/export/32/32088/pdf/Human_Resource_Management_32088.pdf
3. <https://brauss.in/hrm-basic-notes.pdf>



DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE

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College with Potential for Excellence, Linguistic Minority Institution

Affiliated to University of Madras

Arumbakkam, Chennai –

600 106

Curricula developed and implemented with relevance to the local developmental needs

CORE PAPER – VI SOCIAL PSYCHOLOGY I

COURSE OUTCOMES

- CO1 - To Outline the nature, history, principles and scope of social psychology and methods used in social psychology research
- CO2 – To understand social cognition and its potential sources of error
- CO3 – To describe the strategies used to form and maintain positive impression.
- CO4 – To elucidate the ways to resist persuasion
- CO5 – To analyze the causes of marital happiness and relationship failure.

ALLIED III - STATISTICS IN PSYCHOLOGY

COURSE OUTCOMES

- CO1 –To interpret and classify a great deal of information.
- CO2 – To describe the information in the form of visual representation
- CO3 --To infer different elements of a sample or population.
- CO4 -- To summarize what already exists in a given population
- CO5 -- To compute, predict and prepare the results of a study



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Arumbakkam, Chennai – 600 106

PG DEPARTMENT OF JOURNALISM AND COMMUNICATION

1.1 CURRICULUM DESIGN & DEVELOPMENT

Curricula developed and implemented have relevance to the LOCAL developmental needs

Programme Name & Code – BA Journalism 61

Academic Year 2022-2023

	Course Title	COs of all courses
1.	Reporting for Media – I	CO1: Evaluate newsworthiness of information and understanding the structure of news flow. CO2: Demonstrate an understanding of story idea creation and alternative story forms in journalism CO3: Comprehend the basic structure and format of a hard/soft news story (lead, body, and conclusion). CO4: Produce Content for Print, Broadcast and blogs and websites CO5: Demonstrate an understanding of journalism ethics.
2.	History of Media in India	CO1: Students would be able to acquaint themselves with the glorious journey of journalism. CO2: Students would be able to enhance understanding of the origin and of the print, electronic and web media. Electronic and web media CO3: Students would be able to inculcate the knowledge of growth of print, electronic and web media 3.CO4: Students would be able to acquaint themselves with technological advancements in print, electronic and web media. CO5: Students would be able to throw light on the present status of various mass media.
3.	Designing: Photoshop, Illustrator and In Design	CO1: Gain knowledge about Visual Communication and its concepts. CO2: Acquire an insight of Communication Elements and its Process. CO3: Obtain familiar with Design Concept, Color Theory and the fundamentals of Graphic Design. CO4: Apply acquired communication skills effectively.



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		CO5: Apply the Models, Design, Color Concept and the Graphic Design in the media industry.
4.	Digital Storytelling	CO1: To understand various techniques behind history, culture, traditions, and craft of digital storytelling. CO2: To understand digital media and its effective use as a form of communication. CO3: To communicate ideas effectively in written, oral, and visual form to a range of audiences. CO4: To demonstrate mastery of the concepts, techniques, and tools in one or more digital media specialties. CO5: To develop professional quality digital media productions by promptly applying knowledge and skills including best practices and standards.
	Writing for Media – II	CO1: Understand the copy flow in a newspaper industry. CO2: Analyse the concepts and techniques behind newspaper writing. CO3: Comprehend the need for public relations. CO4: Understanding of different types of web writing. CO5: Understanding of news blogging and microblogging.
5.	Social, Economic and Political Issues in India	CO1: Assess social issues in India. Evaluate on various causes for social problems. CO2: Review on various social problems and its implications. CO3: Explain various forms in which Economic problems occur. CO4: Create news reports on political issues. CO5: Discuss environmental problem and its complexities while writing news stories.
6.	Broadcast Journalism	CO1: Explain the unique features of broad cast media and create particular content. CO2: Create news suitable for broadcast media CO3: Assess the writing trends based on genres of broadcast journalism. CO4: Apply ethical values and legal procedures while creating live reporting from the field. CO5: Engage in team work to produce appropriate content for media.



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7.	Copywriting and Editing	CO1: Understand the essential communication tool for print and broadcast journalists, public relation professionals. CO2: Understand the nuances of writing for media CO3: Comprehend and create Feature Stories, Obituaries, Rewrites and Roundups. CO4: Write effective articles for newsletters, prepare fliers and brochures and news releases. CO5: Analyse the role of translation in writing for the digital media
8.	Broadcast Journalism	CO1: Explain the unique features of broad cast media. CO2: Create news suitable for broadcast media. CO3: Assess the future trends in broadcast journalism CO4: Apply ethical values and legal procedures while creating live reporting from the field CO5: Make use of editing skills in constructing news for Television and Radio
9.	Political issues in India	CO1: Outline the evolution of political thoughts in India CO2: Analyse the democratic process and organization of political system in India CO3: Interpret the issues of governance and governability CO4: Evaluate marketing politics, themes and issues CO5: Relate media and politics
10.	Photo journalism	CO1: Make use of the knowledge of lighting while shooting indoor and outdoor photography. CO2: Create photo essay and photo feature for specific themes. CO3: Apply the technical knowledge while operating camera for the desired result. CO4: Construct a suitable composition in photograph to convey the intended message. CO5: Apply the principles of photography to create appealing photographs.
11.	Economic issues in India	CO1: Sketch the development of Indian Economy. CO2: Evaluate on various economic issues and its implications. CO3: Elaborate on various causes for economic problems.



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		CO4: Analyse liberlisation, globalisation and its consequences on Indian CO5: Create news stories on economic issues. society.
12.	Indian Constitution and Legal System	CO1: Outline the historical evolution of Indian Constitution. CO2: Appraise the special provision of Indian constitution relating to mass media. CO3: Analyse various constitutional amendments. CO4: Explain the judicial process, procedure and structure. CO5: Identify the need for reforming constitution.
13.	Film Appreciation	CO1: Appraise the technical, creative and aesthetic aspects of film Production CO2: Recognise the film language CO3: Appraise films in terms of style and mise-en-scene. CO4: Evaluate films in their historical context. CO5: Examine motion pictures as a technology, business, cultural, product, entertainment medium and industrial art form.
14.	Human Rights Reporting	CO1: Inculcate human rights approach in their Journalistic pursuits. CO2: Relate provisions in Indian Constitution for human rights issues. CO3: Evaluate the role of Human rights activist. CO4: Recognise various forms of Human rights issues. CO5: Aware of Civil, Political, Economic and social rights of the citizen.
15.	Press Laws and Ethics	CO1: Outline historical evolution of laws relating to press in India. CO2: Remember the important acts relating to mass media. CO3: Analyse the ethical issues in media. CO4: Explain the laws and constitutional provisions pertaining to human rights in India. CO5: Agree on the need for ethical practices while carrying out Journalistic duties.
16.	Online Journalism	CO1: Recognize the distinct characters of online Journalism. CO2: Familiarize with MOJO and Data Journalism. CO3: Trace the development of internet and online Journalism. Identify writing styles suitable for online Journalism.



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		CO4: Distinguish different tools to interact with audience. Use multimodality and interactivity while creating content for online Journalism. CO5: Recognize the distinct characters of online Journalism.
17.	Internship	CO1: Evaluate news sources for their credibility. CO2: Select and organise the news according to news values. CO3: Meet the deadline pressures. CO4: Adopt reporting, writing and editing skills for news creation. CO5: Acquire technical skills in producing the news.
18.	Writing for Media (Interdisciplinary Elective)	CO1: Analyse the structure of news reports. CO2: Make use of language proficiency in writing reports. CO3: Adopt good writing skills and create news reports. CO4: Acquaint with different writing styles for different formats of news. CO5: Familiarise different writing styles and applying creativity in writing for the media.
19.	Documentary	CO1: Acquire technical skills to produce a documentary. CO2: Employ creativity in producing a documentary. CO3: Realise the importance of team work. Choose topic which is relevant and select an inspiring angle. CO4: Adopt good writing skills in narrating the story. CO5: Conceptualise the topic to suit the target audience.
20.	News Production	CO1: Acquire the technical skills to produce news for broadcast media CO2: Organize the news according to news values for broadcasting CO3: Realise the need for accuracy. CO4: Acquire good writing skills while writing for news bulletins CO5: Employ ethical values in fact checking to produce the content of the news story
21.	Mass Communication Theories	CO1: Analyse the determinants of news content. CO2: Create news stories knowing the power and reach of media. CO3: Relate media society relationship.



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		CO4: Illustrate the evolution of mass media theories. CO5: Categorize and relate various events in the society to mass communication theories.
22.	Media Organization	CO1: Assess the conceptual issues in media organization. CO2: Interpret media as business and social institution. CO3: Examine the behaviour in media organization and organizational behaviour. CO4: Discuss organizational structures and functions of different departments in printing and publishing industry. CO5: Discuss the economics of media.
23.	Web Magazine	CO1: Acquire technical skills to produce Tabloid.
24.	Tabloid	CO2: Employ creativity in producing the Tabloid. CO3: Create contents suitable for different formats. CO4: Adopt ethical values in selecting and disseminating news. CO5: Discuss various perspectives of the news story before writing for publication.
25.	Environmental Journalism	CO1: Aware of the laws related to Environment. CO2: Realise the need to disseminate information about the current state of environment in order to protect it. CO3: Create contents suitable for different formats. CO4: Employ language proficiency in writing articles to create awareness about conservation. CO5: Follow ethical guidelines in reporting human-environment interactions.
26.	Advocacy Journalism	CO1: Distinguish Advocacy Journalism from Opinionated Journalism CO2: Follow Journalistic Standards and ethics while reporting CO3: Analyse the effectiveness and reach of Government policies. CO4: Relate to historical context while addressing an issue. CO5: Aware of contemporary issues in the society.
27.	Development Journalism	CO1: Aware of the problems related to the concept of Development. CO2: Critically evaluate government policies related to Development and its impact.



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		CO3: Analyse the role of International Agencies towards Development. CO4: Create content and approach the issue in various angles. CO5: Examine the reach of Development policies.
28.	Cultural Journalism	CO1: Analyse the impact of technology on Culture and relate culture as a social institution CO2: Examine the relationship between culture and politics. CO3: Study the relationship between culture and Economics. CO4: Recount the significance of culture in freedom of expression. CO5: Analyse the role of culture in solving social problem and transmitting values.



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PG DEPARTMENT OF JOURNALISM AND COMMUNICATION

1.1 CURRICULUM DESIGN & DEVELOPMENT

Curricula developed and implemented have relevance to the LOCAL developmental needs

Programme Name & Code – MA Journalism and Communication 48
Academic Year 2022-2023

	Course Title	COs of all Courses
1.	Human Communication	CO1: Understand the definition, need and importance of communication as expression and skill. CO2: Trace the importance of communication in human development. CO3: Learning communication patterns and its need in an organization. CO4: Gain adequate knowledge on public communication system. CO5: Apply knowledge of the theories of communication to practice.
2.	Reporting and Writing Skills	CO1: Evaluate newsworthiness of information and understanding the structure of news flow. CO2: Demonstrate an understanding of story idea creation and alternative story forms in journalism CO3: Comprehend the basic structure and format of a hard/soft news story (lead, body, and conclusion). CO4: Produce Content for Print, Broadcast and blogs and websites CO5: Demonstrate an understanding of journalism ethics.
3.	Editing Skills	CO1: Understand the Duties and Responsibilities of an Editor in a newspaper industry.



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		<p>CO2: Analyse the concepts and techniques behind news editing.</p> <p>CO3: Comprehend the basics of editing.</p> <p>CO4: Understanding of different types of fonts and type.</p> <p>CO5: Demonstrate an understanding of news editorials.</p>
4.	Information and Communication Technology	<p>CO1: Understand the Components of information & Communication</p> <p>CO2: Enable students to understand the basics of broadcasting and broadcasting agencies.</p> <p>CO3: Gain Knowledge of accountability in news production in digital scenario.</p> <p>CO4: Study the impact of Communication in Development</p> <p>CO5: Grasp elements of Communication in Development</p>
5.	Travel Photography	<p>CO1: Learn how to use the fundamental elements of photography in ways that convey a sense of place</p> <p>CO2: Deepen your understanding of the fundamental tools of travel photography</p> <p>CO3: Create expressive photographs that reveal your unique impression of a destination</p> <p>CO4: Reinforce the ongoing creation of travel photography both around the corner and around the world</p> <p>CO5: Develop the concept of digital output and producing the final product</p>
6.	Photo journalism	<p>CO1: Learn how to use the fundamental elements of photography in ways that convey a sense of place</p> <p>CO2: Deepen your understanding on analyzing and creating effective photographs</p> <p>CO3: Create expressive photographs that reveal your unique impression of a destination</p> <p>CO4: Understand and write text to accompany photography</p> <p>CO5: Develop the concept using photo editing and build visual sequences.</p>
7.	Media Skills	<p>CO1: Learn the elements and principles of composition</p>



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		<p>CO2: Deepen understanding to use different coloring technique and its practical applications in design.</p> <p>CO3: Understand multiple image types and to select best application of each for graphic design, print and the photography</p> <p>CO4: Utilize effectively multiple methods of manipulating the existing artwork and workspace</p> <p>CO5: Develop the concept of digital output and producing the final product</p>
8.	Online Journalism and Web Management	<p>CO1: Enable the students to understand the distinct characteristics of online journalism</p> <p>CO2: To develop skills to encourage the production of media messages using variety of digital tools.</p> <p>CO3: To encourage students to appreciate and participate in Digital Media content writing</p> <p>CO4: To help students to generate contents for each social media platforms and acquire the skills</p> <p>CO5: To help students create content with credibility and authenticity</p>
9.	Mass Communication Theories	<p>CO1: Analyse the determinants of communication theories</p> <p>CO2: Discuss the importance of studying theory</p> <p>CO3: Illustrate the evolution of mass media theories.</p> <p>CO4: Relate media society relationship from a political perspective.</p> <p>CO5: Categorize and relate various events in the society to mass communication theories.</p>
10.	Media, Culture and Society	<p>CO1: Understand the relationship between the state, media and the public.</p> <p>CO2: Critique the media content from the audience perspective</p> <p>CO3: Acquire deep knowledge on the functions and influence of Media in Culture and Society</p> <p>CO4: Analyze media performance and content from a gender perspective</p>



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		CO5: Evaluate the popular culture and its characteristics from a culture perspective.
11.	Communication Research Methods	CO1: Understand the basics of communication research CO2: Outline the basic framework of research process CO3: Explore several different kinds of samples and sampling techniques used in mass communication research. CO4: Understanding the basic conceptualisation behind perfect data collection CO5: Critically analyse research methods and develop the skills for writing a thesis.
12.	Digital Marketing	CO1: To understand the basic Concepts of Digital marketing and the road map for successful Digital marketing strategies. CO2: Creating market Positioning with respect to the Digital marketing CO3: Understanding the importance of Social media Platforms importance in Digital Marketing CO4: Collecting, analyzing, enabling and optimizing organization's digital ecosystem in the making of data-informed decisions. CO5: To understand the technological importance of digital marketing
13.	Human Interest Stories	CO1: To develop the ability to frame Human Interest stories which relates to current events and help people to evaluate the impact of such events CO2: To be able to write Human Interest stories to evoke the emotion of reader/viewer and raise awareness of worthy causes CO3: To create stories without losing the value of Human Interest Journalism CO4: Reinforce the ongoing creation of travel photography both around the corner and around the world CO5: Develop the concept of digital output and producing the final product



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14.	Cultural Journalism	<p>CO1: To write stories on arts and creative work, and on the individuals, institutions and policies that make or enable the creative work.</p> <p>CO2: To develop the aesthetic sense in the art and cultural coverage.</p> <p>CO3: To distinguish culturally valuable works from their lesser counterparts.</p> <p>CO4: To deduce the increased interconnectedness of economic and cultural processes.</p> <p>CO5: Develop the concept of digital output and producing the final product</p>
15.	Mobile Journalism	<p>CO1: To study the Socio-cultural implications of mobile phone communication and its contribution to information explosion.</p> <p>CO2: To understand the need, benefits and significance of mobile journalism.</p> <p>CO3: To learn the origins and characteristics of mobile journalism, differences and similarities with conventional journalism, and the applications of mobile journalism.</p> <p>CO4: To practically understand the usage of mobile phones as a reporting tool.</p> <p>CO5: To apply Mobile journalism techniques for different modes of news gathering and news processing, using open source voice, text and video.</p>
16.	News Production	<p>CO1: To understand the basic concepts of Broadcast Journalism</p> <p>CO2: To acquaint students with different modes of writings based on the technology and transmission.</p> <p>CO3: To identify and write record, produce and edit several formats of radio programmes including news stories, and features.</p> <p>CO4: To illustrate the basics of broadcast genres and essentials of journalism.</p> <p>CO5: To put theory to practice and produce digital outputs</p>
17.	Media Management	<p>CO1: To familiarize students to Indian media organization and their management practices.</p>



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		<p>CO2: To introduce students to principles of Media business management</p> <p>CO3: Understand Commercials and sponsorship in electronic media</p> <p>CO4: Evaluate the different Organizations roles and perform a career-oriented approach</p> <p>CO5: To create programs with credibility and accountability according to the uprising trending technologies</p>
18.	Advertising	<p>CO1: Analyse the different types of advertising& advertising agencies</p> <p>CO2: Understand the components of a brand image</p> <p>CO3: Learn the Elements of ad copy in advertisement</p> <p>CO4: To understand the Elements of media budgeting, planning and buying.</p> <p>CO5: Acquire knowledge on campaigning advertisement</p>
19.	Public Relation & Corporate Communication	<p>CO1: To learn the basic concepts of Public relation and its tools.</p> <p>CO2: Explore the role and importance of corporate communications</p> <p>CO3: Learn to conduct public relation campaigns</p> <p>CO4: To understand the techniques involved in maintaining the brand and organisational image</p> <p>CO5: To enhance their skills for organizing public relation campaigns and press releases</p>
20.	Dissertation	<p>CO1: To display the knowledge and capability required for independent work.</p> <p>CO2: To create, analyze and critically evaluate different technical/research solutions</p> <p>CO3: To clearly present and discuss the conclusions as well as the knowledge and arguments that form the basis for these findings</p> <p>CO4: To identify the issues that must be addressed within the framework of the specific dissertation in order to take into consideration</p>



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		CO5: To facilitate student to carry out extensive research and development project or technical project at place of work through problem and gap identification, development of methodology for problem solving, interpretation of findings, presentation of results and discussion of findings in context of national and international research.
21.	Documentary Production	CO1: To identify content from real life, books and print materials. CO2: To improve the data collection and research skills for documentary. CO3: To strengthen the script writing ability of the student. CO4: To draft a formal documentary proposal. CO5: To make a socially responsible documentary.
22.	Deprivation Coverage	CO1: To understand the concept of deprivation and its effect in society CO2: To explore and identify areas of deprivation. CO3: To improve the communication, questioning, listening, writing and news gathering skills. CO4: To incorporate human interest angle in the news stories. CO5: To write a factual news story on the deprivation.
22.	Event Management	CO1: To enables students to plan, execute and comprehend various events with relevant skills for each event. CO2: Acquire and apply the skills required to plan an event CO3: Enhance their innovativeness in managing the media CO4: Plan an event with the knack of organizational skill CO5: Demonstrate a planned event displaying promotional skills
23.	Developmental Communication	CO1: Aware of the problems related to the concept of Development



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		<p>CO2: Critically evaluate government policies related to Development and its impact</p> <p>CO3: Analyse the role of International Agencies towards Development</p> <p>CO4: Create content suitable for different formats</p> <p>CO5: Approach the issue in various angles. Examine the reach of Development policies</p>
24.	Health Communication	<p>CO1: Understand the role of communication and its affect in promoting and maintaining health and wellness for all individuals</p> <p>CO2: Develop effective health messages for individuals and publics by understanding how the media, literacy and policy affect the perceptions of health.</p> <p>CO3: Create a content in social media- based on agriculture, health, education, population planning, sanitation, environment protection and socio-economic development.</p> <p>CO4: Create photo stories which assess the factors that affect health literacy.</p> <p>CO5: Writing essay for health stories in effective manner</p>
25.	Media Laws and Ethics	<p>CO1: To learn the basic structure of Indian Constitution.</p> <p>CO2: Examines the various media laws, policy and regulatory frameworks in India</p> <p>CO3: Explore the legalistic perspective of IPR in media laws</p> <p>CO4: Apply knowledge of self-regulation and other ethical practices in profession</p> <p>CO5: Comprehend media constitutional laws and ways to solve simple media law cases.</p>
26.	Film Studies and Appreciation	<p>CO1: To understand various theoretical, historical, and critical approaches to films.</p> <p>CO2: Acquire knowledge on history of Cinema, cinema movements</p> <p>CO3: To facilitate exploration of the history of cinema and also critically analyze movies that are being screened.</p> <p>CO4: To understand how film reflects societal concerns.</p>



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		CO5: Analyse structures of power, economics, and ideology and Film Genres
27.	Digital Story Telling	CO1: To understand various techniques behind history, culture, traditions, and craft of digital storytelling. CO2: To understand digital media and its effective use as a form of communication. CO3: To communicate ideas effectively in written, oral, and visual form to a range of audiences. CO4: To demonstrate mastery of the concepts, techniques, and tools in one or more digital media specialties. CO5: To develop professional quality digital media productions by promptly applying knowledge and skills including best practices and standards.
28.	Internship	CO1: To extend the skills and knowledge they acquired from relevant theory components CO2: To create, analyze and critically evaluate experiential learning. CO3: To engage in continuous learning and development of new skills appropriate for their field CO4: To build professional portfolio. CO5: To facilitate students’ opportunity to work and experience actual operations in the real business world


Signature of the HOD

Signature of the Principal



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**DEPARTMENT
OF
B.COM (FINANCE AND TAXATION)**

Local Subjects

SYLLABUS

2022-2023

Semester	IV
Subject	INTERNSHIP(2WEEKS)
Credits	2 Credits
Examination	PresentationofReport–Evaluation&VIVA VOCE

1. The candidate is required to undergo 2 weeks internship with a business enterprise, preferably in the domain of Finance, Accounting & Auditing, Management consulting, Wealth Management, Tax Laws Practice, to gain exposure on the practical aspects of the Finance & Taxation and its application in business.
2. The Report shall be submitted and evaluation of the report shall be in form of presentation and it shall be jointly evaluated by the internal and external examiners for the award of credit.

Guidelines:

- Internship shall be undertaken during the vacation in Semester– IV
- The student shall report his / her organisation choice to the head of the department for approval and only after due approval, the internship shall be commenced.
- The student intern is expected to comply with the college code of conduct in all interactions with the intern organisation.
- After the completion of internship, the certificate of completion issued by the organisation concerned shall be submitted to the Head of the Department (within a week after the completion of the Internship)
- Internship shall be restricted to the Finance & Taxation only.
- The report shall be in the form of presentation to the Board of Examiners for the award of credits.

Course Structure: Paper IV

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	CORE PAPER-IV Indian Writing in English and in Translation		
Category of the Course C	Year & Semester First Year & First Semester	Credits 4	Subject Code 2265104
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Course Outcomes	CO1: Understand the evolution of Indian Writing in English (k2) CO2: Delineate the texts in their respective social, cultural and political contexts (k4) CO3: Deconstruct socio-cultural issues such as gender, caste and region (k4) CO4: Appraise the multiple linguistic and literary traditions (k4) CO5: Assess the varied relationships between literatures produced in different regional languages (k5) CO6: Appreciate the social, cultural and linguistic diversity of India (k5)		
Course Outline	UNIT I Indian Classical literary Tradition; impact of English Studies on India; Colonialism; Nationalism; Nativism and Expatriatism; Socio-Cultural issues such as gender, caste and region		
	UNIT 2 Poetry The following Selections from A.K. Ramanujan’s “Love and War” (The Oxford Indian Ramanujan , ed., Molly Daniels, OUP, 2004). Kapilar, Akananooru pg. 82 Purananooru pg. 356 Rabindranath Tagore Gitanjali: 12,36,63, 12) The Time my journey takes is long 36) This is my prayer to Thee 63) Thou hast made me known to friends Nissim Ezekiel “Background Casually” (Indian Writing in English ed. Makarand Paranjape,		

	K.K Daruwalla Mehrotra (OUP, 1992) ArunKolatkar Kamala Das	Macmillan 1993, p.112) “Hawk” from The Anthology of Twelve Modern Indian Poets Ed. A.K. <i>From Jejuri</i> The Bus A Scratch An Introduction, Dance of the Eunuchs
	UNIT 3 Drama Girish Karnad	Hayavadana
	UNIT 4 Prose M.K. Gandhi B.R. Ambedkar	Prose and Fiction Chapters 4,7,8,9&13 from Hind Swaraj Extracts 4, 5 and 6 <i>from</i> Annihilation of Caste ed. Mulk Raj Anand (Delhi: Arnold Publishers, 1990, pp. 47-54)
	UNIT 5 Shashi Deshpande Short Story The following selections from Routes: Representations of the West in Short Fiction from South India in Translation eds. Vanamala Viswanatha, V.C. Harris, C. Vijayashree and C.T. Indra (Macmillan 2000). Kannada Masti Venkatesa Iyengar Malayalam P. Surendran Tamil PudumaiPithan	Fiction <i>That Long Silence</i> The Sorley Episode Synonyms of the Ocean Teaching

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PSO/PO	PSO							PO					
	1	2	3	4	5	6	7	1	2	3	4	5	6
CO1	H	H	H	L	L	H	L	H	M	H	L	M	M
CO2	H	H	H	L	L	M	L	H	M	H	L	H	H
CO3	M	M	H	L	L	M	L	H	H	H	L	H	H
CO4	H	H	H	L	L	H	L	H	H	H	L	H	H

CO5	H	H	H	L	L	H	L	H	H	H	L	H	H
CO6	M	H	H	L	L	M	L	H	H	H	L	H	H

Recommended Texts: Standard editions of texts

Reference Books:

1. K.R. Srinivasalyengar, 1962, –**History of Indian Writing in English**, Sterling Publishers, New Delhi.
2. Herbert H. Gowen, 1975, **A History of Indian Literature**, Seema Publications, Delhi.
3. William Walsh, 1990, **Indian Literature in English**, Longman, London.
4. Subhash Chandra Sarker, 1991, **Indian Literature, and Culture**, B.R. Publishing Corporation, Delhi.
5. M.K. Naik&Shyamala A Narayan, 2001, **Indian English Literature 1980-2000: A Critical Survey** ,D.K. Fine Art Press (P) Ltd., New Delhi.
6. TabishKhair, 2001, **Babu Fictions: Alienation in Contemporary Indian English Novels.**, OUP.
7. RajulBharagava Ed., 2002, **Indian Writing in English: The Last Decade**,Rawat Publications, New Delhi.
8. K. Satchidanandan, 2003, **Authors, Texts, Issues: Essays on Indian literature**, Pencraft International, New Delhi.
9. P.K. Rajan ed., 2004, **Indian Literary Criticism in English: Critics, Texts, Issues**,Rawat Publications, New Delhi.
10. Bruce King, 2001, **Modern Indian Poetry in English**, OUP, New Delhi.
11. Amit Chaudri, 2001, **The Picador Book of Modern Indian Literature**, Macmillan, London.
12. A.K. Mehrotra, 2003, **An Illustrated History of Indian Literature in English**. Permanent Black, New Delhi.

Website, e-learning resources

http://en.wikipedia.org/wik/indian_wring_in_english

Course Structure: ELECTIVE PAPER IV

Course Code :	Credits : 03
L:T:P:S : 3:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Subject: INTRODUCTION TO TRANSLATION STUDIES Subject Code: 2265316

COURSE OUTCOMES

- CO1: Identify the role of translation in society (K2)
- CO2: Illustrate basic concepts of translation (K3)
- CO3: Demonstrate fundamental skills in translation (K3)
- CO4: Examine translation in the Indian context (K4)
- CO5: Perform practical tasks in translation (K6)

Unit 1 Basic concepts of Translation (10 Hrs)

- 1.1 **Kinds of Translation**
 - 1.1.1. Interlingual
 - 1.1.2. Intralingual
 - 1.1.3. Intersemiotic
- 1.2 Concepts to be derived from practice
 - 1.2.1 Source Language and Target Language
 - 1.2.2 Equivalence
 - 1.2.3 Word for word, Sense for Sense

Unit 2 Translation in the Indian context (15 Hrs)

- 1.3 Introduction to Short Fiction from South India by Mini Krishnan
- 1.4 **Translating Culture Codes**

Unit 3 Literary Texts in translation (10 Hrs)

- 3.1 VM Basheer - Nose
- 3.2 Cho Dharman - Dry Leaves
- 3.3 C.S. Chellappa - Vaadivasal (OUP)
- 3.4 Rajam Krishnan - Lamps in the Whirlpool (OUP)

Unit 4 Application of Translation (10 Hrs)

- 4 **Dubbing and Subtitling**
 - 4.1 Film Harry Potter and the Order of the Phoenix
 - 4.2 Advertisements

Suggested Reading

Munda, Jeremy. 'New Directions From the New Media'. Introducing Translation Studies. Routledge, New York. 2008.

Unit 5 Practical Application Tasks (7 Hrs)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PSO/PO	PSO							PO					
	1	2	3	4	5	6	7	1	2	3	4	5	6
CO1	L	M	H	M	L	M	L	L	M	H	L	L	M
CO2	M	M	M	L	L	M	L	L	M	M	L	L	L
CO3	L	L	M	M	L	L	L	L	L	L	L	M	L
CO4	H	M	H	L	L	M	L	M	H	H	H	L	L
CO5	L	M	L	H	M	L	M	L	L	L	L	M	M

Recommended Reading

Baker, Mona, In Other Words: A Course Book on Translation. London: Routledge
 Bassnet, Susan. Translation Studies. London & New York : Routledge, 1991.
 Catford, J.C. A Linguistic Thoery of Translation: An Essay in Applied Linguistics
 Duff, Alan, Translations. Oxford: OUP, 1989.
 London: OUP, 1965.
 Newmark, Peter. A Textbook of Translation. London: Prentice Hall, 1988.
 Savory, Theodore. The Art of V. London: Cape, 1957.
 Steiner George. After Babel: Aspects of Language and Translation. V. London:

Course Structure: Paper XIII

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	CORE PAPER XIII- Writings by and on Women		
Category of the Course C	Year & Semester 2nd year & Fourth Semester	Credits 4	Subject Code 2265418
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Objectives of the Course	CO1: Demonstrate an understanding of the politics of gender and authorship (k3) CO2: Examine patriarchy and its influence on women's lives and creative processes (k4) CO3: Identify and critique gendered oppression (k2&k4) CO4: Examine how women writers have challenged gender-based oppression (k4) CO5: Understand the intersectionality of gender, class, caste, race, etc. (k2) CO6: Read texts within the theoretical framework of feminism (k5)		
Course Outline	UNIT 1: Varieties of Feminism – concept of gender – androgyny- Language of women – environment and women- double marginalisation.		
	UNIT 2: Poetry: Anne Bradstreet Prologue Marianne Moore Poetry Sylvia Plath Lady Lazarus. Maya Angelou Still I Rise Charmaine D'Souza When God made me a Whore (Rajani P, V. Rajagopalan, Nirmal Selvamony, eds., Living & Feeling , Dept. of English., M.C.C.)		
	UNIT 3: Prose: John Stuart Mill On subjection of women Chapter 1 (V.S. Seturaman & C.T. Indraed.,		

	1994, Victorian Prose, Macmillan India, Chennai. pp-318)
Virginia Woolf	A Room of One's Own (chapters 3 & 4) (Jennifer Smith ed., 1998, A Room of One's Own Cambridge UP, New Delhi.)
Vandana Shiva	"Women in Nature" (from <i>Staying Alive</i>)
Alice Walker	In Search of Our Mother's Garden
UNIT 4: Fiction	
Arundathi Roy	The God of Small Things
Jean Rhys	Wide Sargasso Sea
Kate Chopin	The Awakening
UNIT 5: Drama	
Lorraine Hansberry	Raisin in the Sun
Jane Harrison	Stolen

C – Core; E – Elective; ED – Extra disciplinary

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PSO	PSO							PO					
	1	2	3	4	5	6	7	1	2	3	4	5	6
CO1	H	H	H	L	L	M	L	H	H	H	L	L	M
CO2	H	H	H	L	L	L	L	M	H	H	L	L	H
CO3	H	H	H	L	L	L	L	M	H	H	L	L	H
CO4	H	H	H	L	L	M	L	M	H	H	L	L	H
CO5	H	H	H	L	M	L	L	M	H	H	L	L	H
CO6	H	H	H	L	L	M	L	H	H	H	L	L	M

Recommended Texts:

1. Sandra M. Gilbert and Susan Gubar, ed., 1985, **The Norton Anthology of Literature by Women**, New York.
2. Rajani P. , V. Rajagopalan, and NirmalSelvamony, **Who says my hand a needle better fits: An Anthology of American Women Writing**, Dept. of English, Madras Christian College, Tambaram.
3. Standard editions of texts.

Reference Books :

1. Lisa Tuttle, 1986, **Encyclopedia of Feminism**, Facts on File Publications, New York.
2. Catherine Belsey & Jane Moore, eds., 1977, **The Feminist Reader**, II ed., Macmillan, London.
3. Kathy J. Wilson, 2004, **Encyclopedia of Feminist Literature**, Greenwood Press, Westport.

Core Structure: Paper XIV

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	CORE PAPER XIV - Postcolonial Literature		
Category of the Course C	Year & Semester 2nd year & Fourth Semester	Credits 4	Subject Code 2265419
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Objectives of the Course	CO1: Demonstrate an understanding of the concepts related to the study of postcolonialisms (k3) CO2: Examine imperialism and its impact on the history, culture and language of various once colonised nations (k4) CO3: Identify and critique racism as a colonial construct (k2&k4) CO4: Examine how writers from former colonies question the hegemony of the colonial histories (k4) CO5: Understand the importance of multiplicity of stories (k2) CO6: Read texts within the theoretical framework of postcolonial studies (k5)		
Course Outline	UNIT 1: Key Concepts in Post-coloniality (14 concepts) Abrogation, appropriation, binarism, cartography, centre/margin, dependency theory, ethnicity, ecological imperialism, hegemony, hybridity, orality, other, post-colonialism/postcolonialism, subaltern		
	UNIT 2: India, Pakistan and Srilanka Agha Shahid Ali Dacca Gauzes (India- poem) Nissim Ezekiel A Very Indian Poem in Indian English (India-poem) Alagu Subramaniam Solomon's Justice (Sri Lanka- short story) Sa'adat Hasan Manto Khol do! (Pakistan short story) Edward Said "Crisis" in <i>Orientalism</i> from David Lodge's <i>Modern Criticism and Theory</i>		
	UNIT 3: Australia, New Zealand and Canada <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">Henry Lawson</div> <div style="width: 50%;">The Drover's Wife (Australia- short story)</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;">Witi Ihimera</div> <div style="width: 50%;">The Whale (New Zealand- short story)</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;">A.D. Hope</div> <div style="width: 50%;">Australia (Australia- poem)</div> </div>		

	Jack Davis	Kullark (Australia- drama)
	UNIT 4: African Subcontinent and West Indies Kofi Awoonor The Weaver Bird (Ghana poem) Chinua Achebe Things Fall Apart (Nigeria- novel) Chinmamanda Adichie The Danger of a Single Story (prose) Benjamin Zephaniah - Dis Poetry (West Indies- poem) Bob Marley – Buffalo Soldier (West Indies- song)	
	UNIT 5: Canada Margaret Atwood Surfacing (Canada- novel) George Ryga Ecstasy of Rita Joe (Canada - drama)	

C – Core; E – Elective; ED – Extra disciplinary

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/ PSO	PSO							PO					
	1	2	3	4	5	6	7	1	2	3	4	5	6
CO1	M	H	M	L	L	M	L	H	H	M	L	L	M
CO2	H	H	H	L	L	M	L	H	H	M	L	L	H
CO3	L	L	H	L	M	M	L	M	H	M	L	L	M
CO4	H	M	H	L	L	M	L	H	H	H	L	L	M
CO5	M	H	H	L	L	M	L	M	H	M	L	L	M
CO6	H	H	H	L	L	M	L	H	H	M	L	L	L

Recommended Texts:

1. Bill Ashcroft, Gareth Griffiths and Helen Tiffin, 1998, **Key Concepts in Post-Colonial Studies**, London
2. Ken Goodwin and Alan Lawson, 1990, The Macmillan Anthology of Australian Literature, Melbourne.
3. Alagu Subramaniam, 1964, The Big Girl, Ceylon.
4. Ashcroft, Griffith & Tiffin, eds., 1995, Post-Colonial Studies Reader, Routledge, London.
5. Standard editions of texts.

Reference Books/Websites:

1. King, Bruce, ed. *The New National and Postcolonial Literatures: An Introduction*, Oxford: Clarendon, 1996.
2. Killam, G. D. *The Novels of Chinua Achebe*. *Studies in African Literature Series*, London: Heinemann, 1978. P 7
3. Sarkar Parama, *Postcolonial Literatures*, Orient Black Swan, 2016
4. NPTEL course on Postcolonial Literature
<https://nptel.ac.in/noc/courses/noc17/SEM1/noc17-hs12/>
5. Chimamanda Ngozi Adichie: The danger of a single story
https://www.ted.com/talks/chimamanda_ngozi_adichie_the_danger_of_a_single_story/transcript?language=en

Course Structure: Elective

Course Code :	Credits : 03
L:T:P:S : 3:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	ELECTIVE PAPER V- Film Studies		
Category of the Course E (Elective within the department) /ED	Year & Semester Second Year & Fourth Semester	Credits 3	Subject Code 2265420
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Course Outcomes	CO1: Identify different kinds of films (k1) CO2: Identify various technical aspects of cinema (k1) CO3: Sketch the evolution of cinema in India (k3) CO4: Critically analyse cinema from various perspectives (k4) CO5: Appreciate and review films (k6)		
Course Outline	UNIT I History of Cinema in India; Major landmarks in India Cinema Satyajit Ray- “What is Wrong with Indian Films?”		
	UNIT 2 Kinds of Films Historical Patriotic Documentary Thrillers etc.		
	UNIT 3 Art of Film Making: Some Important Techniques Acting/ Photography/Direction/Script Writing etc		
	UNIT 4 Films and Entertainment Films and Social Responsibility		
	UNIT 5 Review of Films The Godfather Shutter Island		

C – Core; E – Elective; ED – Extra disciplinary

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PSO/PO	PSO							PO					
	1	2	3	4	5	6	7	1	2	3	4	5	6
CO1	L	H	H	L	L	L	H	L	L	H	H	L	L
CO2	L	L	L	L	L	L	M	L	L	H	H	H	L
CO3	M	M	H	L	L	L	M	H	L	H	H	M	H
CO4	M	M	M	L	L	L	M	L	L	H	H	L	L
CO5	L	M	M	L	L	L	L	L	H	H	H	H	L

1.Recommended Texts:

1. Ed. Bill Nichols, 1993 ,**Movies and Methods** Vol. I, Edition ,Seagull Books, Calcutta.
2. Ed. Bill Nichols, 1993, **Movies and Methods** Vol. II, Edition Seagull Books, Calcutta.
3. Susan Hayward, 2004, **Key Concepts in Cinema** Studies, Routledge, London.
4. Rajadhyaksha, Ashish. *Indian Cinema: A Very Short Introduction*. OUP, 2016.

Reference Books :

1. Louis Giannetti, 1972, **Understanding Movies**, Prentice Hall, New Jersey.
2. Ed. S. Vasudevan, 2000, **Making Meaning in Indian Cinema**, OUP, New Delhi.

Website: www.academicinfo.net/film.html.

Course Structure: Value Added Course

Course Code :	Credits : 01
L:T:P:S ::	CIA Marks :
Exam Hours :	ESE Marks :

Title of the Course / Paper	Value Added Course: Theatre Art		
Category of the Course VAC(Value Added Course)	Year & Semester Second Year & Fourth Semester	Credits 1	
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Course Outline	<ol style="list-style-type: none"> 1. Approach to characterization 2. Director's concept 3. Basic Acting and Different Approach 4. Improvisation 5. Navarasa Trainig 6. Speech Training 7. Text and Acting 8. Scene Work 9. Play Production 		

Optional
English Literature for UGC NET/SET Examinations

Year and Semester: Second Year and Fourth Semester

The Elizabethan Age / Chaucer to Shakespeare: Historical Perspective and Background; Origins of Drama; Elizabethan Plays, Prose and Sonnets.

Geoffrey Chaucer, William Gower, Edmund Spenser, University Wits. Philip Sydney, Shakespeare, Ben Jonson, Christopher Marlowe and Thomas Kyd.

- **The Jacobean Age:** Historical Perspective and Background; the Revenge Tragedies; the Metaphysical Poets; the Cavalier Poets.

John Webster, Thomas Middleton, Thomas Heywood, Francis Bacon and John Bunyan .

- **The Restoration Period:** Historical Perspective and Background; Restoration Satire; Comedy of Manners.

John Dryden, John Milton, John Bunyan, William Congreve, Samuel Butler and William Wycherley.

- **The Augustan Age:** Historical Perspective and Background; Satire and Sentimental Comedy.

Alexander Pope, Jonathan Swift, Daniel Defoe, Joseph Addison, Richard Steele, Samuel Johnson, Samuel Richardson, Henry Fielding, Oliver Goldsmith, George Smollett, Laurence Sterne and Richard Sheridan .

- **The Romantic Age:** Precursors ; Transitionists; Romantic Poets and Essayists.

Robert Burns, William Blake, Thomas Gray, William Collins, William Wordsworth, S.T. Coleridge, P.B.Shelley, John Keats, Charles Lamb, Leigh Hunt, William Hazlitt, Thomas De Quincey, Ann Radcliffe and Jane Austen.

- **The Victorian Age:** Historical Perspective and Background; Victorian Poets, Pre-Raphaelites, Essayists, Novelists.

John Stuart Mill, Thomas Carlyle, John Ruskin, Thomas Hardy, Charles Dickens, Thackeray, The Bronte Sisters, Mathew Arnold, Alfred Tennyson, Robert Browning, D.G. Rossetti, Charles Swinburne and William Morris.

- **The Twentieth Century (Modernism & Postmodernism) / Contemporary Period:** Historical Perspective and Background; Edwardian and Georgian Poets; Imagists; Symbolists; War Poets; Movements; Impact of World Wars I & II on Literature; Modern & Postmodern writers. Walter Pater, Oscar Wilde, Ezra Pound, T.S.Eliot, Bernard Shaw, Rudyard Kipling, Joseph Conrad, George Orwell, Henry James, E. M. Foster, Aldous Huxley,

D.H. Lawrence, James Joyce, Virginia Woolf and Somerset Maugham.

Samuel Beckett, Harold Pinter, Ted Hughes, Salman Rushdie, Kurt Vonnegut, Thomas Pynchon, John Barth, William S. Burroughs, Vladimir Nabokov and Italo Calvino.

- **American and Non British Literatures:** Historical Perspective and Background; Colonization, Colonizers and the Colonized; Commonwealth Literature; Subaltern Literature; Third World Literature.

American Writers: Walt Whitman, Ralph Waldo Emerson, H.D. Thoreau, Emily Dickinson, Edgar Allan Poe, Robert Frost, Mark Twain, Ernest Hemingway, Wallace Stevens, William Faulkner, Herman Melville, Robert Frost, E.E. Cummings, John Steinbeck, William Faulkner, Eugene O’Neil, Tennessee Williams, Arthur Miller and Nathaniel Hawthorne.

Non - British Literatures: Chinua Achebe, Ngugi Wa Thiong’o, Nadine Gordimer, V.S. Naipaul, Taslima Nasrin, Patrick White, Judith Wright, Margaret Laurence, Margaret Atwood, Rudy Wiebe, Rohinton Mistry, M.G. Vassanji, Michael Ondaatje, Alice Walker, Toni Morrison, Maya Angelou, Jean Rhys, R.K. Narayan, Mulk Raj Anand, Kamala Das, Kamala Markandaya, Girish Karnad, Toru Dutt, Sri Aurobindo, Sarojini Naidu, Eunice De Souza, Nissim Ezekiel, A.K. Ramanujan, Chetan Bhagat, Vikram Chandra, Vikram Seth, Amitav Ghosh, Anitha Desai, Jhumpa Lahiri, Arundhati Roy and Kiran Desai.

All Nobel Prize and Pulitzer Prize Winners

- **Literary Theory and Criticism:** Plato, Aristotle, Horace, Longinus, Philip Sidney, John Dryden, Alexander Pope, Samuel Johnson, Thomas Carlyle, John Stuart Mill, Karl Marx, Friedrich Nietzsche, Matthew Arnold, T.S. Eliot, Northrop Frye, F.R. Leavis, I.A. Richards, Jacques Lacan, Carl Gustav Jung, Simone de Beauvoir, Noam Chomsky, Jacques Derrida, Ferdinand de Saussure, Irving Babbitt, Cleanth Brooks, Mikhail Bakhtin, Roland Barthes, Michel Foucault, Julia Kristeva, Edward Said, Hayden White and Linda Hutcheon.
- **Rhetoric and Prosody:** Figures of Speech: Alliteration, Antithesis, Apostrophe, Assonance, Metaphor, Simile, Paradox, Pun, Synecdoche, Metonymy, Hyperbole and Oxymoron.
- Rhyme and Metre, Rhythmic Patterns and Literary Term

Recommended Texts:

Andrew Sanders – An Oxford History of English Literature.

Patricia Waugh - Contemporary Critical Theory.

Peter Barry- Beginning Theory.

M.H. Abrams – A Glossary of Literary Terms.

An Outline History of English Literature by W.H. Hudson.

A Critical Handbook of Literature in English by Shubhamoy Das.

History of English Literature by W.J. Long.

History of English Literature by Edward Albert.

History of English Literature by T. Singh.

An Introduction to Literary and Cultural Theory by Peter Barry.

Contemporary Literary and Cultural Theory by P.K. Nayar.

An Introduction to English Criticism by B. Prasad.

English Literary Objective Questions by Amita Rowley Thaman.

A Textbook for Objective Questions in English Literature by Manoj Kumar.

Lodge, David. Modern Criticism and Theory

REGIONAL NEEDS

INDIAN ECONOMIC DEVELOPMENT AND POLICY

SUBJECT CODE-

Total hours-90 hrs

Credits-

Course Description- To understanding the functioning of Indian Economy

UNIT I:

Population –Theories of population- Malthusian Theory of population— Theory of Demographic transition – Nature of the population problems in India – Population policies in India and measures.

UNIT II:

Agriculture – Place of agriculture in Indian Economy – Need for food security in India – An assessment of Agricultural Development in India during the last decade – Irrigation - Agricultural Pricing policies in India.

UNIT III:

Industry – Role of Industries in Indian Economic Development – Small Vs Large Scale Industries – Reasons for Industrial sickness in India in recent years – Industrial policy of Government of India since 1991 – Performance of the Industrial sector in the last decade.

UNIT IV:

Infrastructure –Transport- Role of different modes of Transport in Indian Economic Development –Need for Government intervention in the provision of Health and Education in India.

UNIT V:

Economic Planning in India – Objectives and achievements of Five-year plans —Finance Commission- NITI Aayog –Origin & Objectives.

Books for Reference:

1. Datt, Ruddar and KPM Sundharam (2005). Indian Economy, New Delhi, S.Chand and Co. Pvt.Ltd
2. Dhingra, IC.(2005). Indian Economy, New Delhi, Sultan.
3. Bhagwati, Jagdish N. and Padma Desai (1981). Planning for Industrialization, Oxford University Press, London.
4. Agarwal,A.N., (2004). Indian Economy: Problems.

Course Outcomes

CO1	To understand the various theories related to demography
CO2	To assess the role of agriculture and irrigation in Indian economy
CO3	To outline the role of industrial sector and assess its performance
CO4	To analyze the role and effectiveness of infrastructure with special reference to transport and health
CO5	To understand the various concepts related to Economic planning with special reference to NITI Ayog

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	3	1	2	2	3	3	3
CO2	3	3	3	2	2	3	3
CO3	3	1	1	1	3	3	3
CO4	1	3	3	1	2	3	3
CO5	2	1	2	2	3	3	3

Correlation levels: 1- Weak 2-Medium 3-High

ENVIRONMENTAL ECONOMICS

Course Description- **Environmental economics** is an area of **economics** that studies the financial impact of **environmental** policies. **Environmental economists** perform studies to determine the theoretical or empirical effects of **environmental** policies on the economy.

UNIT – I

Economics and Environment – Definition and role of Environmental Economics – Scope and significance of Environmental economics – Ecology and Ecosystem – Relationship between the environment and the Economic system – Environment as a Resource – Environmental Quality.

UNIT – II

Resources – Concepts and definition – Classification of Resources – Renewable and non-renewable resources – Atomic Energy - Definition and meaning of Conservation of Resources – Material Substitution – Product Life Extension – Recycling – Waste reduction .

UNIT – III

Environmental Regulation in India - Evolution of environmental policy in India; Preservation and conservation of water resources - Air and water Acts; fiscal incentives; enforcement and implementation issues; emerging options – Eco-taxes and eco-subsidies; case studies on pollution control in India

UNIT – IV

Pollution as an Economic problem – Pollution Control – Optimum level – Moral suasion – Direct control – Regulation – Fiscal technique – Effluent charges and subsidies compared.

UNIT – V

International Environmental policy – Transfrontier pollution – International Agreements – Stockholm Conference on Human Environment – Recommendations – United Nations Conference on Environment and Development at Rio- De Janerio (Agenda 21, june,1992) – An assessment.

Recommended Texts:

1. Hanley, N., J.F. Shogren, and B. White, Environmental Economics: In Theory and Practice , Oxford University Press, 2006.
2. Kolstad, C., Environmental Economics, Oxford University Press, 2000.
3. Conrad, J.M. and C. Clark, Natural Resource Economics – Notes and Problems, Cambridge University Press, 1987.
4. Dasgupta, P.S. and G.M. Heal, Economic Theory and Exhaustible Resources, University Press (Selected chapters), 1979.
5. Bhattacharya, R.N. (2001), Environmental Economics – An Indian Perspective, Oxford University Press, Delhi.

Reference Books:

1. Karpagam .M, Environmental Economics- A text book
2. Sankaran. S, Environmental Economics.
3. Pearce. G.W, Environmental Economics.
4. Joseph J.Sereca &Michael K.Taussing, Environmental Economics

Course Outcomes

CO1	Demonstrate comprehensive knowledge and understanding of environmental economics
CO2	Apply the principles, and identify environmental resources that are vital for economic development.
CO3	Ability to Analyze, interpret, and draw conclusions of environmental policy in India.
CO4	Capability to set up vision and mapping of tasks for pollution control, to prevent

	environmental degradation.
CO5	To understand the impact of economic policies in society and international environment in context to sustainable development,

Mapping of CO v/s PO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	3	3	2	3	3	3	3	2	3	2
CO2	3	3	3	2	2	1	3	3	2	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	2	2	2	3	3	1	3	3
CO5	3	2	3	2	2	3	3	3	2	3	3

Correlation levels: 1- Weak 2-Medium 3-High

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3
CO2	3	3	1	3	3
CO3	3	3	3	2	3
CO4	3	3	2	1	3
CO5	3	2	2	3	3

Correlation levels: 1- Weak 2-Medium 3-High



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Arumbakkam, Chennai – 600 106

DEPARTMENT OF COMPUTER APPLICATIONS (B.C.A)

CHOICE BASED CREDIT SYSTEM

OUTCOME BASED EDUCATION SYLLABUS

THREE YEARS B.C.A PROGRAMME

2022 - 2023 BATCH ONWARDS





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DEPARTMENT OF COMPUTER APPLICATIONS (B.C.A)

VISION

Imparting quality education, equipping students with latest tools and technologies of computer science to face in computer industry and society

MISSION

M1	To provide the ambience for learning.
M2	To provide the team-sprit and leadership qualities.
M3	Strengthening the competence level in computer science through analytical learning
M4	Enhancing the entrepreneurship skills through Internship and Industrial Visit.

Signature of the HOD

Signature of the Principal



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PROGRAM EDUCATIONAL OUTCOMES (PEOs)

PEO1	To help students to practice computer science in a broad range of industries.
PEO2	To provide student with an academic environment that fosters excellence, transparency, leadership and promote awareness of life-long learning
PEO3	To prepare students to succeed in employment/profession or to pursue postgraduate & research education in Computer Science

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1	Gain theoretical knowledge in computer fields.
PSO2	Apply the knowledge of computer in practice.
PSO3	Ability to design and develop an application to meet the desired.
PSO4	Enhance programming skills in student.
PSO5	Enhance the critical thinking and problem solving abilities.
PSO6	Use computer skills in different fields.

Signature of the HOD

Signature of the Principal



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PROGRAM OUTCOMES (POs) IN RELATION TO GRADUATE ATTRIBUTES

PO1	To participate in various types of employment, development activities and public discourses particularly in response to the needs of the community one serve.
PO2	To implement discipline, professionalism, team spirit, communication skills, social and ethical commitment in the under graduates in order to embellish leadership roles expediting perfection in different sector with a categorical professional distinctiveness, business savvy, international recognition and imperishable expansion.
PO3	To improve the problem-solving skill to identify possible solutions and choosing the correct solution for any problem.
PO4	To enhance the competencies to support national, regional and local development plans and to create questioning mind.
PO5	To enhance the critical thinking ability to think clearly and rationally while understanding the logical connection between ideas in a reflective and independent thinking.
PO6	To engage in Lifelong learning and enduring proficient progress.

Signature of the HOD

Signature of the Principal



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MAPPING OF PROGRAM OUTCOMES TO PROGRAM SPECIFIC OUTCOMES

<u>PO/PSO</u>	PSO 1	PSO2	PSO3	PSO4	PSO5	PSO6
PO 1	-	1	1	2	2	3
PO 2	1	2	1	2	2	2
PO 3	2	2	2	2	3	3
PO 4	-	-	2	2	2	2
PO 5	2	2	2	3	3	3
PO 6	1	1	2	3	3	3

Signature of the HOD

Signature of the Principal



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COURSES OFFERED TO STUDENTS

(Effective for the batch of students admitted from the academic year 2022 – 2023)

SEMESTER – I

PART	COURSE TITLE	CREDITS	HOURS	CIA	ESE	TOTAL
I	Language Paper- I	3	4	50	50	100
II	English Paper- I	3	4	50	50	100
III THEORY I	Fundamentals of Digital Electronics	4	5	50	50	100
III THEORY II	Problem Solving Techniques	4	4	50	50	100
III PRACTICAL I	Digital Electronics Lab	2	3	50	50	100
ALLIED I	Mathematical Foundation-I	4	6	50	50	100
IV NME - I	NON-MAJOR ELECTIVE a) Those who have studied Tamil up to XII Std. shall take either Computer Fundamentals or Advanced Tamil. b) Those who have not studied Tamil up to XII Std. and taken a Non-Tamil Language under Part-I shall take Tamil comprising of two course (level will be at 6 th Standard).	2	2	50	50	100
IV	SOFT SKILLS I	2	2	50	50	100
	TOTAL	24	30	400	400	800

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SEMESTER – II

PART	COURSE TITLE	CREDITS	HOURS	CIA	ESE	TOTAL
I	Language Paper- II	3	4	50	50	100
II	English Paper- II	3	4	50	50	100
III THEORY III	C++ Programming	4	5	50	50	100
III THEORY IV	Microprocessor and its Applications	4	4	50	50	100
III PRACTICAL II	C++ Programming Lab	2	3	50	50	100
ALLIED II	Mathematical Foundation-II	4	6	50	50	100
IV NME - II	NON-MAJOR ELECTIVE a) Those who have studied Tamil up to XII Std. shall take either Introduction to Html or Advanced Tamil. b) Those who have not studied Tamil up to XII Std. and taken a Non-Tamil Language under Part-I shall take Tamil comprising of two course (level will be at 6 th Standard).	2	2	50	50	100
IV	SOFT SKILLS II	2	2	50	50	100
	Field Work	1				
	TOTAL	25	30	400	400	800

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SEMESTER – III

PART	COURSE TITLE	CREDITS	HOURS	CIA	ESE	TOTAL
THEORY V	Java Programming	3	5	50	50	100
THEORY VI	Data Structures	3	5	50	50	100
THEORY VII	Graphics and Multimedia	4	4	50	50	100
PRACTICAL III	Java Programming Lab	4	4	50	50	100
PRACTICAL IV	Data Structures using Java Lab	2	4	50	50	100
ALLIED III	Financial Accounting	4	6	50	50	100
IV	SOFT SKILLS III	2	2	50	50	100
	TOTAL	25	30	350	350	700

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SEMESTER – IV

PART	COURSE TITLE	CREDITS	HOURS	CIA	ESE	TOTAL
THEORY VIII	Python Programming	4	5	50	50	100
THEORY IX	Operating Systems	4	5	50	50	100
THEORY X	Software Engineering	4	4	50	50	100
PRACTICAL V	Python Programming Lab	3	4	50	50	100
PRACTICAL VI	Operating System and Shell Programming Lab	3	3	50	50	100
ALLIED IV	Cost and Management Accounting	3	6	50	50	100
IV	SOFT SKILLS IV	2	2	50	50	100
IV EVS	Environmental Studies	2	1	50	50	100
	Internship	1				
	TOTAL	26	30	400	400	800

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SEMESTER – V

PART	COURSE TITLE	CREDITS	HOURS	CIA	ESE	TOTAL
THEORY XI	Dot Net Programming	4	5	50	50	100
THEORY XII	Database Management System	4	5	50	50	100
THEORY XIII	Computer Networks	4	5	50	50	100
THEORY XIV	ELECTIVE I (DISCIPLINE SPECIFIC ELECTIVE): Data Mining (or) Artificial Intelligence and Expert Systems (or) Object Oriented Analysis and Design	4	5	50	50	100
PRACTICAL VII	Dot Net Programming Lab	3	5	50	50	100
PRACTICAL VIII	RDBMS Lab using ORACLE	3	5	50	50	100
IV	Value Education	1				
	TOTAL	23	30	300	300	600

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SEMESTER – VI

PART	COURSE TITLE	CREDITS	HOURS	CIA	ESE	TOTAL
THEORY XV	PHP Programming	4	5	50	50	100
THEORY XVI	Mobile Application Development	4	5	50	50	100
THEORY XVII	Design and Analysis of Algorithms	4	5	50	50	100
THEORY XVII	ELECTIVE II (DISCIPLINE SPECIFIC ELECTIVE): Operations Research (or) Ecommerce(or) Cryptography	4	5	50	50	100
PRACTICAL IX	PHP Programming Lab	3	4	50	50	100
PRACTICAL X	Mobile Application Development Lab	3	4	50	50	100
IV	Extension Activities	1				
	Mini Project	2	2			
	TOTAL	25	30	300	300	600

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FIRST SEMESTER

Course Title: CORE THEORY I- FUNDAMENTALS OF DIGITAL ELECTRONICS

Skill Development

Course Code : 18-21/07101	Credits	04
L:T:P:S : 4:1:0:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- To Impart the Knowledge of Fundamentals of Electronics.
- To discuss and utilization of Various Number Systems.
- Demonstration of Flip Flops associated.
- Instructions of Counters.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	To demonstrate the functional codes of Binary Systems. To study about the concepts of Logic Gates.
CO2	To clarify the concepts of Boolean Functions. Construction of K-Map
CO3	Demonstrating Binary Arithmetic. Extracting the nature of Combinational Logic Circuits. To impart the applications of Encoders and Decoders.
CO4	To differentiate the types of Registers and their applications. Classification of Flip-flops.
CO5	Demonstrating the Classification of Counters. Explanation of Memory and its types.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	1	-	-	2
CO2	3	3	2	2	3	2
CO3	2	2	-	1	2	3
CO4	1	3	-	-	2	2
CO5	2	3	2	-	1	2

3: Strong 2: Medium 1: Low -: No Correlation

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1	Digital Computers and Digital Systems. Number Systems & Codes: Number System - Base Conversion - Binary Codes - Code Conversion. Digital Logic: Logic Gates - Truth Tables - Universal Gates.	9	CO1
2	Boolean algebra: Laws & Theorems - SOP, POS Methods - Simplification of Boolean Functions using theorems – Simplification of Boolean Functions using K-Map (Two, Three and Four variables).	9	CO1,CO2
3	Binary Arithmetic: Binary Addition – Binary Subtraction - Arithmetic Building Blocks. Adders: Half Adder and Full Adder. Subtractors: Half Subtractor and Full Subtractor. Combinational Logic: Multiplexers - Demultiplexers - Decoders – Encoders.	9	CO1,CO3
4	Sequential Logic: RS, JK, D and T Flip-Flops. Registers: Shift Registers - Types of Shift Registers – Implementation of Serial-In Serial-Out Shift Register and Serial-In Parallel-Out Shift Register.	9	CO4
5	Counters: Asynchronous Counters Ripple, Mod, Up-Down Counters- Synchronous Counters - Types of ROM and RAM.	9	CO5
1	Digital Computers and Digital Systems. Number Systems & Codes: Number System - Base Conversion - Binary Codes - Code Conversion. Digital Logic: Logic Gates - Truth Tables - Universal Gates.	9	CO1

TEXT BOOK:

1. **V.Rajaraman and T.Radhakrishnan**, “*Digital Computer Design*”, Fifth Edition, 2012, Prentice Hall of India.

REFERENCE BOOKS:

1. **D.P.Leach and A.P.Malvino**, “*Digital Principles and Applications*”, Seventh Edition, 2011, TMH.
2. **T.C.Bartee**, “*Digital Computer Fundamentals*”, Sixth Edition, Tata McGraw Hill.
3. **Floyd and Jain**, “*Digital Fundamentals*”, Ninth Edition, Pearson Education.

E-REFERENCES:

1. <http://nptel.iitm.ac.in/video.php?subjectId=117106086>
2. <http://nptel.iitm.ac.in/Onlinecourses/Srinivasan/>

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FIRST SEMESTER

Course Title: CORE THEORY II -PROBLEM SOLVING TECHNIQUES

Skill Development

Course Code : 18-21/07102	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Course Objectives:

- Familiarize with writing of **algorithms**, fundamentals of **C** and philosophy of **problem solving**. Implement different programming constructs and decomposition of **problems** into functions.
- Use data flow diagram, Pseudo code to implement solutions.
- Define and use of arrays with simple applications.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Study the basic knowledge of Computers. Analyze the programming languages.
CO2	Study the data types and arithmetic operations. Know about the algorithms. Develop program using flow chart and pseudo code.
CO3	Determine the various operators. Explain about the structures. Illustrate the concept of Loops
CO4	Study about Numeric data and character-based data. Analyze about Arrays.
CO5	Explain about DFD Illustrate program modules. Creating and reading Files

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	1	-	1	-	-
CO2	-	2	3	-	-	-
CO3	-	2	1	-	2	1
CO4	1	-	-	1	1	-
CO5	-	3	1	-	-	1

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Sl. No.	Contents of Module	Hrs	COs
1	Introduction: History, characteristics and limitations of Computer. Hardware/Anatomy of Computer: CPU, Memory, Secondary storage devices, Input Devices and Output devices. Types of Computers: PC, Workstation, Minicomputer, Main frame and Supercomputer. Software: System software and Application software. Programming Languages: Machine language, Assembly language, High-level language, 4 GL and 5GL- Features of good programming language. Translators: Interpreters and Compilers.	9	CO1
2	Data: Data types, Input, Processing of data, Arithmetic Operators, Hierarchy of operations and Output. Different phases in Program Development Cycle (PDC). Structured Programming: Algorithm: Features of good algorithm, Benefits and drawbacks of algorithm. Flowcharts: Advantages and limitations of flowcharts, when to use flowcharts, flowchart symbols and types of flowcharts. Pseudocode: Writing a pseudocode. Coding, documenting and testing a program: Comment lines and types of errors. Program design: Modular Programming.	9	CO2
3	Selection Structures: Relational and Logical Operators -Selecting from Several Alternatives – Applications of Selection Structures. Repetition Structures: Counter Controlled Loops –Nested Loops– Applications of Repetition Structures.	9	CO3
4	Data: Numeric Data and Character Based Data. Arrays: One Dimensional Array - Two Dimensional Arrays – Strings as Arrays of Characters.	9	CO4
5	Data Flow Diagrams: Definition, DFD symbols and types of DFDs. Program Modules: Subprograms-Value and Reference parameters- Scope of a variable - Functions – Recursion. Files: File Basics-Creating and reading a sequential file- Modifying Sequential Files.	9	CO5

TEXT BOOK:

1. **Stewart Venit**, “*Introduction to Programming: Concepts and Design*”, Fourth Edition, 2010, Dream Tech Publishers.

E- REFERENCES:

1. <http://www.nptel.iitm.ac.in/video.php?subjectId=106102067>
2. http://utubersity.com/?page_id=876

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FIRST SEMESTER

Course Title: CORE PRACTICAL I -DIGITAL ELECTRONICS LAB

Skill Development

Course Code : 18-21/07104	Credits	02
L:T:P:S : 0:0:3:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- Be able to do the design of Logic gates, Universal gates, K-Map.
- Be able to implement the circuit of Half Adder and Full Adder.
- Be able to design the sequential Circuits such as Flip-Flops, Registers, and Counters.

Lab Exercises:

1. Verification of Truth Table for AND, OR, NOT, NAND, NOR and EX-OR gates.
2. Realization of NOT, AND, OR, EX-OR gates using NAND gate.
3. Realization of NOT, AND, OR, EX-OR gates using NOR gate.
4. Karnaugh Map Reduction and Logic Circuit Implementation.
5. Verification of De-Morgan's Law
6. Verification of Associative Law
7. Verification of Distributive Law
8. Implementation of Half-Adder and Full-Adder.
9. Implementation of Half-Subtractor and Full-Subtractor.
10. Four Bit Binary Adder
11. Four Bit Binary Subtractor
12. Decimal adder
13. Verification of Characteristic Table of various flip-flops
14. Design of Shift registers
15. Design of Counters

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FIRST SEMESTER

Course Title: NON MAJOR ELECTIVE 1- COMPUTER FUNDAMENTALS

Skill Development

Course Code : 20-21/07103	Credits	02
L:T:P:S : 2:0:0:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- Discuss the Introduction about Computer and its Components.
- To Perform the Microsoft Word, Excel, PowerPoint and its operations.
- To get Knowledge about the Internet and Intranet

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand the basics of Computer and its Generations. Be able to understand the components of computer.
CO2	To Understand the introduction about MS Word. Be able to perform the Elements of window, Text Formatting, Text Manipulating options in MS Word.
CO3	To Understand the introduction about MS Excel. Be able to inserting and sizing the cells Implementing formulas and inserting worksheet.
CO4	To Understand the introduction about MS PowerPoint Be able to perform the slides manipulation. Implementing Multimedia and templates.
CO5	To Understand the introduction about Internet and Intranet. Be able to access the browsers. To get knowledge about basic components of E-Mail and E-Commerce

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	-	-	1	-	3
CO2	2	3	3	3	2	2
CO3	2	3	3	2	3	3
CO4	3	3	3	2	3	3
CO5	3	3	3	2	3	3

3: Strong 2: Medium 1: Low -: No Correlation

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Sl No.	Contents of Module	Hrs	COs
1	Unit I: Introduction to Computers - Generations of Computer – Data and Information – Components of Computer – Software – Hardware – Input Devices - Output Devices — Types of Operating System.	9	CO1
2	Unit II: MS Word: Introduction – Elements of Window – Files, Folders and Directories – Text Manipulating: Cut, Copy, Paste, Drag and Drop – Text Formatting: Font – Style, Size, Face and Colors (Both foreground and background) – Alignment - Bullets and Numbering - Header and footer-watermark – inserting objects (images, other application document) – Table creation – Mail merge.	9	CO2
3	Unit III: Ms Excel: Introduction – Inserting rows and columns – Sizing rows and columns – Implementing formulas – Generating series - Functions in excel – Creation of Chart – Inserting objects – Filter – Sorting – Inserting worksheet.	9	CO3
4	Unit IV: MS PowerPoint: Introduction – Slides Manipulation (Inserting new, Copy, paste, delete and duplicate slides) – Slide show– Types of Views – Types of Animations – Inserting Objects – Implementing multimedia (Video and Audio) – Templates (Built-in and User-Defined).	9	CO4
5	Unit V: Internet: Introduction to Internet and Intranet – Services of Internet - Domain Name – URL – Browser – Types of Browsers – Search Engine - E-Mail – Basic Components of E-Mail – How to send group mail. E-Commerce: Digital Signature – Digital Currency – Online shopping and transaction.	9	CO5

TEXTBOOKS:

1. G. Manjunath, “Computer Basics”, Vasan Publications, 2010.
2. Pradeep K. Sinha & Priti Sinha, “Computer Fundamentals”, 6th Edition, BPB Publications, 2004.

E-REFERENCES:

1. https://www.tutorialspoint.com/computer_fundamentals/index.htm
2. https://www.tutorialspoint.com/basics_of_computers/index.htm
3. <https://www.tutorialspoint.com/word/index.htm>
4. <https://www.tutorialspoint.com/excel/index.htm>
5. <https://www.tutorialspoint.com/powerpoint/index.htm>

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SECOND SEMESTER

Course Title: CORE THEORY III- C++ PROGRAMMING

Skill Development

Course Code : 18-21/07205	Credits : 04
L:T:P:S : 4:1:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Course Objectives:

- Discuss and elaborate the concept of OOPs.
- Analyze the problem and apply the retreated concept in Application areas.
- Usage of Inheritance.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Revise the basics of Building any programming language. Introduction of OOPs and its Concept.
CO2	Creating programs in Conditional/Decision Making Statement Creating programs in Loop Statements. Defining programs in Jump Statements
CO3	Definition of Classes and important of Object. Benefits of using Friend Function. Define functions and its important in building the code Advantage of using Inline function.
CO4	Develop programs for overloading Unary and Binary Operators. Define the concept of constructor, destructor and its usage and its implementations.
CO5	Enhance reusability features using the concept inheritance. Avoid the duplicate of multiple inheritances using virtual base class. Access the program using polymorphism

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	-	-	1	-	3
CO2	2	2	2	3	2	2
CO3	2	3	2	2	3	3
CO4	1	3	3	2	3	3
CO5	2	3	3	2	3	3

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Sl. No.	Contents of Module	Hrs	COs
1	Introduction to Object Technology: Object Oriented Programming Concepts – OOP Benefits and OOP applications. Elementary C++ Programming: Keywords- Variables- Constants/ Literals - Operators- Fundamental Data Types – Expressions-Input Statement – Output Statement – General Format of a C++ program – Arrays – Strings.	9	CO1
2	Conditional/Decision Making Statements: if, if-else, else-if ladder nested if and switch Statements. Loop Statements: while, do-while, for loop. Jump Statements: break, continue, goto statements.	9	CO2
3	Library Functions in C++: Mathematical and String functions. User-Defined Functions: Function Prototyping – Function call - Parameters Passing methods. Inline Functions - Function Overloading. Classes and Objects: -Declaring class and objects- Member functions-Friend Functions- Passing object to function – Returning object from function.	9	CO1, CO3
4	Static Data member and Static member functions – Default Arguments. Constructors: Features of constructors – Types of Constructors. Destructors: Features of Destructor. Operator Overloading: Rules for Operator Overloading – Overloading of unary and binary operators using member function and friend function.	9	CO1, CO4
5	Inheritance: Single Inheritance - Multilevel inheritance - Multiple Inheritance - Hierarchical Inheritance - Hybrid Inheritance. Polymorphism: Rules for Virtual functions and pure virtual functions. Command Line Arguments.	9	CO1, CO5

TEXT BOOKS:

1. E. Balaguruswamy, “Object Oriented Programming in C++”, Sixth Edition, 2012, TMH.

REFERENCE BOOKS:

1. H. Schildt, “The Complete Reference C++”, Fourth Edition, 2017, TMH.
2. Y. Kanetkar, “Let us C++”, Third Edition, BPB Publishers.

E-REFERENCES:

1. <http://en.highscore.de/cpp/boost/>
2. <http://bookboon.com/en/structural-programming-with-c-plus-plus-ebook>

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SECOND SEMESTER

Course Title: CORE PAPER IV-MICROPROCESSOR AND ITS APPLICATIONS

Skill Development

Course Code : 18-21/07206	Credits	04
L:T:P:S : 4:0:0:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- To introduce students with the architecture and operation of typical microprocessors
- To familiarize the students with the programming and interfacing of microprocessors
- To provide strong foundation for designing real world applications using microprocessors

Course Outcomes: At the end of the Course, the Student will be able to

CO1	Describe the architecture and organization of microprocessor along with instruction set format. List and describe memory and addressing modes. Describe modes and functional block diagram of 8085 along with pins and their functions
CO2	Describe the microprocessor instruction set and classifications of 8085. Programming techniques like looping, counting and indexing.
CO3	List the concepts of stack and subroutine Concept of bit level programming and to do the programs using arithmetic operations.
CO4	Describe and use different types of conversions Representation of Time Delayed Programs on a Register pair and counters.
CO5	To Point out the Importance of Various types of Interrupts. Explains the uses of memory interfacing.

Mapping of Course Outcomes to Program Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	-	2	-	-	3
CO2	3	3	3	3	2	2
CO3	3	2	3	2	2	2
CO4	3	1	3	1	3	2
CO5	3	-	2	1	3	3

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Sl. No.	Contents of Module	Hrs	COs
1	UNIT I: Introduction to Microprocessors – 8085 Programming Model- Instruction Formats - Addressing Modes - Microprocessor architecture and its operations . 8085 MPU: Pinout and Signals-Functional Block Diagram.	9	CO1
2	UNIT II: 8085 Instruction Set and Classifications: Data Transfer Instructions – Arithmetic and Logic Instructions – Branching and Machine Control Instructions. Programming Techniques: Looping, Counting and Indexing–Writing Assembly Levels Programs.	9	CO2
3	UNIT III: Stack: Push and Pop. Subroutine: Call and RST. Restart, Conditional Call and Return Instructions. 8-bit, BCD, Multibyte Addition and Subtraction – 8-bit and BCD Multiplication –8-bit and BCD Division.	9	CO3
4	UNIT IV: Conversions: BCD to Binary and Binary to BCD conversions- ASCII to BCD and BCD to ASCII conversions –Binary to ASCII and ASCII to Binary conversions. Counters and Time delays: Time delays using one register, register pair and loop within loop.	9	CO4
5	UNIT V: 8085 Interrupts: EI, DI, TRAP, RST, SIM and RIM - Direct Memory Access (DMA) – Memory Interface, Memory Mapped I/O.	9	CO5

TEXT BOOK:

1. **Ramesh Gaonkar**, “*Microprocessor Architecture, Programming and Applications with 8085*”, Sixth Edition, Penram International Publishing

REFERENCE BOOK:

1. **Sunil Mathur**, “*Microprocessor 8085 and its Interfacing*”, Second Edition, 2011, PHI

E-REFERENCES:

1. www.engineerclub.in/.../8085-microprocessor-by-ramesh-s-gaonkar.html.
2. suman-bcanotes.blogspot.com/.../micro-processor-notes-bysuman-raj.htm

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SECOND SEMESTER

Course Title: CORE PRACTICAL II - C++ PROGRAMMING LAB

Skill Development

Course Code : 18-21/07208	Credits	02
L:T:P:S : 0:0:3:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- *Be able to create a program using basic operators, decision making statements, Loop concepts.*
- *To understand and create a program using constructor and Destructor.*
- *Be able to create a program using C++ features such as composition of objects, Operator overloading, inheritance, Polymorphism etc.*

Lab Exercise:

1. C++ Operators
2. Decision-making statements
3. Loop statements
4. Library functions
5. Inline function
6. Function overloading
7. Class and object
8. Passing object to function
9. Returning object from function
10. Constructor and Destructor
11. Static data members and member functions
12. Operator Overloading
13. Inheritance
14. Virtual function
15. Command Line Arguments

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SECOND SEMESTER

Course Title: NON MAJOR ELECTIVE II - INTRODUCTION TO HTML

Skill Development

Course Code : 20-21/07207	Credits	02
L:T:P:S : 2:0:0:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- *Insert a graphic within a web page.*
- *Create a link within a web page*
- *Create a table within a web page*
- *Insert heading levels within a web page.*
- *Insert ordered and unordered lists within a web page.*
- *Create a web page*

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Knows the basic concept in HTML Concept of resources in HTML
CO2	Knows Design concept. Concept of Meta Data Understand the concept of save the files.
CO3	Understand the page formatting. Concept of list
CO4	Creating Links. Know the concept of creating link to mail address
CO5	Concept of adding images Understand the table creation.

Mapping of Course outcomes to program outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	2	1	-	-
CO2	2	3	2	2	1	1
CO3	2	1	1	2	2	2
CO4	3	2	2	2	1	1
CO5	2	2	3	-	2	2

3: Strong 2: Medium 1: Low -: No Correlation

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Sl. No.	Contents of Module	Hrs	COs
1	Introduction to HTML – Opening for writing HTML – Unicode Transformation Format – HTML 5 Resources – What is different in HTML 5? - <DOCTYPE> in HTML 5	9	CO1
2	Designing a Webpage: Design Considerations and Planning – Basic Tags and Document structure – HTML Tags <HTML> ... </HTML> - Head Tags <HEAD> ... </HEAD> - Title Tags – Body Tags <BODY> ... </BODY> - Metadata – Saving an HTML document – Actions.	9	CO2
3	Formatting: Page Formatting – Adding a New Paragraph – Adding a Line Break – Inserting Blank Space – Preformatted Text – Changing a Page’s Background Color – Div Element - Text items and objects – Headings – Comments – Block Quotes – Horizontal Lines – Special Characters – Creating Lists – Numbered (Ordered) Lists – Bulleted (Unordered) Lists – Nested Lists- Definition Lists.	9	CO3
4	Links: Introduction to Links – Text Links – Image Links – Opening a web page in a new window/Tab – Setting All Links on a page to open in a new window/Tab – Linking to an area on the same page (Bookmarks) – Linking to an E-mail Address – Linking to other types of Files.	9	CO4
5	Images: Introduction to Images: Adding Images – Resizing images – Alternative (ALT) Text – Image Labels. Tables: Introduction to Tables - Inserting a Table – Table Borders - Table Headers	9	CO5

TEXT BOOK:

1. “Mastering HTML5 and CSS3 Made Easy”, TeachUComp Inc., 2014.

E-REFERENCE:

1. <https://www.teachucomp.com/samples/html/5/manuals/Mastering-HTML5-CSS3.pdf>
2. <https://www.w3schools.com/html/default.asp>

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THIRD SEMESTER

Course Title: CORE THEORY V - JAVA PROGRAMMING

Employability

Course Code : 18-20/07309	Credits	04
L:T:P:S : 4:1:0:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- To get in-depth Knowledge about the evolution of java and its Features.
- Bring out the difference and similarities between C, C++ and java.
- Develop programmers in Java with its special Features.
- Implementing the code in internet using Applet with AWT controls.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Knows the reason about the evolution of Java its development. Study the basic of Java and to develop code. Importance of Java comparing the other language.
CO2	Develop program using constructors and its types. Definition of inheritance and Writing program related to it Differentiate string class and string buffer.
CO3	Concept of packages, interface, threads. Implementing the concept Exception handling various application. Significance of exception handling. Life cycle of thread.
CO4	Explain I/O Streams. Create file using Byte Stream and character Stream classes.
CO5	Usage of Java in internet Definition of Applet and Developing code to connect to internet. Life Build Applet code using AWT controls and Layout managers

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	1	2	-	-	1
CO2	2	3	3	2	2	3
CO3	3	3	2	3	2	2
CO4	3	2	1	1	-	2
CO5	2	3	3	3	3	3

3: Strong 2: Medium 1: Low -: No Correlation

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Sl. No.	Contents of Module	Hrs	COs
1	Introduction to Java - Features of Java – Java Environment - Lexical Issues or tokens- Data Types - Variables - Arrays - Operators – Conditional Statements-Iterative Statements-General Structure of a Java Program - Command Line Arguments.	9	CO1
2	Classes and Objects – Fields and Methods Declaration -Constructors – Method Overloading - Static keyword - Final keyword -String Class -String Buffer Class. Java Utilities : Scanner, Stack, Date, Vector, Enumeration, Random and String Tokenizer. Inheritance : Keyword extends-Types of Inheritance–Keyword super- Overriding of methods-Abstract class and methods.	9	CO1, CO2,
3	User-Defined Packages : Naming conventions – Creating and accessing Packages. Interface : Defining Interface-Keyword implements -Multiple Inheritance using Interface. Exception Handling : Types of errors - Syntax of Exception handling code – Built-in Exceptions – Multiple catch statements – Nested try block – Finally statement- Throwing our own exception using throw – Method throwing exception using throws keyword. Threads : Introduction- Thread States or life cycle of thread- Creation of threads using Thread class and Runnable interface –Thread methods -Thread Priorities -Thread Synchronization.	9	CO1, CO3
4	I/O Streams : Stream classes – Byte stream classes - Character stream classes - File Streams – Using File class – I/O Exceptions–Random access files.	9	CO4
5	Applets : Difference between applet and application -Applet life cycle - Building Applet code using Applet tag – Passing parameters to Applets- Drawing various shapes using Graphics Class. AWT Controls : Buttons, Labels, TextField, TextArea, Choice, CheckBox, List, ScrollBar and Layout Managers.	9	CO5

TEXT BOOKS:

1. E.Balagurusamy, “*Programming with Java*”, Fifth Edition, 2014, Tata McGraw- Hill.

REFERENCE BOOKS:

1. P Radha Krishna, “*Object Oriented Programming through Java*”, Second Edition, 2007, Universities Press.
2. P. Naughton and H. Schildt, “*Java2 (The Complete Reference)*”, Ninth Edition, 2014, Tata McGraw-Hill.

E- REFERENCES:

1. www.tutorialspoint.com/java/java-quick-guide.htm
2. www.tutorialspoint.com/java/java_overview.htm

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THIRD SEMESTER

Course Title: CORE THEORY VI- DATA STRUCTURES

Skill Development

Course Code : 18-20/07310	Credits	04
L:T:P:S : 4:1:0:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- Understand and remember algorithms and its analysis procedure.
- Introduce the concept of data structures through ADT including List, Stack, Queues
- To design and implement various data structure algorithms.
- To introduce various techniques for representation of the data in the real world.
- To develop application using data structure algorithms.

Course outcomes: At the end of course, the student will be able

CO1	Describe the various operations and applications of stacks ,arrays and queues Understands the concepts of infix, postfix and prefix
CO2	Understands the Basic operations on linked list and Applications of Linked List in Addition of Polynomials.
CO3	Describes Binary Trees and Binary Tree Traversals: Inorder, Preorder and Post order Applies the concepts of BST.
CO4	Describes and analyses Graph Traversals: Breadth First Traversal and Depth First Traversal. And Applies the concepts Graphs in Minimum Cost Spanning tree and Dijkstra’s Shortest Path
CO5	Analyses and Applies the concepts of searching and sorting . Understands the concepts of Hashing and evaluates Collision Resolution.

Mapping of Course outcomes to program outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	1	2	-	1
CO2	3	3	2	3	1	-
CO3	3	3	2	1	1	1
CO4	3	3	2	2	2	2
CO5	3	-	-	-	1	1

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Sl. No.	Contents of module	Hrs.	COS
1	UNIT – I: Data Structures: Definition and Classification. Arrays: Array Operations – Representation of Arrays – Applications of Arrays. Stack: Operations on Stacks - Stack applications: Infix to postfix notation and Evaluation of Postfix notation. Queues: Operations on the Queues - Circular queue – Dequeue - Priority queue - Applications of queue.	9	CO1
2	UNIT – II: Introduction to the Linked List - Basic operations on linked list – Singly Linked Lists – Doubly Linked Lists – Circularly Linked Lists-Linked Stacks – Linked Queues. Applications of Linked List: Addition of Polynomials.	9	CO2
3	UNIT – III: Basic Terminology - Binary Trees - Representation of Trees and Binary trees. Binary Tree Traversals: Inorder, Preorder and Postorder. Binary Search Tree (BST): Insertion and Deletion operations in BST- Applications of Trees.	9	CO3
4	UNIT – IV: Basic Terminology – Representation of Graphs. Graph Traversals: Breadth First Traversal and Depth First Traversal. Applications of Graphs: Minimum Cost Spanning tree and Dijkstra’s Shortest Path.	9	CO4
5	UNIT – V: Linear Search and Binary Search. Sorting: Bubble Sort, Selection Sort, and Insertion Sort. Hashing: Introduction – Hash table structure – Hash Functions. Collision Resolution: Linear Open Addressing and Chaining.	9	CO5

TEXT BOOKS:

1. **G.A. Vijayalakshmi Pai**, “*Data structures and Algorithms- Concepts, Techniques and Applications*”, First Edition, 2011, Tata McGraw-Hill.

REFERENCE BOOKS:

1. **Dr. A. Chitra**, “*Data Structures*”, Vijay Nicole Imprints Private Limited.
2. **S. Sahni and E. Horowitz**, “*Fundamentals of Data Structure*”, Ninth Edition, Galgotia Publications.

E- REFERENCES:

1. http://nptel.iitm.ac.in/courses/Webcourse-contents/IIT-%20Guwahati/data_str_algo/frameset.htm
2. <http://www.personal.kent.edu/~rmuhamma/Algorithms/algorithm.html>
3. en.wikibooks.org/wiki/Data_structures

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THIRD SEMESTER

Course Title: CORE THEORY VII - GRAPHICS AND MULTIMEDIA

Employability

Course Code : 18-20/07311	Credits	04
L:T:P:S : 4:0:0:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- To introduce the use of the components of a graphics system and become familiar with building approach of graphics system components and Algorithms
- Ability to understand how the choice of data structures and the algorithm design methods impact the performance.

Course outcomes: At the end of course, the student will be able to

CO1	Describes Graphics and its applications .Analyses the working of the CRT. Evaluates DDA Line drawing and Bresenham’s Circle drawing algorithm
CO2	Understands basics of 2D and 3D Transformations. Describes Parallel and Perspective projection.
CO3	Analyses Polygon Clipping Algorithms. Describes different Visible Surface Detection Methods. Understands the concepts of Polygon Surfaces-Polygon tables, Plane equations, Polygon meshes
CO4	Defines Multimedia and its applications. Describes Multimedia system architecture. Analyses Multimedia data interface standards and Multimedia databases.
CO5	Defines Hypermedia. Knows how to create hypermedia message. Understands the concepts of Distributed multimedia systems.

Mapping of Course outcomes to program outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	2	-	1	2
CO2	3	3	3	-	1	2
CO3	3	1	-	2	2	1
CO4	3	2	2	1	-	2
CO5	3	3	2	-	-	1

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Sl. No.	Content of module	Hrs	COs
1	Introduction and Applications of Graphics – Video Display Devices: CRT, Raster scan display, Random scan display, Color CRT Monitors, DVST, Flat-Panel displays, Input Devices, Printers. Output Primitives: DDA Line drawing algorithm – Bresenham’s Circle drawing algorithm.	9	CO1
2	Basic Transformations of 2D: Translation, Rotation, Scaling and other transformations, Matrix Representations, Homogeneous Coordinates and Composite transformations. Basic Transformations of 3D: Translation, Rotation, Scaling and other transformations. Projections: Parallel projection and Perspective projection.	9	CO2
3	Polygon Clipping Algorithms: Sutherland Hodgeman Clipping. Visible Surface Detection Methods: Visible surface detection – Back Face detection – Depth-Buffer method-A Buffer method. Polygon Surfaces: Polygon tables – Plane equations- Polygon meshes. Filled Area Primitives: Boundary fill algorithm.	9	CO3
4	Multimedia Systems Design: Multimedia basics – Multimedia applications – Multimedia system architecture – Evolving technologies for multimedia – Defining objects for multimedia systems – Multimedia data interface standards – Multimedia databases.	9	CO4
5	Hypermedia: Multimedia authoring and user interface – Hypermedia messaging- Mobile messaging- Hypermedia message component- Creating hypermedia message – Integrated multimedia message standards – Integrated document management- Distributed multimedia systems.	9	CO5

TEXT BOOKS:

1. Donald Hearn and M. Pauline Baker, “Computer Graphics C Version”, Pearson Education.
2. Andleigh, P.K. and KiranThakrar, “Multimedia Systems and Design”, PHI.

REFERENCE BOOKS:

1. W.M. Newman and R.F.Sproull, “Principles of Interactive Computer Graphics”, Tata McGraw Hill International Edition.
2. Judith Jeffcoate, “Multimedia in practice: Technology and Applications”, PHI.

E-REFERENCES:

1. nptel.ac.in/syllabus/106102063/
2. http://www.uptu.ac.in/pdf/sub_ecs_504_30sep14.pdf

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THIRD SEMESTER

Course Title: **CORE PRACTICAL III- JAVA PROGRAMMING LAB**

Employability

Course Code : 18-20/07312	Credits	03
L:T:P:S : 0:0:4:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs.
- Read and make elementary modifications to Java programs that solve real-world problems.
- Be able to create an application using string concept.
- Be able to create a program using files in application.
- Be able to create an Applet to create an application.
- Identify and fix defects and common security issues in code.

Lab Exercises:

Applications:

1. Program using Class and Object.
2. Program using Constructors.
3. Program using Command-Line Arguments.
4. Program using Random Class.
5. Program using Vectors.
6. Program using String Tokenizer Class.
7. Program using Interface.
8. Program using all forms of Inheritance.
9. Program using String class.
10. Program using String Buffer class.
11. Program using Exception Handling.
12. Implementing Thread based applications
13. Program using Packages.
14. Program using Files.

Applets:

15. Working with Colors and Fonts.
16. Parameter passing technique.
17. Drawing various shapes using Graphical statements.
18. Usage of AWT components and Listener in suitable applications.

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THIRD SEMESTER

Course Title: CORE PRACTICAL IV- DATA STRUCTURES USING JAVA LAB

Skill Development

Course Code : 18-20/07313	Credits	03
L:T:P:S : 0:0:4:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- Understand and remember algorithms and its analysis procedure.
- Introduce the concept of data structures including List, Stack, Queues
- To design and implement various data structure algorithms.
- To introduce various techniques for representation of the data in the real world.
- To develop application using data structure algorithms.

Lab Exercises:

1. Stack implementation using array.
2. Queue implementation using array.
3. Stack implementation using linked list.
4. Queue implementation using linked list.
5. Inorder Binary tree traversal.
6. Preorder Binary tree traversal.
7. Postorder Binary tree traversal.
8. Breadth First Graph Traversal.
9. Depth First Graph Traversal.
10. Linear search.
11. Binary search.
12. Bubble sort.
13. Selection sort.
14. Insertion sort.
15. Hashing technique.

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FOURTH SEMESTER

Course Title: CORE THEORY VIII- PYTHON PROGRAMMING

Employability

Course Code : 18-20/07414	Credits	04
L:T:P:S : 4:1:0:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- To make students understand the concepts of PYTHON programming.
- To apply the OOPs concept in PYTHON programming.
- To make the students learn best practices in PYTHON programming.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Learn the basics of python Do simple programs on python Learn how to use an array
CO2	Develop program using selection statement Work with Looping and jump statements Do programs on Loops and jump statements
CO3	Concept of function, function arguments. Implementing the concept strings in various application. Significance of Modules. Work with functions, Strings and modules
CO4	Work with List, tuples and dictionary Write program using list, tuples and dictionary
CO5	Usage of File handlings in python Concept of reading and writing files Do programs using files

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	1	1	-	3
CO2	2	3	2	1	-	2
CO3	3	2	3	2	2	2
CO4	1	3	3	3	3	3
CO5	2	3	2	3	2	3

3: Strong 2: Medium 1: Low -: No Correlation

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Sl. No.	Contents of Module	Hrs	COs
1	UNIT I: Basics of Python Programming: History of Python-Features of Python-Literal constants-Variables - Identifiers–Keywords-Built-in Data types-Output Statements – Input Statements-Comments – Indentation-Operators-Expressions-Type conversions. Python Arrays: Defining and Processing Arrays – Array methods.	9	CO1
2	UNIT II: Control Statements: Selection/Conditional Branching statements: if, if-else, nested if and if-elseif-else statements. Iterative Statements: while loop, for loop, else suite in loop and nested loops. Jump Statements: break, continue and pass statements.	9	CO1, CO2
3	UNIT III: Functions: Function Definition – Function Call – Variable Scope and its lifetime-Return Statement. Function Arguments: Required Arguments, Keyword Arguments, Default Arguments and Variable Length Arguments- Recursion. Python Strings: String operations- Immutable Strings - Built-in String Methods and Functions - String Comparison. Modules: import statement- The Python module – dir() function – Modules and Namespace – Defining our own modules.	9	CO1, CO3
4	UNIT IV: Lists: Creating a list -Access values in list-Updating values in lists-Nested lists -Basic list operations-List Methods. Tuples: Creating, Accessing, Updating and Deleting Elements in a tuple – Nested tuples– Difference between lists and tuples. Dictionaries: Creating, Accessing, Updating and Deleting Elements in a Dictionary – Dictionary Functions and Methods - Difference between Lists and Dictionaries.	9	CO4
5	UNIT V: Python File Handling: Types of files in Python - Opening and Closing files- Reading and Writing files: write() and writelines() methods- append() method – read() and readlines() methods – with keyword – Splitting words – File methods - File Positions- Renaming and deleting files.	9	CO5

TEXT BOOK:

1. **Reema Thareja**, “*Python Programming using problem solving approach*”, First Edition, 2017, Oxford University Press.
2. **Dr. R. Nageswara Rao**, “*Core Python Programming*”, First Edition, 2017, Dreamtech Publishers.

REFERENCE BOOKS:

1. **Vamsi Kurama**, “*Python Programming: A Modern Approach*”, Pearson Education.
2. **Mark Lutz**, “*Learning Python*”, Orielly.
3. **Kenneth A. Lambert**, “*Fundamentals of Python – First Programs*”, CENGAGE Publication.

E-REFERENCES:

1. <https://www.programiz.com/python-programming>
2. <https://www.guru99.com/python-tutorials.html>

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FOURTH SEMESTER

Course Title: CORE THEORY IX- OPERATING SYSTEMS

Skill Development

Course Code : 18-20/07415	Credits	04
L:T:P:S : 4:1:0:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- To understand the main components of an OS & their functions.
- To study the process management and scheduling.
- To understand various issues in Inter Process Communication (IPC) and the role of OS in IPC.
- To understand the concepts and implementation Memory management policies and virtual memory.
- To understand the working of an OS as a resource manager, file system manager, process manager, memory manager and I/O manager and methods used to implement the different parts of OS.

Course outcomes: At the end of course, the student will be able

CO1	Describe the important computer system resources and the role of operating system and scheduling of processes by CPU algorithms
CO2	Understand the process synchronisation and Dead lock algorithms
CO3	Evaluate the requirement for process synchronization and coordination handled by operating system
CO4	Describe and analyse the memory management and its allocation policies.
CO5	Identify use and evaluate the file management policies with respect to different storage management technologies

Mapping of Course outcomes to program outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	3	2	1	-
CO2	3	-	-	-	1	-
CO3	3	-	1	-	1	-
CO4	3	3	2	1	1	1
CO5	3	3	2	1	1	1

3: Strong 2: Medium 1: Low -: No Correlation

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Sl. No.	Contents of Module	Hrs	COs
1	UNIT – I Views – Goals – Types of system – OS Structure: Components – Services – System Calls. Process Management: Process - Process Scheduling – Cooperating Process – Interposes Communication- Types of threads. CPU Scheduling: CPU Schedulers – Scheduling criteria – CPU Scheduling Algorithms.	9	CO1
2	UNIT – II: Process Synchronization: Critical-Section problem – Semaphores. Deadlocks: Characterization – Methods for handling Deadlocks – Prevention, Avoidance, and Detection of Deadlock - Recovery from deadlock.	9	CO2
3	UNIT – III: Memory Management: Address Binding – Dynamic Loading and Linking – Overlays –Swapping- Logical and Physical Address Space - Contiguous Allocation – Internal and External Fragmentation - Non-contiguous Allocation- Paging and Segmentation schemes.	9	CO3
4	UNIT – IV: Virtual Memory: Demand Paging –Page Replacement Algorithms – Thrashing. Protection: Goals-Principles-Domain of Protection –Access Matrix.	9	CO4
5	UNIT – V: File-System Interface: File Concepts – Access methods – Directory Structure –Protection and consistency semantics. File-System Implementation: File system structure- Allocation methods-Free Space Management.	9	CO5

TEXT BOOK:

1. **Silberschatz A., Galvin P.B., Gange,** “*Operating System Concepts*”, Ninth Edition, 2015, John Wiley & Sons.

REFERENCE BOOKS:

1. **Bhatt P. C. P.,** “*An Introduction to Operating Systems: Concepts and Practice*”, Third Edition, 2010, Prentice Hall of India.
2. **William Stallings,** “*Operating Systems: Internals and Design Principles*”, Pearson, 2015, Global Edition.

E-REFERENCES:

1. <http://engineeringppt.blogspot.in/2009/07/operating-system-concepts-8th-edition.html>
2. <http://www.gobokee.com/search.php?q=operating+systeem+ebook>
3. http://www.ebook3000.com/Modern-Operating-Systems--2nd-Edition-_10971.html

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College with Potential for Excellence, Linguistic Minority Institution

Affiliated to University of Madras

Arumbakkam, Chennai – 600 106

FOURTH SEMESTER

Course Title: CORE THEORY X: SOFTWARE ENGINEERING

Skill Development

Course Code : 18-20/07416	Credits	04
L:T:P:S : 4:0:0:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- To introduce the students to a branch of study associated with the development of a software product.
- To gain basic knowledge about the pre-requisites for planning a software project.
- To gain knowledge about the project scheduling concept in software engineering.
- To learn how to design of software.
- To enable the students to perform testing of a software.

Course outcomes: At the end of course, the student will be able

CO1	Familiarization with the concept of software engineering and its relevance
CO2	Understanding of various methods or models for developing a software product
CO3	Understand tools and techniques of software engineering
CO4	Skill to design and code a software
CO5	Verify and validate the problem of software programming

Mapping of Course outcomes to program outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	1	1	-	2	1
CO2	3	1	1	-	1	2
CO3	1	-	2	1	2	1
CO4	-	-	3	2	2	2
CO5	3	-	2	-	2	1

3: Strong 2: Medium 1: Low -: No Correlation

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Sl. No.	Content of Module	Hrs	COs
1	UNIT I: Introduction to Software Engineering: Need and Software problem -Software Crises – A Process framework - Process models: The waterfall model – Incremental process models – Prototyping – The Spiral model. System Engineering Hierarchy: System modelling and simulation.	9	CO1
2	UNIT II: Project Management: The Management Spectrum – The People –The Product – The Process – The Project – The W5HH Principle. Metrics in the Process and Project Domains: Metrics in the Process and Project Domains – Process Metrics and Project Metrics – Software measurement- Size-oriented metrics – Function-oriented metrics. Project Scheduling: Defining task set and a task network– Scheduling – Timeline charts – Tracking theSchedule.	9	CO2
3	UNIT III: Software Design: Design concepts- Abstraction – Architecture Modularity. Basic Design Principles: Component-level Design Guidelines- Cohesion – Coupling- Designing Conventional Components-Graphical Design Notation – Tabular Design Notation – Program Design Language – Comparison of notations.	9	CO3
4	UNIT IV: Risk Management: Reactive and Proactive risks – Software risks – Risk identification – Risk projection- Risk Refinement – Risk mitigation, monitoring and management – The RMMM plan. Software Quality Assurance: Concepts - SQA activities – Formal Technical Reviews (FTR).	9	CO4
5	UNIT V: Software Testing: Definition- Verification and validation – Test strategies – Unit Testing – Integration Testing – Alpha and Beta testing – White Box testing – Basis path testing – Control Structure Testing – Black box testing. Software Configuration Management (SCM): Elements of SCM – Baselines – TheSCM repository	9	CO5

TEXT BOOK:

1. **Roger S. Pressman**, “*Software Engineering a Practitioner’s Approach*”, Seventh Edition, Tata McGraw Hill

REFERENCE BOOKS:

1. **Watts S. Humphrey**, “*A Discipline for Software Engineering*”, Addison Wesley Company.
2. **Sommerville**, “*Software Engineering*”, Ninth Edition, Pearson Education.

E-REFERENCES:

1. http://nptel.iitm.ac.in/courses/Webcourse-contents/IIT%20Kharagpur/Soft%20Engg/New_index1.html

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FOURTH SEMESTER

Course Title: **CORE PRACTICAL V- PYTHON PROGRAMMING LAB**

Employability

Course Code : 18-20/07417	Credits	03
L:T:P:S : 0:0:4:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- *Be able to design and program Python applications.*
- *Be able to create loops and decision statements in Python.*
- *Be able to work with functions and pass arguments in Python.*
- *Be able to build and package Python modules for reusability.*
- *Be able to read and write files in Python.*

Lab Exercises:

1. Program using variables, constants, I/O statements in Python.
2. Program using Operators in Python.
3. Program using Conditional Statements.
4. Program using Loops.
5. Program using Jump Statements.
6. Program using Functions.
7. Program using Recursion.
8. Program using Arrays.
9. Program using Strings.
10. Program using Modules.
11. Program using Lists.
12. Program using Tuples.
13. Program using Dictionaries.
14. Program for File Handling.

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FOURTH SEMESTER

Course Title: **CORE PRACTICAL VI- OPERATING SYSTEM AND SHELL
PROGRAMMING LAB**

Skill Development

Course Code : 18-20/07418	Credits	03
L:T:P:S : 0:0:3:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- To study the process management and CPU scheduling.
- To study shell programming.
- To understand various issues in Inter Process Communication (IPC) and the role of OS in IPC.
- To understand the concepts and implementation Memory management policies and virtual memory.

Lab Exercises:

1. Shell Programming

- a. Basic arithmetic Operations
- b. If statement
- c. While loop
- d. Electricity Bill
- e. Mark Sheet Processing

2. Process Management

- a. Display Process identifier
- b. Suspension of Process
- c. Producer-Consumer Problem
- d. Display the contents of a directory
- e. Interprocess Communication (IPC)

3. CPU Scheduling Algorithms

- a. First Come First Serve Algorithm
- b. Shortest Job First Algorithm
- c. Priority Scheduling Algorithm

4. Memory Management Schemes

- a. First-Fit Algorithm
- b. Best-Fit Algorithm
- c. Worst-Fit Algorithm
- d. Paging

5. Virtual Memory

- FIFO Page replacement Algorithm

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FIFTH SEMESTER

Course Title: CORE THEORY XI - DOT NET PROGRAMMING

Employability

Course Code : 18-19/07519	Credits	04
L:T:P:S : 4:1:0:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- Set up a programming concept using the basic knowledge of HTML.
- To learn the data types, different controls in VB.NET
- Creating ASP.Net applications using standard .net controls to develop a data driven web application for connecting to data sources and managing them.
- To maintain session and controls related information for user used in multi-user web applications.
- To Understand the fundamentals of developing modular application by using object oriented methodologies
- Course outcome s: At the end of course, the student will be able

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	To understand the basic concept of HTML language with different types tags like formatting the text, inserting the tables.
CO2	To gain the basic knowledge in VB NET with the Frame work
CO3	Enable to apply technical knowledge and perform specific technical skills
CO4	Understand to design web applications using ASP.NET 2. Successful students will be able to use ASP.NET controls in web applications
CO5	Apply the concept to create database driven ASP.NET web applications and web services

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	3	3	3	2
CO2	2	2	2	1	-	2
CO3	3	3	2	2	1	1
CO4	3	2	3	3	2	1
CO5	3	3	3	3	2	2

3: Strong

2: Medium

1: Low -: No Correlation

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Sl. No.	Contents of Module	Hrs	COs
1	HTML: Introduction– HTML Document Structure- Header Styles – Text Formatting –Types of List –HTML Table - Linking documents using Anchor tag - Forms – Basic controls in form – Image tag.	9	CO1
2	VB.Net Basics: Dot Net Framework Basics - Visual Studio Environment — Data Types , Variables, constants ,Operators and Expressions – Decisions and Conditions - Loops - Arrays - Sub Procedures and Functions – Built-In functions.	9	CO2
3	VB.Net Advanced: Windows Forms and Basic Controls - Timer control - Graphics and Animation: The Graphics Environment – Simple Animation – Scroll Bar Controls - Menus and Status Bars- Multi Form applications - Exception Handling.	9	CO3
4	ASP.NET Basics: ASP.NET Language Structure - Page Structure - Page event, Properties & Compiler Directives. Basic Web Server Controls: Textbox, Label, Button, Checkbox, Radio Button and Link Button. Validation Controls: Required Validator, Compare Validator and RegularExpressionValidator. DataListWebserver Controls: List Box, Checkbox List, RadioButtonList, Dropdown List and Data Grid control.	9	CO4
5	ASP.NET Advanced: Request and Response Objects, Cookies, Session Management. Working with Data: OLEDB Connection class, Command class, Dataset Class and Data Adapter class - Program using database connectivity	9	CO5

TEXT BOOKS:

1. **Thomas A Powell**, “*The Complete Reference HTML*”, Fifth Edition, 2017, TMH.
2. **Julia Case Brandley, Anita C. Millspaugh**, “*Programming in Visual Basic.Net*”, 2003, Tata McGrawHill.
3. **G. Buczek**, “*ASP.NET Developers Guide*”, 2017, Tata McGrawHill.

REFERENCE BOOKS:

1. **C. Xavier**, “*World Wide Web Design with HTML*”, First Edition, TMH.
2. **Crouch**, “*ASP.NET and VB.NET Web Programming*”, 2002, Addison-Wesley Professional.

E-REFERENCES:

1. <http://www.w3schools.com/aspnet/default-asp>
2. <http://www.learnvisualstudio.net>

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FIFTH SEMESTER

Course Title: CORE THEORY XII- DATABASE MANAGEMENT SYSTEM

Employability

Course Code : 18-19/07520	Credits	04
L:T:P:S : 4:1:0:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- To understand the different issues involved in the design and implementation of a database system.
- To study the physical and logical database designs, database modeling, relational, hierarchical, and network models
- To understand and use data manipulation language to query, update, and manage a database
- To develop an understanding of essential DBMS concepts such as: database security, integrity, concurrency,
- To design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS.

Course Outcomes: At the end of the Course, the Student will be able to

CO1	To demonstrate the characteristics of Database Management Systems. To study about the concepts and models of database. To impart the concepts of System Development Life Cycle and E-R Model.
CO2	To classify the keys and the concepts of Relational Algebra. To impart the applications of various Normal Forms Classification of Dependency.
CO3	To elaborate the different types of Functions and Joins and their applications. Introduction of Views, Sequence, Index and Procedure.
CO4	Representation of PL-SQL Structure. To impart the knowledge of Sub Programs, Functions and Procedures.
CO5	Representation of Exception and Pre-Defined Exception. To Point out the Importance of Triggers, Implicit and Explicit Cursors.

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Mapping of Course Outcomes to Program Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	2	1	2	1
CO2	3	3	3	1	3	-
CO3	3	2	3	2	1	-
CO4	2	1	1	2	2	2
CO5	1	1	-	2	1	1

3: Strong 2: Medium 1: Low -: No Correlation

Sl. No.	Contents of Module	Hrs	COs
1	UNIT I: Introduction: Database System-Characteristics of Database Management Systems- Architecture of Database Management Systems- Database Models-System Development Life Cycle-Entity Relationship Model.	9	CO1
2	UNIT II: Relational Database Model: Structure of Relational Model-Types of keys. Relational Algebra: Unary operations-Set operations-Join operations. Normalization: Functional Dependency- First Normal form-Second Normal Form-Third Normal form- Boyce-Codd Normal Form-Fourth Normal Form.	9	CO2
3	UNIT III: SQL: Introduction. Data Definition Language: Create, alter, drop, rename and truncate statements. Data Manipulation Language: Insert, Update and Delete Statements. Data Retrieval Language: Select statement. Transaction Control Language: Commit, Rollback and Savepoint statements. Single row functions using dual: Date, Numeric and Character functions. Group/Aggregate functions: count, max, min, avg and sum functions. Set Functions: Union, union all, intersect and minus. Subquery: Scalar, Multiple and Correlated subquery. Joins: Inner and Outer joins. Defining Constraints: Primary Key, Foreign Key, Unique, Check, Not Null.	9	CO3
4	UNIT IV: PL/SQL: Introduction-PL/SQL Basic-Character Set- PL/SQL Structure-SQL Cursor-Subprograms-Functions-Procedures.	9	CO4
5	UNIT V: Exception Handling: Introduction-Predefined Exception-User Defined Exception-Triggers-Implicit and Explicit Cursors-Loops in Explicit Cursor.	9	CO5

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TEXT BOOK:

1. **Pranab Kumar Das Gupta and P. Radha Krishnan**, “*Database Management System Oracle SQL and PL/SQL*”, Second Edition, 2013, PHI Learning Private Limited.

REFERENCE BOOKS:

1. **Ramez Elmasri and Shamkant B. Navathe**, “*Fundamentals of Database Systems*”, Seventh Edition, Pearson Publications.
2. **Abraham Silberschatz, Henry Korth, S. Sudarshan**, “*Database System Concepts*”, Seventh Edition, TMH.

E-REFERENCE:

1. http://www.amazon.in/DATABASE-MANAGEMENT-SYSTEM-ORACLE-SQL-ebook/dp/B00LPGBWZ0#reader_B00LPGBWZ0

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FIFTH SEMESTER

Course Title: **CORE THEORY XIII - COMPUTER NETWORKS**

Skill Development

Course Code : 18-19/07521	Credits : 04
L:T:P:S : 5:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Course Objectives:

- To develop an understanding of modern network architectures from a design and performance perspective.
- To introduce the student to the major concepts involved in wide-area networks (WANs), local area networks (LANs) and Wireless LANs (WLANs).
- To clarify network terminology.
- To provide an opportunity to do network programming using TCP/IP.
- To give the students experience working in programming teams.
- To provide a WLAN measurement experience.
- To expose students to emerging technologies and their potential impact.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define computer networks, Demonstrate the types of networks, Distinguish topologies, Differentiate Transmission mode, Design OSI and TCP/IP Reference model
CO2	Illustrate Transmission media, Analyze the wireless media, Create the structure of Telephone system
CO3	Formulate framing control and flow control, Explain error correcting codes and error detecting codes
CO4	Discuss store and forward switching network, Explain Routing algorithm, Examine congestion control algorithm
CO5	Summarize the elements of transport protocol, Describe DNS,EMAIL,WWW

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Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	1	-	-	-
CO2	2	3	2	1	-	-
CO3	-	1	3	3	2	-
CO4	-	-	1	3	3	2
CO5	-	-	1	2	3	3

3: Strong 2: Medium 1: Low -: No Correlation

Sl. No.	Contents of Module	Hrs	COs
1	Introduction: Definition and Uses of Computer Networks. Network Hardware/Categories of Networks: LAN, WAN and MAN. Line Configuration: Point to point and Multipoint. Topology: Mesh, Star, Tree, Bus, Ring and Hybrid Topologies. Transmission Mode: Simplex, Half duplex and Full Duplex. Network Software: Protocol Hierarchies- Connection Oriented and Connectionless Services – Service Primitives. Reference Models: OSI Reference Model – TCP/IP reference Model.	9	CO1
2	Physical Layer: Guided Transmission Media: Magnetic Media, Twisted Pair, Coaxial Cable and Fiber Optics. Wireless Transmission: Electromagnetic Spectrum, Radio Transmission, Microwave Transmission, Infrared Transmission and Light Waves. The Public Switched Telephone Network: Structure of a Telephone System.	9	CO2
3	Data Link Layer -Design Issues: Framing, Error Control and Flow Control. Error Correcting Codes: Hamming Codes and Convolutional Codes. Error Detecting Codes: Parity, Checksums and CRCs. Elementary Data-link Protocols: A Utopian Simplex Protocol. Sliding Window Protocols: A One-Bit Sliding Window Protocol.	9	CO3
4	Network Layer- Design Issues: Store and Forward Packet Switching – Services provided to transport layer. Routing Algorithms: The Optimality Principle, Flooding, The Shortest Path routing and Hierarchical Routing. Congestion Control Algorithms: Approaches to Congestion Control - Traffic Aware Routing and Admission Control.	9	CO4
5	Transport Layer-Elements of Transport Protocols: Addressing, Error control and Flow control, Multiplexing and Crash recovery. TCP: Introduction, TCP Service model and TCP Segment Header. Application Layer: DNS – Electronic Mail – The World Wide Web.	9	CO5

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TEXT BOOKS:

1. **Andrew S. Tanenbaum and David J. Wetherall**, “*Computer Networks*”, Fifth edition, 2011, PHI.

REFERENCE BOOKS:

1. **Behrouz A. Forouzan**, “*Data Communication and Networking*”, Fifth Edition, Tata McGraw Hill.
2. **William Stallings**, “*Data and Computer Communications*”, Eighth Edition, Pearson education Asia.

E-REFERENCES:

1. http://nptel.iitm.ac.in/courses/IIT-MADRAS/Computer_Networks/index.php
2. <http://www.cse.iitk.ac.in/users/dheeraj/cs425/>
3. http://people.du.ac.in/~ngupta/teach_networks.html

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FIFTH SEMESTER

Course Title: **CORE PAPER XIV ELECTIVE I - OBJECT ORIENTED ANALYSIS
AND DESIGN**

Skill Development

Course Code : 18-19/07522	Credits	04
L:T:P:S : 5:0:0:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- Discuss and elaborate the concept of OOAD.
- Describe the object-oriented approach to system development, modeling objects, relationships and interactions.
- Use the class design for creating software
- Use case studies of object orientation on testing for software development.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Demonstrate the ability to apply the knowledge of Object-Oriented Methodologies. Understand the use of UML.
CO2	Ability to Create Use case Models. Defining and Applying Objects, Attributes and Methods. Benefits of Case studies.
CO3	To describe the step by step object-oriented methodology of software development through class design and database management system.
CO4	Ability to apply the concept of different patterns for constructing software architectures through User interface design.
CO5	Apply the concept of Object orientation on testing for software development. Ability to understand the problems, communicating with application experts and user.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	-	-	1	-	3
CO2	2	2	2	3	2	2
CO3	2	3	2	2	3	3
CO4	1	3	3	2	3	3
CO5	2	3	3	2	3	3

3: Strong 2: Medium 1: Low -: No Correlation

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Sl. No.	Contents of Module	Hrs	COs
1	Object Basics – Object Oriented methodologies: Introduction, The Unified Approach –UML.	9	CO1
2	Use Case Models – Object Analysis – Identifying Object relationships – Attributes –Methods – Case Studies.	9	CO1, CO2
3	Design Processes – Design Axioms – Class design – Object Storage: Object Oriented database management systems, Object relational systems, Designing access layer classes. Case Studies.	9	CO1, CO3
4	User interface design – View Layer Classes – Micro level processes – View Layer interface - Case Studies.	9	CO1, CO4
5	Object orientation on testing – Test cases – Test plans – Continuous testing – Debugging principles – System usability – Measuring user satisfaction – Case studies.	9	CO5

TEXT BOOK:

1. **Ali Bahrami**, “*Object Oriented System Development*”, Second Edition, Tata McGraw Hill International Edition.
2. **Grady Booch, James Rumbaugh, Ivar Jacobson**, “*The Unified Modeling Language User Guide*”, Second Edition, Addison Wesley.

REFERENCE BOOKS:

1. **Brahma Dathan, Sarnath Ramnath**, “*Object-Oriented Analysis, Design and Implementation*”, Second Edition, Universities Press.
2. **Martin Fowler**, “*UML Distilled A Brief Guide to Standard Object Modeling Language*”, Third Edition, AddisonWesley.

E-REFERENCES:

1. http://www.auupdates.com/2014/03/cs2353-object-oriented-analysis-and_3881.html
2. <http://it-ebooks.info/book/1403/>

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FIFTH SEMESTER

Course Title: CORE THEORY XIV ELECTIVE I – DATA MINING

Skill Development

Course Code : 18-19/07522	Credits	04
L:T:P:S : 5:0:0:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- To introduce students to the basic concepts and techniques of Data Mining
- To develop skills of using recent data mining software for solving practical problems.
- To gain experience of doing independent study and research.
- Develop and apply critical thinking, problem-solving, and decision-making skills.
- Develop and apply enthusiasm for learning. Class participation is encouraged in this course.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Know the basic knowledge of data mining, Study the techniques, Implement the applications
CO2	Understand the data preparations, Know the types of data and display graphically, and Compute the distance.
CO3	Know the Naive and Apriori Algorithm. Improve the algorithm. Study of Direct Hashing and Pruning
CO4	Introduce Decision tree and Tree induction algorithm. Classified the methods. Evaluate the criteria of classification methods
CO5	Describe the cluster analysis. Study about K-means, Hierarchical and Agglomerative method. Check the quality and validity

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Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	2	-	-	1	-	-
CO2	1	1	-	-	-	2
CO3	2	-	-	1	2	-
CO4	-	1	2	-	-	-
CO5	-	-	1	2	3	-

3: Strong 2: Medium 1: Low -: No Correlation

Sl. No.	Contents of Module	Hrs	COs
1	Introduction: What is data mining? – Why data mining now? – Data mining process – Data mining applications – Data mining techniques – Practical examples.	9	CO1
2	Data Understanding and Data Preparation: Introduction – Data collection and preprocessing – Outliers – Types of data – Computing Distance – Displaying data graphically.	9	CO2
3	Association Rules Mining: Introduction - Basics – Naïve algorithm – Improved Naïve algorithm – The Apriori algorithm – Improving the efficiency of the Apriori algorithm – Direct Hashing and Pruning	9	CO3
4	Classification: Introduction – Decision tree - The Tree Induction Algorithm – Split algorithm based on Information Theory – Naïve based method - Improving accuracy of Classification Methods – Evaluation criteria of classification methods.	9	CO4
5	Cluster Analysis: Introduction – Features of Cluster Analysis – Types of Cluster Analysis – The K-Means method – Hierarchical method – Agglomerative Method - Quality and Validity of Cluster Analysis Method.	9	CO5

TEXT BOOKS:

1. **G. K. Gupta**, “Introduction to Data Mining with Case Studies”, 3rd Edition, 2014, PHI.

REFERENCE BOOKS:

1. **Jiawei Han and Micheline Kamber**, “Data Mining Concepts & Techniques”, Third Edition, Academic Press.
2. **Margaret H. Dunham**, “Data Mining Introductory and Advanced Topics”, First Edition, Pearson Education.

E-REFERENCES:

1. <http://guidetodatamining.com/>
2. http://freecomputerbooks.com/Introduction_to_Data_Mining.html

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FIFTH SEMESTER

Course Title: CORE THEORY XIV ELECTIVE I -ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS
Employability

Course Code : 18-19/07522	Credits	04
L:T:P:S : 5:0:0:0	CIA Marks	40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- To get in-depth Knowledge about the evolution of AI and Expert Systems.
- Bring out the Features of Artificial Intelligence.
- Develop Heuristic Search Techniques.
- Implementing the Predicate Logic and Expert Systems.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Definition, AI Problem, AI Applications, AI Techniques and criteria for success. Defining the problem as a state space search.
CO2	Heuristic search techniques –Generate and test, simple hill climbing. Best first search –OR graph, A* Algorithm. Problem Reduction- AND OR graph, AO* Algorithm.
CO3	Knowledge representations and Mapping, Properties for Knowledge representation system, Frame Problem
CO4	Representing simple facts in logic, Representing Instance and ISA relationship, Computable function and Predicate, Resolution and Natural Deduction.
CO5	Characteristics of Expert System, Architecture of Expert Systems, Benefits and Limitations of Expert systems, Development States ,Applications and Expert systems Tools

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	1	2	-	-	1
CO2	2	3	3	2	2	3
CO3	3	3	2	3	2	2
CO4	3	2	1	1	-	2
CO5	2	3	3	3	3	3

3: Strong 2: Medium 1: Low -: No Correlation

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Sl. No.	Contents of Module	Hrs	COs
1	Introduction: Definition, AI Problems, AI Applications, AI techniques, Criteria for success. Problems, Problem Spaces, Search: Defining the problem as a State Space Search – Production Systems – Problem Characteristics – Production System Characteristics.	9	CO1
2	Heuristic Search Techniques: Generate and Test – Simple Hill Climbing – Best First Search: OR graphs, The A* Algorithm. Problem Reduction: AND OR graphs, The AO* Algorithm. Constraint Satisfaction. Inheritance: Keyword extends- Types of Inheritance–Keyword super- Overriding of methods-Abstract class and methods	9	CO2
3	Knowledge Representation Issues: Representations and Mappings – Approaches to Knowledge representations: Properties for Knowledge representation systems, Simple relational knowledge- Issues in Knowledge representations – The Frame Problem.	9	CO3
4	Using Predicate Logic: Representing simple facts in logic – Representing Instance and ISA relationships – Computable functions and predicates– Resolution – Natural deduction.	9	CO4
5	Expert Systems: Definition- Characteristics of Expert Systems – Architecture of Expert Systems -Benefits and Limitations of Expert Systems – Development states of an Expert System -Applications of Expert Systems – Expert System tools	9	CO5

TEXT BOOKS:

1. **Stuart Russell & Peter Norvig**, “*Artificial Intelligence a modern Approach*”, Second Edition, Pearson Education.
2. **E. Rich, K. Knight and Shivashankar B. Nair**, “*Artificial Intelligence*”, Third Edition, TMH.

REFERENCE BOOKS:

1. **V S Janaki Raman, K Sarukesi, P Gopalakrishnan**, “*Foundations of Artificial Intelligence and Expert Systems*”, MacMillan India limited.
2. **D.W. Patterson**, “*Introduction to AI and Expert Systems*”, PHI.

E-REFERENCES:

1. www.vssut.ac.in/lecture_notes/lecture1428643004.pdf
2. http://vfu.bg/en/e-Learning/Artificial-Intelligence--AI_and_ES_Nowledge_base_systems.pdf

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FIFTH SEMESTER

Course Title: **CORE PRACTICAL VII - DOT NET PROGRAMMING LAB**

Employability

Course Code : 18-19/07523	Credits	03
L:T:P:S : 0:0:5:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- To explain basics of HTML concepts and controls
- To demonstrate the design VB.NET form with controls.
- To demonstrate the design ASP.NET form with controls.
- To explain the table creation and manipulation
- To demonstrate the creation and uses of cookies
- To facilitate students in Database design

Lab Exercises:

1. Creation of a personal web page (with multiple html documents and appropriate links)
2. Preparation of a bio data using various HTML Controls
3. Design a VB.Net form for Student manipulation.
4. Design a VB.Net form for Inventory control system.
5. Create an ASP.Net application form to apply for a new course in a college, fill the information and submit it(Use Basic webserver controls).
6. Design Sign Up form and validate the values: User Name (Minimum 8 character Maximum 15 and only characters and underscore), Password (Minimum 8 Characters) and Confirm Password (Both should be same), Phone No (Only digits), Email-id(should contain @ symbol) etc.
7. Demonstration of Request and Response Objects
8. Create an employee database and manipulate the records.
9. Demonstration of Cookies.
10. Create a web form for Online Library data entry using Session variables.

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FIFTH SEMESTER

Course Title: CORE PRACTICAL VIII - RDBMS LAB USING ORACLE

Employability

Course Code : 18-19/07524	Credits	03
L:T:P:S : 0:0:5:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- To explain basic database concepts, applications, data models, schemas and instances.
- To demonstrate the use of constraints and relational algebra operations
- Describe the basics of SQL and construct queries using SQL.
- To emphasize the importance of normalization in databases
- To facilitate students in Database design

Lab Exercises:

SQL:

1. DDL commands.
2. Specifying constraints-Primary Key, Foreign Key, Unique, Check, Not Null.
3. DML commands.
4. Set Operations.
5. Joins.
6. Sub-queries.

PL/SQL:

7. Control Constructs.
8. Exception Handlers.
9. Implicit Cursor.
10. Explicit Cursor.
11. Procedures.
12. Functions.
13. Triggers.
14. TCL Commands usage (Commit, Rollback, Save point)

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SIXTH SEMESTER

Course Title: **CORE THEORY XV - PHP PROGRAMMING**

Skill development & Employability

Course Code : 18-19/07625	Credits	04
L:T:P:S : 4:1:0:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- Understand the usage of PHP and MySQL in dynamic web development.
- Understand PHP language data types, logic controls, built-in and user-defined functions
- Be able to setup and configure MySQL, PHP, Apache web server development environment.
- Select, insert, update and delete data using SQL language.
- Understand Object oriented programming paradigm in PHP.
- Build a simple, yet functional web application using PHP/MySQL

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Discuss the basic concepts, Creating basic scripts, Implement data types, variables and operators
CO2	Illustrate the conditional statements, Implementing String and numeric functions
CO3	Create and processing array functions, Express the date and time functions
CO4	Creating User-Defined Functions and classes, Implement files and directories
CO5	Demonstrate database connectivity, Examine the user input through Database layer and Application layer, Construct query output with Character, Numeric, Date and time.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	-	-	-	-
CO2	2	3	1	-	-	-
CO3	1	1	3	3	2	-
CO4	-	-	1	3	3	2
CO5	-	-	-	2	3	3

3: Strong

2: Medium

1: Low

-: No Correlation

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Sl. No.	Contents of Module	Hrs	COs
1	Introducing PHP – Basic development Concepts – Creating first PHP Scripts – Using Variable and Operators – Storing Data in variable – Understanding Data types – Setting and Checking variables Data types – Using Constants – Manipulating Variables with Operators.	9	CO1
2	Controlling Program Flow: Writing Simple Conditional Statements - Writing More Complex Conditional Statements – Repeating Action with Loops – Working with String and Numeric Functions.	9	CO2
3	Working with Arrays: Storing Data in Arrays – Processing Arrays with Loops and Iterations – Using Arrays with Forms - Working with Array Functions – Working with Dates and Times	9	CO3
4	Using Functions and Classes: Creating User-Defined Functions - Creating Classes – Using Advanced OOP Concepts. Working with Files and Directories: Reading Files-Writing Files- Processing Directories – Cookies – Session Management.	9	CO4
5	Working MySQL with PHP: Database connectivity- Usage of MYSQL commands in PHP- Processing result sets of queries- Validating user input through Database layer and Application layer- Formatting query output with Character, Numeric, Date and time.	9	CO5

TEXT BOOKS:

1. **Vikram Vaswani**, ”*PHP A Beginner’s Guide*”, First Edition, TMH.
2. **Mike Mcgrath**, “*PHP and MySQL*”, 2012, TMH.

REFERENCE BOOKS:

1. **Rasmus Lerdorf, Kevin Tatroe**, ”*Programming PHP*”, Third Edition, O’Reilly.
2. **Robin Nixon**, ”*PHP, MySQL, and JavaScript: A Step-By-Step Guide to Creating Dynamic Websites*”, First Edition, O’ReillyMedia.
3. **Leon Atkinson**, “*Core PHP Programming*”, Prentice Hall, ISBN0130463469.
4. **W. Jason Gilmore**, “*Beginning PHP5 and MySQL: From Novice to Professional*”, 2004, Apress, ISBN:1-893115-51-8.
5. **Steven Holzner**, “*The PHP Complete Reference*”, TataMcGraw-Hill.

E-REFERENCES:

1. <http://www.w3schools.com/php/>
2. <http://www.codingunit.com/php-tutorial-language-introduction>

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SIXTH SEMESTER

Course Title: CORE THEORY XVI - MOBILE APPLICATION DEVELOPMENT

Skill development & Employability

Course Code : 18-19/07626	Credits	04
L:T:P:S : 4:1:0:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- Develop in-depth Knowledge about the architecture and features of Android.
- Implementing the various options available in views.
- Understand the file handling concepts and thereby enabling to manage data efficiently.
- Able to describe clearly the features of SMS messaging.
- Illustrate the concepts of Location Based Services.

Course outcomes: At the end of course, the student will be able to

CO1	Understand the Overview, Architecture and Features of Android. Study the setting up of Android environment. Developing simple Android application.
CO2	Understand the concepts of Android user interface. Exploring the different types of views available.
CO3	Understand the concepts of Saving and Loading User Preferences. Studies the File Handling methods and thereby able to manage data.
CO4	Able to Send and Receive messages .Understands how to send E-mail .Explores the concepts of Networking thereby able to download Binary Data and Text Files.
CO5	Explore the concepts of Location Based Services thereby able to Display maps and zoom control and add Markers Able to get the location – Geocoding. Understand Publishing Android Applications concepts

Mapping of Course outcomes to program outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	1	-	-	-
CO2	3	2	1	-	-	-
CO3	3	3	3	2	1	1
CO4	3	2	2	2	1	1
CO5	3	3	3	2	2	2

3: Strong 2: Medium 1: Low -: No Correlation

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S. No.	Content of module	Hrs	COs
1	Android Fundamentals: Android overview and Versions –Features of Android – Architecture of Android - Setting up Android Environment (Eclipse/Android Studio, SDK, AVD)- Anatomy of an Android Application - Simple Android Application Development.	9	CO1
2	Android User Interface: Layouts: Linear, Relative, Frame and Scrollview- Managing changes to Screen Orientation. Views: TextView, Button, ImageButton, EditText, CheckBox, RadioButton, RadioGroup, ProgressBar, AutoCompleteTextView, ListViews and WebView	9	CO2
3	Data Persistence: Saving and Loading User Preferences. File Handling: File System-Internal and External Storage-Permissions-File Manipulation- Managing Data using Sqlite: Creation of database-Insertion, Retrieval and Updation of records.	9	CO3
4	SMS Messaging: Sending and Receiving messages - Sending E-mail – Networking: Downloading Binary Data – Downloading Text Files.	9	CO4
5	Location Based Services: Displaying maps- Displaying zoom control- Changing view – Adding Markers- Getting the location – Geocoding. Publishing Android Applications: Preparing for publishing-Deploying APK Files.	9	CO5

TEXT BOOK:

1. **WeiMeng Lee (2012)**, “*Beginning Android Application Development*”, Wrox Publications (John Wiley, New York)

REFERENCE BOOKS:

1. **Ed Burnette**, “*Hello Android: Introducing Google's Mobile Development Platform*”, 3rd edition, 2010, The Pragmatic Publishers.
2. **Reto Meier**, “*Professional Android 4 Application Development*”, 2012, Wrox Publications (John Wiley, New York).

E-REFERENCES:

1. https://www.tutorialspoint.com/mobile_development_tutorials.htm
2. <https://www.tutorialspoint.com> > Android > Android - Home

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SIXTH SEMESTER

Course Title: CORE THEORY XVII - DESIGN AND ANALYSIS OF ALGORITHMS

Skill Development

Course Code : 18-19/07627	Credits	04
L:T:P:S : 5:0:0 :0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- Ability to analyze the performance of algorithms.
- Ability to choose appropriate algorithm design techniques for solving problems.
- To clear up troubles the usage of set of rules design methods including the grasping approach, divide and overcome, dynamic programming, backtracking and department and certain

Course outcome: At the end of course, the student will be able to

CO1	Knows how to solve the basic Problems. Derive asymptotic runtime bounds for reasonably straightforward pseudo-code with nested loop Concept of Space complexity, Time complexity
CO2	Knows sorting and searching. Concept of Knap sack problems, Job sequencing with deadlines Definition of Optimal Merge Patterns.
CO3	Know the basic representation of undirected and directed graphs. Understand the shortest path problems and their applications Usage of 0/1 Knapsack
CO4	Concept of Backtracking Knows to solve the N-Queens Problem Definition of Hamiltonian Cycle Problem.
CO5	Understand the Travelling Salesman Problem. Definition of Branch and Bound general method.

Mapping of Course outcomes to program outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	1	-	1
CO2	3	3	2	2	1	2
CO3	2	-	1	2	3	2
CO4	3	2	2	2	-	1
CO5	2	2	3	-	2	2

3: Strong 2: Medium 1: Low - : No correlation

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Sl. No.	Content of Module	Hrs	COs
1	Introduction: Problem solving – Procedure – Top-Down and Bottom-up approaches to algorithm design – Use of algorithms in problem solving– Characteristics of algorithmic language. Developing an algorithm: Design of algorithms – Implementation of algorithm – Verification of algorithm. Efficiency analysis of algorithms: Space complexity, Time complexity, and Frequency count – Analysis of Linear Search.	9	CO1
2	Divide and Conquer: General Method – Binary Search – Finding Maximum and Minimum – Merge Sort. Greedy Method: General method – Optimal storage on tapes – Knap sack problems – Job sequencing with deadlines – Optimal Merge Patterns.	9	CO2
3	Dynamic Programming: General Method – Multistage Graphs – All-Pair Shortest Paths – 0/1 Knapsack.	9	CO3
4	Backtracking: General Method – N-Queens Problem – Sum of Subsets – Graph Coloring - Hamiltonian Cycle Problem.	9	CO4
5	Branch and Bound: General Method (FIFO and LC) – 0/1 Knapsack Problem – Travelling Salesman Problem.	9	CO5

TEXT BOOKS:

1. **A.A Puntambekar**, “*Analysis and Design of Algorithms*”, Technical Publications.
2. **I. Chandra Mohan**, “*Design and Analysis of Algorithms*”, PHI Learning Pvt. Ltd.

REFERENCE BOOKS:

1. **Ellis Horowitz, SartajSahni and SanguthevarRajasekaran**, “*Computer Algorithms*”, Second Edition, Universities Press.
2. **K. RaghavRao**, “*Introduction to Design Analysis of Algorithms*”, 2013, SmashWords.

E-REFERENCES:

1. http://people.du.ac.in/~ngupta/teach_algorithms_cs301.html#301
2. http://www.uptu.ac.in/pdf/sub_ecs_502_30sep14.pdf

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SIXTH SEMESTER

Course Title: CORE THEORY XVIII ELECTIVE II - OPERATIONS RESEARCH

Skill Development & Employability

Course Code : 18-19/07628	Credits	04
L:T:P:S : 5:0:0:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- To get in-depth Knowledge about the evolution of operations research and its Features
- Understand the characteristics of OR
- How to apply OR in industry
- Understanding how OR helps in decision making

Course outcomes: At the end of course, the student will be able

CO1	Applying features of OR in decision making for industries. Develop formulations for Linear programming problem
CO2	Obtain the Algebraic Solution using Simplex method and Big M method
CO3	Obtain solution for Transportation Model and Assignment Model Problems and also understand the difference between the same
CO4	Understanding Sequencing Problem and Processing each of 'n' jobs through m machines Understanding the characteristics of game theory and obtaining the algebraic solution for solving games.
CO5	Applying PERT and CPM computations and thereby scheduling the resources

Mapping of Course outcomes to program outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	2	-	1	1
CO2	1	2	3	-	3	-
CO3	2	1	3	-	3	-
CO4	3	2	3	-	3	1
CO5	3	1	3	-	3	1

3: Strong 2: Medium 1: Low -: No Correlation

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Sl. No.	Content of module	Hrs	COs
1	Basics of Operations Research (OR): Characteristics of O.R- Necessity of O.R in Industry-OR and Decision making- Role of computers in O.R.. Linear Programming: Formulations and Graphical solution canonical and standard terms of LPP.	9	CO1
2	Algebraic Solution: Simplex method -Charnes method of penalties – Two Phase Simplex Method – Big-M Method – Concept of Duality- Properties of Duality.	9	CO2
3	Transportation Model: Definition –n formulation and solution of transportation models- North–West Corner Method- the row – minima, column – minima, matrix minima and Vogel’s approximation methods (Note: no optimal solution problems). Assignment Model: Definition of Assignment Model – comparison with Transportation Model – solution of Assignment model –Variations of Assignment problem – Finding Optimal Solution of Assignment Problem.	9	CO3
4	Sequencing Problem: Processing each of ‘n’ jobs through m machines – Processing ‘n’ jobs through 2 machines – Processing ‘n’ jobs through 3 machines – Processing 2 jobs through ‘m’ machines – Processing ‘n’ jobs through ‘m’ machines – Travelling Salesman Problem. Game Theory: Characteristics of games – Maximin, Minimax criteria of optimality – Dominance property – Algebraic solution of solving games.	9	CO4
5	Pert – CPM Networks- Fulkerson’s Rule- Measure of activity – PERT and CPM computation – Resource Scheduling – Floats Calculations.	9	CO5

TEXTBOOK:

1. **KantiSwarub, P.K.Gupta, Manmohan,** “*Operations Research*”, S. Chand & Sons.

REFERENCE BOOKS:

1. **Ackoff R. L. and Sasieni M.W,** “*Fundamentals of Operations Research*”, John Wiley & Sons, New York.
2. **Charnes A. Cooper W. and Hendersen A.,** “*Introduction to Linear Programming*”, Wiley & Sons. New York.
3. **Srinath L.S.”***PERT and CPM Principles and Applications*”, Affiliated East West Press Pvt. Ltd., New York.

E-REFERENCES:

1. https://en.wikipedia.org/wiki/Operations_research

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SIXTH SEMESTER

Course Title: CORE THEORY XVIII ELECTIVE II– CRYPTOGRAPHY

Skill Development

Course Code : 18-19/07628	Credits	04
L:T:P:S : 5:0:0:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- To understand the fundamentals of Cryptography
- To acquire knowledge on standard algorithms used to provide confidentiality, integrity and authenticity.
- To understand the various key distribution and management schemes.
- To understand how to deploy encryption techniques to secure data in transit across data networks
- To design security applications in the field of Information technology

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Analyze the vulnerabilities in any computing system and hence be able to design a security solution.
CO2	Apply the different cryptographic operations of symmetric cryptographic algorithms
CO3	Apply the different cryptographic operations of public key cryptography
CO4	Apply the various Authentication schemes to simulate different applications.
CO5	Understand various Security practices and System security standards

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	2	1	2	1
CO2	3	3	2	1	3	-
CO3	3	2	2	2	1	-
CO4	2	1	1	1	2	1
CO5	1	1	-	2	1	1

3: Strong 2: Medium 1: Low -: No Correlation

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Sl. No.	Contents of Module	Hrs	COs
1	Introduction: The OSI security Architecture – Security Attacks – Security Mechanisms – Security Services – A model for network Security.	9	CO1
2	Classical Encryption Techniques: Symmetric cipher model – Substitution Techniques: Caesar Cipher – Monoalphabetic cipher – Play fair cipher – Poly Alphabetic Cipher – Transposition techniques – Steganography	9	CO2
3	Block Cipher and DES: Block Cipher Principles – DES – The Strength of DES – RSA: The RSA algorithm.	9	CO3
4	Network Security Practices: IP Security overview - IP Security architecture – Authentication Header. Web Security: Secure Socket Layer and Transport Layer Security – Secure Electronic Transaction.	9	CO4
5	Intruders – Malicious software – Firewalls.	9	CO5

TEXT BOOKS:

1. William Stallings, “*Cryptography and Network Security Principles and Practices*”.

REFERENCE BOOKS:

1. Behrouz A. Foruzan, “*Cryptography and Network Security*”, Tata McGraw-Hill, 2007.
2. AtulKahate, “*Cryptography and Network Security*”, Second Edition, 2003, TMH.
3. M.V. Arun Kumar, “*Network Security*”, 2011, First Edition, USP.

E-REFERENCES:

1. <https://www.tutorialspoint.com/cryptography/>
2. <https://gpgtools.tenderapp.com/kb/how-to/introduction-to-cryptography>

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SIXTH SEMESTER

Course Title: CORE THEORY XVIII ELECTIVE II- E-COMMERCE

Skill Development & Entrepreneurship

Course Code : 18-19/07628	Credits	04
L:T:P:S : 5:0:0:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- Understanding of the foundations and importance of E-commerce
- Understanding of retailing in E-commerce by in terms of branding and pricing strategies and determining the effectiveness of market research
- Implement the impact of E-commerce on business models and strategy
- Assess the Internet trading relationships including Business to Consumer, Business-to-Business, Intra-organizational.
- Knowing key features of Internet, Intranets and Extranets and how they relate to each other. Understanding legal issues and privacy in E-Commerce
- Assess electronic payment systems. Recognize and discuss global E-commerce issues

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Demonstrate E-Commerce Frameworks. Distinguish E-Commerce and media Convergence. Illustrate E-Commerce Applications.
CO2	Describe the E-Commerce Networks and Research Networks, Analyze the Internet Commercialization
CO3	Evaluate the E-Commerce how incorporate the Internet, Construct the Web Security
CO4	Distinguish the different payment system. Illustrate the data interchange
CO5	Understanding the Advertising and Marketing on the Internet, Describe Software Agents

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	-	-	-	-
CO2	2	3	3	1	-	-
CO3	2	2	3	3	-	-
CO4	2	1	-	3	3	-
CO5	1	1	-	-	3	3

3: Strong 2: Medium 1: Low -: No Correlation

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Sl. No.	Contents of Module	Hrs	COs
1	E-Commerce Framework – E-Commerce and Media Convergence – The anatomy of E-commerce applications - E-Commerce Consumer Applications - E- Commerce Organization Applications.	9	CO1
2	The Internet Terminology – NSFNET – Architecture and Components – National Research and Education Network – Internet Governance – An overview of Internet Applications. The Business of Internet Commercialization: Telco/Cable/Online companies - National Independent ISPs – Regional level ISPs – Local level ISPs.	9	CO2
3	E-Commerce and the World Wide Web: Architectural Framework for E-commerce – WWW as the architecture – Technology behind the web – Security and the web.	9	CO3
4	Electronic Payment Systems: Types of Electronic Payment Systems – Digital token Electronic Payment Systems – Credit Card Based Electronic Payment Systems – Risk and Electronic Payment Systems. Electronic Data Interchange: Legal, Security and Privacy issues.	9	CO4
5	Advertising and Marketing on the Internet: E-Commerce Catalogs – Information Filtering – Consumer Data Interface – Emerging tools. Software Agents: Characteristics and Properties of Software Agents – Technology behind Software Agents - Applets, Browsers, and Software Agents.	9	CO5

TEXT BOOKS:

1. **Ravi Kalakota & Andrew Whinston**, “*Frontiers of Electronic-Commerce*”, Addison Wesley.

REFERENCE BOOKS:

1. **Efraim Turvan, J. Lee, David Kug and Chung**, “*Electronic Commerce*”, Pearson Education, Asia.
2. **Manlyn Greenstein and Miklos**, “*Electronic Commerce*”, TMH.

E-REFERENCES:

1. <https://www.the-reference.com/en/expertise/creation-and.../e-commerce>
2. <https://en.wikipedia.org/wiki/E-commerce>
3. https://www.tutorialspoint.com/e_commerce/index.htm

Signature of the HOD

Signature of the Principal



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Arumbakkam, Chennai – 600 106

SIXTH SEMESTER

Course Title: CORE PRACTICAL IX -PHP PROGRAMMING LAB

Employability

Course Code : 18-19/07629	Credits	03
L:T:P:S : 0:0:4:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

Course Objectives:

- To explain basics PHP variables, constants and controls
- To demonstrate the use of String, math and date functions.
- To demonstrate the creation of arrays and type of arrays
- To explain user defined functions and the concepts of class.
- To demonstrate the creation cookies and sessions
- To facilitate the creation of Database and validate the user inputs

Lab Exercises:

1. PHP Variables and constants
2. PHP IF Statement
3. PHP Switch-case statement
4. PHP looping statement
5. PHP String functions
6. PHP mathematical functions
7. PHP numeric array
8. PHP associative array
9. PHP Multidimensional array
10. Array with forms
11. PHP Date and time functions
12. PHP User-defined functions
13. PHP Scope of variables
14. PHP Class and Object
15. PHP Cookies
16. PHP Sessions
17. Insertion of records into database using form
18. Viewing of records from database using form
19. Validating user-input using application layer
20. Validating user-input using database layer

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SIXTH SEMESTER

Course Title: **CORE PRACTICAL X - MOBILE APPLICATION DEVELOPMENT**

LAB

Employability

Course Code	: 18-19/07630	Credits	03
L:T:P:S	: 0:0:4:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- To explain user defined functions and the concepts of class.
- To demonstrate the creation cookies and sessions
- To facilitate the creation of Database and validate the user inputs

Lab Exercises:

1. Develop an application for Simple Counter.
2. Develop an application to display your personal details using GUI Components.
3. Develop a Simple Calculator that uses radio buttons and text view.
4. Develop an application that uses Intent and Activity.
5. Develop an application that uses Dialog Boxes.
6. Develop an application to display a Splash Screen.
7. Develop an application that uses Layout Managers.
8. Develop an application that uses different types of Menus.
9. Develop an application that uses to send messages from one mobile to another mobile.
10. Develop an application that uses to send E-mail.
11. Develop an application that plays Audio and Video.
12. Develop an application that uses Local File Storage.
13. Develop an application for Simple Animation.
14. Develop an application for Login Page using Sqlite.
15. Develop an application for Student Marksheet processing using Sqlite.

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SIXTH SEMESTER

Course Title: **CORE PROJECT X - MINI PROJECT WORK**

Course Code	:		Credits	02
L:T:P:S	:	0:0:2:0	CIA Marks	: 40
Exam Hours	:	03	ESE Marks	: 60

Course Objectives:

Students will be able to:

- *Implement the solution for the chosen problem using the concepts and the techniques learnt in the curriculum.*
- *Develop software applications*
- *Record the research results for a given problem*
- *Identify, formulate and implement computing solutions.*
- *Design and conduct experiments, analyze and interpret data.*
- *Analyze a system, component or process as per needs and specification.*
- *Work on multidisciplinary tasks and will be aware of the new and emerging disciplines.*
- *Demonstrate skills to use modern tools, software and equipment's to analyze problems.*

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Demonstrate a sound technical knowledge, skills and attitude of their selected project topic.
CO2	Understand problem identification, formulation and solution.
CO3	Design solutions to complex problems utilizing a systems approach.
CO4	Communicate with engineers and the community at large in written and oral forms.

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Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	2	3	3	3
CO2	3	3	3	2	2	3
CO3	3	3	3	2	3	3
CO4	2	3	3	3	3	3

3-Strong 2-Medium 1-Low

Procedure:

- The Head of the Department will assign an Internal Guide for each student.
- As soon as the student gets project, the student should submit the contact details of the organization to their guide.
- During regular intervals, student should report about his/her progress of the project work.
- After the submission of the final report, an external examiner will evaluate the project document and conduct the viva voce examination.

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APPENDIX - A

OUTCOME BASED EDUCATION

Outcome-based education (OBE) is education in which an emphasis is placed on a clearly articulated idea of what students are expected to know and be able to do, that is, what skills and knowledge they need to have, when they leave the college system. Outcome-based education aims to create a clear expectation of results that students must achieve. Here, the outcome includes skills, knowledge and attitude. In addition to understanding what's expected, outcome-based education also encourages transparency.

Programme Educational Objectives (PEOs) are statements that clearly describe what the learner will know or be able to do as a result of having attended an educational program or activity. Educational objectives must be observable and measurable. It's a comprehensive and well developed list can provide information about student learning, curriculum and teaching. Assessing or measuring learning outcomes can inform the institution about the educational environment.

Programme Outcomes (POs) are broad statements that describe the professional accomplishments which the program aims at, and these are to be attained by the students by the time they complete the program. The programme Outcomes are achieved results or consequences of what was learned; i.e., evidence that learning took place.

Course Outcomes (COs) are specific and measurable statements that define the knowledge, skills, and attitudes learners will demonstrate by the completion of a course.

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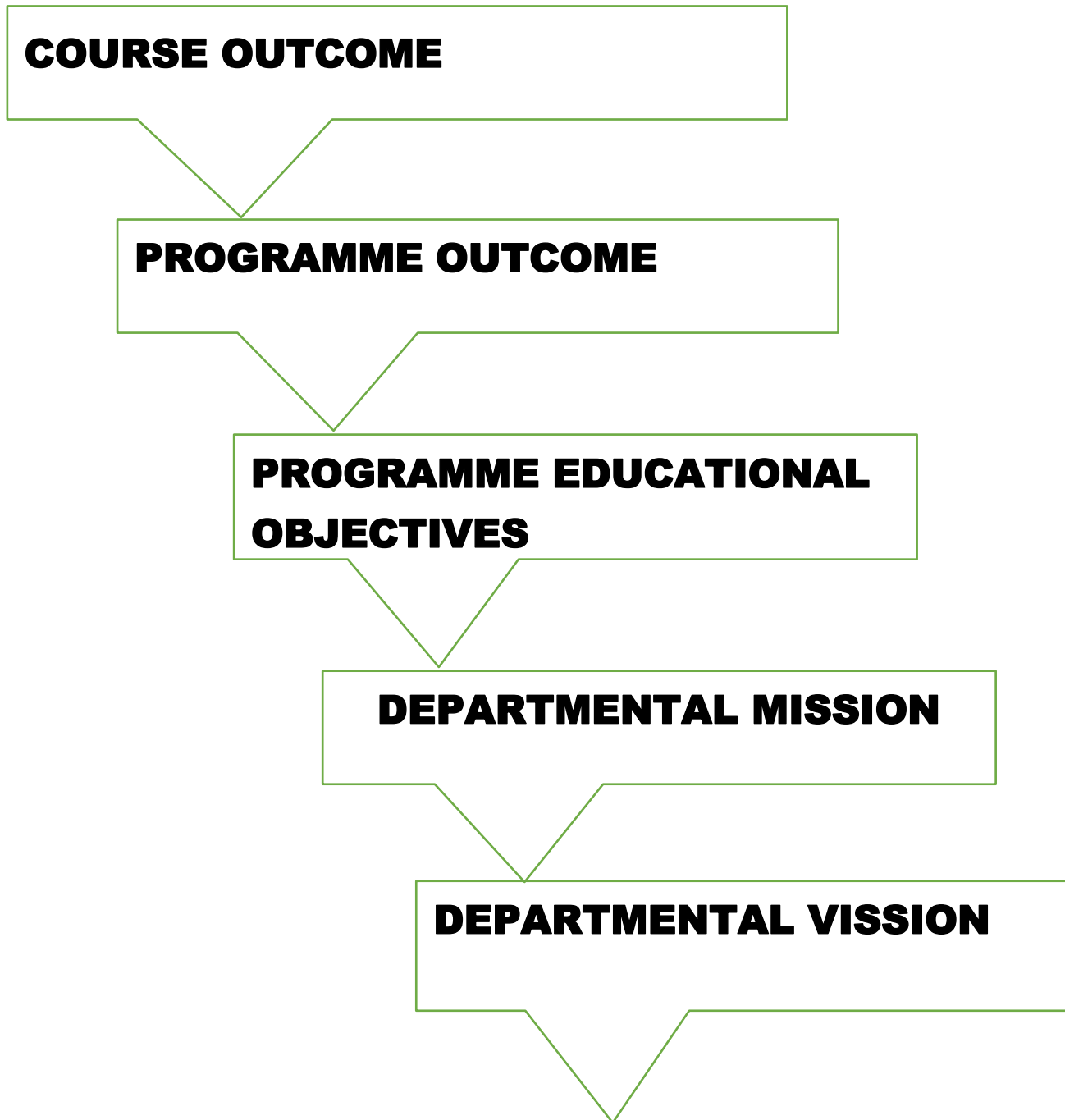
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APPENDIX – B

MAPPING OF OUTCOMES



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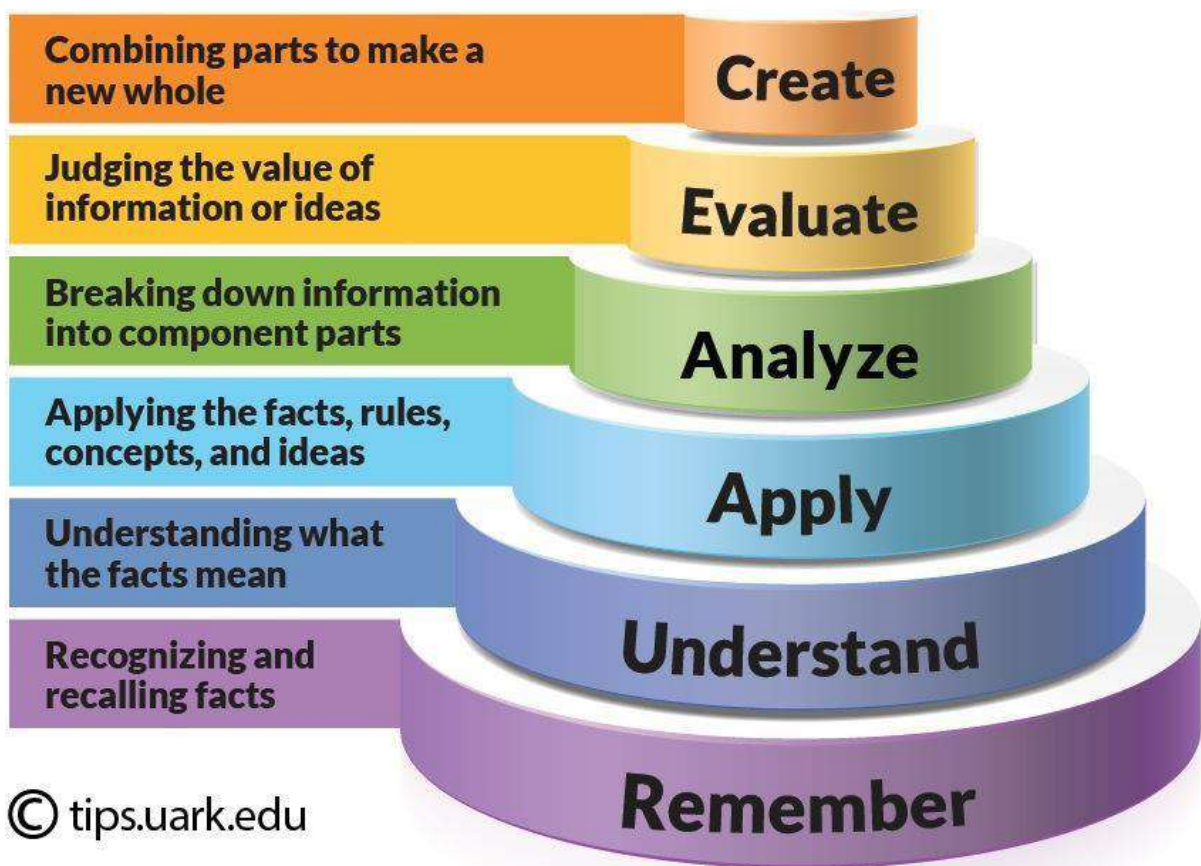
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APPENDIX – C

BLOOM’S TAXANOMY

Bloom’s Taxonomy is a classification of the different outcomes and skills that educators set for their students (learning outcomes). The taxonomy was proposed in 1956 by Benjamin Bloom, an educational psychologist at the University of Chicago. The terminology has been recently updated to include the following six levels of learning. These 6 levels can be used to structure the learning outcomes, lessons, and assessments of your course



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Title of the Course		BUSINESS STATISTICS AND OPERATIONS RESEARCH – II					
Paper Number		IV					
Category	Allied	Year	II	Credits	5	Course Code	
		Semester	IV				
Course Outline		Unit - 1 Time Series Analysis – Trend – Seasonal Variation – Cyclical variations. Chapter 12					
		Unit – 2 Index Numbers – Aggregative and Relative Index – Chain and Fixed Index – Wholesale Index – Cost of Living Index. Chapter 13					
		Unit – 3 Probability – Addition and Multiplication Theorem – Conditional probability – Baye’s Theorem (without proof) – Simple problems. Chapter 14					
		Unit – 4 Assignment and Transportation Problems. Chapter 16 , 17					
		Unit – 5 Game Theory - Games with saddle – Dominance – Graphical Method. Chapter 15 (Book 2)					
Recommended Text		<ol style="list-style-type: none"> 1. Dr. P.R.Vittal, Business Statistics and Operations Research, Margham publications 2. Dr. P. R. Vittal, V. Malini, Operations Research, Margham publications (Unit – V) 					
Reference Books		<ol style="list-style-type: none"> 1. Dr.S.P.Rajagopalan ,R.Sattanathan, Business Statistics & Operations Research, Margham Publications. 2. Dr.S.P.Gupta, Statistical Methods 3. Gupta and Hira, Operations Research, S.Chand. 4. Handy and A.Taha, Operations Research, Macmillan Publishers 					
e-Resources:		http://nptel.ac.in					

Title of the Course		BUSINESS STATISTICS AND OPERATIONS RESEARCH – I					
Paper Number		III					
Category	Allied	Year	II	Credits	5	Course Code	
		Semester	III				
Course Outline		Unit – 1 Introduction – Classification and tabulation of statistical data – Diagrammatic and graphical representation of data. Chapter 1, 2, 3, 4					
		Unit – 2 Measures of Central tendency – Mean, median and mode – Dispersion, Range, Quartile Deviation, Mean Deviation , Standard Deviation – Measures of Skewness. Chapter 5, 6					
		Unit – 3 Correlation – Karl Pearson’s Coefficient of Correlation – Spearman’s Rank Correlation-Regression Lines and Coefficients. Chapter 8, 9					
		Unit – 4 Introduction to OR–Linear Programming Formulation–Graphical and Simplex method to solve LPP with all constraints of less than or equal to type only (Simple Problems only) Chapter 15					
		Unit – 5 Network Analysis – PERT and CPM (no crashing) Chapter 24					
Recommended Text		Dr. P.R. Vittal, Business Statistics and Operations Research, Margham publications					
Reference Books		<ol style="list-style-type: none"> 1. Dr.S.P.Rajagopalan ,R.Sattanathan, Business Statistics & Operations Research, Margham Publications. 2. Dr.S.P.Gupta, Statistical Methods 3. Gupta and Hira, Operations Research, S.Chand. 4. Handy and A.Taha, Operations Research, Macmillan Publishers 					
e-Resources:		http://nptel.ac.in					



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Department: BIOCHEMISTRY		Academic Semester: EVEN	
Semester: VI	Class : III BSC	Course Code: 20-11623	Course: Clinical Biochemistry
Course Incharge: Dr.M.Kavitha & Dr.D.S.PUSHPARANI		No. of credits:4	

Content delivery	e.g. Chalk and Talk, PPT presentation, Quiz, Assignments
-------------------------	--

COURSE OUTCOMES: At the end of the course, the student will be able to:

CO1	Understand the pathophysiology and molecular basis of Diabetes mellitus. Professionally apply biochemical tests to analyse health problems and explain their clinical significance in metabolic disorders.
CO2	Students will be able to describe and analyze the genetic diseases like phenylketonuria, cystinuria, albinism, hypo and hyperuricemia, gout and atherosclerosis.
CO3	Explain the physiopathological and biochemical markers of the liver function tests. Think in an integrated manner and approach problems from different perspectives. Integrate the use of biochemical tests and explain their clinical significance in the assessment of liver function.
CO4	Assessment of the diagnostic performance of renal function tests. Integrate the use of biochemical tests and explain their clinical significance in the assessment of gastric function
CO5	Categorize the use of enzymes and Isozymes in assessment of liver damage, bone disorders and myocardial infarction.



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Mapping of CO / PO:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	3	2	1	1	3	3
CO2	3	3	2	1	1	3	3
CO3	3	3	2	1	1	3	3
CO4	3	3	2	1	1	3	3
CO5	3	3	2	1	1	3	3
	3	3	2	1	1	3	3

Correlation levels: 1 - Weak 2 - Medium 3 - High

COURSE DELIVERY PLAN

Lecture	Module	Topics	Instructional Hours	Date of Completion	Faculty Sign
1.	1	Blood glucose relation	2	25.1.23	
2.		Hypo and hyperglycemia.	2	27.1.23	
3.		Diabetes mellitus types	2	30.1.23	
4.		Clinical features and metabolic changes	3	2.2.23 3.2.23	
5.		Glycosuria	1	7.2.23	
6.		Galactosemia	2	13.2.23	
7.		Fructosuria.	1	15.2.23	
8.		Glycogen storage diseases.	2	18.2.23	



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9.	2	Etiology and clinical manifestation of phenylketonuria	2	21.12.22 22.12.22	
11.		Cystinuria	2	2.1.23 5.1.23	
12.		Albinism	2	6.1.23	
13.		Maple Syrup Urine diseases	2	10.2.23	
14.		Hypo and hyperuricemia	2	13.1.23	
15.		Gout.	2	18.1.23	
16.		Clinical features of atherosclerosis.	2	20.1.23	
17.		Liver Function Tests	2	27.2.23	
18.	3	Jaundice-types-hemolytic, hepatic and obstructive.	3	1.3.23 6.3.23 8.3.23	
19.		Differential diagnosis of Jaundice.	2	10.3.23 15.3.23	
20.		Test based on excretory function (BSP)	2	15.3.23	
21.		Test based on bile pigment metabolism.	2	16.3.23 27.3.23	
22.	1	Function Tests- Clearance tests	1	23.12.23	
23.		Urea clearance test	2	4.1.23	
24.		Creatinine clearance test	2	4.1.23	



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25.	4	Inulin clearance test, PAH test	1	9.1.23	
26.		Concentration and dilution tests.	2	9.1.23	
27.		Gastric Function Tests	2	19.1.23	
28.		Collection of gastric contents, examination of gastric residium	2	24.1.23	
29.		FTM	1	28.1.23	
30.		Stimulation tests	1	1.2.23	
31.		Tubeless gastric analysis.	1	1.2.23	
32.		5	Clinical Enzymology	2	6.2.23
33.	Definition of functional and non-functional plasma enzymes.		2	18.2.23	
34.	Isozymes and diagnostic tests		3	21.2.23	
35.	Enzyme patterns in liver damage		3	24.2.23	
36.	Enzyme patterns in bone disorders		2	3.3.23	
37.	Enzyme patterns in Myocardial infarction.		2	14.3.23	
38.	Generic skills assesement		4	6.4.23 11.4.23 12.4.23 13.4.23	



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TEXT BOOKS:



1. Textbook of Biochemistry, Prem Prakash Gupta, CBS Publishers and distributors. (2013)
2. Textbook of Medical Biochemistry, M.N.Chatterjea, 2011.
3. Biochemistry (with Clinical Concepts and Case Approach), 7th Edition, U.Satanarayana , U.Chakrapani, 2013.

REFERENCES:

1. Textbook of Biochemistry with Clinical Correlations, 7th Edition.T.M.Devlin, CBS Publishers and Distributors. 2010.

WEB LINKS:

1. <https://swayam.gov.in/>
2. <https://my.clevelandclinic.org/health/diagnostics/21659-kidney-function-tests>
3. <https://medlineplus.gov/ency/article/003504>.

1.  (Dr. M. KAVITHA)
 2.  (Dr. D.S. PUSHPARANI)
- Course Incharge


Head of the Department

SEMESTER I

Course Code	Course Title	Category	L	T	P	S	Credits
	BIOTECHNIQUES, FUNGI & LICHENS	Core paper - I	6	0	0	0	4

Year	Semester	CIA	ESE	Exam Hours
First	First	50	50	03

LEARNING OBJECTIVES:

On taking this course the student will be able to understand the working principle and applications of light and electron microscopes. The student will also be able to understand the working mechanism and applications of rotary and sledge microtome. They also will be able to recognize Habit, life forms and reproductive structures of lower forms of plants. The student will be able to understand the classification of Fungi and Lichens. The subject also throws light on the economic importance of Fungi and Lichens.

COURSE OUTCOMES

At the end of the Course, the Student will be able to:

	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)
CO1	Understand the basic principles and scope of Biotechniques.	K1,K2, K3, K4, K5,K6
CO2	Acquire fundamental knowledge about Bio-instruments.	K1,K2, K3, K4, K5,K6
CO3	Assess knowledge of fungi with respect to classification and its importance to mankind.	K1,K2, K3, K4, K5,K6
CO4	Identify various life forms of Fungi.	K1,K2, K3, K4, K5,K6
CO5	Outline the salient features and importance of Lichens.	K1,K2, K3, K4, K5, K6

K1 - Remember

K4 - Analyze

K2 - Understand

K5 - Evaluate

K3 - Apply

K6 - Create

MAPPING OF COURSE OUTCOMES TO PO/PSO:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	3	2	1	2	2	1	1	2	3	2	1	1	2
CO2	3	3	3	2	3	2	1	1	3	2	3	3	2
CO3	3	3	3	2	3	1	1	2	3	3	3	3	2
CO4	3	3	3	3	3	3	1	2	3	2	3	1	1
CO5	3	3	3	3	2	1	1	2	3	3	3	2	1

STRONGLY CORRELATED -3; MODERATELY CORRELATED – 2; WEAKLY CORRELATED -1

S. NO	CONTENTS OF MODULE	Hrs.	COs
1	<p>MODULE – I BIOTECHNIQUES 1.1 Working principle, Construction and Applications of Light Microscopes: Compound and Phase contrast Microscope 1.2 Working Principle, Construction and Applications of Transmission Electron Microscope (TEM). 1.3 Microtomes – Rotary and Sledge (Wood Microtome) – Structure and Applications. 1.4 Sectioning - Free hand section and Serial section (Microtomy). 1.5 Stains – Types and Uses; Methods of Staining - Simple and Differential Staining; Positive and Negative staining; single and double staining. 1.6 Fixatives - Types (FAA and Carnoy’s fluid; Glutar-aldehyde and Osmium Tetroxide) and uses.</p>	18	CO1
2	<p>MODULE – II Principle, technique and applications of the following Bio-techniques: 2.1 pH meter: Basic principles of pH meter and its operation, types of Electrodes, Measurement of pH, and Applications. 2.2 Centrifugation: Principle, types of centrifuges (Bench & Ultra) and Applications. 2.3 Colorimeter: Principle, operations and uses; Beer – Lambert’s Law. 2.4 Whole mount preparations (Algae and Fungi); Special techniques: Smear, Squash, and Maceration.</p>	18	CO2
3	<p>MODULE – III FUNGI 3.1 Introduction and Evolution of Fungi. 3.2 General characteristics, Habit, Nutrition types, cell structure, mycelium – its modifications. 3.3 Reproduction: Vegetative, Asexual, Sexual, Para-sexual; Fruiting bodies, Life cycle patterns.</p>	18	CO3

	3.4 Classification of Fungi by G.C. Ainsworth (1971) - Order level 3.5 Economic importance of Fungi.		
4	MODULE – IV Structure and reproduction with reference to the following fungal forms: 4.1 <i>Albugo</i> 4.2 <i>Mucor</i> 4.3 <i>Peziza</i> 4.4 <i>Agaricus</i> 4.5 <i>Colletotrichum</i> 4.6 <i>Puccinia</i>	18	CO4
5	MODULE – V LICHENS 5.1 General features, Nature, Occurrence, distribution, thallus organization, types, Vegetative, Asexual and Sexual Reproduction. 5.2 Occurrence, Structure and life cycle of <i>Usnea</i> . 5.3 Economic importance of Lichens 5.4 Role in Succession and Monitoring Pollutants.	18	CO5

TEXT BOOKS:

1. Vashishta B.R, Sinha A.K & Anil Kumar (2016). *Botany for Degree Students – Fungi*, S. Chand & Company, ISBN:9789352533008
2. Annie Ragland, Arumugam. N (2016). *Fundamentals of Plant Anatomy and Microtechniques*, Saras Publication, ISBN :9788193307663
3. Awasthi D.D (2013). *A hand book of lichens* (1st Ed), M/s Bishen Singh Mahendra Pal Singh, ISBN: 9788121101813
4. Ponmurugan P & Gangathara Prabhu B (2013). *Biotechniques*, MJP Publishers, ISBN :9788180941191
5. S.V.S Rana (2012). *Biotechniques (Theory & Practice)*, Rastogi Publications (3rd Ed), ISBN:9788171339938
6. Sharma O.P (2008). *Fungi And Allied Microorganisms*, McGraw Hill India, ISBN:9780070700383
7. Prasad M.K & Krishna Prasad M (2000). *Outlines of Microtechnique*, Emkay Publications, ISBN: 9788185712291

REFERENCE BOOKS:

1. Gray P (2020). *Handbook of Basic Microtechniques-* Alpha Edition, ISBN: 9789354009150
2. Edward Chee Tak Yeung, Claudio Stasolla, Michael John Sumner (2015). *Plant Microtechniques and Protocols* (1st Ed), Springer Nature. ISBN:9783319199436
3. Alexopoulos C.J, Mims C.W, Blackwell M (2007). *Introductory Mycology* (4th Ed.), Wiley, ISBN: 9788126511082
4. Webster, J. (2007). *Introduction to Fungi*, Cambridge University Press (3rd Ed.), ISBN: 9780521727006

5. Vernon Ahmadjian & Mason E. Hale (1974). *The Lichens*, Academic Press Inc, ISBN: 978012044950

WEBSITES:

1. <https://microbiologyonline.org/about-microbiology/introducing-microbes/fungi>
2. <https://www.anbg.gov.au/lichen/what-is-lichen.html>

CORE PAPER: II PRACTICAL – I

BIOTECHNIQUES, FUNGI & LICHENS

L	T	P	Cr
0	0	3	2

LEARNING OUTCOMES:

At the end of the Course, the Student will be able to:

1. Understand the basic principles and uses of Microscopes.
2. To prepare and identify microslides of Fungi, Lichens.

BIOTECHNIQUES

1. Maceration technique
2. Freehand sectioning – Any plant material.
3. Identification of Stains and Fixatives
4. Photographs of Microscopes, pH meter, Centrifuge, Colorimeter.

FUNGI

1. Whole mount preparations of Fungi
2. Sectioning of Macroscopic fungi
3. Economic importance of fungi and Lichens (Photographs)
4. Preparation of agar media for fungal culture (Protocol).
5. Identification of Fungi included in Theory Syllabus.

LICHENS

1. Identification of Lichens included in Theory Syllabus.

Field visit / trip to collect the Fungi/Lichens in natural Habitat

SEMESTER II

Course Code	Course Title	Category	L	T	P	S	Credits
	ALGAE AND BRYOPHYTES	Core paper - 3	6	0	0	0	4

Year	Semester	CIA	ESE	Exam Hours
First	Second	50	50	03

LEARNING OBJECTIVES:

On taking this course the student will be able to recognize Habit, life forms and reproductive structures of lower forms of plants. The student will be able to understand the classification of Algae and Bryophytes. The subject also throws light on the economic importance of algae. It provides knowledge on structure and reproduction of certain selected Bryophytes forms.

COURSE OUTCOMES

At the end of the Course, the Student will be able to:

	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)
CO1	Classification of different forms of algae and its evolution	K1, K2, K3, K4, K5
CO2	Study about different forms of Algae.	K1, K2, K3, K4, K5
CO3	Acquire knowledge on the commercial importance of Algae.	K1, K2, K3, K4, K5, K6
CO4	Classification of different forms of Bryophytes and its evolution	K1, K2, K3, K4, K5
CO5	Acquire knowledge on the commercial importance of Bryophytes.	K1, K2, K3, K4, K5, K6

K1 - Remember

K2 - Understand

K3 - Apply

K4 - Analyze

K5 - Evaluate

K6 - Create

MAPPING OF COURSE OUTCOMES TO PO/PSO:

CO/PO/PS O	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	3	2	1	2	2	1	1	1	3	3	2	2	3
CO2	3	3	3	2	3	1	1	2	3	3	3	3	2
CO3	3	3	3	2	3	1	1	1	3	2	2	2	3
CO4	3	3	3	3	3	1	1	2	3	3	3	3	2
CO5	3	3	3	3	2	2	1	2	3	3	3	3	2

STRONGLY CORRELATED -3; MODERATELY CORRELATED – 2; WEAKLY CORRELATED -1

S. NO	CONTENTS OF MODULE	Hrs.	COs
1	<p>MODULE – I ALGAE 1.1 Introduction and Evolution of Algae. Classification of Algae F.E. Fritsch (1945) 1.2 Distribution - Range of thallus organization – Pigmentation- Flagellation- Reserve food – Reproduction (Vegetative/ Asexual/ Sexual) and Life cycle patterns. 1.3 General characteristics of major classes of Algae (Cyanophyceae, Chlorophyceae, Bacillariophyceae, Phaeophyceae, and Rhodophyceae).</p>	18	CO1
2	<p>MODULE – II Life history of the following representative genera of Algae: 2.1 <i>Nostoc</i> 2.2 <i>Ulva</i> 2.3 <i>Caulerpa</i> 2.4 <i>Navicula</i> (Diatom) 2.5 <i>Sargassum</i> 2.6 <i>Gracilaria</i></p>	18	CO2
3	<p>MODULE – III 3.1 Algal Biotechnology: Single Cell Proteins (SCP): <i>Spirulina</i> as single cell protein - production and harvesting of algal biomass – factors affecting biomass production. 3.2 Seaweed cultivation in India – Resources, methods, problems and uses of seaweeds. 3.3 Economic importance of Algae: Algae as food and fodder, use of algae in agriculture and space research, commercial products of algae: Agar - Agar,</p>	18	CO3

	Alginates, Carrageen in, Diatomite, Minerals and Elements - Algae in Cosmetics, Medicine, Bio-fuels and Bio-fertilizers. 3.4 Conservation of Algae: Threats to freshwater and marine algae, Threatened Algal species and its conservation.		
4	MODULE – IV BRYOPHYTES 4.1 Introduction and Evolution of Bryophytes. Classification (Proskauer (1957)). 4.2 General Characteristics of the Major Subdivision: Hepaticopsida, Anthocerotopsida and Bryopsida. 4.3 Fossil Bryophytes - Fossil Hepaticopsida, Fossil Bryopsida. 4.4 Economic Importance of Bryophytes.	18	CO4
5	MODULE – V A detailed study of Morphology, Anatomy and Reproduction of the following Genera: 5.1 <i>Marchantia</i> 5.2 <i>Anthoceros</i> 5.3 <i>Polytrichum</i>	18	CO5

TEXT BOOKS:

1. Sambamurty A.V.S.S (2020). *A Textbook of Bryophytes, Pteridophytes, Gymnosperms and Paleobotany*, Dreamtech Press, ISBN: 9789389447187
2. Vashishta B.R, Singh V.P & Sinha A.K (2012). *Botany for Degree Students – Algae*, S. Chand & Company, ISBN:9788121935210
3. Sharma O.P (2011). *Text book of Algae*, McGraw Hill Education, ISBN:9780070681941
4. Vashishta. B.R, Sinha A.K & Adarsh Kumar (2011). *Botany for Degree Students – Bryophytes*, S. Chand & Company, ISBN:9788121935692

REFERENCE BOOKS:

1. Watson E.V (2018). *The Structure and Life of Bryophytes*, Scientific publishers, ISBN: 9789388043533
2. Dinabandhu Sahoo (2013). *Common Seaweeds of India*, I K International Publishing House Pvt. Ltd, ISBN:9788190777063
3. Perumal, G M, Anand, N (2009). *Manual of Freshwater Algae of Tamil Nadu*, Bishen Singh Mahendra Pal Singh, ISBN:9788121106948
4. Smith G.M. (1994). *Manual of Phycology*, Scientific Publishers Journals, ISBN: 9788172330910
5. Fritsch F.E (1935). *Structure and Reproduction of Algae*, Cambridge University Press, ISBN: 9780521050418

Course Code	Course Title	Category	L	T	P	S	Credits
	ALLIED ZOOLOGY - II	Allied Paper - 2	6	0	0	0	4

Year	Semester	CIA	ESE	Exam Hours
First	Second	50	50	03

LEARNING OBJECTIVES:

On taking this course the student will list the distinctive features and importance of various cell organelles. The students will be able to know how sex determined in man and will know the genetic disorders caused by chromosomal mutations and students able to understand the physiological activities of various organ and organ systems. The students will able to know the treatment methods of sewage effluents and also develop a self-employability on Apiculture, Sericulture and Poultry farming.

COURSE OUTCOMES

At the end of the Course, the Student will be able to:

	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)
CO1	Understand and Discuss the animal cell structure, stem cell and its applications, cancer cell, and its properties. Acquire the knowledge on molecular structure of Gene, Inborn errors of metabolism and X and Y linked inheritance in man	K1,K2, K3,K5,K6
CO2	Discuss the gametogenesis process– Fertilization- Cleavage and Gastrulation in Frog and in Man.	K1,K2,K3, K4, & K5
CO3	Analyse various physiological activities of different organs and organ systems in Man. Apply the knowledge on functions of different hormones	K1, K2, K3, K4, K5, K6
CO4	Create a awareness, scope and importance of sericulture and apiculture	K1,K2, K3 K4,K5&K6
CO5	Create a awareness, scope and importance of poultry rearing techniques for commercial production Evaluate the quantity and quality of poultry and dairy production	K2, K3, K4, K5 &K6

K1 - Remember

K2 - Understand

K3 - Apply

K4 - Analyze

K5 - Evaluate

K6 – Create

MAPPING OF COURSE OUTCOMES TO PO/PSO:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	2	3	3	2	2	3	2	3	3	3	3	2	2
CO2	2	3	3	3	2	2	3	3	3	3	3	2	1
CO3	3	3	3	3	2	2	3	2	3	3	3	2	3
CO4	2	2	3	3	2	2	3	3	3	2	3	2	3
CO5	2	2	3	2	2	2	3	3	3	2	3	3	3

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

S. NO	CONTENTS OF MODULE	Hrs.	COs
1	<p>MODULE – I CELL BIOLOGY 1.1. Organization of eukaryotic cell (Animal cell) - Stem cell - types of stem cell, application of stem cells, stem cell therapy. Cancer cell- types and properties of cancer cells. GENETICS 1.2. Molecular structure of Gene-Gene concept- Gene function- Inborn errors of metabolism with reference Amino Acid metabolism (Albinism, Alkaptonuria and Phenylketonuria) Genetic Engineering and its applications- X and Y – linked inheritance.</p>	18	CO1
2	<p>MODULE – II DEVELOPMENTAL BIOLOGY 2.1 Gametogenesis – Spermatogenesis, Oogenesis, Fertilization- Cleavage and Gastrulation in Frog and in Mammals (Man).</p>	18	CO2
3	<p>MODULE – III HUMAN PHYSIOLOGY: 3.1. Digestion, Structure of Heart, Cardiac cycle, composition of blood, Heart diseases- Ischemia, Myocardial infarction, Rheumatic Heart disease, Stroke. 3.2. Excretion-Structure of Kidney, Nephron, Mechanism of Urine formation and Kidney failure. 3.3. Endocrine glands- Structure and functions of Pituitary, thyroid, Islets of Langerhans, Adrenal, Testis and Ovary.</p>	18	CO3
4	<p>MODULE – IV ECONOMIC ZOOLOGY SERICULTURE 4.1. Commercial variety of mulberry, Biology of Mulberry Silk worm – types of silkworm Rearing operation – CHAWAKI and late age rearing techniques – physical and commercial characters of cocoon. APICULTURE 4.2. Apiculture – Biology of Different Honey Bee Types, bee hives method of beekeeping application for modern methods of apiculture – Extraction of honey – Economic importance of honey.</p>	18	CO4

5	MODULE – V POULTRY REARING 5.1. Morphology of different breeds of Chicken, Poultry rearing - Brooding and rearing of chicks, by products of poultry - Nutritive value of Egg. DAIRY FARMING 5.2. Dairy Cattle Classification- Indigenous and exotic breeds - Morphology Description- Dairy cattle Management	18	CO5
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TEXT BOOKS:

1. Supriti Sarkar (2014). *Introduction to Economic Zoology*, New Central Book Agency, ISBN: 9788173818998
2. Shukla G.S (2014). *Economic Zoology*, Rastogi Publications, ISBN:9789350780350

REFERENCE BOOKS:

1. Ashok Kumar Rathoure (2015). *Applied and Economic Zoology*, Daya Publishing House, ISBN:9789351246466
2. Ram Prabhu Jayasurya R (2013). *Economic Zoology*, Saras Publication, ISBN:9789382459262

WEBSITES:

1. [https://www.sciencedaily.com/terms/cell_\(biology\).htm](https://www.sciencedaily.com/terms/cell_(biology).htm)
2. <https://plato.stanford.edu/entries/cell-biology/>
3. <https://bscb.org/learning-resources/softcell-e-learning/what-is-a-cell/>

Course Code	Course Title	Category	L	T	P	S	Credits
	ALLIED ZOOLOGY - II	Allied Paper - 2	6	0	0	0	4

Year	Semester	CIA	ESE	Exam Hours
First	Second	50	50	03

LEARNING OBJECTIVES:

On taking this course the student will list the distinctive features and importance of various cell organelles. The students will be able to know how sex determined in man and will know the genetic disorders caused by chromosomal mutations and students able to understand the physiological activities of various organ and organ systems. The students will able to know the treatment methods of sewage effluents and also develop a self-employability on Apiculture, Sericulture and Poultry farming.

COURSE OUTCOMES

At the end of the Course, the Student will be able to:

	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)
CO1	Understand and Discuss the animal cell structure, stem cell and its applications, cancer cell, and its properties. Acquire the knowledge on molecular structure of Gene, Inborn errors of metabolism and X and Y linked inheritance in man	K1,K2, K3,K5,K6
CO2	Discuss the gametogenesis process– Fertilization- Cleavage and Gastrulation in Frog and in Man.	K1,K2,K3, K4, & K5
CO3	Analyse various physiological activities of different organs and organ systems in Man. Apply the knowledge on functions of different hormones	K1, K2, K3, K4, K5, K6
CO4	Create a awareness, scope and importance of sericulture and apiculture	K1,K2, K3 K4,K5&K6
CO5	Create a awareness, scope and importance of poultry rearing techniques for commercial production Evaluate the quantity and quality of poultry and dairy production	K2, K3, K4, K5 &K6

K1 - Remember

K2 - Understand

K3 - Apply

K4 - Analyze

K5 - Evaluate

K6 – Create

MAPPING OF COURSE OUTCOMES TO PO/PSO:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	2	3	3	2	2	3	2	3	3	3	3	2	2
CO2	2	3	3	3	2	2	3	3	3	3	3	2	1
CO3	3	3	3	3	2	2	3	2	3	3	3	2	3
CO4	2	2	3	3	2	2	3	3	3	2	3	2	3
CO5	2	2	3	2	2	2	3	3	3	2	3	3	3

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

S. NO	CONTENTS OF MODULE	Hrs.	COs
1	<p>MODULE – I CELL BIOLOGY 1.1. Organization of eukaryotic cell (Animal cell) - Stem cell - types of stem cell, application of stem cells, stem cell therapy. Cancer cell- types and properties of cancer cells.</p> <p>GENETICS 1.2. Molecular structure of Gene-Gene concept- Gene function- Inborn errors of metabolism with reference Amino Acid metabolism (Albinism, Alkaptonuria and Phenylketonuria) Genetic Engineering and its applications- X and Y – linked inheritance.</p>	18	CO1
2	<p>MODULE – II DEVELOPMENTAL BIOLOGY 2.1 Gametogenesis – Spermatogenesis, Oogenesis, Fertilization- Cleavage and Gastrulation in Frog and in Mammals (Man).</p>	18	CO2
3	<p>MODULE – III HUMAN PHYSIOLOGY: 3.1. Digestion, Structure of Heart, Cardiac cycle, composition of blood, Heart diseases- Ischemia, Myocardial infarction, Rheumatic Heart disease, Stroke. 3.2. Excretion-Structure of Kidney, Nephron, Mechanism of Urine formation and Kidney failure. 3.3. Endocrine glands- Structure and functions of Pituitary, thyroid, Islets of Langerhans, Adrenal, Testis and Ovary.</p>	18	CO3
4	<p>MODULE – IV ECONOMIC ZOOLOGY SERICULTURE 4.1. Commercial variety of mulberry, Biology of Mulberry Silk worm – types of silkworm Rearing operation – CHAWAKI and late age rearing techniques – physical and commercial characters of cocoon.</p> <p>APICULTURE 4.2. Apiculture – Biology of Different Honey Bee Types, bee hives method of beekeeping application for modern methods of apiculture – Extraction of honey – Economic importance of honey.</p>	18	CO4

5	MODULE – V POULTRY REARING 5.1. Morphology of different breeds of Chicken, Poultry rearing - Brooding and rearing of chicks, by products of poultry - Nutritive value of Egg. DAIRY FARMING 5.2. Dairy Cattle Classification- Indigenous and exotic breeds - Morphology Description- Dairy cattle Management	18	CO5
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TEXT BOOKS:

1. Supriti Sarkar (2014). *Introduction to Economic Zoology*, New Central Book Agency, ISBN: 9788173818998
2. Shukla G.S (2014). *Economic Zoology*, Rastogi Publications, ISBN:9789350780350

REFERENCE BOOKS:

1. Ashok Kumar Rathoure (2015). *Applied and Economic Zoology*, Daya Publishing House, ISBN:9789351246466
2. Ram Prabhu Jayasurya R (2013). *Economic Zoology*, Saras Publication, ISBN:9789382459262

WEBSITES:

1. [https://www.sciencedaily.com/terms/cell_\(biology\).htm](https://www.sciencedaily.com/terms/cell_(biology).htm)
2. <https://plato.stanford.edu/entries/cell-biology/>
3. <https://bscb.org/learning-resources/softcell-e-learning/what-is-a-cell/>

SEMESTER II

Course Code	Course Title	Category	L	T	P	S	Credits
	ALGAE AND BRYOPHYTES	Core paper - 3	6	0	0	0	4

Year	Semester	CIA	ESE	Exam Hours
First	Second	50	50	03

LEARNING OBJECTIVES:

On taking this course the student will be able to recognize Habit, life forms and reproductive structures of lower forms of plants. The student will be able to understand the classification of Algae and Bryophytes. The subject also throws light on the economic importance of algae. It provides knowledge on structure and reproduction of certain selected Bryophytes forms.

COURSE OUTCOMES

At the end of the Course, the Student will be able to:

	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)
CO1	Classification of different forms of algae and its evolution	K1, K2, K3, K4, K5
CO2	Study about different forms of Algae.	K1, K2, K3, K4, K5
CO3	Acquire knowledge on the commercial importance of Algae.	K1, K2, K3, K4, K5, K6
CO4	Classification of different forms of Bryophytes and its evolution	K1, K2, K3, K4, K5
CO5	Acquire knowledge on the commercial importance of Bryophytes.	K1, K2, K3, K4, K5, K6

K1 - Remember

K2 - Understand

K3 - Apply

K4 - Analyze

K5 - Evaluate

K6 - Create

MAPPING OF COURSE OUTCOMES TO PO/PSO:

CO/PO/PS O	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	3	2	1	2	2	1	1	1	3	3	2	2	3
CO2	3	3	3	2	3	1	1	2	3	3	3	3	2
CO3	3	3	3	2	3	1	1	1	3	2	2	2	3
CO4	3	3	3	3	3	1	1	2	3	3	3	3	2
CO5	3	3	3	3	2	2	1	2	3	3	3	3	2

STRONGLY CORRELATED -3; MODERATELY CORRELATED – 2; WEAKLY CORRELATED -1

S. NO	CONTENTS OF MODULE	Hrs.	COs
1	<p>MODULE – I ALGAE 1.1 Introduction and Evolution of Algae. Classification of Algae F.E. Fritsch (1945) 1.2 Distribution - Range of thallus organization – Pigmentation- Flagellation- Reserve food – Reproduction (Vegetative/ Asexual/ Sexual) and Life cycle patterns. 1.3 General characteristics of major classes of Algae (Cyanophyceae, Chlorophyceae, Bacillariophyceae, Phaeophyceae, and Rhodophyceae).</p>	18	CO1
2	<p>MODULE – II Life history of the following representative genera of Algae: 2.1 <i>Nostoc</i> 2.2 <i>Ulva</i> 2.3 <i>Caulerpa</i> 2.4 <i>Navicula</i> (Diatom) 2.5 <i>Sargassum</i> 2.6 <i>Gracilaria</i></p>	18	CO2
3	<p>MODULE – III 3.1 Algal Biotechnology: Single Cell Proteins (SCP): <i>Spirulina</i> as single cell protein - production and harvesting of algal biomass – factors affecting biomass production. 3.2 Seaweed cultivation in India – Resources, methods, problems and uses of seaweeds. 3.3 Economic importance of Algae: Algae as food and fodder, use of algae in agriculture and space research, commercial products of algae: Agar - Agar,</p>	18	CO3

	Alginates, Carrageen in, Diatomite, Minerals and Elements - Algae in Cosmetics, Medicine, Bio-fuels and Bio-fertilizers. 3.4 Conservation of Algae: Threats to freshwater and marine algae, Threatened Algal species and its conservation.		
4	MODULE – IV BRYOPHYTES 4.1 Introduction and Evolution of Bryophytes. Classification (Proskauer (1957)). 4.2 General Characteristics of the Major Subdivision: Hepaticopsida, Anthocerotopsida and Bryopsida. 4.3 Fossil Bryophytes - Fossil Hepaticopsida, Fossil Bryopsida. 4.4 Economic Importance of Bryophytes.	18	CO4
5	MODULE – V A detailed study of Morphology, Anatomy and Reproduction of the following Genera: 5.1 <i>Marchantia</i> 5.2 <i>Anthoceros</i> 5.3 <i>Polytrichum</i>	18	CO5

TEXT BOOKS:

1. Sambamurty A.V.S.S (2020). *A Textbook of Bryophytes, Pteridophytes, Gymnosperms and Paleobotany*, Dreamtech Press, ISBN: 9789389447187
2. Vashishta B.R, Singh V.P & Sinha A.K (2012). *Botany for Degree Students – Algae*, S. Chand & Company, ISBN:9788121935210
3. Sharma O.P (2011). *Text book of Algae*, McGraw Hill Education, ISBN:9780070681941
4. Vashishta. B.R, Sinha A.K & Adarsh Kumar (2011). *Botany for Degree Students – Bryophytes*, S. Chand & Company, ISBN:9788121935692

REFERENCE BOOKS:

1. Watson E.V (2018). *The Structure and Life of Bryophytes*, Scientific publishers, ISBN: 9789388043533
2. Dinabandhu Sahoo (2013). *Common Seaweeds of India*, I K International Publishing House Pvt. Ltd, ISBN:9788190777063
3. Perumal, G M, Anand, N (2009). *Manual of Freshwater Algae of Tamil Nadu*, Bishen Singh Mahendra Pal Singh, ISBN:9788121106948
4. Smith G.M. (1994). *Manual of Phycology*, Scientific Publishers Journals, ISBN: 9788172330910
5. Fritsch F.E (1935). *Structure and Reproduction of Algae*, Cambridge University Press, ISBN: 9780521050418

Course Code	Course Title	Category	L	T	P	S	Credits
	VERMITECHNOLOGY	Part IV: NME -I	2	0	0	0	2

Year	Semester	CIA	ESE	Exam Hours
First	First	50	50	03

LEARNING OBJECTIVES:

On learning this course Students will be able to develop skills and self employability to prepare the vermicompost in a limited space and demonstrate and describe the various methods of decomposing process. The students will also get the knowledge on vermiculture and production of bio-manure and will get self-employment. They will also turn towards organic farming; will help to maintain a pollution free environment.

COURSE OUTCOMES

At the end of the Course, the Student will be able to:

	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)
CO1	Understand the scope of Vermiculture techniques and apply different wastes for vermicompost	K1,K2 &K3
CO2	Discuss the role of local species of earthworm in vermitechology and vermicompost production	K1 & K2
CO3	Design and apply the knowledge for the construction of various vermibeds for compost production and Procedure for vermicompost a bio-manure	K3 & K4
CO4	Evaluate the quality and quantity of vermicompost	K5
CO5	Create and apply methods to reduce the bio-enemies of earthworms during vermicomposting process	K6

K1 - Remember

K-2 - Understand

K3 - Apply

K4 - Analyze

K-5 - Evaluate

K-6 - Create

MAPPING OF COURSE OUTCOMES TO PO/PSO:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	3	3	2	3	3	3	3	3	3	3	3	3	3
CO2	3	2	3	3	3	2	3	3	3	3	3	3	3
CO3	3	3	2	3	3	3	2	3	3	3	2	3	3
CO4	3	3	2	3	3	3	3	3	3	3	2	3	3
CO5	3	3	3	2	3	2	2	2	2	2	3	2	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED - 2, WEAKLY CORRELATED -1

S. NO	CONTENTS OF MODULE	Hrs.	COs
1	MODULE – I VERMITECHNOLOGY 1.1. Introduction: Definition and concept of vermiculture. 1.2. Influence of soil organisms in vermiculture- bacteria, earthworms, entomofauna mites etc. 1.3. Litter degradation and decomposition. 1.5. Problems in vermiculture and remedial solutions.	06	CO1
2	MODULE – II 2.1. Types of earthworms: Endemic and exotic species of earthworms. 2.2. Ecological classification of earthworms- epigeic, anecic and endogeic forms. 2.3. Physical, chemical and biological changes caused by earthworms in soil- drilospheres and vermicasts.	06	CO2
3	MODULE – III 3.1 Vermicomposting- Vermicomposting materials, Vermicomposting methods (raised bed method and pot method). 3.2 Establishment of vermiculture unit: materials required and maintenance of vermiculture unit.	06	CO3
4	MODULE – IV 4.1. Vermicompost- harvesting of vermicompost- quality, properties and advantages over chemical fertilizers, packing and marketing- cost benefit analysis.	06	CO4
5	MODULE – V 5.1. Natural enemies of earthworms- pets, parasites and pathogens affecting earthworms. 5.2. Use of earthworms in food and medicine- ayurvedic and unani medicine. 5.3 Recycling of food wastes in vermiculture. 5.4. Application and scope of vermiculture.	06	CO5

TEXT BOOKS:

1. Jordan E.L and Verma P.S (2009). *Invertebrate Zoology*, S. Chand & Company, ISBN:9788121903677
2. Gupta P.K (2008). *Vermicomposting For Sustainable Agriculture*, Agrobios, ISBN:9788177542349

REFERENCE BOOKS:

1. Edwards C.A (2011). *Vermiculture Technology: Earthworms, Organic Wastes, and Environmental Management*, CRC Press, ISBN:978143980987
2. Subba Rao N.S (1995). *Soil Microorganisms and Plant Growth*, Science Publishers, ISBN:9781886106185

WEBSITES:

1. <https://technology4agri.wordpress.com/2013/02/12/vermiculture-an-introduction/>
2. https://vermiculture.com/vermiculture/?doing_wp_cron=1574957760.9421699047088623046875

SEMESTER I

Course Code	Course Title	Category	L	T	P	S	Credits
	BIOTECHNIQUES, FUNGI & LICHENS	Core paper - I	6	0	0	0	4

Year	Semester	CIA	ESE	Exam Hours
First	First	50	50	03

LEARNING OBJECTIVES:

On taking this course the student will be able to understand the working principle and applications of light and electron microscopes. The student will also be able to understand the working mechanism and applications of rotary and sledge microtome. They also will be able to recognize Habit, life forms and reproductive structures of lower forms of plants. The student will be able to understand the classification of Fungi and Lichens. The subject also throws light on the economic importance of Fungi and Lichens.

COURSE OUTCOMES

At the end of the Course, the Student will be able to:

	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)
CO1	Understand the basic principles and scope of Biotechniques.	K1,K2, K3, K4, K5,K6
CO2	Acquire fundamental knowledge about Bio-instruments.	K1,K2, K3, K4, K5,K6
CO3	Assess knowledge of fungi with respect to classification and its importance to mankind.	K1,K2, K3, K4, K5,K6
CO4	Identify various life forms of Fungi.	K1,K2, K3, K4, K5,K6
CO5	Outline the salient features and importance of Lichens.	K1,K2, K3, K4, K5, K6

K1 - Remember

K4 - Analyze

K2 - Understand

K5 - Evaluate

K3 - Apply

K6 - Create

MAPPING OF COURSE OUTCOMES TO PO/PSO:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	3	2	1	2	2	1	1	2	3	2	1	1	2
CO2	3	3	3	2	3	2	1	1	3	2	3	3	2
CO3	3	3	3	2	3	1	1	2	3	3	3	3	2
CO4	3	3	3	3	3	3	1	2	3	2	3	1	1
CO5	3	3	3	3	2	1	1	2	3	3	3	2	1

STRONGLY CORRELATED -3; MODERATELY CORRELATED – 2; WEAKLY CORRELATED -1

S. NO	CONTENTS OF MODULE	Hrs.	COs
1	<p>MODULE – I BIOTECHNIQUES 1.1 Working principle, Construction and Applications of Light Microscopes: Compound and Phase contrast Microscope 1.2 Working Principle, Construction and Applications of Transmission Electron Microscope (TEM). 1.3 Microtomes – Rotary and Sledge (Wood Microtome) – Structure and Applications. 1.4 Sectioning - Free hand section and Serial section (Microtomy). 1.5 Stains – Types and Uses; Methods of Staining - Simple and Differential Staining; Positive and Negative staining; single and double staining. 1.6 Fixatives - Types (FAA and Carnoy’s fluid; Glutar-aldehyde and Osmium Tetroxide) and uses.</p>	18	CO1
2	<p>MODULE – II Principle, technique and applications of the following Bio-techniques: 2.1 pH meter: Basic principles of pH meter and its operation, types of Electrodes, Measurement of pH, and Applications. 2.2 Centrifugation: Principle, types of centrifuges (Bench & Ultra) and Applications. 2.3 Colorimeter: Principle, operations and uses; Beer – Lambert’s Law. 2.4 Whole mount preparations (Algae and Fungi); Special techniques: Smear, Squash, and Maceration.</p>	18	CO2
3	<p>MODULE – III FUNGI 3.1 Introduction and Evolution of Fungi. 3.2 General characteristics, Habit, Nutrition types, cell structure, mycelium – its modifications. 3.3 Reproduction: Vegetative, Asexual, Sexual, Para-sexual; Fruiting bodies, Life cycle patterns.</p>	18	CO3

	3.4 Classification of Fungi by G.C. Ainsworth (1971) - Order level 3.5 Economic importance of Fungi.		
4	MODULE – IV Structure and reproduction with reference to the following fungal forms: 4.1 <i>Albugo</i> 4.2 <i>Mucor</i> 4.3 <i>Peziza</i> 4.4 <i>Agaricus</i> 4.5 <i>Colletotrichum</i> 4.6 <i>Puccinia</i>	18	CO4
5	MODULE – V LICHENS 5.1 General features, Nature, Occurrence, distribution, thallus organization, types, Vegetative, Asexual and Sexual Reproduction. 5.2 Occurrence, Structure and life cycle of <i>Usnea</i> . 5.3 Economic importance of Lichens 5.4 Role in Succession and Monitoring Pollutants.	18	CO5

TEXT BOOKS:

1. Vashishta B.R, Sinha A.K & Anil Kumar (2016). *Botany for Degree Students – Fungi*, S. Chand & Company, ISBN:9789352533008
2. Annie Ragland, Arumugam. N (2016). *Fundamentals of Plant Anatomy and Microtechniques*, Saras Publication, ISBN :9788193307663
3. Awasthi D.D (2013). *A hand book of lichens* (1st Ed), M/s Bishen Singh Mahendra Pal Singh, ISBN: 9788121101813
4. Ponmurugan P & Gangathara Prabhu B (2013). *Biotechniques*, MJP Publishers, ISBN :9788180941191
5. S.V.S Rana (2012). *Biotechniques (Theory & Practice)*, Rastogi Publications (3rd Ed), ISBN:9788171339938
6. Sharma O.P (2008). *Fungi And Allied Microorganisms*, McGraw Hill India, ISBN:9780070700383
7. Prasad M.K & Krishna Prasad M (2000). *Outlines of Microtechnique*, Emkay Publications, ISBN: 9788185712291

REFERENCE BOOKS:

1. Gray P (2020). *Handbook of Basic Microtechniques-* Alpha Edition, ISBN: 9789354009150
2. Edward Chee Tak Yeung, Claudio Stasolla, Michael John Sumner (2015). *Plant Microtechniques and Protocols* (1st Ed), Springer Nature. ISBN:9783319199436
3. Alexopoulos C.J, Mims C.W, Blackwell M (2007). *Introductory Mycology* (4th Ed.), Wiley, ISBN: 9788126511082
4. Webster, J. (2007). *Introduction to Fungi*, Cambridge University Press (3rd Ed.), ISBN: 9780521727006

5. Vernon Ahmadjian & Mason E. Hale (1974). *The Lichens*, Academic Press Inc, ISBN: 978012044950

WEBSITES:

1. <https://microbiologyonline.org/about-microbiology/introducing-microbes/fungi>
2. <https://www.anbg.gov.au/lichen/what-is-lichen.html>

CORE PAPER: II PRACTICAL – I

BIOTECHNIQUES, FUNGI & LICHENS

L	T	P	Cr
0	0	3	2

LEARNING OUTCOMES:

At the end of the Course, the Student will be able to:

1. Understand the basic principles and uses of Microscopes.
2. To prepare and identify microslides of Fungi, Lichens.

BIOTECHNIQUES

1. Maceration technique
2. Freehand sectioning – Any plant material.
3. Identification of Stains and Fixatives
4. Photographs of Microscopes, pH meter, Centrifuge, Colorimeter.

FUNGI

1. Whole mount preparations of Fungi
2. Sectioning of Macroscopic fungi
3. Economic importance of fungi and Lichens (Photographs)
4. Preparation of agar media for fungal culture (Protocol).
5. Identification of Fungi included in Theory Syllabus.

LICHENS

1. Identification of Lichens included in Theory Syllabus.

Field visit / trip to collect the Fungi/Lichens in natural Habitat

Course Title: Financial Mathematics using R

Course	M. Sc Maths
Exam Hours	03

Credits	04
CIA Marks	50
ESE Marks	50

Course objectives

- To understand the fundamental concepts of Probability distribution and Testing of Hypothesis.**
- To enable the students to model the real-world problems through Multi Factor model and Discrete Time Model.**
- To understand the concepts of Continuous Time Model and Monte Carlo Simulation.**

Course outcomes: At the end of the course, students will be able to

CO1	Demonstrate understanding of basic concepts in probability distributions and test the significance
CO2	Demonstrate understanding of concepts relating to multi-factor model
CO3	Employ methods related to these concepts in Discrete time model
CO4	Apply logical thinking to problem solving in Continuous time model
CO5	Demonstrate understanding of basic concepts in Monte Carlo simulation

CONTENTS OF MODULE

UNIT-I: Statistical Analysis with R:

Basic statistics, Probability distribution and random numbers, Hypothesis testing, what is hypothesis testing? t-Test of population mean, Regression Analysis, Yield curve analysis using principal component analysis

Section 1 : 2

UNIT-II: Modern Portfolio Theory and CAPM:

Mean-variance portfolio, Market portfolio, Derivation of CAPM, The extension of CAPM: Multi-factor model, Arbitrage Pricing Theory, Fama-French's 3 factor model, The form of the efficient frontier. Interest rate swap, Pricing of interest rate swaps and the derivation of discount factors, Valuation of interest rate swaps and their risk

Section 2 : 4,5

UNIT-III Discrete Time Model - Tree Model:

Single period binomial model, Derivative pricing, Pricing by risk neutral measure, Multi period binomial model, Generalization to the multi period model, Pricing call options, Trinomial model

Section 2 : 6

UNIT-IV Continuous Time Model and the Black-Scholes Formula:

Continuous rate of return, Ito's lemma, The Black-Scholes formula, Implied volatility

Section 2 : 7

UNIT-V: Monte Carlo Simulation:

The basic concept of Monte Carlo simulation, Variance reduction method, Antithetic variates method, Moment matching method, Exotic options, Multi asset options, Control variates method

Section 3: 8

Recommended Text:

Shuichi Ohsaki, Jori Ruppert-Felsot, Daisuke Yoshikawa, “R Programming and Its Applications in Financial Mathematics”, CRC Press, 2018.

Reference Book:

1. Martin Boxter and Andrew Rennie, *Financial Calculus: An Introduction to Derivatives Pricing*, Cambridge University Press, Cambridge, 1996.
2. Damien Lamberton and Bernard Lapeyre, (Translated by Nicolas Rabeau and Francois Manton), *Introduction to Stochastic Calculus Applied to Finance*, Chapman and Hall, 1996
3. Marek Musiela and Marek Rutkowski, *Martingale Methods in Financial Modeling*, Springer Verlag, New York, 1988.
4. Robert J.Elliott and P.Ekkehard Kopp, *Mathematics of Financial Markets*, Springer Verlag, New York, 2001 (3rd Printing).

Mapping of Course Outcomes to Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6		PSO1	PSO2	PSO3
CO1	2	2	1	2	3	2		2	3	2
CO2	3	2	2	1	2	1		1	2	3
CO3	3	3	1	2	2	1		2	3	2
CO4	2	2	1	1	1	2		1	2	3
CO5	2	2	2	2	1	1		2	2	2

3 –
High
2 –

Medium 1 - Low

Course Title: MATHEMATICAL ECONOMICS

Course	M Sc MATHEMATICS
Exam Hours	03

Credits	03
CIA Marks	50
ESE Marks	50

Course objectives

- Improve the mathematical skills necessary to study economics.
- Find the solution for constrained optimization problems using methods of Dynamic Equilibrium with lagged adjustment.
- Use Linear Programming- primal and dual techniques in economic analysis

Course Outcomes: At the end of the Course, the Student will be able to

CO1	Explain Perfect Competition and Imperfect Competition methods. Monopoly and its Applications and Dynamic Equilibrium with lagged adjustment.
CO2	Examine Parato Optimality and the efficiency of Perfect competition and Effects in consumption and Production.
CO3	Evaluate Linear Programming problems. Able to apply the simplex methods to production and diet problems.
CO4	Represent the concepts of two-person zero sum game and saddle points.
CO5	Express the differentiate and applications of difference and difference equations.

COs	CONTENTS OF MODULE
CO1	<p>UNIT-I:</p> <p>Market Equilibrium: Assumptions of Perfect Competition – Demand Functions – Supply Functions – Commodity Equilibrium – Applications of the Analysis – Factor Market Equilibrium – Existence of Uniqueness of Equilibrium – Stability of Equilibrium – Dynamic Equilibrium with lagged adjustment.</p> <p>Imperfect Competition: Monopoly and its Applications – Duopoly and Oligopoly – Monopolistic Competition – Monopsony, Duopsony and Oligopsony – Bilateral Monopoly</p> <p>Chapter 6 : Sections 6.1 to 6.7</p>
CO2	<p>UNIT-II:</p> <p>Welfare Economics: Parato Optimality and the efficiency of Perfect competition – The efficiency of Imperfect competition – External. Effects in consumption and Production – Taxes, Subsidies and Compensation – Social Welfare functions – The theory of Second Best.</p>

	Chapter 7 : Sections 7.1 to 7.7
CO3	UNIT-III: Linear Programming- primal and dual, Graphic method – simplex method- Applications to production and diet problems. Non-Linear programming, Hawkin- simon conditions- method and applications.
CO4	UNIT-IV: Input and output analysis structure of an economy assumptions- technical co-efficient outputs and prize determination. Game theory: Basic concepts: two-person zero sum game- saddle points- examples of co-operative and non-co-operative games.
CO5	UNIT-V: Difference and differential equations – first and second order linear differential and difference equation. Applications to total marginal and average functionals.
Recommended Text Book :	
1. J.M.Henderson and R.E.Quandt, <i>Micro Economic Theory- A Mathematical Approach</i> , (2 nd Edn) McGraw Hill, New York, 1971.	
2. Basic Econometrics- Damodar N. Gujarati, Dawn C. Porter	
Reference Books :	
1. William J. Baumol. <i>Economic Theory and Operations Analysis</i> , Prentice Hall of India, New Delhi, 1978	
2. A.C.Chiang, <i>Fundamental Methods of Mathematical Economics</i> , McGraw Hill, New York, 1984	
3. Michael D. Intriligator, <i>Mathematical Optimization and Economic Theory</i> , Prentice Hall, New York, 1971.	
4. Kautsoyiannis, <i>Modern Microeconomics</i> (2 nd edn) MacMillan, New York, 1979	
5. AC Chang , <i>Fundamental methods of Mathematical Economics</i> .	
6. M.D. Intriligator , <i>Mathematical Optimization and Economic Theory</i> .	

Mapping of Course Outcomes to Program Outcomes and Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6		PSO1	PSO2	PSO3
CO1	3	3	2	1	2	2			2	3
CO2		3	2	2	2	2		3		3
CO3	3	3	2	1	1	2		3	2	3
CO4		3	2	1	2	2		3	2	3
CO5	3	3	2	2	2	2		3		3

3 –
High
2 –

Medium 1 - Low



DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE

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College with Potential for Excellence,

Linguistic Minority Institution Affiliated to University of Madras

Arumbakkam, Chennai – 600 106.

POST GRADUATE AND RESEARCH DEPARTMENT OF MATHEMATICS

Minutes of the Board of Studies- 2022 Meeting in M.Sc Mathematics

The meeting of the board of studies in B.Sc Mathematics was convened on 21st July 2022 at 12:30 p.m in Seminar Hall-I (Main Block).

Prof. R. Venkataramanan, Associate professor and Head, Department of Mathematics welcomed all the faculties, University representative, subject experts, special invitees, industrial experts and alumni for this board of study meeting.

The Current syllabi for

- M.Sc Mathematics (Core, Allied, extra disciplinary papers)
- Value added course


were approved by the board members.

In addition to this the following changes have been incorporated.

- As, By the suggestion given by Controller of Examinations Research methodology paper has been introduced for PG students.
- By the Guidance given by the Principal following Soft skill papers for M.Sc were introduced by the department to face the competency of the students
 - Semester – I : Communication Skills
 - Semester – II : Quantitative Aptitude
 - Semester – III : Analytical Reasoning
 - Semester – IV : Personality Development
- Elective paper Wavelets in Semester II has been shifted to Fourth Semester and Financial mathematics Using R in Fourth semester elective paper shifted to First semester

Both the syllabus and the changes have been approved by the board members .

The Following members were present for the meeting in the Seminar hall – I(Offline mode)

S.NO	Members of the Meeting	Designation	Signature
1.	Chairman Prof. R. Venkataramanan	Associate professor & Head, PG & Research Department of Mathematics, DG Vaishnav College, Chennai.	
2.	University Nominee: Dr. C. Uma Maheswari,	Assistant Professor, Ramanujan Institute for Advanced Study in Mathematics, University of Madras, Chennai.	
3.	Subject Expert: Dr.K.A.Venkatesh,	Adjunct Professor, IIT-B, India. Professor of Mathematics & Computer Science, Myanmar Institute of Information Technology, Mandalay, Myanmar	
4.	Subject Expert: Dr. T. Thulasiram	Associate Professor Department of Mathematics A. M. Jain Collage Chennai 600061	
5.	Industrial Experts Mr. G. Vignesh	Java / Node developer, Chennai.	
6.	Alumni: Dr. G. Uthra	Assistant Professor P.G & Research Department of Mathematics Pachaiyappas College,	
7.	Alumni Dr. S. Lavanya	Assistant Professor, Department of mathematics, Bharathi Womens College, Chennai.	
8.	Alumni: Dr G Sheeja,	Assistant Professor, Department of Mathematics, Faculty of Engineering and Technology, SRM University, Kattankulathur Campus, Kattankulathur Kancheepuram Dt.,Tamil Nadu, INDIA.	

9.	Prof. M. Devika	Associate Professor, PG and Research Department of Mathematics	<i>M. Devika</i>
10.	Dr. N. Jayanth Karthik	Associate Professor, PG and Research Department of Mathematics	<i>N. Jayanth Karthik</i>
11.	Dr. R. Sivaraman	Associate Professor, PG and Research Department of Mathematics	<i>R. Sivaraman</i>
12.	Dr. S. Radhakrishnan	Assistant Professor, PG and Research Department of Mathematics	<i>S. Radhakrishnan</i>
13.	Dr. B. Abirami	Assistant Professor, PG and Research Department of Mathematics	<i>B. Abirami</i>
14.	Dr. S.P. Vijayalakshmi	Assistant Professor, PG and Research Department of Mathematics	<i>S.P. Vijayalakshmi</i>
15.	Dr. S. Hariharan	Assistant Professor, PG and Research Department of Mathematics	<i>S. Hariharan</i>
16.	Dr. P. Usha	Assistant Professor, PG and Research Department of Mathematics	<i>P. Usha</i>
17.	Dr. S. Vaithyasubramanian	Assistant Professor, PG and Research Department of Mathematics	<i>S. Vaithyasubramanian</i>
18.	Dr. S. Mayilvaganan	Assistant Professor, PG and Research Department of Mathematics	<i>S. Mayilvaganan</i>
19.	Dr. S. U. Malini	Assistant Professor, PG and Research Department of Mathematics	<i>S. U. Malini</i>
20.	Lt. G. Somasundara Ori	Assistant Professor, PG and Research Department of Mathematics	<i>O. D.</i>
21.	Mr. P. Thirumal	Assistant Professor, PG and Research Department of Mathematics	<i>P. Thirumal</i>
22.	Mr. R. Krishna	Assistant Professor, PG and Research Department of Mathematics	<i>R. Krishna</i>
23.	Mr. S. Rajasekar	Assistant Professor, PG and Research Department of Mathematics	<i>S. Rajasekar</i>

D.G. VAISHNAV COLLEGE (AUTONOMOUS)

CHENNAI – 600 106

Program Name: M.Sc. Mathematics

Curriculum and scheme of Examination under CBCS

(Applicable to the students admitted during the Academic Year 2021-2022 and Onwards)

Semester	Subject Code	Title of the Paper	Instruction hours/cycle	Exam. Marks			Duration of Exam (hours)	Credits
				CIA	ESE	TOTAL		
I	2121101	Core Paper I Abstract Algebra	6	40	60	100	3	4
	2121102	Core Paper II Real Analysis I	6	40	60	100	3	4
	2121103	Core Paper III Ordinary Differential Equations	6	40	60	100	3	4
	2121104	Core Paper IV Graph theory	6	40	60	100	3	4
		Elective I Formal Languages and Automata Theory	4	40	60	100	3	3
	2150101	Soft Skills - I	2	50	50	100	3	2
	Total			30	-	-	600	-
II	2121207	Core Paper V Linear Algebra	6	40	60	100	3	4
	2121208	Core Paper VI Real Analysis II	6	40	60	100	3	4
	2121209	Core Paper VII Partial Differential Equations	6	40	60	100	3	4
	2121210	Core Paper VIII Probability Theory	6	40	60	100	3	4
		Elective II Financial Mathematics Using	4	40	60	100	3	3

	R							
		Extra Disciplinary I Data Structure and Algorithms	4	40	60	100	3	3
		Internship	-	-	-	-	-	2
		Soft Skills - II	2	50	50	100	3	2
		Total	34	-	-	700	-	24

III	2121313	Core Paper IX Complex Analysis - I	5	40	60	100	3	4
	2121314	Core Paper X Topology	5	40	60	100	3	4
	2121315	Core Paper XI Mechanics	5	40	60	100	3	4
	2121316	Core Paper XII Operations Research	5	40	60	100	3	4
	2121317	Elective III Number Theory and Cryptography	4	40	60	100	3	3
		Extra Disciplinary II Mathematical Economics	4	40	60	100	3	3
		Project	-	-	-	-	-	2
	2150301	Soft Skills III	2	50	50	100	3	2
		Total	30	-	-	700	-	26
IV	2121419	Core Paper XIII Complex Analysis - II	5	40	60	100	3	4
	2121420	Core Paper XIV Functional Analysis	5	40	60	100	3	4
	2121421	Core Paper XV Differential Geometry	5	40	60	100	3	4
	2121422	Elective IV Fluid Dynamics	5	40	60	100	3	3

		Elective V Wavelets	4	40	60	100	3	3
	2150401	Soft skills IV	2	50	50	100	3	2
		Research Methodology						

SOFT SKILLS-1

COMMUNICATION SKILLS

Unit-1: Concept of Communications

Introduction: Definition and Process of Communication - Forms of Verbal and Non-verbal Communication. Barriers of Communication: Communication Barriers and Overcoming Communication Barriers - Guidelines for Effective Communication. Business Writing: Direct and Indirect approaches to Business Writing - Five Main Stages of Writing Business Messages. **Exercise: Role Play, Square Talk Activity.**

Unit-II: Written Business Communication

External Communication: The Seven C's of Letter writing - Kinds of Business Letters - Business Reports and Proposals - Purpose of Business Reports. Internal Communication: Format and Principles of Writing Memos - General Warning - Cautions. **Exercise: Preparation of Reports on different issues.**

Unit-III: Oral Communication

Public Speaking: Types of Public Speaking - importance of Public Speaking. Power Point Presentation: Planning the Presentation - Delivering the Presentation - Developing & Displaying Visual Aids - Handling Questions from the Audience. Listening: Definition - Types of Listening Skills - Features of a Good Listener - Causes and effects of Poor Listening. **Exercise: Elocution and Extempore**

Unit-IV: Behavioral Techniques

Body Language: Facial Expressions - Body Posture - Gestures - Eye Movement - Touch and the use of Personal Space. Business Attire and Grooming: Different types of Attire - Guidelines for Business Attire. **Exercise: Power of Body Language, Charades.**

Unit-V: Etiquettes

Etiquettes: Greeting Etiquette - Corporate Etiquette - Telephone Etiquette - E-mail Etiquette - Meeting Etiquette - Netiquette - Personal Etiquette - Social Etiquette - Dining Etiquette. **Exercise: Introduction and Art of Conversation, Telephonic Activity.**

REFERENCES:

- Meenakshi Raman and Prakash Singh, Business Communication, Oxford
- Lesikar: Basic Business Communication, TMH
- David Irwin: Effective Business Communications, Viva- Thorogood.
- Rajendra Pal, J S Korlaha HI: Essentials of Business Communication: Sultan Chand & Sons, New Delh

SOFT SKILLS-2

QUANTITATIVE APTITUDE

Unit – I: Number System I & II – HCF, LCM, Decimal Fractions - Simplifications, Square roots and Cube Roots, Surds and Indices, Logarithms

Unit – II: Ratio, Proportion and Variation, Averages, Problems on Ages, Mixtures and Allegations, Percentages, Simple Interest and Compound Interest

Unit – III: Profit and Loss, Partnership – Chain Rule, Linear Equations, Areas and Volumes – Basics, Quadratic Equations, Time, Speed and Distance – basics, Time and work

Unit – IV: Time, Speed and Distance – intermediate & advanced, Pipes & Cistern, Problems on Trains, Boats & Streams, Height and Distance

Unit – V: Probability, Permutation & Combination – basics, intermediate & advanced, Calendar and Clocks.

Reference Books

1. R.S. Aggarwal, "Quantitative Aptitude for Competitive Examinations", S Chand Publisher, 20th edition (2013), ISBN-13: 978-8121924986
2. Arun Sharma, "How to Prepare for Quantitative Aptitude for the CAT", Mcgraw Hill Education, 6 th Edition, ISBN-13: 9789339205126
3. Abhijit Guha, "Quantitative Aptitude for Competitive Examinations", Mcgraw Hill Education, 5th Edition, ISBN-13: 9789351343554
4. R.V Praveen, "Quantitative Aptitude and Reasoning", PHI, 2nd Edition (2013), ISBN- 978-81-203- 4777-9

Websites

1. <http://www.indiabix.com>
2. <http://www.geeksforgeeks.com>
3. <http://www.examveda.com>
4. <http://www.javatpoint.com>
5. <http://www.aptitudeschool.com>

SOFT SKILLS-3

ANALYTICAL REASONING

Unit – I: Series – AP, GP, HP, Mixed progression, Set Theory, Conditional Probability, Areas and Volumes – intermediate & advanced, Geometry, Trigonometry, Stocks and Shares, Race and Games.

Unit – II: Data interpretation – Data tables, pie charts, bar charts, line graphs, mixed diagrams, Analogy, Classification, Series completion - Number Series, Letter Series, Coding & Decoding.

Unit – III: Blood relations, Symbol based statement conclusion, Cubes and Dices, Directions Sense Test, Visual reasoning – figure formation, pattern perceptions, mirror images, water images, paper cutting

Unit – IV: Analytical Reasoning, Syllogism, Puzzle test, Critical reasoning, Seating arrangements and cases, Alphabetical quibble, Number, Ranking and Sequence test

Unit – V: Deductive logic, Rule detection, Cause and effect, Statement and course of action, Statement and assumptions, Statement and arguments, Statement and conclusions.

Reference Books

1. R.S. Aggarwal, “Quantitative Aptitude for Competitive Examinations”, S Chand Publisher, 20th edition (2013), ISBN-13: 978-8121924986
2. Arun Sharma, “How to Prepare for Quantitative Aptitude for the CAT”, Mcgraw Hill Education, 6 th Edition, ISBN-13: 9789339205126
3. Abhijit Guha, “Quantitative Aptitude for Competitive Examinations”, Mcgraw Hill Education, 5th Edition, ISBN-13: 9789351343554
4. R.V Praveen, “Quantitative Aptitude and Reasoning”, PHI, 2nd Edition (2013), ISBN- 978-81-203- 4777-9

Websites

1. <http://www.indiabix.com>
2. <http://www.geeksforgeeks.com>
3. <http://www.examveda.com>
4. <http://www.javatpoint.com>
5. <http://www.aptitudeschool.com>

SOFT SKILLS-4

PERSONALITY DEVELOPMENT

UNIT I Introduction to Personality Development

The concept of personality - Dimensions of personality – Theories of Freud & Erickson-Significance of personality development. The concept of success and failure: What is success? - Hurdles in achieving success - Overcoming hurdles - Factors responsible for success – What is failure - Causes of failure. SWOT analysis.

UNIT II Attitude & Motivation

Attitude - Concept - Significance - Factors affecting attitudes - Positive attitude – Advantages –Negative attitude- Disadvantages - Ways to develop positive attitude - Differences between personalities having positive and negative attitude. Concept of motivation - Significance – Internal and external motives - Importance of self- motivation- Factors leading to de-motivation

UNIT III Self-esteem

Term self-esteem - Symptoms - Advantages - Do's and Don'ts to develop positive self-esteem – Low self esteem - Symptoms - Personality having low self esteem - Positive and negative self esteem. Interpersonal Relationships – Defining the difference between aggressive, submissive and assertive behaviours - Lateral thinking.

UNIT IV Other Aspects of Personality Development

Body language - Problem-solving - Conflict and Stress Management - Decision-making skills - Leadership and qualities of a successful leader – Character building -Team-work – Time management - Work ethics –Good manners and etiquette.

UNIT V Employability Quotient

Resume building- The art of participating in Group Discussion – Facing the Personal (HR & Technical) Interview -Frequently Asked Questions - Psychometric Analysis - Mock Interview Sessions.

Text Books:

1. Hurlock, E.B (2006). Personality Development, 28th Reprint. New Delhi: Tata McGraw Hill.
2. Stephen P. Robbins and Timothy A. Judge(2014), Organizational Behavior 16th Edition: Prentice Hall.

Reference Books:

1. Andrews, Sudhir. How to Succeed at Interviews. 21st (rep.) New Delhi.Tata McGraw-Hill 1988.

2. Heller, Robert. Effective leadership. Essential Manager series. Dk Publishing, 2002
3. Hindle, Tim. Reducing Stress. Essential Manager series. Dk Publishing, 2003
4. Lucas, Stephen. Art of Public Speaking. New Delhi. Tata - Mc-Graw Hill. 2001
5. Mile, D.J Power of positive thinking. Delhi. Rohan Book Company, (2004).
6. Pravesh Kumar. All about Self- Motivation. New Delhi. Goodwill Publishing House. 2005.
7. Smith, B . Body Language. Delhi: Rohan Book Company. 200

Research Methodology - PG

Unit 1: Research Methodology: A review of the Fundamentals 1. Meaning of Research 2. Definitions of Research 3. Objectives of Research 4. Motivation in Research 5. General Characteristics of Research 6. Criteria of Good Research 7. Types of Research

Unit 2: The Research Problem and Review of Literature 1. Scientific Thinking 2. Selecting the Problem 3. Defining a Problem 4. Statement of a Problem 5. Delimiting a Problem 6. Evaluation of a Problem. 7. Meaning of Review of Literature 8. Objectives of Review of Literature 9. How to Conduct the Review of Literature

Unit 3: The Research Hypotheses 1. Meaning of Hypothesis 2. Definitions of Hypothesis 3. Nature of Hypothesis 4. Functions of Hypothesis 5. Importance of Hypothesis 6. Kinds of Hypothesis 7. Characteristics of a Good Hypothesis 8. Variables in a Hypothesis 9. Formulating a Hypothesis 10. Testing the Hypothesis

Unit 4: The Research Approach and Strategies 1. The Philosophical Background 2. The Qualitative Approach 3. The Quantitative Approach 4. The Mixed-Methods Approach 5. Criteria for Selecting a Research Approach 6. What are the Research Strategies? 7. Case Studies 8. Experiments 9. Ethnography 10. Phenomenology

Unit 5: Data Collection and Sampling 1. Questionnaires 2. Interviews 3. Focus Groups 4. Observation 5. Meaning and Definition of Sampling 6. Functions of Population and Sampling 7. Methods of Sampling 8. Characteristics of a Good Sample 9. Size of a Sample 10. The Sample Cycle

Recommended references:

1. Cohen, L. Lawrence, M., & Morrison, K. (2005). Research Methods in Education (5th edition). Oxford: Oxford University Press.
2. Denscombes, M. (2010). The Good Research Guide: For small-scale social research projects. Maiden-Read: Open University Press.
3. Dornyei, Z. (2007). Research Methods in Applied Linguistics. Oxford: Oxford University Press.
4. Hoadjli, A.C. (2015). The Washback Effect of an Alternative Testing Model on Teaching and Learning: An exploratory study on EFL secondary classes in Biskra. Unpublished Doctoral Thesis, University of Mohamed Kheider, Biskra.

5. Kothari, C. R. (1980). Research Methodology: Research and techniques, New Delhi: New Age International Publishers.
6. Kumar, R. (2011). Research Methodology: a step-by-step guide for beginners (3rd edition). London, UK: TJ International Ltd, Padstow, Cornwall.
7. Leedy, P. D. (1980). Practical Research: Planning and design. Washington: Mc Millan Publishing Co., Inc.
8. Singh, Y. K. (2006). Fundamental of Research Methodology and Statistics. New Delhi. New International (P) Limited, Publishers.

S.No.	Content of Module	Hrs	Co s
MO1	Blood glucose relation, hypo and hyperglycemia. Diabetes mellitus- types, clinical features and metabolic changes. Glycosuria, galactosemia and fructosuria. Glycogen storage diseases.	15	CO1
MO2	Etiology and clinical manifestation of phenylketonuria, Cystinuria, Albinism, Maple Syrup Urine diseases, Hypo and hyperuricemia, Gout. Clinical features of atherosclerosis.	15	CO2
MO3	Liver Function Tests-Jaundice-types-hemolytic, hepatic and obstructive. Differential diagnosis of Jaundice. Test based on excretory function (BSP), Test based on bile pigment metabolism.	15	CO3
MO4	Renal Function Tests- Clearance tests-Urea, Creatinine, Inulin, PAH test, Concentration and dilution tests. Gastric Function Tests Collection of gastric contents, examination of gastric residium, FTM, stimulation tests, Tubeless gastric analysis.	15	CO4
MO5	Clinical Enzymology- Definition of functional and non-functional plasma enzymes. Isozymes and diagnostic tests, enzyme patterns in liver damage, bone disorders, Myocardial infarction.	15	CO5

RECOMMENDED BOOKS

1. T.M.Devlin. (2006). *Textbook of Biochemistry with Clinical Correlations*. CBS Publishers and Distributers - ISBN 10: 0471513482 / ISBN 13: 9780471513483
2. Gupta, P. P. (2013). *Textbook of Biochemistry with Biomedical significance (2nd ed.)*. CBS Publishers and distributors - ISBN 10: 8123922450 / ISBN 13: 9788123922454
3. U.Chakrapani, U. (2013). *Biochemistry (with Clinical Concepts and Case Approach) (7th ed.)*. Elsevier Publishers - ISBN: 9788131237137 8131237133

REFERENCE BOOKS

1. M.N.Chatterjea. (2011). *Textbook of Medical Biochemistry*. Jaypee Brothers. Medical Publishers (P)Ltd - ISBN-13: 978-9350254844, ISBN-10: 9789350254844
2. T.M.Devlin. (2006). *Textbook of Biochemistry with Clinical Correlations*. CBS Publishers and Distributers - ISBN 10: 0471513482 / ISBN 13: 9780471513483
3. Ayling, M. &. (2014). *Clinical Biochemistry (3rd ed.)*. Metabolic and Clinical Aspects - ISBN 10: 0702051403 / ISBN 13: 9780702051401



DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE

(AUTONOMOUS)

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College with Potential for Excellence, Linguistic Minority Institution

Affiliated to University of Madras, Arumbakkam, Chennai – 600 106

Department: MICROBIOLOGY		Academic Semester: 2022 - 2023 (ODD SEMESTER)	
Semester: I	Section: A	Course Code: 2226103	Course: Basics in Immunology & Immunotechnology
Course Instructor: Dr. M. Abirami		Contact Hours /week:	No. of credits: 4
CIA:50		ESE : 50	Exam Hours: 03

Prerequisites if any:

Code No	Course Name	Description	Semester
2126103	Basics in Immunology & Immunotechnology		I

Sl. No.	CONTENTS OF MODULE	Hrs	Cos
1	Organs and Cells in Immune System and Immune Response: Primary lymphoid organs, secondary lymphoid organs and lymphoid tissues; T – cell and B –cell membrane bound receptors – apoptosis; T - cell processing, presentation and regulation; T –cell subpopulation, properties, functions and T – cell suppression; Physiology of immune response- innate, humoral and cell mediated immunity; Immunohaematology.	9	CO1
2	Antigen and Antibody: Antigens - Properties of haptens, epitopes, adjuvants and cross reactivity; Antibodies- structure, properties, classes; Antigen and Antibody Reactions: precipitation, agglutination, complement fixation, opsonisation, neutralization; Vaccines – active and passive immunization; Classification of vaccines; Other approaches to new vaccines; Types of vaccine - antibacterial, antiviral; Vaccine schedule.	9	CO2
3	Immunoassay and Immunotechniques: Preparation and standardization of bacterial antigens; Raising of monoclonal and polyclonal antibodies; Purification of antibodies. Immunotechniques: RIA, RAST, ELISA, Immuno fluorescence techniques and Flow cytometry.	9	CO3
4	Transplantation and Tumor immunology: MHC Antigens - structure and function; HLA system - Regulation and response to immune system; Transplantation immunology - tissue transplantation and grafting; Mechanism of graft acceptance and rejection; HLA typing; Tumor specific antigens; Immune response to tumors; Immune diagnosis; cancer immune therapy.	9	CO4



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5	Immunological disorders and diseases: Hyper sensitivity reactions (Type I, II, III and IV); Acquired Immunodeficiency syndrome; Auto immune disorders and diseases: organ specific and non organ specific.	9	CO5
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Content delivery:	Chalk and Talk, Power Point Presentation, Quiz and Assignments
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Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Analyze various cells involved in Immune system and their response in humoral and cell mediated immunity and discuss ABO & Rh incompatibility.
CO2	Explore different type of foreign bodies and various classes of antibodies involving in antigen antibody reactions. Classify vaccines and approaches to new vaccines.
CO3	Standardize bacterial antigens and elucidate the purification of mono, polyclonal antibodies using recent and modern techniques for diagnostic Immunology.
CO4	Illustrate various mechanisms in tissue and organ transplantation and to regulate immune response against tumor antigens.
CO5	Exemplify the effect of immune reactions in Hypersensitivity and Immunodeficiency diseases. Decode the role of Immunology in Auto immune diseases and disorders.

Mapping of Course Outcomes to Program Outcomes and Program Specific Outcome :

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	2	1	1	2	1	3	1	1	1
CO2	2	1	1	2	1	1	3	3	2	2	1
CO3	3	2	3	3	1	2	1	1	1	1	3
CO4	2	3	2	3	2	3	3	2	1	3	1
CO5	2	3	2	2	2	1	1	3	1	1	1

Correlation level: 1- Week, 2 – Medium, 3 – High

COURSE DELIVERY PLAN – BASICS IN IMMUNOLOGY & IMMUNOTECHNOLOGY

Lecture #s	Module #	Topics	Instructional Hours	Date of Completion	Faculty Sign	Remarks	HOD Sign
1.	1	Introduction to Immunology	9	09- 09- 2022			
2.		Organs and cells in immune system		09- 09- 2022			
3.		Primary lymphoid organs		09- 09- 2022			
4.		Secondary lymphoid organs and lymphoid tissues		12- 09- 2022			



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5.		T cell and B cell membrane bound receptors		12- 09- 2022			
6.		Apoptosis		13- 09- 2022			
7.		T - cell processing, presentation and regulation		13- 09- 2022			
8.		T –cell subpopulation, properties, functions and T – cell suppression		14- 09- 2022			
9.		Humoral and cell mediated Immunity		21- 09- 2022			
10.		Immunohaematology		26- 09- 2022			
11.		Antigen – haptens, epitopes		28- 09- 2022			
12.		Antigen - Adjuvant and cross reactivity		29- 09- 2022			
13.		Antibody - structure, properties, classes		30- 09- 2022			
14.		Antigen and antibody reaction – Precipitation, agglutination		03- 10- 2022			
15.		Antigen and antibody reaction – compliment fixation, opsonisation and neutralization	9	06- 10- 2022	<i>Hottel</i>		<i>gmc</i>
16.	2	Vaccines – active and passive immunization		06- 10- 2022			
17.		Classification of vaccines		06- 10- 2022			
18.		Types of vaccines		10- 10- 2022			
19.		Other approaches to new vaccines		10- 10- 2022			
20.		Vaccine schedule		10- 10- 2022			
21.	3	Introduction to immunoassay and immunotechniques	9	12- 10- 2022	<i>Hottel</i>		<i>gmc</i>
22.		Preparation and standardization of		14- 10- 2022			



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		bacterial antigens					
23.		Monoclonal and polyclonal antibody		14- 10- 2022			
24.		Purification of antibodies		14- 10- 2022			
25.		Immunotechniques – Radioimmunoassay, RAST		17- 10- 2022			
26.		Immunotechniques – ELISA, immunofluorescence techniques and flow cytometry		17- 10- 2022			
27.		MIC – structure and function		25- 10- 2022			
28.		HLA system – regulation and response to immune system		07- 11- 2022			
29.		Tissue transplantation and grafting		07- 11- 2022			
30.		Mechanism of graft acceptance and rejection	9	07- 11- 2022	<i>H. H. H.</i>		<i>J. M.</i>
31.		HLA typing		07- 11- 2022			
32.	4	Tumor specific antigen		08- 11- 2022			
33.		Immune response to tumor		08- 11- 2022			
34.		Immune diagnosis and cancer immune therapy		09- 11- 2022			
35.		Hypersensitivity reaction – Type I		09- 11- 2022			
36.		Hypersensitivity reaction – Type II		09- 11- 2022			
37.		Hypersensitivity reaction – Type III and IV	9	09- 11- 2022	<i>H. H. H.</i>		<i>J. M.</i>
38.		Acquired Immunodeficiency syndrome		10- 11- 2022			
39.	5	Autoimmune disorder and disease		10- 11- 2022			



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40.	Organ specific - autoimmune disorder and disease	10- 11- 2022			
41.	Non -Organ specific - autoimmune disorder and disease	10- 11- 2022			

TEXT BOOKS:

1. Thomas J. Kindt, Barbara A. Osborne, Richard A. Goldsby. (2006). Kuby Immunology, (6th ed). W.H. Freeman & company. ISBN: 978-1429202114.
2. Peter J. Delves, Seamus J. Martin, Dennis R. Burton, Ivan M. Roitt. (2017). Roitt's Essential Immunology. (13th ed.) Wiley-Blackwell publications. ISBN:978-1-118-41577.

REFERENCE BOOKS:

1. Abul K Abbas, Andrew H. Lichtman, Shiv Pillai. (2017). Basic Immunology: Functions and Disorders of the Immune System. Elsevier publication. ISBN: 9780323390828.
2. Roitt I.M., Brostoff. J, Male. D.K., Roth. (2012). Immunology, Student consult. International. (8th ed). Elsevier Ltd.

Course Instructor

Dept. IQAC Coordinator

HOD

**FOURTH SEMESTER
(SYLLABUS)**

Course Title: **PROJECT** &
VIVA-VOCE

LEARNING OBJECTIVES:

Course Code:	Credits : 15
L:T:P:S : 0:0:0:0	CIA Marks : 50
Exam Hours: 03	ESE Marks : 50

On taking the course, the students will be able to Implement the solution for the chosen problem using the concepts and the techniques learnt in the curriculum, Identify, formulate and implement computing solutions, Design and conduct experiments, analyze and interpret data, Record the result, demonstrate skills to use modern tools, software and equipments to analyse the chosen problem.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Demonstrate a depth of knowledge of modern technology.
CO2	Complete an independent research project, resulting in dissertation.
CO3	Communicate effectively and to present ideas clearly and coherently to specific audience in both the written and oral forms.
CO4	Self-study, reflect on their learning and take appropriate actions to improve it.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	3	3	3	3	3	3	3	3	3	3
CO 2	3	3	3	3	3	3	3	3	3	3	3	3	3
CO 3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO 4	3	3	3	3	3	3	3	3	3	3	3	3	3

3-Strong Correlation 2- Medium Correlation 1-

Low Correlation PROCEDURE

- The final semester will be entirely assigned for the student to carry out their projectwork.
- The Head of the Department will assign an Internal Guide for each student.
- The students should submit the contact details of the organization to their guide.

- During regular intervals, student should report his/her progress of the project work.

After the submission of the final report, an external examiner will evaluate the project document and conduct the viva voce examination.

FIRST SEMESTER

Course Title: CORE THEORY 2 –

COMPUTER ORGANIZATIONS AND ARCHITECTURE

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

Conceptualize the basics of Organizational and Architectural issues of a digital Computer. Understanding the concepts of Boolean algebra, Logical Operations and various Adders. Learn various types of Flip-Flops and Data Transfer Techniques in Digital Computer and Articulate design issues in the development of Processor or other components that satisfy design requirements and objectives to explain different types of Addressing Modes and Memory Organization.

Course outcomes: At the end of course, the student will be able to

COS	Content of module
CO1	Detailed representation about number systems and boolean algebra.
CO2	Describe the various types of flip flops, registers and circuit system.
CO3	Analyse the stack organization and identify the addressing modes.
CO4	Interpret peripheral devices with memory access.
CO5	Acquire a good knowledge about memory hierarchies and mapping.
CO6	Gain knowledge about Virtual memory and data manipulation

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	2	1	3	1	1	3	3	2	2	3
CO 2	3	2	3	3	3	2	1	2	3	2	2	2	1
CO 3	3	3	3	2	3	1	1	1	3	2	2	3	2
CO 4	3	3	1	3	2	3	2	2	3	2	2	3	3
CO 5	3	3	2	2	2	2	1	1	3	3	3	3	2
CO 6	3	3	2	2	2	2	2	1	3	3	3	3	1

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	HRS	COS
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1	UNIT I: Number System – Converting numbers from one base to– Complements – Binary Codes– Boolean algebra – Properties of Boolean algebra – Boolean functions. – Logical Operations – Logic gates - Adder – Subtractor.	9	CO1
2	UNIT II: Decoders – Multiplexers- Flip Flops – Triggering of flip-flops – Analyzing a sequential circuit – State reduction – excitation tables – Design of sequential circuits – Counters. –shift registers.	9	CO2
3	UNIT III: Central processing unit: General register and stack organizations, instruction formats - Addressing modes, Data transfer and manipulation - program control, RISC.	9	CO3
4	UNIT IV: Input-output organization - peripheral devices, I/O interface, modes of transfer- Interrupt, Direct memory access, I/O processor.	9	CO4
5	UNIT V: Memory Organization - Memory Hierarchy- Main memory- Auxiliary memory-Associative memory and its mapping techniques - Cache memory-cache memory mapping techniques- Virtual Memory.	9	CO5, CO6

TEXT BOOKS

1. M. Morris Mano (2007). Computer System Architecture (3rd Edition), PHI, ISBN: 9789332585607.
2. D. P. Leach and A. P. Malvino (2002). Digital Principles and Applications (5th Edition), TMH, ISBN: 9780070141704.

REFERENCE BOOKS

1. William Stallings (2015). Computer Organization and Architecture (10th Edition), Pearson Education, ISBN: 9780134101613.
2. M. Morris Mano (2007). Digital Logic and Computer Design (3rd Edition) , Pearson Education, ISBN:817758409X
3. V.C. Hamacher, G. Vranesic, S. G. Zaky (2000). Computer Organization (Revised Edition), TMH, ISBN: 0471467405.

E-REFERENCES

1. <http://www.freetechbooks.com/computer-organization-and-design-fundamentals-t347.html>
2. <http://www.nptel.iitm.ac.in/video.php?subjectId=106102062>
3. <https://freevideolectures.com/course/2277/computer-organization>
4. <http://www.infocobuild.com/education/audio-video-courses/computer-science/ComputerOrganizationArchitecture-IIT-Madras>

FIRST SEMESTER

Course Title: CORE THEORY 3 - DATABASE MANAGEMENT SYSTEMS

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Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks :
40	

LEARNING OBJECTIVES:

On taking this course the student will be able to assess the applications of DBMS, difference between File Systems vs. DBMS, identify the data models and understand the DBMS structure and identifies the Entity, Attribute and Entity Relationship Diagrams. Understand the Relational Algebra concepts, selection, projection, relational calculus which helps in understanding queries. Study the concepts of functional dependencies and the need of normalization and Normal forms I, II, III, IV BCNF and know the properties of transaction management and the recovery management. Compile various file organization methods and access methods to store the data.

Course outcomes: At the end of course, the student will be able to

CO1	Describe a database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS. Design ER-models to represent simple database application scenarios.
CO2	Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data for current needs. Develop applications using DDL, DML queries.
CO3	Identifies the Functional dependencies, decompositions, lossless join, and dependency preserving decomposition. Classify the various normalization techniques and improve the database design by applying it.
CO4	Use the concept of a transaction and design the database using some tools which satisfies the ACID properties when concurrent transaction occurs in a database. Evaluate the sophisticated access protocols to control access to the database.
CO5	Identifies the suitable File organization methods and access methods and design the database for storing the data.
CO6	Develop and evaluate a real database application using a database management system.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	3	3	3	2	2	3	3	3	2	3
CO 2	3	3	3	3	3	3	3	2	3	3	3	2	3
CO 3	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 4	3	3	3	3	3	2	2	2	3	3	3	3	3
CO 5	3	3	3	3	3	3	2	3	3	3	3	3	3
CO 6	3	3	3	3	3	3	2	2	3	3	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S. No	CONTENTS OF MODULE	Hrs	COs
1	UNIT- I Introduction to DBMS and ER Model-Advantage of DBMS approach, various view of data, data independence, schema and sub-schema, primary concepts of data models, Database languages, Database administrator and users, data dictionary, overall system Architecture. Basic concepts of ER Model , mapping constraint, keys, ER diagram, weak and strong entity sets, specialization and generalization, aggregation.	9	CO1

2	UNIT- I Domains, Relations and Keys, Relational Algebra & SQL - Domains, Relations, kind of relations, relational database, various types of keys-candidate, primary, alternate and foreign key. Relational algebra, SQL- set operations, aggregate functions, null values, nested sub queries, views, join relations, DDL in SQL.	9	CO2
3	UNIT- III Functional Dependencies and Normalization -Basic definitions, trivial and non-trivial dependencies, introduction to normalization, non-loss decomposition, FD diagram, first, second, third Normal forms, dependency preservation, BCNF, multivalued dependencies and fourth normal form, Join dependency and fifth normal form.	9	CO3
4	UNIT- IV Transaction, concurrency and Recovery-Basic concepts of Transaction, ACID properties , Transaction states, implementation of atomicity and durability, concurrent executions, basic idea of serializability, concurrency control-two phase locking and deadlock handling, Recovery system-Failure Classification, Storage Structure ,Recovery and Atomicity , Log-Based Recovery, Shadow Paging.	9	CO4
5	UNIT- V Storage structure and file organizations-Overview of physical storage media, magnetic disks-performance and optimizations, basic idea of RAID, file organizations, organization of records in files, basic concepts of indexing, ordered indices, basic idea of B-tree and B+-tree organization.	9	CO5, CO6

TEXT BOOK

1. Henry Forth, Abraham Silberschatz, S. Sudharshan (2006).*Database System Concepts* (5thEdition), McGraw Hill Publications.
2. R. Elmasri, S.B. Navathe (2007). *Fundamentals of Database Systems* (5th Edition), Pearson Education.

REFERENCE BOOKS

1. Raghu Ramakrishnan , Johannes Gehrke(2014) ,*Database Management Systems*(3rd Edition), McGraw Hill Publications.
2. J. Date, A. Kannan and S. Swamynathan, (2009). *An Introduction to Database Systems* (8thEdition), Pearson Education.

E- REFERENCES:

1. <https://www.coursera.org/course/datasci>
2. <http://www.nptel.iitm.ac.in/video.php?subjectId=106106093>
3. <https://gateoverflow.in/47124/which-video-lecture-will-be-the-best-for-dbms>

SECOND SEMESTER

Course title: **ELECTIVE 2 - OBJECT ORIENTED ANALYSIS AND DESIGN**

Course Code :	Credits : 03
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

On taking the course, the students will be able to understand the concept of object-oriented development, and create a static object model and a dynamic behavioral model and a functional model of the system. They can easily understand the approaches to system design and object design, and the techniques of translating design to implementation.

Course Outcome: At the end students will be able to

CO1	Analyze object basics and UML
CO2	Gain knowledge about attributes and relationship.
CO3	Interpret axioms and do a case study
CO4	Detailed study about Micro level process
CO5	Digital signatures
CO6	Gain knowledge about various testing strategies.

Mapping of Course Outcomes to Program Specific Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	3	2	2	2	2	2	2	3	3	2	2	2	2
CO2	3	3	2	2	3	1	3	3	1	3	3	3	2
CO3	3	2	2	2	3	2	3	3	2	3	2	3	2
CO4	2	3	2	2	2	2	2	2	2	2	2	2	3
CO5	3	3	2	2	3	2	2	3	2	3	3	3	3
C06	2	2	2	3	3	3	2	2	2	2	3	2	2

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

SNO	CONTENT OF MODULE	Hrs	COS
1	UNIT-I: System development - object basics - development life cycle - methodologies - patterns - frameworks - unified approach - UML.	9	CO1
2	UNIT-II: Use Case models - object analysis - object relations - attributes - methods, class and object responsibilities - case studies	9	CO2
3	UNIT-III: Design processes - design axioms - class design - object storage - object interoperability - case studies.	9	CO3
4	UNIT-IV: User interface design - view layer classes - micro - level processes - view layer interface - case studies.	9	CO4
5	UNIT-IV: Quality assurance tests - testing strategies - object orientation on testing - test cases - test plans - continuous testing - debugging principles - system usability - measuring user satisfaction - case studies	9	CO5,CO6

TEXT BOOKS:

1. Ali Bahrami, (1999). *Object Oriented Systems Development*, McGraw Hill. ISBN no:13-978-0-07-026512-7
2. Grady Booch (2007). *Object Oriented Analysis and Design*, (Third Edition), Addison Wesley, ISBN no :0-8053-5340-2
3. Bernd Bruegge, (2004). *Object oriented software engineering*, (Second Edition), Pearson Education. ISBN no: 13 978-93332518681.

REFERENCE BOOKS:

1. James Rumbaugh, Michael R. Blaha, (2004). *Object-Oriented Modeling and Design with UML* , (Second Edition),Prentice Hall ISBN no: 978-81-317-1106-4
2. AtulKahate, (2000). *Object Oriented Analysis &Design*, Tata McGraw-Hill. ISBN no: 0-07-058376-5
3. Roger Pressman, (2005). *Software Engineering*, (Sixth Edition), TMH. ISBN no: 13:978-007-126782-3.

E-REFERENCES:

1. <http://www.exforsys.com/tutorials/ood/ood-introduction.html>
2. <http://www.devshed.com/c/a/Practices/Introducing-UMLObjectOriented-Analysis-and-Design>

SECOND SEMESTER SYLLABUS

Course Title: CORE THEORY-5 **DATA STRUCTURES AND ALGORITHMS**

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks :
40	
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

Develops skills in implementations and applications of data structures. Implements basic algorithms for sorting and searching. Implements basic data structures such as stacks, queues and trees. Applies algorithms and data structures in various real-life software problems.

Course outcomes: At the end of course, the student will be able

CO1	Define data structures like array, stack, queues and linked list.
CO2	Explain insertion, deletion and traversing operations on data structures.
CO3	Identify the asymptotic notations to find the complexity of an algorithm.

CO4	Compare various searching and sorting techniques.
CO5	Choose appropriate data structure while designing the algorithms.
CO6	Design advanced data structures using nonlinear data structures.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	2	3	3	1	3	2	1	3	3	2	2	3
CO 2	3	2	3	3	3	2	1	2	3	2	2	2	1
CO 3	3	3	3	2	3	1	1	1	3	2	2	3	2
CO 4	3	3	1	3	2	3	2	2	3	2	2	3	3
CO 5	3	3	2	2	2	2	1	1	3	3	3	3	2
CO 6	3	3	2	2	2	2	2	1	3	3	3	3	1

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	HRS	COS
1	UNIT I: Abstract data types asymptotic notations – complexity analysis – Arrays- representation of arrays – Linked lists: Singly linked list - Circular linked lists – Doubly linked lists – stacks – queues - circular queues – Postfix Notation.	10	CO1, CO2
2	UNIT II: Trees – Binary Trees – Binary Tree Traversals – Binary Tree Representations – Binary Search Trees – Threaded Binary Trees -Introduction to AVL Trees-Red-Black Trees, Splay Trees, B-Trees .	8	CO3, CO4
3	UNIT III: – Representation of Graphs – Graph Implementation – Graph Traversals- Minimum Cost Spanning Trees – Shortest Path Problem.	9	CO5
4	UNIT IV: Divide and conquer – Quick sort, Merge sort – Greedy Method: General Method –knapsack problem.	9	CO6
5	UNITV: Back Tracking: General Method – 8-queens - Branch and Bound: General Method - Traveling Salesperson problem.	9	CO2

TEXT BOOKS

1. E. Horowitz, S. Sahni and S. Rajasekaran (2001). *Computer Algorithms*, Galgotia publishers, ISBN:9788173716126
2. E.Horowitz, S. Sahni and Mehta(2000).*Fundamentals of Data Structures in C++*, Galgotia publishers,ISBN:0929306376

REFERENCE BOOKS

1. G. L. Heileman(1999). *Data Structures, Algorithms and Object Oriented Programming*, Revised Edition, TMH, ISBN: 0070278938.
2. A.V.Aho, J.D. Ullman, J.E. Hopcraft (1983). *Data Structures and Algorithms*, Revised Edition, Addison Wesley publishers, ISBN: 0201000237.
3. A.V. Aho, J.E. Hopcroft, J.D. Ullmann (1974).*The design and analysis of Computer Algorithms*, Revised Edition, Addison Wesley publishers,ISBN:0201000237.

E-REFERENCES

1. www.freetechnbooks.com/a-practical-introduction-to-data-structures-and-algorithm-analysis-third-edition-c-version-t804.html
2. www.nptel.iitm.ac.in/courses/106101060
3. <http://www.nptel.iitm.ac.in/courses/106104019/>
4. <https://www.techiedelight.com/best-online-courses-data-structures-algorithms/>
5. <https://freevideolectures.com/course/2279/data-structures-and-algorithms/>

SECOND SEMESTER

Course Title: CORE THEORY 6 - **COMPUTER NETWORKS**

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Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks :
40	
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

On taking this course the student will be able to assess the basic taxonomy and terminology of the Computer Networks and the layers of OSI model and TCP/IP model and various Transmission Medias. Understand the Telephone System Structure of Physical layer and Data link layer protocols. Describe data link layer and MAC layer concepts, design issues, and protocols. Gain core knowledge of Network layer Routing protocols and IP addressing. Discuss the Session layer design issues, Transport layer services, and protocols.

Course outcomes: At the end of course, the student will be able to

CO1	Gain a basic knowledge of Networking and functions of each layer in OSI and TCP/IP model. Demonstrate the network topology.
CO2	Diagnose the problems of a Current Multiplexing Techniques.
CO3	Classify the various multiple access protocols and identify the deficiencies in existing protocols, and then go onto formulate new and better protocols.
CO4	Apply the mathematical background of routing protocols. Analyze the collision occurred in current networks. Classify the classes of IP protocols and select the IP addresses for the given network.
CO5	Describe the issues surrounding in Session layer and Transport layer and identify how to rectify.
CO6	Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies.

Mapping of Course Outcomes to Program Specific Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	3	3	3	2	2	2	2	2	3	2	3	2	2
CO2	3	3	3	2	2	3	3	2	2	3	3	3	2
CO3	3	2	3	2	3	2	3	3	2	3	2	3	2
CO4	2	3	3	3	2	3	2	3	2	2	2	2	3
CO5	3	3	2	3	2	3	2	3	2	3	3	3	3
CO6	2	2	2	3	3	3	3	3	2	2	3	2	2

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

SNO	CONTENT OF MODULE	Hrs	COS
1	UNIT I: Introduction: Network Hardware – Software – Reference Models – OSI and TCP/IP Models. Physical Layer: Transmission Media- Wireless Transmission -Narrow Band ISDN.	9	CO1
2	UNIT II: Telephones Structure: Local Loops – Trunks, Multiplexing, and Switching. Data Link Layer: Design Issues – Error Detection and Correction - Elementary data link protocols - Sliding Window Protocols .	9	CO2
3	UNIT III: Medium Access Sub Layer: Channel Allocation Problem. Multiple Access Protocols: ALOHA – Carrier Sense Multiple Access Protocols – Collision Free Protocols – Limited Contention Protocols. Bridges: Transparent Bridges – Spanning Tree Bridges – Source Routing Bridges.	9	CO3
4	UNIT IV: Network layer Design Issues. Routing Algorithms: Shortest Path Routing – Flooding – Distance Vector Routing – Link State Routing – Hierarchical Routing. Congestion control algorithms: General Principles – Congestion Control in Virtual Circuit Subnets – Choke Packets – Load Shedding – Jitter Control. IP protocol: IP Address – Subnets - Internet Control Protocol.	9	CO4
5	UNIT V: Transport layer: Elements – Connection management – Addressing, Establishing & Releasing a connection – Transport Control Protocol: TCP Protocol – TCP segment Header – Connection Management – Congestion control.	9	CO5, CO6

TEXT BOOK

1. A.S.Tanenbaum (2003). *Computer Networks* (4th Edition), Pearson Education, Prentice hall of India Ltd.

REFERENCE BOOKS

1. B. Forouzan (1998). *Introduction to Data Communications in Networking*, TMH.
2. Fred Halsall (1995). *Data Communications, Computer Networks and Open Systems*, Addison Wesley.

E-REFERENCES:

1. <http://www.technolamp.co.in/2010/08/computer-networks-tanenbaum-powerpoint.html>
2. <http://www.freetechbooks.com/computer-networks-performance-and-quality-of-service-t830.html>
3. <https://freevideolectures.com/course/3162/computer-networking-tutorial>
4. http://video.bilkent.edu.tr/course_videos.php?courseid=32

THIRD SEMESTER**SYLLABUS****Course Title: CORE THEORY 9 - ENTERPRISE COMPUTING**

Course Code:	Credits	: 04
L:T:P:S : 4:0:0:0	CIA Marks	: 40
Exam Hours: 03	ESE Marks	: 60

LEARNING OBJECTIVES:

On taking this course, student will be able to understand the various concepts of Enterprise programming, developing RMI Application, Servlet and session management and learn data manipulation using JDBC, develop web applications using JSP, implement Javamail API and familiarize the students with the concepts of reusable classes using JavaBeans, Hibernate and Spring Framework applications.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand various concepts of Enterprise Computing, analyze and implement the RMI Architecture for the necessary applications.
CO2	Implement Session management using Servlet and implement JDBC for the database connectivity.
CO3	Develop Web applications using JSP and JSP error pages.
CO4	Design an application that sends and receives email with attachments.
CO5	Implement Database connectivity through Hibernate Framework and also build web applications using Spring MVC.
CO6	Study and use modern tools for rapidly building enterprise applications.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	2	3	3	2	2	2	3	3	3	2	3
CO 2	3	3	2	3	3	2	2	2	2	3	3	3	3
CO 3	2	3	2	2	3	2	3	3	2	3	3	2	3
CO 4	3	3	2	3	3	2	2	2	2	3	2	3	2

CO 5	2	3	3	3	3	3	3	3	3	3	2	3	3
CO 6	3	3	3	3	3	3	3	3	3	2	3	2	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
1	UNIT-I: Need for Enterprise Programming – J2EE Advantage – Enterprise Architecture types– Architecture of J2EE – J2EE Components – J2EE Containers – Introducing RMI – RMI Architecture – Application Development with RMI – RMI over IIOP.	9	CO1
2	UNIT-II: Introduction to Servlets – Servlet Life Cycle – Servlet API Basics – HTTP Redirects –Cookies –State and Session Management –Hidden Fields – URL rewriting –Session Management with the Servlet API –Inter Servlet Communication – Server Side Includes and Request Forwarding –Data Base Access with JDBC.	9	CO2
3	UNIT-III: JSP: Introduction JSP –Examining MVC and JSP –JSP scripting elements & directives –Working with variables scopes – Error Pages –using Java Beans in JSP.	6	CO3
4	UNIT-IV: Javamail: Working with Java Mail –Understanding Protocols for Javamail –Components –Javamail API –Understanding Java Messaging Services: JMS Components EJB Fundamentals – EJB Architecture – EJB Roles – Introduction to Session Beans, Entity Beans & Message Driven Beans.	9	CO4
5	UNIT-V: Hibernate: Overview of Hibernate, Hibernate Architecture, Hibernate Mapping Types, Hibernate O/R Mapping, Hibernate Annotation, Hibernate Query Language – Spring MVC – Overview of Spring, Spring Architecture, bean life cycle, XML Configuration on Spring, Aspect – oriented Spring, Managing Database, and Managing Transaction.	12	CO5, CO6

TEXT BOOKS:

1. Jason hunter, William Crawford (2001). *Java Server Programming* (2nd Edition), O'Reilly Media, Inc., ISBN: 9780596000400.
2. J McGovern, R Adatia, Y Fain (2003). *J2EE 14 Bible*, Wiley-dreamtech India Pvt Ltd.
3. James Holmes, Herbert Schildt (2000). *Struts: The complete Reference* (2nd Edition), TMH.
4. H.Schildt (2002). *Java 2 Complete Reference* (5th Edition), TMH.

REFERENCE BOOKS:

1. K Moss (1999). *Java Servlets* (Second Edition), TMH.
2. Joseph O'Neil (1998). *Java Beans from the Ground Up*, TMH.
3. Tom Valesky (2000). *Enterprise JavaBeans*, Addison Wesley.
4. Cay S Horstmann & Gary Cornell (2002). *Core Java Vol II Advanced Features* (8th Edition), Addison Wesley.

E- REFERENCES:

1. <https://www.tutorialspoint.com/servlets/servlets-first-example.htm>
2. <http://www.servlets.com/jservlet2/examples/>
3. http://www.j2eetutorials.50webs.com/JSP_example1.html
4. <http://www.javatpoint.com/ejb-tutorial>
5. <https://slideplayer.com/slide/7362666/>

THIRD SEMESTER

Course Title: **CORE THEORY 10 - PROGRAMMING IN PYTHON**

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Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks :
40	

Exam Hours : 03

LEARNING OBJECTIVES:

On taking this course the student will be able to develop a basic understanding of programming and the Python programming language and understand the basics of Strings, Lists and Tuples, learn how to design object-oriented programs with Python classes, learn how to use class inheritance in Python for reusability and how to use exception handling in Python applications for error handling, to provide knowledge on how to develop the ability to write database applications in Python, to develop the skills of designing Graphical user interface in Python and to acquire knowledge about Data science in Python using numpy.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	To acquire basic programming skills of Python programming language.
CO2	To develop applications using python sequence.
CO3	Implement basic object oriented concepts like inheritance and polymorphism.
CO4	Develop GUI applications using PyGTK. and GUI applications.
CO5	To have basic knowledge of implementing data science in python.
CO6	To use python as a tool for research.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 2	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 3	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 4	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 5	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 6	3	3	3	3	3	3	2	2	3	3	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S. No	CONTENTS OF MODULE	Hrs	COs
1	UNIT-I : Introduction to Python - Installing in various Operating Systems - Variables and Data Types - Operators –	9	CO1

	Conditional Statements- if-if-else-nested if – Looping – for-while-nested loops– Control Statements- break-continue-pass- Input/output Statements		
2	UNIT-II: Sequences -String Manipulations - Lists – Tuples – Mapping and Set types - Dictionaries –Set- Functions-Defining a function – calling a function – types of function – function arguments-lambda function- Exception Handling - Modules	9	CO2
3	UNIT-III : File handling - Object Oriented Programming - Classes - Objects –Attributes - Inheritance - Overloading - Polymorphism -Interacting with Databases - Introduction to MySQL - interacting with MySQL – Database connection -creating database table, insert operation, read operation-update operation-delete operation - Regular Expressions - Text handling	9	CO3
4	UNIT-IV: Introduction to Graphics programming - Introduction to GTK - PyGTK - Developing GUI applications using PyGTK–Tooltip, Check button, Combo box, Menus, Calendar, Image, Image processing- Network Programming - socket module - server socket methods - client socket methods - general socket methods- Web services using SOAP	9	CO4, CO6
5	UNIT-V: Data Science in Python –Numpy – Numpy introduction, Data types Object – dtype-Numerical operations on Numpy arrays– Changing the dimensions of arrays -matrix arithmetic Scipy–introduction – basic functions – special function – optimization – linear algebra – Pandas-Introduction to Series and DataFrames – reading and writing data – Data Exploration – Data Munging-Introduction to version control system – subversion/Git	9	CO5, CO6

TEXT BOOKS:

1. Allen B Downey(2012), *Think Python: How to Think Like a Computer Scientist*(1st Edition), O’Reilly Publications.
2. Jeff McNeil(2010), *Python 26 Text Processing: Beginners Guide*, Packet Publications.
3. Mark Pilgrim(2009), *Dive into Python*(2nd edition), Apress publications.

REFERENCE BOOKS:

1. Kent D Lee(2010), *Python Programming Fundamentals*(2nd Edition), Springer,.
2. John V Guttag , *Introduction to Computation and Programming Using Python*, Prentice Hall of India.

E- REFERENCES

1. <http://wwwswaroopchcom/notes/python>
2. http://enwikibooksorg/wiki/Python_Programming
3. <http://docspythonorg/release/301/tutorial/>
4. <http://learnpythonthehardwayorg/>
5. <https://wwwcourseraorg/course/interactivepython>
6. <http://wwwpython-courseeu/pandasphp>

7. http://wwwspoken_tutorialorg
8. <https://www.coursera.org/learn/python-data?specialization=python>
9. <https://www.coursera.org/learn/python-programming-introduction>

THIRD SEMESTER

Course Title: CORE THEORY 11 - DATAWAREHOUSING AND DATAMINING

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Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks :
40	
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

On taking this course the student will be able to understand and implement classical models and algorithms in data warehousing and data mining. To analyze the data, identify the problems, and choose the relevant algorithms for the chosen dataset. To compare and contrast different conceptions of data mining, to characterize the kinds of patterns that can be discovered by association rule mining, classification and clustering

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	To appreciate the basic principles, concepts and applications of data warehousing and data mining
CO2	Have a good knowledge of the preprocessing techniques
CO3	To perform Data Mining using association rules
CO4	To get insights from data using classification and prediction techniques
CO5	Knowledge of clustering techniques and outliers
CO6	To be able to apply data mining techniques to real world data by cleaning the data, integrating the data from different sources, predicting a model to group the data tuples into classes, discovering patterns using association rule mining and grouping the data set into clusters.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	3	3	3	2	2	3	3	3	2	3
CO 2	3	3	3	3	3	3	3	2	3	3	3	2	3
CO 3	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 4	3	3	3	3	3	2	2	2	3	3	3	3	3
CO 5	3	3	3	3	3	3	2	3	3	3	3	3	3

CO 6	3	3	3	3	3	3	2	2	3	3	3	3	3
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3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S. No	CONTENTS OF MODULE	Hrs	COs
1	UNIT I: Introduction to data warehousing – OLAP – Data Mining tasks – Data Mining versus Knowledge Discovery in Data bases – Mining Issues – Metrics – Social implications of Data mining Data Mining Techniques – Introduction – A statistical perspective on Data Mining – similarity measures – Decision Trees – Neural Networks – Genetic Algorithms.	9	CO1
2	UNIT II: Data Preprocessing: Why preprocess the data – Data cleaning – Data Integration – Data Transformation – Data Reduction – Data Discretization.	9	CO2
3	UNIT III: Data Mining Techniques: Association Rule Mining – The Apriori Algorithm – Multilevel Association Rules – Multidimensional Association Rules – Constraint Based Association Mining.	9	CO3
4	UNIT IV: Classification and Prediction: Issues regarding Classification and Prediction – Decision Tree induction – Bayesian Classification – Back Propagation – Classification Methods – Prediction – Classifiers accuracy.	9	CO4
5	UNIT V: Clustering Techniques: cluster Analysis – Clustering Methods – Similarity and Distance Measures – Hierarchical Methods – Partitional Methods – Outlier Analysis.	9	CO5, CO6

TEXT BOOKS:

1. Jiawei Han, MichelineKamber, Jian Pei (2008), *Data Mining: Concepts and Techniques*, 2nd edition, Morgan Kaufmann.
2. Mohammed J.Zaki,Wagnew Meira,Jr,Wagner Meira,(2014),*Data Mining and Analysis*,Cambridge University Press.
3. Charu C.Aggarwal(2015),*Data Mining*, 2nd edition,Springer International Publishing.

REFERENCE BOOKS:

1. RasmusLerdorf MH Dunham (2003), *Data Mining: Introductory and Advanced Topics*, 2003, Pearson Education.
2. PaulrajPonnaiah(2001), *Data Warehousing Fundamentals*, 2001, Wiley Publishers.
3. SN Sivananda and S Sumathi(2006), *Data Mining*, 2006,Thomsan Learning, Chennai.

E-REFERENCES:

1. <http://nptel.iitm.ac.in/video.php?subjectId=106106093>
2. <http://cecs.louisville.edu/datamining/PDF/0471228524.pdf>
3. <http://www.spoken-tutorials.org>
4. <https://www.udemy.com/fundamentals-of-data-mining/>
5. <https://www.coursera.org/learn/cluster-analysis>

THIRD SEMESTER

Course Title: CORE THEORY 12 - SOFTWARE TESTING

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks :
40	
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES

On taking this course the student will be able to study fundamental concepts in software testing, including software testing objectives, process, criteria, strategies, and methods, to discuss various software testing issues and solutions in software unit test; integration, regression, and system testing, to learn how to planning a test project, design test cases and data, conduct testing operations, manage software problems and defects, generate a testing report, to learn various software testing process like verification and validation, to gain the techniques and skills on how to use modern software testing tools to support software testing projects.

Course outcomes: At the end of course, the student will be able to

CO1	Discuss about the concept of bugs and analyses the principles in software testing to prevent and remove bugs.
CO2	Discuss about domains and path Analyze Linguistic and Structural Metric
CO3	Discuss about Verification and Validation. Analyse various levels of Testing, Testing Approaches, and Types of Testing & Test Plan.
CO4	Analyze Defect Management Discuss about Acceptance testing and special test.
CO5	Analyze various automation testing tools.
CO6	Gain the knowledge about various testing tools.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	3	3	2	3	3	3	3	3	3	3	3	2	3
CO2	3	2	3	3	2	3	3	3	3	2	3	3	3
CO3	3	3	3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	2	3	3	3	3	3	3	2	3	3
CO5	3	3	2	3	3	3	3	2	3	3	3	3	3
CO6	3	2	3	3	3	2	3	3	2	3	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No.	CONTENT OF MODULE	Hrs	COs
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1	UNIT I: Introduction: Purpose – Productivity and Quality in Software – Testing Vs Debugging Model for Testing – Bugs – Types of Bugs – Testing during Development Life-cycle. Requirement Traceability matrix-Work Bench. Principles of software testing, Salient features of Good Testing-Challenges in Testing-cost Aspect of Testing-Developing Testing Methodologies.	9	CO1
2	UNIT II: Domain Testing: Domains and Paths – Domains and Interface Testing- Metrics –Linguistic and Structural Metric.	9	CO2
3	UNIT III: Software Testing Process-Verification and Validation-Levels of Testing-Testing Approaches-Types of Testing-Test Plan.	9	CO3
4	UNIT IV: Test Model - Defect Management-Levels of Testing-Acceptance Testing-Special Tests-Test Planning.	9	CO4
5	UNIT V: Software Testing Tools Overview- QTP Tools-Performance Testing Tools-LoadRunner Tool. Testing Management Tools-TestDirector-GUI Testing-SilkTest-Open Source Testing Tool-JMeter.	9	CO5,CO6

TEXT BOOKS

1. B. Beizer (2003). *Software Testing Techniques*, Second Edition), DreamTechIndia, New Delhi. (UNIT I and II).
2. K.V.KK. Prasad (2005). *Software Testing Tools*, DreamTech. , India, New Delhi.
3. (UNIT III, IV and V).
4. M.G.Limaye (2009). *Software Testing Principles, Techniques and Tools*, TataMc.Graw Hill Education Private Limited, New Delhi.(UNIT III and IV)

REFERENCE BOOKS

1. I.Burnstein (2003). *Practical Software Testing*, Springer International Edition.
2. M G Limaye (2009). *Software Testing*, TMH, New Delhi.

E-REFERENCES

1. <http://awards.istqb.org/award-winner/boris-beizer.html>
2. <http://www.testingreferences.com/testinghistory.php>
3. <http://www.swquality.com/users/pustaver/Books/books.htm>
4. <http://www.bullseye.com/coverage.html>
5. https://www.tutorialspoint.com/software_testing/
6. <https://lecturenotes.in/subject/129/software-testing-st>
7. www.ecs.csun.edu/~rlingard/COMP595VAV/SoftwareTesting.ppt

THIRD SEMESTER

Course Title: **ELECTIVE 3 - CRYPTOGRAPHY**

Course Code :	Credits : 03
L:T:P:S : 4:0:0:0	CIA Marks :
40	
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES

To understand the mathematics behind cryptography, security concepts, vulnerabilities, different types of cryptosystems and attacks attacks on various cryptosystems.

Course outcomes: At the end of course, the student will be able

COS	Content of module
CO1	Gain knowledge about Conventional encryption model
CO2	Analyse Euclidean Algorithm and Number theory
CO3	Understanding Key exchanges.
CO4	Detailed representation of Hashing functions.
CO5	Describe the various Digital signatures logic.
CO6	Apply different encryption and decryption techniques

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	2	1	3	1	1	3	3	2	2	3
CO 2	3	2	3	3	3	2	1	2	3	2	2	2	1
CO 3	3	3	3	2	3	1	1	1	3	2	2	3	2
CO 4	3	3	1	3	2	3	2	2	3	2	2	3	3
CO 5	3	3	2	2	2	2	1	1	3	3	3	3	2
CO 6	3	3	2	2	2	2	2	1	3	3	3	3	1

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	HRS	COS
1	UNIT I: Conventional encryption model –Security Concepts- Substitution and Transposition Ciphers- DES algorithm –AES algorithm - Random number generation.	9	CO1
2	UNIT II: Number Theory: Modular arithmetic – Euler’s theorem – Euclid’s algorithm – Extended Euclidean Algorithm and its applications. Chinese remainder theorem – Prime numbers and factorization –Discrete Logarithms.	9	CO2
3	UNIT III: Principles of Public key Cryptography– RSA algorithm – Key Management- Diffie – Hellman key exchange	9	CO3
4	UNIT IV: Message Authentication and Hash functions: Authentication requirements –Authentication function- Message Authentication codes-Hash functions-Secure Hash Algorithm.	9	CO4
5	UNIT V: Digital Signature and Authentication Protocols: Digital Signature Authentication Protocols –Digital Signature Standard.	9	CO5 ,CO6

TEXT BOOK

1. Stallings. W (2013). Cryptography and Network Security Principles and Practice, Pearson Education, Delhi, ISBN: 9788131761663.

REFERENCE BOOKS

1. Charlie Kaufman, Radia Perlman, Mike specimen (2016). Network Security Private Communication in a public world, Prentice Hall PTR, ISBN: 9789332586000
2. Michael Welsehenbach (2013). Cryptography in C & C++, Apress, ISBN: 9781430250999.

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2. <http://www.sagemath.org/pdf/en/reference/cryptography/cryptography.pdf>
3. <http://www.freetechbooks.com/lecture-notes-on-cryptography-t565.html>
4. <https://nptel.ac.in/courses/10610503/>
5. <https://nptel.ac.in/courses/106105162/>

THIRD SEMESTER

Course Title: CORE THEORY T10-DOT NET PROGRAMMING (For Students admitted from 2020 onwards)

Course Code	: XX29319 XX29213(A) (XX-Year of admission)	Credits	: 04
L:T:P:S	: 3:1:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- To understand .NET Platform and its core functionalities.
- To develop windows and web applications with Microsoft SQL and Visual Studio.
- To understand and develop user defined Applications using MVC framework.
- To strengthen Object Oriented Programming using advance VB.NET concepts

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Explore Microsoft .NET Integrated Development Environment (IDE)
CO2	Understand the basic concepts of VB.NET framework.
CO3	Developing programs using VB .NET.
CO4	Illustrate and implement the concepts of Class and objects, Inheritance, Overloading, Exceptions and File Handling in VB.NET
CO5	Building ASP.NET Programming through Web Server Controls, Validation Controls and DataList Web Server Controls.
CO6	Apply ADO.NET and OLEDB concepts for establishing connectivity among applications with reduced code complexity and develop network applications

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	3	3	2	3
CO2	3	3	1	2
CO3	3	3	1	2
CO4	3	2	1	3
CO5	3	2	2	2
CO6	3	3	3	2

3-Strong 2-Medium 1-Low

SI No.	Contents of Module	Hrs	COs
1	Introducing Microsoft .NET:- Microsoft .NET platform: .NET Enterprise Servers, .NET framework and .NET Building block Services - .NET Namespaces. Common Type System(CTS), Common Language Specification(CLS) and CLR Execution (Class loader, verifier, JIT compilers).	12	CO1
2	VB.Net Basics: VB Dot Net Framework Basics - Visual Studio Environment – Data Types , Variables, constants ,Operators and Expressions – Decisions and Conditions - Loops - Sub Procedures and Functions – Built-in functions - Arrays - Structures- Enumerators – Delegates and Events.	12	CO2,CO3
3	VB.Net Advanced: Windows Forms and Basic Controls - Timer control - Graphics and Animation: The Graphics Environment – Simple Animation – Scroll Bar Controls - Menus and Status Bars- Multi Form applications - Class and Objects - Inheritance - Exception Handling.	12	CO3,CO4

4	ASP.NET Basics: ASP.NET Language Structure - Page Structure - Page event, Properties & Compiler Directives. Basic Web Server Controls: TextBox, Label, Button, CheckBox, RadioButton and LinkButton. Validation Controls: RequiredValidator, CompareValidator and RegularExpressionValidator. DataListWebserver Controls: ListBox, CheckedList, RadioButtonList, DropDownList and Data Grid control.	12	CO5
5	Working with Data: Benefits of ADO.NET, ADO.NET Architecture, Main classes in ADO.NET, Developing a Windows/Web application using database. OLEDB Connection class, Command class, Transaction class, DataAdaptor class, DataSet class. ASP.NET Advanced: MVC Pattern, Life Cycle, Controllers, Actions, Views, Data Model. Model Binding, using Databases. Request and Response Objects, Cookies.	12	CO6

Text Books:

1. Jeff Prosize, Programming Microsoft .NET - Microsoft Press, 1st Edition, 2009.
2. Visual Basic.Net Black Book by Steven Holzner Dreamtech Press
3. The Complete Reference Visual Basic .NET Jeffery R. Shapiro Tata McGraw Hills
4. Thuan Thai, .NET Framework, O'Reilly publications, 3rd edition, 2009

Reference Books:

1. David S Platt, Introducing Microsoft .NET ,Microsoft press, 3rd Edition, 2003
2. Murach's Beginning Visual basic .Net By Anne Bohem
3. Freeman, Adam, Pro ASP.NET MVC, aprèss, 2013
4. Paul Yao, David Durant, Programming .NET Compact Framework 3.5, PearsonEducation, 2nd Edition, 2010.

E-References:

1. http://www.nptelvideos.com/visualbasic_net/visualbasicnet_video_tutorials.php
2. <http://www.nptelvideos.com/video.php?id=1775&c=21>
3. <https://freevideolectures.com/course/3002/dot-net-tutorial/1>
4. http://www.philadelphia.edu.jo/academics/qhamarsheh/uploads/Lecture_14_Introduction_to_ASP.pdf
5. <http://sigc.edu/department/computerscience/studymet/AdvancedASP.NET.pdf>

SECOND SEMESTER

Course Title: CORE THEORY T6-MOBILE APPLICATION DEVELOPMENT (For Students admitted from 2020 onwards)

Course Code	: XX29210 (XX-Year of admission)	Credits	: 04
L:T:P:S	: 3:1:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- To introduce Android platform and its architecture.
- To learn activity creation and Android UI designing.
- To be familiarized with Intent, Broadcast receivers and Internet services.
- To work with SQLite Database and content providers.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define Android applications, download and install Android Studio, work in development environment and to execute the First Android Application.
CO2	Illustrate the use of activities, fragments and intents in Android to invoke Built-in Applications and use of notification in Android.
CO3	Design and implement the user interfaces using basic widgets, views, view groups and layouts of Android.
CO4	Work with user interface to handle pictures and menus and explain data storage options using the internal and external storage using Shared Preferences, files, SQLite database and Content Providers.
CO5	Illustrate the formation of SMS and E-mail in the mobile phones and demonstrate the Location Based Services (LBS) and consumption of Web Services in Android using JSON and Sockets.
CO6	Developing Android Services by establishing communication between a service and an activity and illustrating the steps for publishing Android applications.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	2	3	3	2
CO2	3	2	2	3
CO3	3	3	2	2
CO4	3	3	2	3
CO5	3	3	3	2
CO6	3	3	2	2

3-Strong 2-Medium 1-Low

SI No.	Contents of Module	Hrs	COs
1	Introduction to Android – Features of Android-Architecture of Android-Obtaining the Required Tools- Creating First Android Application - Anatomy of Android Application-Components of Android Application-Lifecycle of Activity. Intents: Creating Intents, Types of Intents, Intents returning result, Intent Filters, Calling Built-In Application Using Intents and Displaying Notifications using PendingIntent. Fragments: Lifecycle of Fragment, Types of Fragments and how to create and use fragments.	12	CO1,CO2
2	Screen Layouts: Linear, Table, Relative, Absolute and Grid. Basic Views: Toast, TextView, EditText, Button, AutoCompleteTextView, CheckBox, ToggleButton,	12	CO3

	ImageButton, RadioButton, SeekBar, ListView, ImageView, DatePicker and TimePicker- Adapting to Display Orientation - Creating the views programmatically.		
3	Menus: OptionsMenu, ContextMenu and PopupMenu. Data Persistence: Saving and Loading using Shared Preferences - Persisting Data to Files - SQLite Database: Create, Insert, Delete, Update and Select queries. Content Provider: Creating and using Content Provider.	12	CO4
4	Sending SMS - Sending E-Mail- Location – Based Services: Displaying Maps - Getting Location Data. Networking: Consuming Web Services Using HTTP - Consuming JSON Services - Sockets Programming.	12	CO5
5	Developing Android Services: Lifecycle of Service, Types of service and Creating own services. Threading: Worker thread and Async thread. Publishing Android Applications: Preparing for Publishing - Deploying APK Files.	12	CO6

Text Book:

1. J.F. DiMarzio, “**Beginning Android Programming with Android Studio**”, 4th Edition, Wiley Publications, 2017.

Reference Books:

1. Wei Meng Lee, “**Beginning Android 4 Application Development**”, Wiley Publications, 2013.
2. Anubhav Pradhan, Anil V Deshpande, ‘Mobile Applications Development’, First Edition.
3. Barry Burd ‘Android Applications Development all in one for Dummies’, First Edition.
4. “Teach Your self Android Application Development in 24 hours” First Edition, SAMS.
5. Rick Boyer, “**Android 9 Development Cookbook**”, 3rd Edition, Packt Publishing, 2018.
6. Reto Meier and Ian Lake, “**Professional Android**”, 4th Edition, Wiley Publishers.

E-References:

1. <http://developer.android.com/>
2. <https://www.tutorialspoint.com/android/index.htm>
3. <https://abhiandroid.com/>

FIRST SEMESTER

Course Title: CORE THEORY T1-PRINCIPLES OF DATABASE MANAGEMENT SYSTEMS (For Students admitted from 2020 onwards)

Course Code	: XX29101 (XX-Year of admission)	Credits	: 04
L:T:P:S	: 3:1:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- To understand the fundamentals of data models and conceptualize and depict a database system using ER diagram
- To make a study of SQL and relational database design.
- To know about data storage techniques and query processing.
- To impart introductory knowledge on NoSQL.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Explain difference between file system and database system, the basic concepts of data models and its classification like ER model, relational model, network model, object oriented model and case study as ER model.
CO2	Discuss the relational database terminologies; analyze types of keys in relational database system. Understand the Relational algebra and improve the performance of database by normalization and hence the types of normal forms.
CO3	Implementation of Relational Database in Oracle SQL, analyzing of DDL, DML and DRL statements, Joins, Group functions and Integrity Constraints with syntax and examples.
CO4	Demonstrate the types of PL/SQL statements with examples and hence discuss the purpose of Cursors, Triggers, Procedures and Functions in PL/SQL with its implementation.
CO5	Apply the database tuning methodologies on Indexes, Database Design, and Queries. Explain the Transaction States and properties of Transactions and acquire the basic knowledge about concurrency techniques over databases.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	3	2	3	3
CO2	3	3	3	3
CO3	3	3	2	2
CO4	3	2	2	2
CO5	3	2	2	2

3-Strong 2-Medium 1-Low

Sl No.	Contents of Module	Hrs	COs
1	Introduction to Databases- Characteristics of the Database -Advantages of using DBMS - Categories of Data Models-Schemas and Instances -Three-Schema Architecture-Data Independence– Conceptual Modeling using ER Model: Entities and Attributes, Entity types and Entity sets, Relationship types, Degree of a Relationship Type, Weak Entity types, Notations for ER diagrams, Naming Conventions, An Example ER diagram.	12	CO1
2	Relational Model Concepts: Domains, Attributes, Tuples, Relations, Types of Keys- Relational Algebra: Unary Operations, Operations from Set Theory, Cartesian product, Division and Rename. Normalization: Purpose of Normalization – Functional Dependencies –First Normal Form, Second	12	CO2

	Normal Form, Third Normal Form-Boyce-Codd Normal Form (BCNF).		
3	Basic SQL: Attribute Data types and Domains in SQL -DDL Commands- DML Commands-Select statement using where, in, between, order by, like, distinct, relational operators and logical operators- Numeric functions-Character functions-Date functions- -SQL Group functions - SQL Set Operators – Commit-Rollback-Integrity Constraints in SQL.	12	CO3
4	Nested Query-Inner Joins-Outer Joins-Format of PL/SQL Block-Decision making statements in PL/SQL-Looping Statements in PL/SQL-Implicit Cursor- Explicit Cursor- Built-in Exceptions -User-Defined Exceptions.	12	CO4
5	Indexing: Types of Indexing - Transaction and System Concepts: Transaction States, The System Log, Commit point of a Transaction, Desirable properties of Transactions- Concurrency Control: Two-phase locking technique.	12	CO5

Text Books:

1. Ramez Elmasri and Shamkant B. Navathe, “**Fundamentals of Database Systems**”, 7th Edition, Pearson Education, 2017. (Units I,II,V)
2. Sharad Maheswari and Ruchin Jain, “**Introduction to SQL and PL/SQL**”, Firewall Media, 2016. (Units III,IV)

Reference Books:

1. Avi Silberschatz, Henry F. Korth and S. Sudarshan. “**Database System Concepts**”, 6th Edition, McGraw Hill.
2. Raghurama Krishnan and Johannes Gehrke, “Data Base Management Systems”, TMH 3rd Edition,2003
3. Majumdr, Bhattacharyya,” Data Base Management Systems”, TMH ,96.

E-References:

1. <https://nptel.ac.in/courses/106/105/106105175/>
2. <https://www.db-book.com/db6/slide-dir/index.html>
3. <https://beginnersbook.com/2015/04/dbms-tutorial/>
<https://www.technolamp.co.in/2011/09/database-management-systems-dbms-imp.html>

SECOND SEMESTER

Course Title: **CORE THEORY ELECTIVE 1-INTRODUCTION TO MULTIMEDIA**
(For Students admitted from 2020 onwards)

Course Code	: XX29213(B) (XX-Year of admission)	Credits	: 04
L:T:P:S	: 4:0:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- This course aims to introduce the fundamental elements of multimedia.
- It will provide an understanding of the fundamental elements in multimedia.
- The emphasis will be on learning the representations, perceptions and applications of multimedia.
- Software skills and hands on work on digital media will also be emphasized.
- On completion of the subject, the students will understand the technologies behind multimedia applications and master the skills for developing multimedia projects.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Describe the types of media and define multimedia system.
CO2	Describe the process of digitizing (quantization) of different analog signals (text, graphics, sound and video).
CO3	Use and apply tools for image processing, video, sound and animation.
CO4	Apply methodology to develop a multimedia system.
CO5	Apply acquired knowledge in the field of multimedia in practice and independently continue to expand knowledge

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	3	3	3	3
CO2	2	3	3	2
CO3	3	2	3	3
CO4	2	2	2	2
CO5	2	2	2	3

3-Strong 2-Medium 1-Low

Sl No.	Contents of Module	Hrs	COs
1	Introduction to Multimedia: What is multimedia, Components of multimedia, Web and Internet multimedia applications, Transition from conventional media to digital media. Computer Fonts and Hypertext. Usage of text in Multimedia, Families and faces of fonts, outline fonts, bitmap fonts International character sets and hypertext, Digital fonts techniques.	12	CO1
2	Audio Fundamentals and Representations : Digitization of sound, frequency and bandwidth, decibel system, data rate, audio file format, Sound synthesis, MIDI, wavetable, Compression and transmission of audio on Internet, Adding sound to your multimedia project, Audio software and hardware.	12	CO2
3	Image Fundamentals and Representations: Colour Science , Colour, Colour Models, Colour palettes, Dithering, 2D Graphics, Image Compression and File Formats :GIF, JPEG, JPEG 2000, PNG, TIFF, EXIF, PS, PDF, Basic Image Processing [Can Use Photoshop], Use of image editing software, White balance correction, Dynamic range correction, Gamma correction, Photo Retouching.	12	CO3

4	Video and Animation: Video Basics , How Video Works, Broadcast Video Standards, Analog video, Digital video, Video Recording and Tape formats, Shooting and Editing Video (Use Adobe Premier for editing), Video Compression and File Formats . Video compression based on motion compensation, MPEG-1, MPEG-2, MPEG-4, MPEG-7, MPEG-21, Animation: Cell Animation, Computer Animation, Morphing.	12	CO4
5	Multimedia Authoring: Multimedia Authoring Basics, Some Authoring Tools, Macromedia Director & Flash .	12	CO5

Text Books:

1. Tay Vaughan, "Multimedia making it work", Tata McGraw-Hill, 2008.
2. Rajneesh Aggarwal & B. B Tiwari, "Multimedia Systems", Excel Publication, New Delhi, 2007.

Reference Books:

1. Li & Drew, "Fundamentals of Multimedia", Pearson Education, 2009.
2. Fred Halsall, "Multimedia Communications: Applications, Networks, Protocols and Standards", Addison Wesley, 2000
3. Parekh Ranjan, "Principles of Multimedia", Tata McGraw-Hill, 2007
4. Anirban Mukhopadhyay and Arup Chattopadhyay, "Introduction to Computer Graphics and Multimedia", Second Edition, Vikas Publishing House.

E-References:

1. Anatomy of a Sound Board. PC Magazine Online Located at: <http://www.zdnet.com/cshopper/features/9510/feature2/sub3.html>
2. Berinato, S. (1997). Streaming video enters spotlight. PC Week Online. [On-line]. Available: <http://www8.zdnet.com/pcweek/news/0728/28video.html>
3. CyberTech Information Group. (1997). Streaming video. [On-line]. Available: <http://www.web-ads.com/cbertech/vivofree.html>

FIRST SEMESTER

Course Title: CORE THEORY T3-ADVANCED DATA STRUCTURES AND ALGORITHMS (For Students admitted from 2020 onwards)

Course Code	: XX29103 (XX-Year of admission)	Credits	: 04
L:T:P:S	: 4:0:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- To impart the knowledge about the concepts of data structures and algorithms.
- To enable the students to analyze the efficiency of algorithms.
- Train the students to design and analyze linear and non-linear data structures.
- Enable the students to implement suitable data structures and algorithms in real time applications

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Analyze the performance of algorithms using asymptotic notations.
CO2	Evaluate and provide suitable techniques for solving a problem using basic properties of Data Structures.
CO3	Illustrate different types of algorithmic approaches to problem solving.
CO4	Understand the nature of problems and to develop prototypes or applications of varying complexities.

CO5	Determine the drawbacks of data structures and algorithms and assess the tradeoffs involved.
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Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	3	3	3	2
CO2	3	3	3	2
CO3	3	3	3	3
CO4	3	3	3	3
CO5	3	3	3	3

3-Strong 2-Medium 0-Low

Sl No.	Contents of Module	Hrs	COs
1	Introduction: Abstract data types - asymptotic notations – complexity analysis – Arrays- representation of arrays. Linked lists: Singly linked list- Circular linked lists – Doubly linked lists. Stacks: Operation, array representation of a stack, Application – expression evaluation, Recursion – Towers of Hanoi. Queues: operations - circular queues.	12	CO1
2	Trees – Basic terminologies, Binary Trees – Binary Tree Traversals – Binary Tree Representations – Binary Search Trees – Threaded Binary Trees- AVL Trees-Red- Black Trees.	12	CO2
3	Graphs: Representation of Graphs – Graph Implementation – Graph Traversals – BFS, DFS, Single-Source Shortest Path Problem- Dijkstra’s algorithm, Bellman-Ford algorithm. Minimum Cost Spanning Trees by Prim’s and Kruskal’s algorithm– All Pair Shortest Path Problem- Floyd Warshall algorithm.	12	CO3
4	Divide and Conquer – Quick sort, Merge sort, Binary Search. Greedy Method: General Method – knapsack problem.	12	CO4
5	Back Tracking: General Method – 8-queens, Sum of Subsets. Branch and Bound: General Method – Travelling Salesperson problem.	12	CO5

Text Books:

1. E. Horowitz, S. Sahni and S. Rajasekaran, "Computer Algorithms", Galgotia Publishers, 2001.
2. E. Horowitz, S. Sahni and Mehta, "Fundamentals of Data Structures in C++", Galgotia Publishers, 2000.

Reference Books:

1. G. L. Heileman, "Data Structures, Algorithms and Object Oriented Programming", Revised Edition, TMH, 1999.
2. A.V. Aho, J.E. Hopcroft, J.D. Ullmann, "The Design and Analysis of Computer Algorithms", Pearson Education Asia, Addison Wesley Publishers, 2006.
3. S.K. Basu, "Design Methods and Analysis of Algorithms", Fourth Edition, 2013.
4. Kruse R.L, Leung B.P, Tondo C.L, "Data structures and Program design in C", Pearson, second Edition, 2007

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E-References:

1. <https://nptel.ac.in/courses/106/102/106102064/>
2. <https://www.programiz.com/dsa>
3. https://www.tutorialspoint.com/data_structures_algorithms/index.htm
4. <https://www.javatpoint.com/daa-tutorial>

FIRST SEMESTER

**Course Title: CORE PRACTICAL P2- ADVANCED JAVA
PROGRAMMING LAB
(For Students admitted from 2020 onwards)**

Course Code	: XX29107 (XX-Year of admission)	Credits	: 02
L:T:P:S	: 0:0:5:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- The course covers Graphical User Interface (GUI) networking, JavaScript and database
- Student will be able to use advanced technology in Java such as Remote method Invocation, JSP.
- Student will be able to develop web application using Java Servlet.

Lab Exercises:

1. Design a form and implement java script showing all the major form validations.
2. JavaScript program illustrating the Date and Math Objects
3. JavaScript program to handle different events.
4. Basic Servlet Programming
5. Servlet Collaboration-Request Dispatcher
6. Session Management and Implementation of Cookies using Servlet
7. Developing a web application with MySQL Database using Servlet
8. Designing online applications with JSP
9. Creating Web services with RMI.

*******End of First Semester*******

LABOUR LAWS RELATING TO INDUSTRIAL RELATIONS AND SOCIAL SECURITY(60 hours)

Department: M.A.HRM		Academic Semester: ODD	
Semester: I	Section: 2020-2022		Course: Labour Legislation
		Contact Hours /week: 5	No. of credits: 4
CIA: 40		ESE : 60	Exam Hours: 03

COURSE OUTCOME

CO1	Understand and evaluate the industrial dispute measures and process followed in the industry.
CO2	Compare the safety measures followed for women worker, rights and duties of labour in the industries.
CO3	Evaluate the social security measures and its life changing practices, methods and procedures practiced and its role in employee wellbeing.
CO4	Create compensation methods that suits and retain labour force.
CO5	Find out employee engagement practices by monetary and non-monetary methods.

Mapping of CO v/s PO:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	3	2	2	3	2	3	2	3
CO2	3	3	3	2	3	3	2	3	3	3
CO3	2	2	3	3	3	3	2	3	3	2
CO4	3	2	3	2	3	2	2	2	3	2
CO5	3	3	2	2	2	3	3	2	2	3

Mapping of CO v/s PSO:

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	2	2	2
CO2	3	3	2	3	2
CO3	3	3	3	3	2
CO4	3	3	2	2	2
CO5	3	3	3	3	3

Objectives:

- ❖ To understand the Historical development of Labour legislations
- ❖ To review the importance of labour legislations strengthening employee relations
- ❖ To evaluate administrative and enforcement of labour legislation relating to social security of employees

Unit- I :CO1

History of Labour Legislation – The Industrial Disputes Act, 1947 – Scope – objects – Industry – Public Utility Services - Industrial Dispute – Lay off – Lock out – Retrenchment – Closure – Workman – Types of disputes – Conciliation Machinery – Unfair Labour Practices – Adjudication – Notice of change – Arbitration - Adjudication – Awards – Strike – Service conditions not to be altered during the pendency of conciliation proceedings – Recovery of money from the employer

Unit II :CO2

The Industrial Employment (Standing Orders) Act 1946 – The Trade Union Act, 1926 – The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 - The Employee Compensation Act, 1923

Unit III : CO3

The Employees Provident Funds and Miscellaneous Provisions Act, 1952 – The Maternity Benefit Act, 1961 - Employees State Insurance Act, 1948 -

Unit IV :CO4

The Equal Remuneration Act, 1976 - The Payment of Wages Act, 1936 – The Minimum Wages Act, 1948 -

Unit V :CO5

The Payment of Bonus Act, 1972 – The Payment of Gratuity Act, 1972 – The Tamil Nādu Labour Welfare Fund Act, 1972 -The Regulations of case laws in respect of each of the above Acts

Reference:

1. Dr.V.GGoswami : Labour& Industrial Laws (Central Law Agency) 2020 Revised edition.
2. N.D Kapoor : Handbook of Industrial laws – (Sultan Chand & Sons) 2020 Revised edition.
3. S.C Srivastava: Industrial Relations and Labour Laws (Vikas Publishing House) - 2020 Revised edition.
4. N.S Zad : Industrial Labour& General laws (Taxmann publication) -2019 edition.
5. V.K Kharbhandra & Vipul Kharbanda : New Industrial &Labour codes (Law Publishing House) – 2020 Revised edition.
6. Dr. H K Saharay : Labour& Industrial Law (Universal Law Publishing) – 2020 Revised edition.
7. Labour Law Journals – Labour& Industrial cases, Factories Journal Report – Latest Reports

INDUSTRIAL RELATIONS AND EMPLOYEE WELFARE - 60 hrs

Department: M.A. HRM		Academic Semester: EVEN	
Semester: II	Section: I year		Course:INDUSTRIAL RELATION AND EMPLOYEE WELFARE
		Contact Hours /week:4	No. of credits:3
CIA:40		ESE :60	Exam Hours: 03

COURSE OUTCOMES: At the end of the Course, the Student will be able to:

CO1	Able to emphatically listen and prepare root cause analysis of industrial relation issues and able to develop measures to solve it.
CO2	Understanding the overview of establishment of Trade Union movements in India. Procedures to establish Trade Union and functions.
CO3	Enriching collective bargaining method and negation skills.
CO4	Aware of industrial accident and precautionary measures to be followed. Emphatic listening to counsel the employees.
CO5	Equipping grievance handling skill with the understanding of welfare practiced as Monetary and non-monetary with respective industries.

Mapping of CO v/s PO:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	3	2	2	3	2	3	2	3
CO2	3	3	3	2	3	3	2	3	3	3
CO3	2	2	3	3	3	3	2	3	3	2
CO4	3	2	3	2	3	2	2	2	3	2
CO5	2	3	2	3	2	3	3	2	3	2

Correlation levels: 1- Weak 2-Medium 3-High

Mapping of CO v/s PSO:

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	3	3	3
CO2	3	3	2	3	2
CO3	3	2	3	3	3
CO4	3	3	2	3	3
CO5	3	3	3	2	2

Course Objective:

- ❖ To Review the concept of Industrial Relations
- ❖ To understand the Industrial conflict and industrial conflict
- ❖ To review the functioning of department related to IR

Unit I : Industrial Relations CO1

Concepts - Importance – Nature – Scope – Factors hindering industrial relations – Role of State in industrial relations – Impact of IR and production activities – Five-year plans and industrial relations – National commission on Labour and industrial relations- Approaches to IR – Human Relations Approach - Social –Psychological – Gandhian – Marxist.

Unit II : Trade Union CO2

Growth of Trade Union Movement in India – Objectives – Importance – Functions - Non statutory code of discipline in industry – Problem of trade unions in India – Trade unions in informal sectors - Trade union classification – Trade union structure – Leadership.

Unit III : Collective Bargaining CO3

Concept –Nature & Scope - Importance – Prerequisites of Collective Bargaining – Factors hindering Collective Bargaining in India- process of Collective Bargaining – Levels of Collective Bargaining - Favorable conditions for Collective Bargaining – Collective Bargaining Agreement – Negotiation process – Negotiation skills.

UNIT -IV: Environment, Health & Safety CO4

EHS (Environment ,Health & Safety) Concept – Importance - Causes of Accidents– Problems and Prevention – Safety norms & provisions – Reporting procedures in case of hazards and accidents- – Basic Ergonomic principles - Factors leading to sustainable development growth – Occupational hazards – Diseases – Psychological problems – Counseling – Risk Management – Regulatory compliance . Employee Health and Safety. Factors leading to sustainable growth

Unit V : Employee Welfare & Grievance CO5

Concept – Nature – Scope of Welfare – Role of State in employee welfare – Functions of employee Welfare – Agencies of employee welfare – Welfare and productivity - Functions of Employee Welfare Board in Tamil Nādu - Grievance – Concept – Approach to grievance machinery – Nature – Grievance procedure – Domestic enquiry

Reference:

1. P.R.N Sinha, InduBalaSinha, SeemaPriyadarshiniShekhar : Industrial Relations ,Trade Union and Labour Legislation(Pearson Publication) 2020 Revised edition.
 - 2 ArunMonappa, RanjeetNambudiri, PatturajaSelvaraj : Industrial Relations and Labour Law McGraw Hill Publication) 2020 Revised edition.
 - 3 N.D Kapoor : Handbook of Industrial laws – N.D Kapoor(Sultan Chand & Sons) 2020 Revised edition.
 - 4 K.P Chakravarti : Domestic Enquiry & Punishment (Eastern Law House) 2020 Revised edition.
 - 5 S.CSrivastava : Industrial Relations and Labour Laws (Vikas Publishing House) - 2020 Revised edition.
 - 6 N.SZad : Industrial Labour& General laws (Taxmann publication) -2019 edition
 - 7 V.KKharbhand& VipulKharbanda : New Industrial &Labour codes (Law Publishing House) – 2021.
-
1. Dr.H K Saharay : Labour& Industrial Law (Universal Law Publishing) – 2020 Revised edition

LABOUR LAWS RELATING TO WORKING AND SERVICE CONDITIONS 60 hrs

COURSE OUTCOME

CO1	Develop an insight regarding constitution and labour law.
CO2	Understand and to gain practical knowledge in The Factories Act, 1948 The Contract Labour (Regulation and Abolition) Act, 1970 The Plantation Labour Act, 1951 The Motor Transport Workers Act, 1961
CO3	Demonstrate the applicability of ACTS that govern the operation of Industries Gain clarity about the Mines Act 1952, Child Labour Act Act, 1986, The Inter-State Migrant Workmen Act, 1979.
CO4	Gain critical understanding of The Tamil Nādu Shops and Establishment Act, 1947, The Tamil Nādu Catering and Establishment Ac 1958, The Building and other construction workers Act, 1996
CO5	Gain insight regarding The Beedi and Cigar workers Act 1966 , The Working Journalists and other Newspaper Employees Act, 1955

Objectives:

- ❖ To understand the constitutional rights and legal frame work
- ❖ To review the importance of labour law
- ❖ To evaluate the working and service conditions

Unit- I : CO1

Constitution and labour law – Objectives – Importance - Fundamental right in relating to law – Equality before law and its application in labour law – Reservation policies – Article 16, 19 , 21 , 23 and 24 and its implication – Salient features of Labour codes- The code on wages , 2019 - Industrial Relations code – 2020 – Occupational Safety Health and Working Conditions code, 2020 – Code on Social Security, 2020

Unit II : CO2

The Factories Act, 1948 – The Contract Labour(Regulation and Abolition) Act, 1970 – The Plantation Labour Act, 1951 - The Motor Transport Workers Act, 1961

Unit III : CO3

The Mines Act, 1952 – The Child Labour (Prohibition and Regulation) Act, 1986- The Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979.

Unit IV :CO4

The Tamil Nādu Shops and Establishment Act, 1947 – The Tamil Nādu Catering and Establishment Act, 1958 - The Building and other construction workers (Regulations of Employment and Conditions of Service) Act, 1996.

Unit V : CO5

The Beedi and Cigar workers (conditions of employment) Act – 1966 - The Working Journalists and other Newspaper Employees (conditions of service and Miscellaneous Provisions) Act, 1955

The Regulations of case laws in respect of each of the above Acts

Reference:

1. N.D Kapoor : Handbook of Industrial laws – N.D Kapoor (Sultan Chand & Sons) 2020 Revised edition.
2. S.C Srivastava : Industrial Relations and Labour Laws (Vikas Publishing House) - 2020 Revised edition.
- 3 . N.S Zad : Industrial Labour& General laws (Taxmann publication) -2019 edition.
- 4 .K Kharbhandaa&VipulKharbhandaa : New Industrial &Labour codes (Law Publishing House) - 2021 Revised edition.
5. Dr.H K Saharay: Labour& Industrial Law (Universal Law Publishing) – 7th edition- 2020 Revised edition



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DEPARTMENT OF MATHEMATICS WITH COMPUTER APPLICATIONS

MATHEMATICS WITH COMPUTER APPLICATIONS

FIRST SEMESTER(SYLLABUS)

Course Title: Core Paper-I: Algebra and Trigonometry

Course Outcomes: At the end of the course, students will be able to

CO1	Evaluate summation of series using binomial, exponential and logarithmic series
CO2	Evaluate the sum of the powers of the given equation and also the relation between the roots and coefficients of an equation
CO3	Solve polynomial equations using Newton’s Method and Horner’s Method, Compute inverse of the matrix using Cayley Hamilton theorem and also obtain eigen values and eigen vectors of different types of matrices.
CO4	Expand $\sin\theta$, $\cos\theta$ and $\tan\theta$ in terms of θ , $\sin\theta$, $\cos\theta$ in multiples of θ
CO5	Classify relation between circular and hyperbolic functions and solve problems using hyperbolic & inverse – hyperbolic functions

FIRST SEMESTER(SYLLABUS)

Course Title: Core Paper-II: Differential Calculus

Course Outcomes: At the end of the course, students will be able to

CO1	Evaluate the nth derivative Using Leibnitz Rule
CO2	Finding the maxima and minima for the functions of two variables
CO3	Calculate the Envelope, Evolute, radius of curvature and circle of curvature
CO4	Finding the angle between radius vector and tangent.
CO5	Calculate the asymptotes of the curve

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FIRST SEMESTER (SYLLABUS)

Course Title: Core Paper-III: Programming with Python

Course Outcomes: At the end of the course, students will be able to

CO1	Understand the concept of operators, data types in python programming.
CO2	Understand control statements and Looping
CO3	Apply the concept of functions in python programming.
CO4	Understand the concept of formatting operator and strings
CO5	Analyze the structures of list, tuples and maintaining dictionaries

FIRST SEMESTER (SYLLABUS)

Course Title: Core Paper-IV: Python Programming – Lab

FIRST SEMESTER(SYLLABUS)

Course Title: Part IV Paper: Non – Major Elective-I

Course Outcomes: At the end of the course, students will be able to

CO1	Solve real time problems on Ratio and Proportion.
CO2	Determine percentages effectively.
CO3	Expound Profit and loss and Discounts
CO4	Compute Simple Interest, and Compound Interest through secondary data.
CO5	Efficiently solve equations and problems on Ages and Numbers.



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SECOND SEMESTER (SYLLABUS)

Course Title: Core Paper-V: Analytical Geometry

Course Outcomes: At the end of the course, students will be able to

CO1	Understand the concept of equation of straight line, circle, conic, chord and tangent, normal equations of hyperbola
CO2	Solve the problems in System of Planes - Length of the perpendicular – Orthogonal projection
CO3	Estimate the angle between the line and plane, coplanar lines and shortest distance to skewness.
CO4	Understand the concept of equation of sphere and its applications
CO5	Understand the concept of equation of cone and its types

SECOND SEMESTER(SYLLABUS)

Course Title: Core Paper-VI: Integral Calculus and Vector Analysis

Course Outcomes: At the end of the course, students will be able to

CO1	Evaluate the Integral using Reduction formula
CO2	Calculate Area and Volume using double and triple Integral
CO3	Evaluate the Indefinite Integral using the properties of Beta and Gamma function.
CO4	Calculate directional derivatives, Curl, divergence.
CO5	Solve Line and Surface Integral using Greens, stokes and Gauss theorem

SECOND SEMESTER(SYLLABUS)

Course Title: Core Paper-VII: Java and Data Structures

Course Outcomes: At the end of the course, students will be able to

CO1	Knows the reason about the evolution of Java its development. Study the basic of Java and to develop code. Importance of Java comparing the other language.
CO2	Develop program using constructors and its types. Definition of inheritance and Writing programmed related to it. Differentiate string class and string buffer.

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CO3	Concept of packages, interface, threads. Implementing the concept Exception handling various application. Significance of exception handling. Life cycle of thread.
CO4	To Demonstrate the Definition and Classification of Arrays. To elaborate the operations and applications of Stack. To impart the applications of Queues and operations on the Queues.
CO5	To elaborate the Addition of Polynomials. To study the Operations on Linked Lists. Representation of Binary Trees and Tree Traversal. To Point out the Importance of Graphs, Traversals and Algorithms.

SECOND SEMESTER(SYLLABUS)

Course Title: Core Paper-VIII: Data Structures using Java – Lab

SECOND SEMESTER(SYLLABUS)

Title: Non – Major Elective Paper II-Functional Mathematics-II

Course Outcomes: At the end of the course, students will be able to

CO1	Acquire skills of Solving Problems on Time & work and Pipes and Cisterns
CO2	Determine Time and Distance, Relative speeds efficiently.
CO3	solve problems on Area and volume of 3 dimensional objects
CO4	Untangle problems on Polygons, their interior angle and diagonals
CO5	Expound problems on Stocks and shares.

THIRD SEMESTER(SYLLABUS)

Course Title: Core Paper – IX Differential Equations

Course Outcomes: At the end of the course, students will be able to

CO1	Solve linear differential equation and Demonstrate Bernoulli's equation and exactness of first order differential equations
CO2	Exhibit Clairaut's form and solve linear differential equations with constant coefficients
CO3	Apply variation of parameter method to solve second order differential equations
CO4	Demonstrate Partial differential equations and its solutions
CO5	Implement Charpit's method

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THIRD SEMESTER(SYLLABUS)

Course Title: Allied Paper- PROBABILITY AND STATISTICS –I

Course Outcomes: At the end of the course, students will be able to

CO1	Illustrate and describe sample spaces and events for random experiments. and calculate probabilities of event in discrete sample spaces and conditional probabilities of events using Baye's theorem.
CO2	Calculate the expected value of a probability distribution, obtain moments and its generating function and also obtain probability generating function
CO3	Apply the concepts of characteristic function and Chebychev's Inequality and demonstrate the theorems related to convergence in probability
CO4	Study the relationship between two or more variables
CO5	Illustrate the concept of a probability distribution and sketch the same to real world problems involving various distributions like Binomial, Poisson and Normal distribution, Uniform distributions Geometric, Exponential, Gamma, Beta distributions and identify the Inter relationship between distributions.

THIRD SEMESTER(SYLLABUS)

Course Title: Core Paper – X Operating Systems

Course Outcomes: At the end of the course, students will be able to

CO1	Describe the basic structure and functionality of operating system. Inter process communication.
CO2	Allocation of process through scheduling algorithms. Define critical section problems and its usage.
CO3	Prevention of multiple process execution through the concept of semaphores. Apply the deadlock handling mechanisms to solve the given problem. Understand various techniques of allocating memory to processes.
CO4	Understand the strategies of memory management schemes and the usage of virtual memory. Apply suitable page replacement algorithms to avoid thrashing. Understand the structure and organization of the file system
CO5	Understand the principles of protection and security mechanisms

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FOURTH SEMESTER(SYLLABUS)

Course Title: Core Paper – XI **Integral Transforms**

Course Outcomes: At the end of the course, students will be able to

CO1	Analyse Laplace transform and the conditions of existence of Laplace transform
CO2	Implement the Laplace transform technique to solve differential equations
CO3	Study the expansion of periodic functions using Fourier Series
CO4	Demonstrate the Fourier transform and its properties
CO5	Apply Z transform for difference equations

FOURTH SEMESTER(SYLLABUS)

Course Title: Allied Paper II- **PROBABILITY AND STATISTICS – II**

Course Outcomes: At the end of the course, students will be able to

CO1	Identify a statistic and point out its importance in application and summarize the theoretical aspect of normal and non-normal populations.
CO2	Explain the bound for defining most efficient estimates derived from Rao Cramer inequality and compare the process of finding interval estimation with the process of finding point estimation.
CO3	Fit best approximation for a given set of data and also compare and analyze whether two sets of data are coming from same population or different population
CO4	Analyze the variability of samples under the given distributions and also obtain its confidence intervals
CO5	Point out the existence of most powerful test by summarizing the theoretical aspects of Neymann Pearson result.



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FOURTH SEMESTER(SYLLABUS)

Course Title: Core Paper XII- DISCRETE MATHEMATICS

Course Outcomes: At the end of the course, students will be able to

CO1	Analyse the divisibility of integer and also representation of
CO2	Apply Boolean algebra concepts in disjunctive and conjunctive normal form
CO3	Identifying, designing and analyzing circuits, logical gates and combinatorial circuits
CO4	Demonstrate recursive function and classify homogeneous and non-homogeneous linear recurrence relations
CO5	Demonstrate Proportional logic and Predicate logic

FIFTH SEMESTER

Course Title: Core Paper –XI -Algebraic Structures

Course Outcomes: At the end of the Course, the Student will be able to

CO1	Demonstrate and classify the Group structure and its operations satisfying various properties, Use Lagrange's Theorem to categorize the cyclic subgroups of a group
CO2	Classify and demonstrate examples of subgroups, normal subgroups, quotient groups, Isomorphism and homomorphism of Groups.
CO3	Explain the notion of permutations and its operations, Cayley's theorem Inner automorphism and their properties
CO4	Differentiate and demonstrate the characteristics between Rings, Ideals, Quotient Rings, Integral Domains, Fields, Homomorphism and Isomorphism of Rings
CO5	Classify and illustrate the different types of Ideals and their properties, Field of Quotient of an Integral Domain and Euclidean rings

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FIFTH SEMESTER

Course Title: Core Paper –XII - Real Analysis

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Summarizing the basic definitions and properties in sets and functions of real numbers and determining its limit
CO2	Comprehend the notions of sequence and classify the nature of the sequence of real numbers
CO3	Calculate the limit of a sequence and identify the convergence of series of real numbers
CO4	Examine the convergence of various types of series of real numbers
CO5	Interpret the idea of continuous functions of metric space

FIFTH SEMESTER

Course Title: Core Elective I – Discrete Mathematics

Course Outcomes: At the end of the Course, the Student will be able to

CO1	Use logical connectives and identify Tautology and contradiction
CO2	Explain normal forms and write the compound statements in normal forms
CO3	Demonstrate recursive function and classify homogeneous and non-homogeneous linear recurrence relations
CO4	Solve problems using generating functions for recurrence relations and illustrate different type of graphs and the operations on graphs
CO5	Implement graph algorithms and describe Eulerian and Hamiltonian graphs.

FIFTH SEMESTER

Course Title: Core Elective II – Operation Research-I

Course Outcomes: At the end of the Course, the Student will be able to

CO1	Define, formulate linear programming problems and solution using Graphical, Simplex method.
CO2	Solve Linear Programming Problems using various techniques
CO3	Be able to Analyze and solve Transportation using appropriate method.
CO4	Be able to Analyze and solve Assignment problems.
CO5	To know the basic characteristic features of a queuing system and acquire skills in analyzing queuing models.

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SIXTH SEMESTER

Course Title: Core Paper XIV - Linear Algebra

Course Outcomes: At the end of the Course, the Student will be able to

CO1	Define and demonstrate Polynomial rings, Euclidean Ring over a field $F[x]$ and its properties, Explain Eisenstein Criteria for irreducibility of Polynomials and apply the same to investigate the irreducibility of given polynomials.
CO2	Classify and Demonstrate the concepts of vector spaces, subspaces, span, linear independence, basis, dimension and apply these concepts to various vector spaces and subspaces
CO3	Define Dual space ,Norm ,Orthogonality of vectors and discuss its properties, Compute inner products and determine orthogonality on vector spaces, including Gram-Schmidt orthogonalization,
CO4	Define Algebra over F point out that $\text{Hom}(V,V)$ is an Algebra over F , Discuss about Linear transformations, Characteristic Roots and Characteristic Vectors Kernel Range of linear transformations and Compute rank nullity of associated vector spaces.
CO5	Associate Linear Transformations with matrices and Describe matrix of a transformation for a given basis and Demonstrate similarity transformation using Triangular forms.

SIXTH SEMESTER

Course Title: Core Paper –XV - Complex Analysis

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Evaluate, Analyze and formulate the Analytic and harmonic functions.
CO2	Determining the integral of analytic functions and its derivatives
CO3	Evaluate the integral of function using series and residues
CO4	Estimate the value of some improper real integrals.
CO5	Interpret the notions of linear fractional transformations

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SIXTH SEMESTER

Course Title: Core Paper –XVI - Mechanics

Course outcomes: At the end of the course, the student will be able to

CO1	Classify types of forces and categorize Lami's theorem and its applications
CO2	Explain different forces acting on a rigid body
CO3	Illustrates the laws of motion and Kinematics
CO4	Explain projectiles and classify different ranges in projectiles
CO5	Demonstrate moment of inertia and categorize them

SIXTH SEMESTER

Course Title: Core Elective III – Operation Research-II

Course Outcomes: At the end of this Course, the Student will be able to

CO1	Be able to design and solve Networks Models using CPM, PERT.
CO2	To know and apply the Various Types of inventory models.
CO3	Able to solve simple problems of replacement and implement practical cases of decision making under different business environments.
CO4	Be able to Analyze and solve problems in Game Theory.
CO5	Estimate optimum solution for sequencing problems.

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துவாரகதாஸ் கோவர்தன்தாஸ் வைணவக் கல்லூரி (தன்னாட்சி)

அரும்பாக்கம், சென்னை – 600 106.

தமிழ்த்துறை

பாடத்திட்டம் - 2022 - 2023

(2020 - 2021 கல்வியாண்டு முதல்)

OUTCOME BASED EDUCATION

பட்டப்படிப்பு – முதலாம் ஆண்டு – முதற்பருவம் (First Semester)

(செய்யுள், சிறுகதைகள், நாடகம், மொழிப்பயிற்சி, இலக்கிய வரலாறு)

Course Code : 23AT16101 / 2335101	Credits : 03
L:T:P:S : 4:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Outcomes: At the end of the Course, the Student will be able to:

CO1	மகாகவி பாரதியாரின் தமிழ், கண்ணன் என் அரசன்; பாவேந்தர் பாரதிதாசனின் நூலைப்படி; நாமக்கல் கவிஞர் வெ. இராமலிங்கம்பிள்ளையின் புதிய சமுதாயம், தூய்மை சோதி; கவிஞராயிறு தாராபாரதியின் வெறுங்கை என்பது மூடத்தனம் ஆகிய கவிதைகளிலிருந்து தமிழின் ஆழம், அரசனின் ஆளுமைத் திறம், சமுதாயப் பார்வை, தன்னம்பிக்கையின் ஆழம், ஆகியன அறியப்பெற்றன. இவற்றின் மூலம் படித்தல் திறன், கவிதை வாசிப்புத் திறன், கவிதை இயற்றும் திறன் ஆகியன சிறப்பாக வெளிப்பட்டன.
CO2	ஈரோடு தமிழன்பனின் வசப்படுவாயா வள்ளுவ? எனும் கவிதையிலிருந்து வள்ளுவரின் சிறப்பையும் திருக்குறளின் சிறப்பையும் அறிந்து கொள்ளப்பட்டன. கவிக்கோ அப்துல் ரகுமானின் ஐந்தாண்டுக்கு ஒருமுறை, கேள்வி, சித்திர மின்னல்கள், பெயர் ஆகிய கவிதைகளிலிருந்து படிமம், தொன்மம் போன்ற கவிதை உத்திகள் அறிந்து கொள்ளப்பட்டன. கவிப்பேரரசு வைரமுத்துவின் கேள் மனமே கேள், நா.முத்துக்குமாரின் தூர், நாட்டுப்புறப்பாடலான அன்புள்ளம் கொண்ட அம்மாவுக்கு மகள் எழுதும் கடிதம் ஆகிய கவிதைகளிலிருந்து மனித உள்ளத்தின் தன்மையும் பழமையின் சிறப்பும் வறுமையின் திறமும் அறியப்பெற்றன. இவற்றின் மூலம் மரபுக்கவிதையும் வசன கவிதையும் இயற்றும் திறன், நாட்டுப்புறப் பாடல் இயற்றும் திறன் ஆகியன வெளிப்பட்டன.



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CO3	கவிமணி தேசிக விநாயகம் பிள்ளையின் புத்தனும் ஏழைச் சிறுவனும், உமார்கய்யாம் பாடல்கள், த.கோவேந்தனின் சமூகம், ஓடிக்கொண்டிரு, ஆற்றல் ஆகிய மொழிபெயர்ப்புக் கவிதைகள், இரா.தண்டாயுதம் இயற்றிய மலேசிய நாட்டுப்புறப் பாடல்கள், வால்ட்விட்மனின் என்பாடத் துவக்கம், என்னை நானே பாடுகிறேன் ஆகிய கவிதைகளின் வழி அயல்நாட்டுக் கவிஞர்களின் அறிமுகமும் மொழிபெயர்ப்புத் தன்மையும் உயரிய சிந்தனையும் பெறப்பட்டன. பாரதிதாசனின் வீரத்தாய் நாடகம் வழி நாடகம் படித்தல் திறனும் நடிப்புத் திறனும் வெளிப்பட்டன.
CO4	புதுமைப்பித்தனின் பொன்னகரம், அறிஞர் அண்ணாவின் செவ்வாழை, ஜெயகாந்தனின் உண்மை சுடும், அம்பையின் பயணம், சோ.தர்மனின் சோகவனம் ஆகிய சிறுகதைகளிலிருந்து சிறுகதை படித்தல் திறனும் சிறுகதை இயற்றும் திறனும் வெளிப்பட்டன.
CO5	கலைச்சொற்கள், வல்லினம் மிகும் இடங்கள், வல்லினம் மிகா இடங்கள், எழுத்துக்களின் வேறுபாடு, ஒலி வேறுபாடு, பொருள் வேறுபாடு, நேர்காணல் முதலான மொழிப்பயிற்சிகளின் வழி மொழியைப் பிழையின்றி எழுதவும் பேசவும் அறிந்து கொள்ளும் திறன்கள் வெளிப்படுத்தப்பட்டன. பாடம் சார்ந்த தமிழ் இலக்கிய வரலாறுகளின் மூலம் தமிழ் இலக்கியங்களின் வரலாற்றை அறிந்து கொள்ளும் திறன் வெளிப்பட்டது.

பட்டப்படிப்பு – முதலாம் ஆண்டு – இரண்டாம் பருவம்
(செய்யுள், உரைநடை, மொழிப்பயிற்சி, இலக்கிய வரலாறு)

Course Code : 23AT16204 / 2335201	Credits : 03
L:T:P:S : 4:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	மீனாட்சி சுந்தரம்பிள்ளையின் சேக்கிழார் பிள்ளைத்தமிழ், தமிழ்விடு தூது, முக்கூடற் பள்ளு முதலான சிற்றிலக்கியங்கள் படிக்கப்பட்டன. மரபு வடிவிலான யாப்புடன் அமைந்த பாடல்கள் புணைய பயிற்சி பெறப்பட்டது.
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CO2	செயங்கொண்டாரின் கலிங்கத்துப் பரணி, புகழேந்திப் புலவரின் நளவெண்பா ஆகிய இலக்கியங்கள் படிக்கப்பட்டன. இதன்மூலம் பண்டைய வரலாறுகளும் வரலாற்று மூலங்களும் படிக்க ஊக்குவிக்கப்பட்டது. புராணங்களில் காணப் பெறும் மனித வாழ்வின் விழுமியங்களையும் வாழ்வியல் முறைகளையும் உணரச் செய்யப்பட்டு வாழ்க்கையைச் செம்மையாக வாழ ஆலோசனை பெறப்பட்டது.
CO3	உமறுப்புலவரின் சீறாப்புராணம், கவியரசு கண்ணதாசனின் இயேசுகாவியம் ஆகியவற்றின் மூலம் இஸ்லாமிய கிறித்துவ சமயங்களின் சிந்தனைகளும் இறைத்தூதர்களின் வரலாறுகளும் பெறப்பட்டன.
CO4	இரா.பி.சேதுப்பிள்ளையின் பாரதப்பண்பாடு, சாமி.சிதம்பரனாரின் ஒற்றுமையே உயர்ந்த பண்பு, கலீல் ஜிப்ரானின் அன்பு, ஏ.கே.செட்டியாரின் தென்னாப்பிரிக்காவில், கணினித் தமிழ் ஆகிய கட்டுரைகளின் வழி உரைநடை வாசிப்புத் திறனும் கட்டுரை எழுதும் திறனும் பெறப்பட்டன.
CO5	ஒரு பொருள் குறித்த பல சொற்கள், பல பொருள் குறித்த ஒரு சொல், அகரவரிசைப்படுத்தல், திணை, காலம், பால், இடம், எண் ஆகிய தொடர்பிழை நீக்கம், இலக்கணக் குறிப்பு ஆகிய மொழிப்பயிற்சி வாயிலாக பிழையின்றி எழுதவும் பேசவும் பயிற்சிகள் பெறப்பட்டன. பாடம் சார்ந்த தமிழ் இலக்கிய வரலாறுகளின் மூலம் தமிழ் இலக்கியங்களின் வரலாற்றை அறிந்து கொள்ளும் திறன் பெறப்பட்டது.

பட்டப்படிப்பு – இரண்டாம் ஆண்டு – மூன்றாம் பருவம்
(செய்யுள், மொழிப்பயிற்சி, இலக்கிய வரலாறு)

Course Code : 22AT16307	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	திருஞானசம்பந்தரின் கோளறு பதிகம், மாணிக்கவாசகரின் அறிவுறுத்தல், திருவெம்பாவை, ஆண்டாளின் வாரணமாயிரம் ஆகிய இலக்கியங்களின் வழி பக்திச் சிறப்பை உணரப்பட்டன. பக்தி இலக்கிய வளர்ச்சிக்கு நாயன்மார்களும் ஆழ்வார்களும் ஆற்றிய பணிகளும் அவர்களுடைய வரலாறுகளும் சிந்தனைகளும் அறியப்பட்டன. மரபுக் கவிதைகள் வாசிக்கும் பயிற்சியும் இயற்றும் பயிற்சியும் பெறப்பட்டன.
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CO2	கம்பரின் வாலிவதைப் படலத்தின் வழி இராமாயணக் கதையும் கம்பரின் கவித்துவமும் அறிந்து கொள்ளப்பட்டன. இதிகாசங்கள் வழி பண்டைய வாழ்வியல் உண்மைகள் உணரப்பட்டன. மரபுக் கவிதைகள் வாசிக்கும் பயிற்சியும் இயற்றும் பயிற்சியும் பெறப்பட்டன.
CO3	சித்தர் பாடல்கள் வழி சித்தர்கள் கூறும் மெய்ஞ்ஞானக் கூறுகளையும், உடலியல், உளவியல் கூறுகளையும் அறிந்து கொள்ளப்பட்டன. சேக்கிழாரின் மெய்ப்பொருள் நாயனார் புராணம் வழி மதம், இனம், மொழி கடந்து மாந்தர்கள் உள்ளத்தில்தான் இறைவன் குடி கொண்டிருக்கின்றான் என்ற உண்மை உணரப்பட்டது. இதன் மூலம் மெய்ஞ்ஞானத்திறன் பெறப்பட்டது.
CO4	இராமலிங்க அடிகளின் திருவருட்பா, டி.வி.ராதாகிருட்டிணன் பதிப்பித்த திருக்கோளூர் பெண்பிள்ளை ரகசியம் ஆகிய பாடல்களின் வழி வாழ்வியலில் பொதிந்துள்ள உண்மைக் கூறுகள் உணரப்பட்டன. வாழ்வியல்முறை அறிந்து கொள்ளப்பட்டன.
CO5	விண்ணப்பக் கடிதங்கள், புகார் கடிதங்கள் ஆகிய மொழிப்பயிற்சியின் வழி கடிதம் எழுதும் திறன் பெறப்பட்டது. பாடம் சார்ந்த தமிழ் இலக்கிய வரலாறுகளின் மூலம் தமிழ் இலக்கியங்களின் வரலாற்றை அறிந்து கொள்ளும் திறன் பெறப்பட்டது.

பட்டப்படிப்பு – இரண்டாம் ஆண்டு – நான்காம் பருவம்

(செய்யுள், மொழிப்பயிற்சி, இலக்கிய வரலாறு)

Course Code : 22AT16408	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	நற்றிணை, குறுந்தொகை, கலித்தொகை, புறநானூறு ஆகிய சங்க இலக்கியங்களின் தேர்ந்தெடுக்கப் பெற்ற பாடல்கள் மூலம் சங்க இலக்கியக் காலத்திலிருந்து தமிழின் மேன்மையும் சிறப்பும் மாந்தர்களின் வாழ்வியலும் உணரப்பட்டது. சங்க இலக்கியம் படிப்பது உறுதி செய்யப்பட்டது. மரபு வடிவிலான யாப்புடன் அமைந்த பாடல்களைப் புணைய பயிற்சி பெறப்பட்டது. இதனால் இலக்கியம் படைக்கும் ஆற்றல் பெறப்பட்டது.
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CO2	சிறுபாணாற்றுப்படையின் வழி மன்னர்கள் மற்றும் புலவர்களின் வாழ்வியல் முறைகள் அறிந்து கொள்ளப்பட்டன. எட்டுத்தொகை, பத்துப்பாட்டு ஆகிய இலக்கியங்களின் வரலாறுகளும் அவற்றில் இடம்பெற்றுள்ள செய்திகளும் அறியப்பட்டன.
CO3	திருத்தக்கதேவர் இயற்றிய சீவகசிந்தாமணியில் காந்தருவ தத்தையார் இலம்பகத்தின் வழி காப்பியத்தின் கதை அறிந்து கொள்ளப்பட்டது. ஐம்பெருங்காப்பியங்களையும் ஐஞ்சிறு காப்பியங்களையும் படிப்பதன்வழி தொன்று தொட்ட தமிழரின் வாழ்வியல் முறைகளைக் கடைபிடிக்க ஏதுவாகிறது.
CO4	இளங்கோவடிகள் இயற்றிய சிலப்பதிகாரத்தில் இடம்பெறும் புகார் காண்டம் பகுதி வழி காப்பியக் கதை அறிந்து கொள்ளப்பட்டது. அக்கால மணமுறை குறித்தும் அறிந்து கொள்ளப்பட்டது. திருக்குறள் அறத்துப்பாலில் உள்ள காலம் அறிதல், இனியவை நாற்பது, நாலடியார், அறநெறிச்சாரம் ஆகிய இலக்கியங்களிலிருந்து அறநெறிக் கருத்துக்கள் அறியப்பட்டன. மனித வாழ்வியலில் அறநெறி சார்ந்து வாழும் முறை அறியப்பட்டன.
CO5	தமிழிலிருந்து ஆங்கிலத்திற்கும் ஆங்கிலத்திலிருந்து தமிழிற்கும் மொழிபெயர்ப்புப் பயிற்சி பெற்றதன் வழி மொழிபெயர்க்கும் ஆற்றல் பெறப்பட்டது. தமிழிலும் ஆங்கிலத்திலும் பிழையின்றி எழுதவும் பேசவும் பயிற்சி பெறப்பட்டது. பாடம் சார்ந்த தமிழ் இலக்கிய வரலாறுகளின் மூலம் தமிழ் இலக்கியங்களின் வரலாற்றை அறிந்து கொள்ளும் திறன் பெறப்பட்டது.



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(AUTONOMOUS)

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College with Potential for Excellence, Linguistic Minority Institution

Affiliated to University of Madras

Arumbakkam, Chennai – 600 106

DEPARTMENT OF VISUAL COMMUNICATION

CURRICULA DEVELOPED AND IMPLEMENTED HAVE RELEVANCE TO THE REGIONAL

S.NO	NAME OF THE COURSE	COURSE CODE	OUTCOME
1	Screen writing	14311	Screenwriting or scriptwriting is the art and craft of writing scripts for mass media such as feature films, television productions or video games.

Course Title: ALLIED PAPER IV: PRACTICAL I – FIELD VISITS

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Recollect the list of multiple institutions of Criminal Justice System.
CO2	Explain the functioning of multiple institutions of Criminal Justice System.
CO3	List out the hierarchy and structure of governmental and non-governmental institutions.
CO4	Make rapport with various professionals of Criminal Justice System.
CO5	Evaluate the effectiveness of major social institutions.

Mapping of Course Outcomes to Program Outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3

Course Activities

The students, under the guidance of a teacher may be taken on a visit to the following institutions:	
1. Police Station	2. Modern Control Room
3. Magistrates Court	4. State Human Rights Commission
5. Fire Station	6. Fire and Safety Training Academy
7. Crime Records Bureau	8. Police Boys & Girls Club
9. Forensic Sciences lab	10. Observation home
11. Forensic Medicine Department	12. Juvenile Justice Board
13. Central jail	14. Police Training Academy
15. The Academy of Prisons & Correctional Administration	16. NSG –Nerkurndram, OTA - Chennai
17. Open Air Prisons	18. CBI Academy, BPR&D, NCRB, Indian Parliament

Details of the evaluation procedure:

(i) Each candidate has to submit a field visit report and should appear for a public viva voce before their teachers and class mates.

(ii) The students, after their visits will submit a record of their field visits which will be evaluated at two levels.

(iii) At the first level, for continuous assessment, the teacher will evaluate the students for 40 marks on the following criteria

- Regularity in attending the visits (20 marks)
- Regularity in submission of reports (5 marks)
- Concise of the reports (15 marks)

(iv) At the second level, during the end semester examination, the evaluation will be done by a panel of examiners, including internal examiners, for 60 marks.

- A public viva voce, where the I,II year students will be the audience
- The students will be evaluated on the following criteria
 - Content of presentation (20 marks)
 - Presentation skills (20 marks)
 - Ability to defend the questions (20 marks)

Course Title: ALLIED COURSE V: PRACTICAL II –OUTDOOR TRAINING

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Do physical exercises which keep them healthy.
CO2	Do basic drill movements.
CO3	Play various games which require physical strength.
CO4	Follow commands properly and coordinate with team mates.
CO5	Showcase life saving skills and self defense tactics.

Mapping of Course Outcomes to Program Outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	2	2	3	3	3	2
CO2	3	3	3	2	3	3	3
CO3	2	2	3	3	2	3	3
CO4	3	3	2	2	3	2	3
CO5	3	3	2	3	3	3	2

List of activities student must indulge in

1. Drill- Parade, march past, turnings, salute (All the 5 Semesters)
2. Physical Training (All the 5 Semesters)
 - Running
 - Stretching Exercises
 - Cardio Training
 - Endurance Training
 - Muscle Building Exercises (Pushups, Sit-ups, Chin-ups, etc.)
3. Yoga (4th semester)
4. Self Defense Training (2nd semester)
5. Swimming (1st Semester)
6. Games (4th and 5th Semester)

Internal evaluation

The student need to perform the Parade individually and in the contingent to make sure the effective assessment of Drill movements and synchronization within the contingent.

Breakup of Marks for internal evaluation

- 10 Marks for Performance in Drill Examination.
- 10 Marks for Performance in other activities assessed by the trainers in the relevant Semesters of those particular activities, compiled by the internal examiner
- 10 Marks for attendance for outdoor training
- 05 Marks for confirmation to dress code and turnout
- 05 Marks for discipline

External Evaluation

Students progress in learning drill movements and march past will be assessed both individually and as part of contingent.

Apart from the Parade students performance will also be measured in terms of physical activity tests such as Running 700 meters, push-ups, sit-ups and Chin-ups.

A person with substantial experience in outdoor training and Parade will be invited as the External Examiner. Both internal and external examiner will assess the performance of the student in the evaluation.

Breakup of Marks for External Examination

External 30 Marks (10 Marks for Parade; 10 Marks for Physical Test; & 10 Marks for turnout)

Internal 30 Marks (10 Marks for Parade; 10 Marks for Physical Test; & 10 Marks for turnout)



DEPARTMENT OF SOCIOLOGY

Bachelor in Sociology

(B.A)

Programme Code: 43

Sociology Syllabus (CBCS)

Outcome Based Education Pattern

2020-21

C-Chidambarathan

Dr C Chidambaranathan

Head of the Department

B.A. DEGREE COURSE IN SOCIOLOGY (Choice Based Credit System)

(With Effects From 2020-2021)

First Semester

Subjects	C r e d i t	In str uc ti on ho ur s	E xa m H ou r	Max.Marks		
				Ext.Mark	Int.mark	Tota l
Part-I Language Paper-I	3	4	3	60	40	100
Part-II English Paper-1	3	4	3	60	40	100
Part III Core Subject Paper-I: Principles of Sociology I	5	6	3	60	40	100
Core Subject Paper II : Indian Society	5	6	3	60	40	100
Allied I Paper-1: Social Psychology	4	6	3	60	40	100

Part-IV 1. Basic Tamil 2. Introduction to Sociology	2	2	3	60	40	100
2. Skill based subject (Elective) (Soft Skills)	2	2	3	50	50	100

Second Semester

Subjects	C r e d i t	Inst ruct ion hou rs	Ex am Ho ur	Max.Marks		
				Ext. Mark	Int. mark	Total
Part-I-Language Paper- II	3	4	3	60	40	100
Part-II -English Paper- II	3	4	3	60	40	100
Part III Core Subject Paper-III : Principles of Sociology - II	5	6	3	60	40	100
Core Subject	5	6	3	60	40	100

Paper IV : Social problems in India						
Allied I Paper-2: Social Anthropology	4	6	3	60	40	100
Part-IV 1. Basic Tamil 2. Social Problems	2	2	3	60	40	100
2. Skill based subject (Elective) (Soft Skills)	2	2	3	50	50	100

THIRD SEMESTER

Course components	Subjects	Credit	Inst. hours	Exam hour	Max. Mark		
					Ext. Mark	Int. Mark	Total
Part – I	Language Paper- III	3	6	3	60	40	100
Part – II	English Paper – III	3	6	3	60	40	100
Part –III Core Courses	Paper- V: Classical Social Thinkers I	4	6	3	60	40	100
	Paper - VI : Social Movements in India	4	6	3	60	40	100

Allied Subject – III	Social Demography	4	6	3	60	40	100
Elective - I	Sociology of Sanitation (Or) Sociology of Tourism	3	6	3	60	40	100
Part - IV Soft Skills - III		2		3	50	50	100
3. Environmental Studies					Examination will be held in IV Semester		

FOURTH SEMESTER

Course components	Subjects	Cre dit	Ins t. ho urs	Ex am ho ur	Max. Mark		
					Ext. Mark	Int. Mark	Total
Part – I	Language Paper- IV	3	6	3	60	40	100

Part – II	English Paper – IV	3	6	3	60	40	100
Part –III Core Courses	Paper- VII: Classical Social Thinkers II	5	6	3	60	40	100
	Paper – VIII: Research Methodology and Statistics	5	6	3	60	40	100
Allied Subject – IV	Political Sociology	4	6	3	60	40	100
Part - IV Soft Skills– IV		2		3	50	50	100
3. Environmental Studies		2	6	3	60	40	100

FIFTH SEMESTER

Course components	Subjects	Credit	Inst. Hours	Exam hour	Max. Mark		
					Ext. Mark	Int. Mark	Total
Part – III Core Courses	Paper- IX Rural Sociology	5	6	3	60	40	100
	Paper – X Urban Sociology	4	6	3	60	40	100
	Paper – XI Industrial Sociology	4	6	3	60	40	100
	Paper – XII Sociology of Development	4	6	3	60	40	100
Elective II	Sociology of Industry and work (or) Social Welfare in India	3	6	3	60	40	100
Part – IV	Value Education	2					

SIXTH SEMESTER

Course components	Subjects	Credit	Inst. hours	Exam hour	Max. Mark		
					Ext. Mark	Int. Mark	Total
Part III Core courses	Paper- XIII Medical Sociology	4	6	3	60	40	100
	Paper – XIV Communication, Media and Society	4	6	3	60	40	100
Elective - III	Sociology of Consumer Behaviour (Or) Disaster and Social Crisis (Or)	3	6	3	60	40	100

	Sociology of Gender and Sexuality						
Project Cum Viva Voce		14			60	40	100
Part V	Extension Activities	1					

PRINCIPLES OF SOCIOLOGY I

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Course Code :	Credits : 05
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

To study the basic concepts of sociology

To explain the features of social institutions and process of socialisation

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of sociology and identify its relationship other social sciences. (K1)
CO2	Illustrate the relationship between the individual and society and explain the theories of society. (K2)
CO3	Explain the features of different social institutions and illustrate its types.(K2)
CO4	Classify the different social groups and differentiate its characters. (K4)
CO5	Criticize the theories of socialization and evaluate its agencies. (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	2	2	3	2	3	2	3	3	3	2	3	2
CO4	3	3	3	2	2	3	2	2	2	3	3	3	2	3	2
CO5	3	3	3	3	2	3	3	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	UNIT-1 Introduction 1.1 Origin, Definition, nature and scope of sociology 1.2 Relationship between sociology and other social sciences (Anthropology, Psychology, Economics, History and Political Science) 1.3 Uses of Sociology	18	CO1
2	Unit- II: Individual and Society 2.1 Definition and characteristics of society 2.2 Theories of origin of Society	18	CO2

	2.3 Relationship between individual and society		
3	Unit-III: Social Institutions 3.1 Marriage: Types of Marriage: Polygyny- Polyandry- Monogamy, Functions. 3.2 Family : Theories of Family, Types of Family; Patriarchal and Matriarchal Families- Functions of Family. 3.3 Religion : Elements of Religion – Social Functions of Religion	18	CO3
4	Unit- IV: Groups 4.1 Classification of Group 4.2 Definition, characteristics and functions of primary, secondary and reference groups.	9	CO4
5	Unit- V: Socialization 5.1 Definition and theories of socialization 5.2 Types of socialization 5.3 Agencies of socialization: family- peer group- school- religion- mass media	18	CO5

TEXTBOOKS:

BOOKS FOR STUDY

Applebaum, Richard P. William J. Chambliss. Sociology. Addison - New York

Wesley Educational, 1997.

Rao Shankar C N. Sociology: Primary Principles. New Delhi: S. Chand, 1990.

BOOKS FOR REFERENCE

Caplow, Theodore. Elementary Sociology. New Jersey: Prentice Hall, 1971.

Duncan, O.D., & Mitchell, R., A New Dictionary of Sociology, London: Routledge,

Kegan Paul 1978.

Harlambos, M, Sociology : Themes and Perspectives. New Delhi: Oxford University Press, 1980.

Inkeles, Alex, Foundations of Modern Sociology. New Jersey: Prentice Hall, 1982.

MacIver, R.M. & Page, C. H., Society : An Introductory Analysis. London: Macmillan, 1974.

Ogburn, W.F. & Nimkoff, M. F., Handbook of Sociology. New Delhi: Eurasia, 1966.

Robertson, Ian, Sociology. New York: Worth, 1977.

WEB RESOURCES

<http://ocw.mit.edu/courses/anthropology/21a-219-law-and-society-spring-2003/studymaterials/hobasicconcepts.pdf>

http://www.sagepub.com/upm-data/45619_4.pdf

JOURNALS

<http://www.asanet.org/>

<http://www.britisoc.co.uk/>

<http://www.sociology.org/>

INDIAN SOCIETY

Course Code :	Credits : 05
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES

To study the structural composition of Indian society

To understand the social processes of Indian society

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the cultural and ethnic composition of Indian society.(K1)
CO2	Classify the roots of Hindu social organizations (K2)
CO3	Explain the features of class and caste in india. (K3)
CO4	Point out the characteristic features of marriage and family. (K4)
CO5	Compare the social changes in India. (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	3	3	3	3	2	2	2	3	3	3	3	3	2
CO2	3	3	3	3	3	3	2	2	2	3	3	3	3	3	2
CO3	3	3	2	3	2	3	2	2	3	3	3	3	3	3	2
CO4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	Unit- I: Cultural and ethnic composition of Indian Society 1.1 Linguistic and racial composition 1.2 Religious and ethnic groups 1.3 Tribes of India	18	CO1
2	Unit- II: Roots of Hindu Social Organization 2.1 Varnashrama Dharma 2.2 Doctrine of Karma 2.3 Purusharthas	18	CO2
3	Unit- III: Caste and Class in India	18	CO3

	3.1 Definition and characteristics of caste 3.2 Theories of origin of caste 3.3 Caste in modern India: changing trends and new identities 3.4 Interface of caste and class		
4	Unit-IV: Marriage and Family 4.1 Marriage: Hindu, Christian, Islam: Forms and Divorce Practices. 4.2 Joint Family: Characteristic features and Functions, Changing Trends in Joint Family System	18	CO4
5	Unit-V: Social Change in India 5.1 Islamization, 5.2 Westernization, 5.3 Sanskritization, 5.4 Secularization, 5.5 Industrialization 5.6 Globalization	18	CO5

BOOKS FOR STUDY

Ahuja, Ram. Society in India: Concepts, Theories and Changing Trends. Jaipur: Rawat, 1999.

Kapadia, K.M., Marriage and Family in India. New Delhi: Oxford University Press, 1966.

BOOKS FOR REFERENCE

- Hutton, J. K., *Caste in India: Its Nature, Function, and Origin*. New Delhi: Oxford University Press, 1977.
- Prabhu, P.H., *Hindu Social Organization*. Madras: Popular Prakasham, 1970.
- Singh, Yogendra, *Modernization of Indian Tradition*. New Delhi: Thompson Press, 1973.
- Srinivas, M.N., *Social Change in Modern India*. Madras: Allied Publishers, 1970.
- Shah A.M., *The structure of Indian Society: Then and Now*. New Delhi, Routledge, 2010.
- Venugopal, *Religion and Indian Society: A Sociological Perspective*. New Delhi, Gyan, 1999.
- Rao Shankar, *Sociology of Indian Society*. New Delhi: S Chand, 2006.
- Jayabalan N., *Indian Society and Social Institutions*, New Delhi, Atlantic, 2001.

WEB RESOURCES

- <http://www.hinduwedding.info/marriage-ceremony.html>
- http://dev.epw.in/system/files/pdf/1961_13/25/sanskritization_and_westernizationa_dynami_c_vie_w.pdf
- <http://voiceofdharma.org/books/imwat/ch6.htm>

SOCIAL PSYCHOLOGY

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Course Code :	Credits : 04
L:T:P:S : 0:0:6:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

- To understand the importance of social psych.ology.*
- To study the personality, culture , collective behavior etc.,*

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Recall the importance and methods of social psychology .(K1)
CO2	Illustrate the types and traits of personality.(K2)
CO3	Explain the functions and characteristics of leadership. K3)
CO4	Explain the types and causes of prejudice and aggression. (K4)
CO5	Compare and criticize the principles and techniques of propaganda. (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	3	2	3	2	3	2	3	3	3	3	3	3
CO2	3	3	2	3	2	3	2	2	2	3	3	3	3	3	3
CO3	3	3	2	3	2	3	2	2	3	3	3	3	3	3	3

SI NO	CONTENTS OF MODULE	Hrs	COS
1	Unit- I: Introduction 1.1 Scope and nature of social psychology 1.2 Methods of social psychology	18	CO1

	1.3 Importance of social psychology		
2	Unit- II: Personality and culture 2.1 Personality types and traits 2.2 Influence of culture on personality	18	CO2
3	Unit: III: Collective Behaviour 3.1 Crowd 3.2 Mobs 3.3 Riots	18	CO3
4	Unit-IV: Leadership 4.1 Characteristics of Leadership 4.2 Types of leader 4.3 Functions of leader	18	CO4
5	Unit- V: Aggression and prejudice 5.1 Types and causes of aggression	18	C05

	5.2 Types and causes of prejudice		
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Text Books:

- Bhatia Hansraj. (1974) Elements of social psychology, somaiya publications, bombay.
 Kimball Young (1963) Handbook of social psychology, routledge and kegan paul, London.
 Lindgren, Henry Clay (1998) Social Psychology, Wiley Eastern Publications, New Delhi-1998.

References

- Adinarayanan, S.P., Social Psychology, Longman, India.
 Aronson. Elliot, Wilson D. Timothy and Akery M. Robert (1997) Social Psychology, Longman Publishers.
 Baron, A. Robert Boon Byrne (1998) Social Psychology, Prentice Hall of India, India.

PRINCIPLES OF SOCIOLOGY-II

Course Code	:		Credits	:	05
L:T:P:S	:	0:0:6:0	CIA Marks	:	40
Exam Hours	:	03	ESE Marks	:	60

LEARNING OBJECTIVES:

To study the fundamental concepts of sociology

To understand the characteristic features of different social elements.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of social processes(K1)
CO2	Illustrate the factors and agencies of social control(K2)
CO3	Explain the forms of social stratification (K3)
CO4	Point out the features and forms of social mobility (K4)
CO5	Criticize the factors of social change (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

SI NO	CONTENTS OF MODULE	Hrs	COS
1	Unit I: Social Processes 1.1 Co-operation 1.2 Competition 1.3 Conflict 1.4 Accommodation 1.5 Assimilation	18	CO1
2	Unit II: Social Control	18	CO2

	<p>2.1 Meaning and Definition of Social Control</p> <p>2.2 Factors and Agencies of Social Control</p>		
3	<p>Unit III: Social Stratification</p> <p>3.1 Caste : Meaning, Definition, and Forms (Brahmin, Kshatriya, Vaishya and Sutras)</p> <p>3.2 Class: Meaning, Definition, and Forms (Upper Class, Middle Class and Lower Class)</p> <p>3.3 Gender: Meaning, Definition, and Social Construction of Gender, Gender Inequality</p>	18	CO3
4	<p>Unit IV: Social Mobility</p> <p>4.1 Meaning, Definition</p> <p>4.2 Features and Forms of Social Mobility</p>	18	CO4
5	<p>Unit V: Social Change</p>	18	CO5

	5.1 Evolution, Progression and Deterioration		
	5.2 Factors of Social Change- Biological, Physical and Cultural.		

BOOKS FOR STUDY

Applebaum, Richard P., William J., Chambliss. Sociology. Addison - New York: Wesley ,1997.

Caplow, Theodore. Elementary Sociology. New Jersey: Prentice Hall Inc. 1971.

Inkeles, Alex. Social Change, Reading in Modern Society. NY : Prentice Hall, 1982.

International Encyclopaedia of Sociology Vol.. I and II.

Johnson, Harry, M., Sociology - A Systems Introduction. New Delhi: Allied, 1966.

MacIver, R.M. & Page, C.H., Society: An Introductory Analysis. London: Macmillan, 1974.

Thio, Alex. Sociology – A Brief Introduction. New York, Addison-Wesley Education, 1997.

Tumin, Melvin. Social Stratification – The forms and functions of Inequality. New Jersey: Prentice Hall, 1978.

BOOKS FOR REFERENCE

Abraham Francis, John Henry Morgan, Sociological Thought. Cambridge, Macmillan, 1985.

Duncan, O.D & Mitchell, R., A New Dictionary of Sociology. London: Routledge Kegan Paul, 1979.

Haralambos, M., Sociology - Themes and Perspectives. New Delhi: Oxford University Press. 1980.

Ogburn, W.F. & Nimkoff, M. F., A Handbook of Sociology. New Delhi: Eurasia, 1966.

Robertson, Ian. Sociology. New York, Worth, 1977.

Schaefer Richard, T., Robert P Lamm. Sociology. New Delhi: McGraw Hill Company, 1998.

Rao Shankar, C N., Sociology: Primary Principles. New Delhi, S. Chand, 1990.

WEB RESOURCES

http://faculty.upj.pitt.edu/dsantoro/davis_moore.htm

http://www.sagepub.com/ritzerintro/study/materials/reference/77708_8.1r.pdf

JOURNALS

<http://www.inoso.org/>

<http://www.jsswnet>

SOCIAL PROBLEMS IN INDIA

Course Code :	Credits	: 05
L:T:P:S : 0:0:6:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

LEARNING OBJECTIVES:

To study about the different kinds of social problems in Indian Society.

To understand the characteristic features of Indian social problems.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Recall the causes and types of social problems(K1)
CO2	Classify the types and causes of Unemployment(K2)
CO3	Solve the problems of women and children(K3)
CO4	Analyse the origin and development of Terrorism in India(K4)
CO5	Evaluate the extent of crime in India (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

SI NO	CONTENTS OF MODULE	Hrs	COS
1	<p>Unit- I: Introduction</p> <p>The Concept of Social Problem- Characteristics of Social Problems- Causes and Types of Social Problems- Social Problems and Social Disorganization.</p>	18	CO1
2	<p>Unit-II: Poverty and Unemployment</p> <p>The Concept- Incidence and Magnitude- Causes of Rural Poverty- Problem of the Poor and the Pains of Poverty- Strategies for Alleviating Poverty.</p> <p>Present Features of Unemployment in India- Types- Causes -Consequences.</p>	18	CO2
3	<p>Unit-III: Problems of women and children</p> <p>Women’s Harassment- Nature, Extent and Characteristics of Violence Against Women. Domestic</p>	18	CO3

	<p>violence- female infanticide- dowry.</p> <p>Concept and Types of Child Abuse - Incidence of Child Abuse- Causes of Child Abuse - Problem of Child Labour.</p>		
4	<p>Unit-IV: Terrorism</p> <p>The Concept- Characteristics- Objectives- Origin and Development of Terrorist Movement. Mass Support- Support Base - Terrorism in India</p>	18	CO4
5	<p>Unit-V: Crime and Delinquency</p> <p>5.1 Meaning- Types- Causes 5.2 Extent of Crime in India 5.3 Penology and Rehabilitative measures.</p>	18	CO5

Text Books:

- Bhattacharya, S.K., Social Problems in India, Regency Publications, New Delhi, 1994.
- Ahuja Ram, Crime against Women, Rawat Publications, Jaipur, 1987

References:

- Attachand, Poverty and Underdevelopment, Gian Publishing House, Delhi, 1987.
- Prasad, Population Growth and Child Labour, Kanishka Publishers distributors, New Delhi, 2001.

- Kattakayam and Vadackumchery, Crime and Society, A.P.H, Publishing Corporation, New Delhi, 1999.
- Kohli and Sharma, Poverty Alleviation and Housing Problem, Anmol Publications, Pvt. Ltd, New Delhi, 1997
- Kempe, R.S and Kempe C.H., Child Abuse, Fontana, London, 1978.

SOCIAL ANTHROPOLOGY

Course Code	:	Credits	: 04
L:T:P:S	: 0:0:6:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

LEARNING OBJECTIVES:

To study about the religious and cultural aspects of anthropology

To understand the scope and branches of anthropology

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the scope of social anthropology (K1)
CO2	Classify the cultural elements in primitive society (K2)
CO3	Explain the kinds of marriage and kinship (K3)
CO4	Analyse the political organization of primitive society(K4)
CO5	Evaluate the origin and development of religion (K5)

SI NO	CONTENTS OF MODULE	Hrs	COS
1.	Unit-I: Introduction 1.1 Meaning and scope of Anthropology 1.2 Branches of Anthropology	18	CO1
2.	Unit-II: Culture 2.1 Attributes of culture 2.2 Culture traits 2.3 Culture complex 2.4 Culture area 2.5 Culture integration 2.6 Enculturation and transculturation	18	CO2
3.	Unit-III: Marriage and Kinship 3.1 Marriage: Typology by mate selection – levirate and sororate- hypergamy and hypogamy 3.2 Types of decent 3.3 Kinship: consanguinal and affinal 3.4 Kinship: tribe, class, moiety and phratry 3.5 Kinship Behaviour: joking and avoidance relationship	18	CO3

4.	<p>Unit-IV: Economic Organization</p> <p>4.1 Property: Primitive communism- Individual- collective</p> <p>4.2 Stages of Economy: Food gathering – Hunting –Fishing – Pastoralism- Cultivation</p> <p>4.3 Systems of Trade Exchange: reciprocity- redistribution- barter and market</p>	18	CO4
5.	<p>Unit- V: Political Organization</p> <p>5.1 Brand, Tribe and State</p> <p>5.2 Kinship and cheifdom</p> <p>5.3 Primitive law and justice</p> <p>5.4 Types of punishment</p>	18	CO5
6.	<p>Unit-VI: Religion:</p> <p>6.1 Magic : types and functions of magic</p> <p>6.2 Magico- religious functionaries: Shaman- Priest- medicine man- sorcerer</p>	18	CO6

BOOKS FOR REFERENCE

Aron, Raymond, Main Currents in Sociological Thought. Part 1 and 2. London: Penguin, 1967.

Coser, Lewis, A., Masters of Sociological Thought: Ideas in Historical and social context. New York : Harcourt Brace Jovanovidi, 1971.

Craib Ian. Classical Social Theory. Great Britain: Oxford University Press, 1997.

Hearn, Frank, Reason and Freedom in Sociological Thought. U.S.A: Allen and Unwin, 1985.

Timasheff, Sociological Theory: its nature and growth. New York: Random House, 1976.

WEB RESOURCES

http://www.sagepub.in/upm-data/44172_1.pdf

<http://theory.routledgesoc.com/category/profile-tags/ideal-types>

<http://faculty.frostburg.edu/phil/forum/Marx.htm>

SOCIAL MOVEMENTS IN INDIA

Course Code :	Credits	: 04
L:T:P:S : 0:0:6:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

LEARNING OBJECTIVES:

To study the different forms of movements.

To know the importance of new social movements in Indian society

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the characteristics of social movements (K1)
CO2	Explain the impact of Socio-Religious movements (K2)

CO3	Evaluate the movements of sub-altern groups.(K3)
CO4	Appraise and criticize the movements in marginalized groups (K5)
CO5	Analyse the contemporary social movements.(K4)

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit- I: Introduction 1.1 Definition and Characteristics of Social Movements 1.2 Types of social movements 1.3 Social movements and social change	18	CO1
2.	Unit-II: Socio- Religious and National Movements 2.1 Brahma Samaj and Arya samas 2.2 Civil Disobedience Movement 2.3 Quit India Movement	18	CO2
3.	Unit-III: Social Reform Movements 3.1 Self respect Movement in Tamil Nadu 3.2 SNDP Movement in Kerala	18	CO3

	3.3 Non-Brahmin Movement in Maharashtra		
4.	Unit-IV: Peasant and Tribal Movements 4.1 Telegana Movement 4.2 Naxalbari Movement 4.3 The Santal Movement 4.4 Jarkhand Movement	18	CO4
5.	Unit- V: New Social Movements 5.1 Dalit Movement 5.2 Women's Movement 5.3 Environmental Movement	18	CO5

Text Books

Rao M.S.A (1979) Social Movements in India, Manohar, New Delhi.

Rao M.S.A (1979) Social Movements and Social Transformation, McMillan, New Delhi.

Banks, J.A (1992) The Sociology of Social Movements, McMillan, London.

References:

Desai, A.R (1979) Peasant Struggle in India, OUP, India.

Desai, A.P (1987) Social Background of Indian Nationalism, Popular Prakasam, Bombay.

Dhanagare, D.N. (1983) Peasant Movements in India: 1920-50, OUP, Delhi.

Oomen, TK(1990), Protest & Change: Studies in Social Movements, Sage India Pvt. Ltd., Delhi.

Selliot, Elmer (1995) From Untouchable Dalit: Essays on The Ambedkar Movement, Manohar, New Delhi.

SOCIAL DEMOGRAPHY

Course Code : Credits : 04

L:T:P:S : 0:0:6:0 CIA Marks : 40

Exam Hours : 03 ESE Marks : 60

LEARNING OBJECTIVES:

To study the scope and importance of social demography

To understand the population processes and structure

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Recall the importance of Social Demography (K1)
CO2	Classify the sources of population data(K4)
CO3	Explain the different population theories(K3)
CO4	Illustrate the population processes and structure(K2)
CO5	Evaluate the population policies and programs(K5)

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit-I: Introduction 1.1 Definition 1.2 Nature, Scope and importance of Social Demography.	18	CO1
2.	Unit-II: Sources of Population Data	18	CO2

	<p>2.1 Census</p> <p>2.2 Vital Registration</p> <p>2.3 Sample Surveys.</p>		
3.	<p>Unit-III: Population Theories</p> <p>3.1 Malthusian Theory of Population, 3.2 Biological Theories- Thomas Saddler, Thomas Doubleday, Spencer and Gini.</p> <p>3.3 Theory of Demographic transition.</p>	18	CO3
4.	<p>Unit-IV: Population processes and structure</p> <p>4.1 Population Structure- Age and Sex, Size and distribution</p> <p>4.2 concepts- fertility, fecundity, factors influencing fertility, measures of fertility</p> <p>4.3 morality, types, causes and measures.</p> <p>4.4 Migration- Types, Push and Pull factors in migration.</p>	18	CO4
5.	<p>Unit-V: Population policies and programmes:</p> <p>5.1 Fertility, Mortality, Migration influencing policies.</p> <p>5.2 Family planning in India.</p>	18	CO5

Text Books:

6. Merton, Robert k., Sociological Theory and Social Structure. Indian Ed. New Delhi: Ameerind Publishing co., 1968.

RESEARCH METHODOLOGY AND STATISTICS

Course Code : Credits : 05

L:T:P:S : 0:0:6:0 CIA Marks : 40

Exam Hours : 03 ESE Marks : 60

LEARNING OBJECTIVES:

To study the scientific methods and techniques in social research

To know the tools and report writing of data collection

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the steps involved in social research (K1)
CO2	Classify the types of research design (K4)
CO3	Explain the different techniques of data collection (K3)
CO4	Illustrate the sampling methods (K2)
CO5	Evaluate the social statistics(K5)

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	UNIT-I: SCIENCE AND SCIENTIFIC METHODS- 1.1 What is Scientific Research	18	CO1

	<p>1.2Types, Importance and uses</p> <p>1.3Steps in Social Research</p> <p>1.4Theory and Facts- Hypothesis.</p>		
2.	<p>UNIT-II: RESEARCH DESIGN</p> <p>2.1Meaning</p> <p>2.2Types – Descriptive, Explorative, Experimental ,Diagnostic and Comparative</p> <p>2.3Functions of research design.</p>	18	CO2
3.	<p>UNIT-III: TECHNIQUE AND TOOLS OF DATA COLLECTION:</p> <p>3.1Schedule Questionnaire, Interview, Observation, Case Study</p> <p>3.2Content analysis ,Social Survey, Projective technic.</p>	18	CO3
4.	<p>UNIT-IV: SAMPLING METHODS AND REPORT WRITING:</p> <p>4.1Types- Probability and Non-Probability Sampling</p> <p>4.2 Report writing- Steps</p>	18	CO4
5.	<p>UNIT-V: STATISTICS</p> <p>5.1Meaning- Scope and importance of statistics in Social Research.</p> <p>5.2 Measures of Central Tendency- Mean- Median- Mode-</p> <p>5.3Measures of Dispersion- Range- Quartile – Standard Deviation-</p>	18	CO5

	5.4 Correlation and Regression. Role of Computers in Research.		
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Text Books:

- Kothari C.R., Research Methodology – Methods and Techniques, wiley eastern limited, Madras, 1985.
- Goode, Williams and Hatt Paul : Methods in Social Research, McGraw- Hill Book Company, London 1981.

REFERENCES:

- Young Pauline V: Scientific Social Surveys and Research. PHI.
- Mitchall, Mark and Jamina Jolley, Research Design Explainer, Holt, Rinehart and Winston inc., New york, 1988.
- Gane, Mike: On Durkheim’s Rules of Sociological Method, Routledge, London, 1988.
- Boalt, Gunnar: The Sociology of Research, Southern Illinois University Press, London, 1969.
- Blalock, J.R., Hubert, M. Social Statistics, Mc Graw Hill. International Editions, Washington, 1981.
- Hunt, Morton: Profiles of Social Research, Russell Sage Foundation, New York, 1920.
- Kothari, C.R., Quantitative Techniques, Vikas Publishing House (Pvt) Ltd. New Delhi – 1978.
- Michael S. Lewis – Beck, (Ed) Experimental Design & Methods, Sage Publications, Toppan, Publishing United Kingdom, 1990.

POLITICAL SOCIOLOGY

Course Code : Credits : 04
L:T:P:S : 0:0:6:0 CIA Marks : 40

Exam Hours : 03

ESE Marks : 60

LEARNING OBJECTIVES:

To study the basic political system in India.

To study the trends in political scenario.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Recall the contribution of Karl Marx and Max Weber in Political Sociology(K1)
CO2	Illustrate the Aristotle's classification of political system(K2)
CO3	Evaluate the merits and demerits of Political system (K5)
CO4	Distinguish between power and authority(K4)
CO5	Explain the different ways of acquiring legitimacy(K3)

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	UNIT – I: INTRODUCTION 1.1 Origin and growth of political sociology 1.2 Definition, nature and scope 1.3 Founding fathers – Karl Marx and Max Weber – their contributions	18	C01
2.	UNIT – II: BASIC POLITICAL SYSTEMS 2.1 Meaning of political systems	18	CO2

	<p>2.2 Aristotle's classification of political systems</p> <p>2.3 Theocratic, Monarchical, Democratic and Totalitarian systems and their relative merits and demerits.</p>		
3.	<p>UNIT – III: INFLUCENCE, POWER AND AUTHORITY</p> <p>3.1 Meaning and types</p> <p>3.2 Characteristics of power</p> <p>3.3 Distribution of power</p> <p>3.4 Various theories of political elites</p> <p>3.5 Authority – different ways of acquiring legitimacy.</p>	18	CO3
4.	<p>UNIT – IV: POLITICAL CULTURE AND POLITICAL SOCIALIZATION</p> <p>4.1 Meaning and dimensions of political culture</p> <p>4.2 Meaning and types of political socialization</p> <p>4.3 Agencies of political socialization and their role.</p> <p>4.4 Political Participation – Meaning and Types</p> <p>4.5 Political Apathy</p>	18	CO4

	4.6 Psychological, Social, and Political determinants of participation		
5.	<p>UNIT – V: POLITICAL PARTIES AND PRESSURE GROUPS</p> <p>5.1 Political parties – features and functions</p> <p>5.2 Structures of political parties</p> <p>5.3 Meaning of pressure groups and their relationship with political parties</p> <p>5.4 Types of pressure groups and their role.</p>	18	CO5

Text Book

1. A.K. Mukhopadhyay (1980), Political Sociology, K.P.Begchi&Company, Calcutta.

Reference Books

1. Ali Ashaf and Sharma B.N., (2001), Political Sociology, University Press, Hyerabad.
2. Bhattacharyya.D.C. (2002), Political Sociology, Vijoya Publishing House, Kolkata.
3. Padhy, K.S., (1989), Political Sociology –A Perspective Analysis, Discovery Publishing House, New Delhi.
4. Anthony Orun, (1983), Introduction to Political Sociology, Prentice Hall Inc., Englewood Cliffs, New Jersey.

5.Harold J.Laski, (1978), A Grammar of Politics, George Allen & Unwin publishers Ltd, Great Britain.

RURAL SOCIOLOGY

Course Code : Credits : 05

L:T:P:S : 0:0:6:0 CIA Marks : 40

Exam Hours : 03 ESE Marks : 60

LEARNING OBJECTIVES:

To study the rural social structure and dynamics.

To study the rural social institutions and problems.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the importance of rural sociology(K1)
CO2	Explain the characteristic feature of village pattern and settlement(K3)
CO3	Analyse the changing features of village social structure (K5)
CO4	Evaluate the role and functions of rural social institutions (K5)
CO5	Criticize the problems faced by the rural society (K6)

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	UNIT- I: INTRODUCTION 1.1 Meaning of Rural Sociology 1.2 Nature and Scope	18	CO1

	1.3Importance of the study of Rural Sociology in India.		
2	<p>UNIT-II: RURAL SOCIETY</p> <p>2.1Characteristics of rural society</p> <p>2.2Rural –urban Society: Differentials and Continuum</p> <p>2.3 Village patterns and characteristics</p> <p>2.4Emergences of villages</p> <p>2.5Types of villages</p> <p>2.6 village settlement patterns-Types and pattern of Dwelling.</p>	18	CO2
3.	<p>UNIT-III: RURAL SOCIAL STRUCTURE AND DYNAMICS</p> <p>3.1Caste and social structure in rural India</p> <p>3.2Dominant Caste</p> <p>3.3Sanskritization</p> <p>3.4 Jajmani System</p> <p>3.5 Changing features of village social structure</p> <p>3.6Traditional caste and village community</p> <p>3.7Panchayat Raj</p>	18	CO3
4.	<p>UNIT-IV: RURAL SOCIAL INSTITUTIONS</p> <p>4.1Characteristics and Functions- Rural Economy</p>	18	CO4

	4.2 Family and Marriage 4.3The Polity 4.4 Rural Education 4.5 Rural Religion.		
5.	UNIT-V: RURAL PROBLEMS 5.1Poverty and indebtedness 5.2Child Labour 5.3 Unemployment 5.4Illiteracy 5.5Migration 5.6Health and Sanitation problems.	18	CO5

Text Books

1. Desai A.R. (ed) Rural Sociology in India, Popular Prakastian, Bombay.

Reference Books:

1. Vidyut Joshi (1987) Submerging Villages: Problems and prospects, Ajanta Publications, Delhi.
2. Desai, I.P and Banwarilal Choudhry (ed) (1977) History of Rural Development in Modern India, Vol.II. Impex India, New Delhi.
3. Mishra P.S. (1994) Changing Pattern of village Family in India: A Sociological Study, Ajanta Publications, Delhi.
4. Kumar Aravind (ed) (1998) Encyclopedia of Rural Sociology.

URBAN SOCIOLOGY

Course Code :

Credits : 04

L:T:P:S : 0:0:6:0

CIA Marks : 40

Exam Hours : 03

ESE Marks : 60

LEARNING OBJECTIVES:

To study the urban social structure.

To study the urban planning and criticize it.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Recall the importance of urban sociology
CO2	Classify the types and forms of cities and towns
CO3	Explain the ecological theories
CO4	Analyse the principles and agencies involved in urban planning
CO5	Evaluate the urban social problems

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit-I: Introduction 1.1 Nature, Scope and importance of Urban Sociology 1.2 Urbanisation and Sub-urbanisation 1.3 Urbanism as a way of life 1.4 Rapid urbanisation in India and its implications	18	CO1
2.	Unit-II: Urban Structure	18	CO2

	<p>2.1 Typology and morphology of urban areas</p> <p>2.2 Origin and growth of town and cities</p> <p>2.3 Types and forms of cities in pre-industrial, industrial and post-industrial periods.</p>		
3.	<p>Unit-III: Urban Ecology</p> <p>3.1 Ecological system and ecological elements</p> <p>3.2 Ecological theories: concentric zone theory- sector theory- multiple nuclei theory</p>	18	CO3
4.	<p>Unit-IV: Urban Planning</p> <p>4.1 Role of sociology in urban planning</p> <p>4.2 Principles of Urban planning</p> <p>4.3 Agencies involved in urban planning</p> <p>4.4 case study: Chandigarh</p>	18	CO4
5.	<p>Unit-V: Urban Problems</p> <p>5.1 Urban migration and population density</p> <p>5.2 housing problem</p> <p>5.3 slums</p> <p>5.4 environmental problems –</p> <p>5.5 urban crimes.</p>	18	CO5

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Text Books:

Grint N.P and S. Fava, Urban Society

Rao, M.S.A (1974) Urban Sociology in India, Orient Longman, New Delhi.

Marris Phillip (1968) Urban Sociology, George Allen and Unwin Ltd., London.

Sharma Ramnath (1998) A Text Book of Urban Sociology, Rajhans Press Publication, India.

References

Sharma Rajendra. K (1997) Urban Sociology, Atlantic Publishers, New Delhi.

Flangan G. William, (1999) Urban Sociology, Allyn and Bacon,...

Fava F. Sylvia, (1968) New Urbanism in World Perspectives: A Reader, T.Y. Cowell, New York.

INDUSTRIAL SOCIOLOGY

Course Code	:	Credits	:	04
L:T:P:S	:	CIA Marks	:	40
Exam Hours	:	ESE Marks	:	60

LEARNING OBJECTIVES:

To study the importance of industrial sociology.

To understand the evolution of industries and its consequences.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the approaches of industrial sociology
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CO2	Identify the evolution of industries
CO3	Analyse the role and structure of Industrial organizations
CO4	Explain the relationship between organization of labour and labour welfare
CO5	Classify the causes and consequences of Industrial conflict

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit- I: Introduction 1.1 Scope and importance of Industrial Sociology. 1.2 Approaches to the study of Industrial Sociology. 1.3 Socio-industrial thought – Taylor, Mayo, Maslow, Mclelland	18	CO1
2.	Unit-II: Evolution of Industry 2.1 Manorial System 2.2 Guild system 2.3 Domestic System 2.4 Factory system	18	CO2
3.	Unit-III: Industrial Organization 3.1 Structure of Industrial Organization. 3.2 Formal and informal organizations. 3.3 Line and staff organization	18	CO3

	3.4 Roles and relationship: Managers, Supervisors and Workers		
4.	Unit – IV: Organisation of Labour and labour welfare 4.1. Origin and growth of trade union in India 4.2 Functions of trade union 4.3 Trade unions in India: problems and issues 4.4 Social security and labour welfare measures	18	CO4
5.	Unit – V: Industrial conflict 5.1 Types of industrial conflict 5.2 Causes and consequences 5.3 Methods of settling industrial disputes	18	CO5

Text Books:

Monappa Arun, Industrial Relations in India, Tata McGraw Hill, New Delhi.

Mongia. J.L. Readings in Indian Labour: and Social Welfare

Pascal Gisbert (1972), Fundamentals of Industrial Sociology, Tata McGraw Hill, New Delhi.

Reference Books

Bose S.N. Indian Labour Code, Eastern Law House Pvt. Ltd., Calcutta

Malik. P.C. The Industrial Law, Eastern Book Co. Lucknow

Moorthy, M.N. Principles of Labour Welfare.

SOCIOLOGY OF DEVELOPMENT

Course Code :	Credits : 04
L:T:P:S : 0:0:6:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

To study the Social development and indicators.

To understand the relationship between social movements and development.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Distinguish economic growth and development
CO2	Identify the relationship between culture and development
CO3	Analyse the importance of social movements in development
CO4	List out the different kinds of developmental disparities
CO5	Evaluate the economic development and social opportunities

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit-I: Introduction 1.1 Definition and meaning of development 1.2 Economic growth and development 1.3 Social development and social indicators 1.4 Ecology and sustainable development	18	CO1

2.	<p>Unit-II: Culture and Development</p> <p>2.1 Development and displacement of tradition 2.2 Culture as a facilitator of development 2.3 Culture impediments for development</p>	18	CO2
3.	<p>Unit-III: Social Movements and Development</p> <p>3.1 Chinese Movement –Mao 3.2 Peasant Movement – Mexico-Emiliano Zapata 3.3 Backward Class Movement and Protective Discrimination</p>	18	CO3
4.	<p>Unit- IV: Development Disparities in India</p> <p>4.1 Social disparity: Education and Health 4.2 Gender Disparity 4.3 Economic Disparity 4.4 Rural – Urban disparity</p>	18	CO4
5.	<p>Unit-V: Economic reforms and development</p> <p>5.1 Structural adjustment in India 5.2 Economic development and social opportunities 5.3 Interdependence between market and governance 5.4 Global divisions</p>	18	CO5

Text Books:

1. Derez, Jean and Amartya Sen., (1996) India: Economic Development & Social Opportunities, UP, New Delhi.
2. Giddens, Anthony (2001) Sociology, 4th Edition, Blackwell pub Ltd, Oxford.
3. Harrison (1989) The Sociology of Modernization and Development, OUP, New Delhi.
4. Sharma, SL (1986), Development: Socio-Cultural Dimensions, Rawat Pub Jaipur.
5. UNDP (2000) Human Development Report, OUP, New Delhi.

MEDICAL SOCIOLOGY

Course Code :	Credits :	04
L:T:P:S : 0:0:6:0	CIA Marks :	40
Exam Hours : 03	ESE Marks :	60

LEARNING OBJECTIVES:

To study the need of social epidemiology

To understand the sociological perspective of health and health care

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Identify the relationship between medicine and sociology
CO2	Differentiate communicable and non-communicable diseases
CO3	Analyse the socio-cultural practice bearing on health in India
CO4	Evaluate the relationship between population and health in India
CO5	Point out the health and social problems

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit-I: Health and Society 1.1 The emerging relationship between medicine and sociology	18	CO1

	1.2 social perspectives of health and health care.		
2.	Unit-II: Communicable and Non-Communicable diseases 2.1 Tuberculosis, Malaria 2.2 Heart diseases, diabetes and Cancer.	18	CO2
3.	Unit- III: Social Epidemiology 3.1 Socio- Cultural factors bearing on health in India 3.2 Common occupational diseases, incidence and prevention of occupational diseases.	18	CO3
4.	Unit-IV: Health Education 4.1 Preventive and protective hygienic Habits. 4.2 Sociology of Health Policy in India. 4.3 Population and health in India.	18	CO4
5.	Unit-V: Health and Social Problems 5.1 Relevance of sex Education revelation of AIDS and HIV 5.2 Aging –Social Gerontology	18	CO5

Text Books:

1. Cockerham, William, C (1978) Medical Sociology, Englewood Cliffs. Prentice Hall.

Reference books:

1. Dak T.M.(1991) Sociology of Health in India, Kaveri Printers Private Ltd., New Delhi.
2. Graham Scombler (1987) Sociological theory and Medical Sociology, Tavistock Publication: London and New York.

COMMUNICATION, MEDIA AND SOCIETY

Course Code : Credits : 04

L:T:P:S : 0:0:6:0 CIA Marks : 40

Exam Hours : 03 ESE Marks : 60

LEARNING OBJECTIVES:

To study the scope and importance of communication.

To understand the impact of mass media in society.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the sociological approaches to communication
CO2	Explain the theories and models of communication
CO3	Classify the different forms of communication skills

CO4	Analyse the impact of mass media
CO5	Evaluate the effects of media on social change

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit-I: Introduction 1.1 Definition, scope and functions of communication 1.2 Dimensions of communication 1.3 Sociological approaches to communication 1.4 Relationship between communication, popular culture and society	18	CO1
2.	Unit-II: Models and theories of communication 2.1 Models of Communication: Lasswell's formula- Linear Model – Circular Model- Spiral Model –ABX Model- Conceptual Model 2.2 Theories of communication: Harold Inns- Marshal McLuhan- Jurgen Habermas – Baudrillard- John Thompson.	18	CO2
3.	Unit-III: Communication Skills 3.1 Oral Skills 3.2 Writing Skills 3.3 Imaging Skills 3.4 Understanding and Responding Skills	18	CO3
4.	Unit-IV: Mass Media and Advertisement	18	CO4

	4.1 Definition and types of advertisement 4.2 Techniques of advertisement 4.3 Advertisement in different media		
5.	Unit-V: Media and Social Change 5.1 Role of print media in social change 5.2 Impact of TV and Films on society 5.3 Impact of Information Technology on Society 5.4 Influence of media on children and youth	18	CO5

Text Books

1. Simms James (1995) Communication, OUP, UK.
2. Kumar J. Kavel (1998), Mass Communication in India, Jaico Books, India.
3. Hornik R. (1988) Development Communication: Information, Agriculture and Nutrition in Third World, New York and London: Longman.

Reference Books

1. Burgoon.M., (ed) (1983) Communication Year Book II Transaction Books, New Jersey.
2. Greedon, Pamela, (ed) (1983) Women in Mass Communication, Sage Publications, New Delhi.
3. Hornik. R. (1988) Development Communication: Information, Agriculture and Nutrition in Third World, New York and London: Longman.
4. Michael W. Gambel and Gamble (1989) Introducing Mass Communication, McGraw Hill, New York.
5. Ronald D. Farra (1997) Mass Communication, McGraw Hill, New York.

NME I INTRODUCTION TO SOCIOLOGY

Course Code :	Credits : 04
L:T:P:S : 0:0:6:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

To study the basic concepts of sociology.

To understand the importance of socialisation.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the relevance of Sociology in contemporary society
CO2	Identify the relationship between individual and society
CO3	Explain the contribution of sociological thinkers about social institutions
CO4	Recall the characteristic features and functions of culture
CO5	Classify the stages and agencies of socialization

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit –I: Sociology 1.1 Meaning & Definition 1.2 nature, and Relevance of sociology in contemporary society	18	CO1
2.	Unit- II: Society 2.1 Definition and characteristics of society	18	CO2

	2.2Origin of Society:Social Contract Theory 2.3Relationship between individual and society		
3.	Unit-III: Social Institutions 3.1Comte: Social Static and Dynamic 3.2Spencer: Organic Analogy 3.3Durkheim: Suicide	18	CO3
4.	Unit- IV: Culture 4.1Definition, characteristics and functions of culture. 4.2Cultural Lag.	18	CO4
5.	Unit- V: Socialization 5.1Meaning, Definition 5.2stages and Agencies of Socialization. 5.3Cooley’s Looking Glass Self	18	CO5

Text Books:

- Bottomore, T.B (1972), Sociology: A Guide to Problems and Literature, George Allen and Unwin, Bombay.
- Gisbert, Pascal.(1973), Fundamental of Sociology, Orient Longman, New Delhi.
- Thomson, Harry. M (1995), Sociology: A Systematic Introduction, Allied Publishers, India.

References :

- Leonard Broom, Principles of Sociology, Media Promoters and Publication Pvt. Ltd., Bombay, 1993.
- Ogburn and Nimkaff, A Handbook of Sociology, Eurasia Publication House, New Delhi, 1966.
- Gisbert, Pavsocal, Fundamentals of Sociology, Orient Longman, Bombay.

Course Code : Credits : 04
 L:T:P:S : 0:0:6:0 CIA Marks : 40
 Exam Hours : 03 ESE Marks : 60

LEARNING OBJECTIVES:

To study about social problems.

To understand the causes and consequences of social problems.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Knowing about the basic concept of Social Problems
CO2	Identify the causes and consequences of Poverty
CO3	Explain the results of unemployment and its types
CO4	Analyze the problems of women
CO5	Explore the problems of children

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit- I: Introduction 1.1 Meaning, Definition and features of Social Problem	18	CO1
2.	Unit-II: Poverty 2.1 Meaning, Causes and Consequences of Poverty.	18	CO2

3.	Unit-III: Unemployment 3.1 Meaning, Types, Causes and Consequences of Unemployment.	18	CO3
4.	Unit IV: Problems of Women 4.1 Women Trafficking, Domestic Violence and Sexual Harassment	18	CO4
5.	Unit-V: Problems of Children 5.1 Child sexual abuse, Child Labour and Child Trafficking	18	CO5

Text Books:

- Bhattacharya, S.K., Social Problems in India, Regency Publications, New Delhi, 1994.
- Ahuja Ram, Crime against Women, Rawat Publications, Jaipur, 1987

References:

- Attachand, Poverty and Underdevelopment, Gian Publishing House, Delhi, 1987.
- Prasad, Population Growth and Child Labour, Kanishka Publishers distributors, New Delhi, 2001.
- Kattakayam and Vadackumchery, Crime and Society, A.P.H, Publishing Corporation, New Delhi, 1999.
- Kohli and Sharma, Poverty Alleviation and Housing Problem, Anmol Publications, Pvt. Ltd, New Delhi, 1997
- Kempe, R.S and Kempe C.H., Child Abuse, Fontana, London, 1978.

Electives

Sociology of Tourism

Course Code :	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

This course aims to provide

To study the basic concepts of sociology of tourism

To explain the features and types of tourism and its effect on society

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic knowledge on tourism. (K1)
CO2	Illustrate the lessons on social aspects of tourism (K2)
CO3	Explain the features of understanding tourism as a socio-economic force in social development. (K2)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	2	2	3	2	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	UNIT-I: Introduction to Sociology of Tourism	07	CO1

	<p>1.1 Meaning and Definition of Sociology of Tourism.</p> <p>1.2 Sociological Perspective on Tourism.</p> <p>1.3 Significance of Sociology of Tourism.</p>		
2	<p>UNIT - II: Tourism in India</p> <p>2.1 Tourism Opportunities in India 2.2 Types: Eco-tourism, Health Tourism; 2.3 Religious Tourism; Educational Tourism. Tourism Policies in India.</p>	08	CO2
3	<p>UNIT - III: Tourism and Social Change</p> <p>3.1 Effects of Tourism on Society. 3.2 Tourism and Cultural Exchange.</p> <p>3.3 Impact of Tourism on Locals.</p>	07	CO3

TEXTBOOKS:

1. Apostolopoulos, Y., Leivadi, S & Yiannakis, A., (eds.) 2000, The Sociology of Tourism: Theoretical and Empirical Investigations, London: Routledge.
2. Archer, B.H., 1973. The Impact of Domestic Tourism, Cardiff University of Wales Press,
3. Basawaraj, Gulshetty. 2016. Sociology of Leisure and Tourism Study Lambert publication Bezbaruah, M.P., 1999.
4. "Tourism - Current Scenario and Future Prospects", Yojana, Vol.43.
5. Bhatia, A.K., 2003. Tourism Development, Principles and Practices, New Delhi: Sterling Publishers Pvt. Ltd.
6. Brahmankan, E.B., 1998. Travel and Tourism as a Career, Vol.37, .11.
7. Brij, Bhardwaj, 1999. "Infrastructure for Tourism Growth", Yojana, Vol.43. Chib, S.N., 1981. Perspectives on Indian Tourism-I, Vol.77, .19. -11, Vol.77, .20
8. Chile, Som, N., 1981. Perspectives of Tourism in India, Sarder Patel

- Memorial Lectures, Publications Division, Government of India,
9. Cohen, Erik 1984. The sociology of tourism: approaches, issues, and findings. Annual Review of Sociology 10:373-392.
 10. Dharma Rajan, S., 1999. "Tourism - An Instrument for Development", Yojana, Vol.43, .8. Jacobsen, Jens Kr. Steen. 2000. Anti-tourist attitudes. Annuals of Tourism Research.
 11. Kaul, R.N., 1987. Dynamics of Tourism, New Delhi: a Trilogy K. Publication Pvt., Ltd. LajipathiRai, H., 1993. Development of Tourism in India, Rupa Books Pvt., Ltd.
 12. Selvafri, M., 1989. Tourism Industry in India, Bombay. Himalaya Publishing House. Sharma, K.C., 1996. Tourism Policy Planning Strategy, Jaipur. Pointer Publishers.

Sociology of Sanitation

Course Code :	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

The content of the course will enable the students:

1. To understand the role of the public in sanitation
2. To make aware the health and sanitation conditions in India
3. To understand the social aspects of sanitation and social ordering

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of sociology of sanitation and its scope. (K1)
CO2	Illustrate the programmes and policies of sanitation. (K2)
CO3	Explain the social construction of health and sanitation. (K4)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	2	2	3	2	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	<p>UNIT - I :Health and Sanitation</p> <p>07Hrs</p> <p>1.1 Social Aspects of Health and Illness.</p> <p>1.2 Origin and Scope of Sociology of Sanitation</p> <p>1.3 Problem of Environmental Sanitation in India</p>	08	CO1
2	<p>UNIT - II: Sanitation in India</p> <p>06Hrs</p> <p>2.1 Sulabh Sanitation Movement</p> <p>2.2 Sanitation Policies and Programmes</p> <p>2.3 Sanitation in Tamilnadu, a Regional Analysis</p>	08	CO2

	UNIT - III : Sanitation and Society		
	07Hrs		
3	3.1 Social Construction of Hygiene and Sanitation 3.2 Scavenging Castes and Social Deprivation 3.3 Sanitation and Dignity of Women	08	CO3

TEXTBOOKS:

1. Akram, Mohammad. 2015. *Sociology of Sanitation*. Delhi: Kalpaz Publications. Chatterjee, Meera. 1988. *Implementing Health Policy*, New Delhi: Manohar Publications.
2. Dalal, Ajit, Ray Shubha, 2005. (Ed). *Social Dimensions of Health*, Rawat.
3. Gupta, Giri Raj (ed.). 1981. *The Social and Cultural Context of Medicine in India*, New Delhi: Vikas Publishing House.
4. Jha, Hetukar. 2015. *Sanitation in India*. Delhi: Gyan Books.
5. Nagla, B K. 2015. *Sociology of Sanitation*. Delhi: Kalpaz Publications.
6. Nagla, Madhu. 2013. *Gender and Health*, Jaipur Rawat Publications Pais,
7. Richard. 2015. *Sociology of Sanitation*. Delhi: Kalpaz Publications.
8. Pathak, Bindeshwar. 2015. *Sociology of Sanitation*. Delhi: Kalpaz Publications.
9. Saxena, Ashish. 2015. *Sociology of Sanitation*. Delhi: Kalpaz Publications.

Sociology of Work and Industry

Course Code :	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

To study the basic concepts of industrial sociology

To explain the dimensions of work and its hazards

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of work, occupation and alienation. (K1)
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CO2	Explain the gender and work in the informal sector. (K4)
CO3	Illustrate the nature and types of industrial hazards and its vulnerability. (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	2	2	3	2	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	Unit I: Interlinking Work and Industry 1.1 Concept of work and occupation 1.2 Work in industrial society 1.3 Alienation: Causes and Consequence	07	CO1
2	Unit- II: Dimensions of Work 2.1 Gender: Women and Industry, Gender Discrimination in Work	08	CO2

	2.2 Nature of Unpaid Work and Forced Labour 2.3 Informal sector in developing countries		
3	Unit III: Risk, Hazard and Disaster 3.1 Nature and Types of Industrial Risk, Hazard and Disaster 3.2 Dimensions and Trends of Vulnerability and Exposure	07	CO3

References:

1. Bell, Daniel. 1976, *The Coming of Post-Industrial Society*, London: Heineman, Introduction, Pp.12-45
2. Breman, Jan. 2003, "The Informal Sector" in Veena Das, (ed.) *The Oxford India Companion to Sociology and Social Anthropology*, New Delhi: OUP, Pp.1287-1312
3. Coser, 1990, "Forced Labour in Concentration Camps" in Erikson, K. and S.P.Vallas (eds.) *The Nature of Work: Sociological Perspectives*, New Haven and London: American Sociological Association, Presidential Series and Yale University Press, Pp. 162-69
4. Devine, Fiona. 1992, "Gender Segregation in the Engineering and Science Professions: A case of continuity and change" in *Work, Employment and Society*, 6 (4) Pp.557-75.
5. Edgell, Stephen. 2006, "Unpaid Work-Domestic and Voluntary work" in *The Sociology of Work: Continuity and Change in Unpaid Work*. New Delhi: Sage, Pp.153-181
6. Erikson, Kai. 1990. "On Work and Alienation" in Erikson, K. and S.P. Vallas (eds.) *The Nature of Work: Sociological Perspectives*. New Haven and London: American Sociological Association, Presidential Series and Yale University Press, Pp. 19-33
7. Etzioni, A. and P.A. Jargowsky. 1990, "The false choice between high technology and basic industry" in K. Erikson and P. Vallas (eds.) *The Nature of Work: Sociological Perspectives*, New Haven and London: Yale University Press, Pp. 304-317
8. Freeman, Carla. 2009, "Femininity and Flexible Labour: Fashioning Class through Gender on the global assembly line" in Massimiliano Mollona, Geert De Neve and Jonathan Parry (eds.) *Industrial Work and Life: An Anthropological Reader*, London: Berg, Pp.257-268
9. Grint, Keith. 2005, "Classical Approaches to Work: Marx, Durkheim and Weber" in *The Sociology of Work: An Introduction*. Polity Press. Cambridge. Pp. 90-112
10. Kumar, Krishan. 1999, *From Post-industrial to Post-modern society*, Oxford: Blackwell Publishers Ltd., Chapter 2 and 6, Pp 6-35 and 154-163
11. Laughlin, Kim. 1995, Rehabilitating Science, Imagining "Bhopal" in George E. Marcus (ed.) *Techno scientific Imaginaries: Conversations, Profiles and Memoirs*, Chicago: University of Chicago Press, Pp. 277-302
12. Ramaswamy E. A. and Uma Ramaswamy. 1981, *Industry and Labour*, New Delhi: Oxford University Press, Chapter 3, Pp.33-65
13. Talib, Mohammad. 2010, *Writing Labour- Stone Quarry workers in Delhi*. New Delhi: OUP, Chapter 1, Pp. 23-54

14. Taylor, Steve. 1998, "Emotional Labour and the new Workplace" in Thompson and Walhurst (eds.) *Workplace of the Future*. London: Macmillan, Pp. 84-100
15. Uberoi, J.P.S. 1970, "Work, Study and Industrial worker in England" in *Man, Science and Society*. IAS: Simla. Pp 34-452.
16. Zonabend, Françoise. 2009, "The Nuclear Everyday" in Massimiliano Mollona, Geert De Neve and Jonathan Parry (ed.) *Industrial Work and Life: An Anthropological Reader*, London: Berg, Pp 167-185

Social Welfare in India

Course Code :	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

1. To understand the basic concepts in social welfare
2. To study the different welfare programmes and policies in India
3. To understand the process of social change and development through social welfare.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of social welfare and identify its agencies. (K1)
CO2	Exemplify the welfare measures of SCs, STs OBCs and minorities. (K4)
CO3	Enlighten the social welfare in Education and Health sector. (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	2	2	3	2	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	<p>Unit I: Introduction</p> <p>1.1 Meaning and Scope of Social Welfare Approach</p> <p>1.2 Concepts - Welfare State, Re-distribution, Democracy, Accountability and Transparency</p> <p>1.3 Agencies of Social Welfare – Government and Non-government</p>	09	CO1
2	<p>Unit II: Welfare Programmes in India</p> <p>2.1 Welfare of Scheduled Castes and Scheduled Tribes</p> <p>2.2 Welfare of Other Backward Classes</p> <p>2.3 Welfare of Minorities</p>	07	CO2
3	<p>Unit III: Social Welfare and Development</p> <p>3.1 Social welfare and Social Legislations</p>	07	CO3

	3.2 Social Welfare Needs: Right to Education; Health care		
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References:

1. Abuja, Ram. 2001. *Social Problems in India*. Jaipur: Rawat Publications. Chowdhry, P.D. 1983. *Social Welfare Administration*. Delhi: Atma Ram Sons. Desai, A.R. 1979. *Rural India in Transition*. Bombay: Popular Prakashan.
2. Dummett, M. 2013. *Breaking the silence: Child sexual abuse in India*. New York, NY: Human Rights Watch.
3. Dwivedi, R. M. 2005. *Poverty and development programmes in India*. New Delhi: New Century Publications.
4. Friedlander, Walter.A.1961. *Introduction to Social Welfare*. New York: Prentice Hall Inc. Goel, S.L. & Jain, R.K. 1988. *Social Welfare Administration: Theory and Practice*, (Vol. I & II). New Delhi: Deep and Deep Publications
5. Jayal, N. G. 2002. *Democracy and the state: Welfare, secularism and development in contemporary India*. New Delhi: Oxford Univ. Press.
6. Madan, G.R. 1990. *Indian Social Problems*. Vol.2. New Delhi: Allied Publishers
7. Mamoria, C. B.1981. *Social Problems and Social Disorganisation in India*. Allahabad: KitabMahal.
8. Pandya, R. 2008. *Women welfare and empowerment in India: Vision for 21st century*. New Delhi: New Century Publications.
9. Patti, R.J. 2000. *The Handbook of Social Welfare Management*. Sage Publications. Sachidev, D.R. 2003. *Social Welfare Administration in India*. Allahabad: KitabMahal. Seth, M. 2001. *Women and development: The Indian experience*. New Delhi: Sage.
10. Sharma, R.N.1993. *Urban Sociology* Delhi: Surjeet Publications.
11. Sivaramakrishnan, K.C. et al.1996. *Urbanisation in India. Basic services & People's*
12. *Participation*. New Delhi: Institute of Social Sciences and Concept publishing co.
13. Talwar, P. P., &Goel, O. P. 1990. *Non-governmental organisations for greater involvement in health and family welfare programmes in India*. New Delhi: National Institute of Health & Family Welfare.
14. Tribhuvan, Robin.D. (Ed).2000.*Studies in Tribal, Rural and Urban Development*. vol.1&2. New Delhi: DPH

Sociology of Gender and Sexuality

Course Code :	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

To study the basic concepts of gender inequality

To explain the features of gender differences in social institutions

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of gender and identify its social construction. (K1)
CO2	Outline the gender differences and inequalities in society. (K4)
CO3	Analyze the resistance of power and subordination towards the gender. (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO					
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	

CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	2	2	3	2	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	<p>Unit I: Gender as a Social Construct</p> <p>1.1 Gender, Sex and Sexuality, Gender stereotyping and socialization, Gender role and identity</p> <p>1.2 Gender stratification and inequality, Gender discrimination and patriarchy, Production of Masculinity and Femininity,</p>	08	CO1
2	<p>Unit II: Gender: Differences and Inequalities</p> <p>2.1 Class, Caste</p> <p>2.2 Family, Work</p> <p>2.3 Third Gender</p> <p>Sexual violence</p>	07	CO2
3	<p>Unit III: Gender, Power and Resistance</p> <p>3.1 Power and Subordination</p> <p>3.2 Resistance and Movements (Chipko/ Gulabi Gang)</p>	08	CO3

TEXTBOOKS:

References:

1. Kandiyoti, Deniz. 1991. "Bargaining with Patriarchy" in Judith Lorber and Susan A. Farrell (eds.). 1991. The Social Construction of Gender. Newbury Park, Calif: Sage Publications (pp 104-118).
2. Mangala Subramaniam. 2004 The Indian Women's Movement - - Contemporary Sociology Vol. 33, No. 6, Nov.
3. Newton, Esther. 2000. "Of Yams, Grinders and Gays: The Anthropology of Homosexuality" in Margaret Mead Made Me Gay: Personal Essays, Public Ideas. Durham: Duke University Press (pp 229-237)
4. Palriwala, Rajni, 1999. "Negotiating Patriliney: Intra-household Consumption and Authority in Rajasthan

- (India)", in Rajni Palriwala and Carla Risseuw (eds.). 1996. *Shifting Circles of Support: Contextualizing Kinship and Gender in South Asia and Sub-Saharan Africa*. New Delhi: Sage Publications (pp 190-220).
5. Rege, S. 1998. "Dalit Women Talk Differently: A Critique of 'Difference' and Towards a Dalit Feminist Standpoint Position." *Economic and Political Weekly*, Vol. 33, No. 44 (Oct.31-Nov. 6, 1998)(pp39-48)
 6. Sherry Ortner. 1974. "Is male to female as nature is to culture?" M.Z. Rosaldo and L. Lamphere (eds.) *Women, culture and society*. Stanford: Stanford University Press (pp 67-87)
 7. Stanley, L. 2002. 'Should Sex Really be Gender or Gender Really be Sex', in S. Jackson and S. Scott (eds.) *Gender: A Sociological Reader*, London: Routledge (pp31-41).
 8. U. Kalpagam. 2000. *The Women's Movement in India Today-New Agendas and Old Problems - Feminist Studies* Vol. 26, No. 3, Autumn, 2000
 9. Uberoi, Patricia "Feminine Identity and National Ethos in Indian Calendar Art" In *Economic and Political Weekly* Vol. 25, No. 17 (Apr. 28,1990), (pp WS 41-48).
 10. Whitehead, A. 1981, "I'm Hungry Mum": The Politics of Domestic Budgeting" in K. Young et al. (eds.) *Of Marriage and the Market: Women's Subordination Internationally and its Lessons*. London: Routledge and Kegan Paul (pp.93-116).

Disaster and Social Crisis

Course Code :	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

1. To create awareness regarding the natural disasters and disaster management.
2. To understand the historical development of India's disaster management policy.
3. To study the social crises and their impacts

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of disaster and identify its emergency and relief system. (K1)
CO2	Classify the types, causes and effects of disaster. (K4)
CO3	Explain the features of social crisis and illustrate its management. (K3)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	3	2	3	3	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	<p>UNIT I: Introduction</p> <p>1.1 Disaster and Social Crisis</p> <p>1.2 Emergence of Study of Disaster Management and Social Crisis</p> <p>1.3 Natural Disasters; Disaster Victims; Disaster Relief System and Responses</p>	07	
2	<p>UNIT II: Types, Causes and Effects of Disasters</p> <p>2.1 Earthquake and Tsunami</p> <p>2.2 Tropical Cyclones</p> <p>2.3 Droughts and Floods</p>	08	

3	<p>UNIT III: Social Crisis and Management</p> <p>3.1 Nature and Types of Social Crisis</p> <p>3.2 Terrorism; Communalism and Casteism</p> <p>3.3 Role of the Government and NGOs in Crisis Management</p>	08	
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Reference:

1. Arick, Auf Der Heide. 2002. *Disaster Response: Preparedness and Co-ordination* Online Book: The Center for Excellence in Disaster Management and Humanitarian Assistance.
2. Goel, S.L. and Ram Kumar J T (ed.). 2001. *Disaster Management*, Deep & Deep, New Delhi.
3. Sinha,Prabhas Chandra (ed). 2006. *Disaster Management Process Law, Policy and Strategy*, SBS, New Delhi.
4. Sinha,Prabhas Chandra (ed). 2006. *Disaster Relief Rehabilitation and Emergency humanitarian Assistance*, SBS, New Delhi.
5. Sinha, Prabhas Chandra (ed). 2006. *Disaster Mitigation Preparedness Recovery and Response*, SBS, New Delhi.

Sociology of Consumer Behaviour

- Students will be able to recall the external factors influencing consumer behaviour
- Students will be able to compare and contrast the decision making process for an existing new product.

Course Code :	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

To enlighten with the introductory knowledge of Sociology of Consumer Behaviour

To explain the causes and kinds of consumer behaviour

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of consumer behaviours and its importance. (K1)
CO2	Describe the factors influences the consumer behaviour. (K5)
CO3	Analyze the different types of buying behavior and decision process. (K4)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	2	2	3	2	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	Unit-1 Introduction 1,1 Meaning of Consumer Behaviour 1.2 Scope – Psychological, Social, Cultural and Economic Aspects 1.3 Importance of Consumer Behaviour 1.4 Buyer- Seller- Consumer	08	CO1
2	Unit-2 Factors Influencing Consumer Behaviour	08	CO2

	1.1 Situational Factors- Time, Environment and Credit and Debit 2.2 Social Factors- Family, Reference group, Culture and social Class		
3	Unit-III Consumer Buying-Decision Process 3.1 Buying- Decision for Existing Product- 5 Steps 3.2 Types of Buying Behaviour- Complex, Dissonance Reducing, Habitual and Variety Seeking	08	CO3

TEXTBOOKS:

- 1 Consumer Behaviour., Barra and Kazmi., Excel Books., New Delhi., 2004
- 2 Marketing., 13th Edition., Etzel, Walker and Stamina., Tata-McGraw Hill ., New Delhi., 2004

Course Title: NME PAPER I: INTRODUCTION TO SUPPLY CHAIN MANAGEMENT

Course Code : 45103	Credits : 2
L:T:P:S : 2:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able to develop a sound understanding of the important role of supply chain management in today's business environment, the current trends, tools & equipment and kindle an interest to choose SCM as a career option.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Outline the key concepts relating supply chain management and logistics management
CO2	Identify the main drivers of supply chain performance and explain their role in supply chain
CO3	Recommend the best mode of transportation under various situation and determine the various factors affecting transportation
CO4	Explain the role of warehouse and the various types of warehouses
CO5	Determine the importance of material handling and list out the various tools and equipment used for material handling & Summarize the role of information technology in SCM

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	-	1	1	2	3	-	2	2	-	2	2	2
CO2	-	2	2	2	3	2	2	1	1	1	3	3
CO3	-	3	3	3	3	2	2	2	1	3	2	2
CO4	-	2	3	3	3	2	2	1	-	2	3	2

CO5	-	2	3	3	3	3	3	3	3	3	2	3
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MODULE	CONTENTS OF MODULE	Hours	COs
I	Supply Chain Management – Introduction, Definition, Objectives, Importance, Functions – SCM as a profession - SCM Vs Logistics	6	CO1
II	Key concepts in SCM - Enablers of supply chain performance - Linking supply chain and business performance – Supply Chain Performance Measures.	6	CO1 CO2
III	Transportation selection – Modes of transportation – Modes of Distribution – Factors affecting network effectiveness – Indian Transport Infrastructure	6	CO3
IV	Value information and Order Management - Distribution Requirement Planning - Just-In-Time system - Warehousing and materials Handling Management - Automated Warehousing System	6	CO4 CO5
V	Information Technology in SCM – Web-based supply chain – E-business and SCM – Benchmarking	6	CO5

TEXT BOOKS:

1. Shah, J. (2016). *Supply Chain Management – Text and cases*. New Delhi, India: Pearson India Education Services.
2. Chopra, S. & Meindl, P. (2019). *Supply Chain Management-Strategy Planning and Operation*. Noida, India: PHI Learning

REFERENCE BOOKS:

1. Natarajan, L. (2018). *Logistics and Supply Chain Management*. Chennai, India: Margham Publications

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. <https://www.inboundlogistics.com/cms/index.php>
2. <https://supplychaindigital.com/>
3. <https://www.supplychainbrain.com/>

4. <https://www.scmr.com/>
5. <https://www.logisticsmgmt.com/>

Course Title: CORE IV- MANAGEMENT CONCEPTS & ORGANIZATIONAL BEHAVIOUR

Course Code : 45205	Credits : 4
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to understand the conceptual framework of management and organizational behaviour.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Define the skills that a manager is expected to possess
CO2	Restate the essentials of planning in management and sketching the organizational structure adopted in any organization
CO3	Analyze the role of recruitment, selection and training and articulate the managerial aspects of controlling and coordinating
CO4	Analyze the organizational and individual behaviour
CO5	Understand & evaluate the importance of leadership skills and motivational needs

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	2	2	3	3	3	1	2	3	2	3	3	3
CO2	3	2	2	2	3	1	2	3	3	3	3	2
CO3	3	2	2	3	3	2	3	3	1	2	2	1
CO4	2	1	1	1	2	2	3	2	3	3	3	2
CO5	3	1	1	2	3	2	3	3	1	3	1	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction - Management: Meaning – Definition - Nature and Scope of Management – Management both Science and Art – Levels of Management – Role and Skills expected of a Manager- Business enterprise- different forms of business- Sole proprietorship- One Person Company, Joint Hindu Family Firm, Partnership firm, Joint Stock Company, Cooperative society; Limited Liability Partnership- Choice of form of Organization - Basic consideration in setting up of enterprise	25	CO1
II	The Process of Management: Management by Objectives (MBO) Planning; Decision-making; Strategy Formulation. Organizing: Basic Considerations; Organization Structure, Departmentation – Functional, Project, Matrix and Network; Delegation and Decentralization of Authority	20	CO2
III	Staffing: Recruitment: Meaning & Sources, Selection, Stages – Interview: Types – Training: Process and Methods of Training – Direction: Meaning, Importance, Principles Controlling: Meaning, Definitions, Nature, Characteristics, Benefits of Control, Importance, Problems – Management By Exception (MBE) - SWOT Analysis – Management Information Systems (MIS) - Coordination: Meaning, Definition, Nature, Importance, Problems - Principles of Coordination – Techniques of Coordination	20	CO3
IV	Introduction to Organizational Behaviour: Introduction to Organization - Organizational behavior - OB Concepts - OB Model - Introduction to Individual Behavior - Motivation at work - Dynamics of group behaviour - Individual & organizational factors to stress - Prevention & Management of stress.	10	CO4
V	Leadership: Concept and Styles; Trait and Situational Theory of Leadership-Motivation: Concept and Importance – Maslow Need Hierarchy Theory - Herzberg Two Factors Theory - McGregor and Ouchi theory - Control: Concept and Process - Communication: Process and Barriers - Transactional Analysis (TA) - Johari Window - Change Management: Resistance to change and strategies to manage change - Conflict levels, causes and resolution - Functional and Dysfunctional aspects of conflict - Emerging issues in management	15	CO5

TEXT BOOK:

1. Gupta, C.B.(2017). *Management Theory & Practice*, NewDelhi, India: Sultan Chand & Sons.

2. Gupta, C.B. (2014). *A Textbook on Organizational behaviour*. New Delhi, India: S. Chand Publications.
3. Natarajan, K & Ganesan, K.P. (2020). *Principles of Management*. Mumbai, India: Himalaya Publishing House.

REFERENCE BOOKS:

1. Gupta, C.B. (2014). *A Textbook on Organizational behaviour*. New Delhi, India: S. Chand Publications.
2. Viswanthan, R. (2018). *Principles of Management – Concepts & Cases*. Mumbai, India: Himalaya Publishing House.
3. McShane, S. L. & Glinow, M. A. V. (2019). *Organizational Behavior*. New York, United States of America: McGraw-Hill Education,

Note: Latest Edition of the reading to be used.

Course Title: NME II - E-COMMERCE

Course Code : 45206	Credits : 2
L:T:P:S : 2:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to improve his knowledge on the concept of e-commerce, its applications and development and the challenges faced while entering into/managing an e-business.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Develop an in-depth knowledge about the concept of E-Commerce and list out the benefits and limitations of the same.
CO2	Understand the application of various E-Commerce applications like E-Marketing, E-Shopping, E- Advertising
CO3	Gain an insight on the role played by Electronic Data Inter-change in the modern world
CO4	Maximize the usage of electronic payment systems like payment using credit cards, debit cards, electronic wallets etc.
CO5	Identify and understand the usage of e-marketing techniques

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	2	1	1	1	3	1	1	2	-	3	2	2
CO2	2	1	1	1	3	1	1	1	-	2	2	3
CO3	2	1	3	3	3	3	3	3	1	3	3	3
CO4	2	2	2	3	3	3	2	3	2	3	3	3
CO5	2	2	3	3	3	3	3	3	2	2	3	3

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to E-Commerce: Definition, Classification of E-Commerce: B2B, B2C, C2B, C2C, Benefits, Limitations, Traditional Commerce Vs E-Commerce, Resources required for Successful implementation of E-Commerce, Threats to E-Commerce Transactions, Disputes.	6	CO1
II	E-Commerce Applications: Entertainment – E-Marketing – E-Advertising and its techniques: Banners, Sponsorships, Portals, Online Coupons - Online Trading – E-Shopping – Mobile Commerce: Advantages, Problems and Future of M-Commerce.	6	CO2
III	Electronic Data Interchange (EDI): Applications – Security and Privacy Issues – Software Implementations – Value Added Networks – Internal Information System – Work-flow Automation and Coordination – Customization – Supply Chain Management	6	CO3
IV	Electronic Payments Systems: Electronic Payment System: Special features required in payment system for e-commerce, Types of e-payment System: E-cash & currency servers, e- cheques, credit cards, smart cards, electronic purses & debit cards - Advantages - Issues of EPS.	6	CO4
V	E-Marketing Techniques: Search Engines, Directories, Registrations, Solicited targeted E-mails, Interactive sites, Banners, Advertising, Spam Mails, E-mail, Chainletters. Applications of 5P's (Product, Price, Place, Promotion, People)	6	CO5

TEXT BOOKS:

1. Dr. Abirami Devi. K & Dr. Alagammai, M. (2019). *E-Commerce*. Chennai, Tamil Nadu, India: Margham Publications.
2. Dr. Raydu, C.S (2018). *E-Commerce & E-Business*. Mumbai, India: Himalaya Publishing House.

REFERENCE BOOKS:

1. Dr. Arora, S. (2020). *E-Commerce*, Chennai, Tamil Nadu, India: Taxmann Publications.
2. Dr. Pandey U.S & Saurabh, S. (2014). *E-Commerce and Mobile Commerce Technologies*. New Delhi, India: Sultan Chand & Sons Private Limited.
3. Bansal, R. Bansal, S. & Bansal, S. (2016). *E-Commerce*. New Delhi, India: Kalyani Publications.
4. Murthy, C.S.V. (2019). *E-Commerce (Concepts, Models, Strategies)*. Mumbai, India: Himalaya Publishing House

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. <https://irp-cdn.multiscreensite.com/1c74f035/files/uploaded/introduction-to-e-commerce.pdf>.
2. <https://saif4u.webs.com/E-ommerce-Notes.pdf>
3. https://backup.pondiuni.edu.in/storage/dde/dde_ug_pg_books/E-%20Commerce.pdf.

Course Title: CORE VI - BUSINESS LAW

Course Code : 45308	Credits : 4
L:T:P:S : 5:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to gain knowledge on the legal framework in which a business is expected to function

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the basic requirements of the Indian contract Act, 1872
CO2	Illustrate how parties can discharge their contract by agreement.
CO3	Understand the general principles and the nature of obligations underlying Contracts of Indemnity & Guarantee and bailment & pledge.
CO4	Point out transactions involving Sale of Goods Act, 1930
CO5	Categorize and understand the various nuances of Intellectual Property Rights and Competition Law in India

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	1	2	3	2	2	1	1	1	1	1	3	1
CO2	1	1	3	2	1	1	1	-	1	1	2	1
CO3	1	1	1	1	1	1	1	1	-	1	1	1
CO4	1	1	3	1	2	1	1	1	2	2	3	1
CO5	1	2	3	2	1	1	1	3	-	1	3	-

MODULE	CONTENTS OF MODULE	Hours	COs
I	<p>Indian Contract Act, 1872 - Essentials of a Contract and Concepts</p> <p>Contract & Agreement: Definition, Meaning, Characteristics – Classification of contracts - Essentials of valid contract - Offer and essentials of valid offers – Acceptance and essentials of Acceptance - Communication of Offer and Acceptance - Revocation of Offer and Acceptance – Consideration - Essentials of Consideration – Stranger to contract – No Consideration no Contract - Contractual Capacity Effects of Minors - Persons of Unsound mind - Persons disqualified from contracting by any other law</p>	20	CO1
II	<p>Indian Contract Act, 1872- Essentials, Performance, Discharge and Breach of Contract</p> <p>Free Consent - Coercion - Undue Influence - Fraud - Misrepresentation – Mistake - Legality of Object - Performance of Contract - Discharge of Contract, By Agreement, By Operation of law, By Breach, By Performance, By Impossibility, By Lapse of time-Breach of Contract-Remedies for Breach of Contract-Quasi Contracts.</p>	15	CO2
III	<p>Indemnity, and Guarantee, Bailment and Pledge</p> <p>Indemnity - Right of indemnity holder when sued and Right of indemnifier - Time of Commencement of indemnifier’s liability - Guarantee - Essential features - Kinds of Guarantee - Bailment – Requisites of bailment-Classification–Duties and Rights of Bailor and Bailee - Pledge - Rights and Duties of Pledger and Pledgee – Pledge by Non-Owners-Law of Agency-Lien-Rights relating to Lien - Hypothecation - Charge - Mortgage</p>	10	CO3
IV	<p>Sale of Goods Act, 1930</p> <p>Sale and Agreement to Sell – Meaning - Distinction - Essentials of a contract of sale - Hire Purchase – Pledge – Mortgage – Hypothecation – Lease – Goods: Classification of Goods, Passing of Property in Goods - Conditions and Warranties, Distinction, Express and implied conditions & warranties - Doctrine of Caveat emptor - Transfer of ownership in goods including sale by non-owners - Rights of an unpaid Seller, Buyer’s right, Seller’s right – Remedies for breach of contract of sale – Auction sale</p>	15	CO4

V	Competition Law, 2002 and Intellectual Property Act Concept of Competition - Need & Importance of Competition Law - Features - Anti Competitive Agreements – Abuse of dominant position – Combinations – CCI (Competition Commission of India) Intellectual Property – Meaning, Types, Overview of Law governing IPR for Copyrights, Trademarks, Patents and Geographical Indications	15	CO5
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TEXT BOOKS:

1. Kapoor, N.D. (2020). *Elements of Merchantile Law*. New Delhi. India: Sultan Chand and Sons
2. Sreenivasan, M.R. (2020). *Business Law*. Chennai, India: Margham Publications.
3. Kuchcal, M.C. (2018). *Mercantile Law*, New Delhi. India: Vikas Publishing House Pvt. Ltd.

REFERENCE BOOKS

1. Arora, S. (2021). *Business Law*, New Delhi. India: Taxman Publications.
2. Dhingra, J. (2019). *Business Law*, New Delhi. India: Kalyani Publishers.
3. Bose, D.C. (2019). *Business Law*, New Delhi. India: PHI Learning Pvt. Ltd.
4. Charantimath, N.A. (2017). *Business Law*. Mumbai, India: Himalaya Publishing House.

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. <https://www.icaai.org>
2. <https://www.icsi.in>
3. www.cramerz.comwww.digitalbusinesslawgroup.com
4. <http://swcu.libguides.com/buslaw>
5. <http://libguides.slu.edu/businesslaw>
6. www.cramerz.com
7. www.digitalbusinesslawgroup.com
8. <http://swcu.libguides.com/buslaw>

Course Title: CORE VII: BANKING THEORY AND PRACTICE

Course Code : 45309	Credits 4
L:T:P:S : 5:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to get an overview of Indian Banking system, gain knowledge on the technological concepts prevalent in the banking industry, be acquainted with the services under retail and wholesale banking, and be familiarized with negotiable instruments,

Course Outcomes: At the end of the course, the student will be able to:

CO1	Explain the conceptual framework of banking and the role of RBI
CO2	Recall and understand the various functions of commercial banks and its loan system
CO3	Develop the knowledge on various aspects of retail banking and customer grievances and redressal
CO4	Understand the various services provided by banks under wholesale banking
CO5	Know the laws governing the banks under the Negotiable Instruments Act

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	2	3	1	2	1	1	1	3	3	1	3	1
CO2	2	3	1	1	1	2	1	3	3	1	3	1
CO3	3	2	2	2	1	2	1	3	3	1	3	2
CO4	3	3	2	2	1	2	1	3	3	1	3	2
CO5	3	3	2	2	1	1	1	3	1	1	3	1

MODULE	CONTENTS OF MODULE	Hours	COs
I	<p>Banking in the Indian Context - Banking Regulation Act, 1949: Definition of Banking, Licensing, Opening of branches, Functions of Banks, Inspection - Other Forms of Business Permitted for a Banking Company - Businesses Prohibited for a Banking Company - Maintenance of Liquid Assets - Submission of Monthly Returns - Restrictions on Advances - Role of RBI and their functions - Reserve Banks Powers on Inspection - Reserve Banks Powers to Issue Direction</p> <p>- Reserve Banks Power to Control Advances - Tools of Monetary Control-Regulatory Restrictions on Lending-Current affairs-Money market- Financial Inclusion.</p>	12	CO1
II	<p>Commercial Banks and Financial awareness - Functions of commercial banks - Primary, Secondary and Modern Functions - Loan System - Classification of Loans and Advances -Secured and Unsecured - Guaranteed Advances – Types of Borrowings – Precautions to be taken by a banker-General Principles of Sound – Advances – Advances against Goods - Advances against Documents of Title to Goods - Important Documents of Title to Goods –Credit Information Bureau (India) Limited (CIBIL) - Fair Practices Code for Debt Collection – Banking Codes and Standard Board of India (BCSBI) - Role and Functions of BCSBI - Fair Practices Code for Debt Collection-Codes of BCSBI – Precautions taken by banker.</p>	20	CO2
III	<p>Retail Banking: Retail asset - Secured loans and Unsecured loans - Retail Liabilities: Branch Banking - Savings Bank Accounts, Recurring Deposit or Cumulative Deposit Accounts, Current Accounts - Types of customers (Individuals, Firms, Trusts and Companies) - CASA - Legal Aspects of Entries in the Passbook – Effect of Wrong Entries in favor of the Banker - Effect of False Entry in the Pass Book - Closing of a Bank Account - Importance of customer relations – Customer grievances and redressal - Ombudsman - Know Your Customer (KYC) norms</p>	18	CO3

IV	Wholesale Banking - Financial solutions to corporate - Capital Market - Custody Group - Structured Finance and Portfolio Management Project Finance - Strategic Solutions – Syndication and advisory - Credit Monitoring - Credit Risk Management - Cash management services - Group Style of Credit - Cash Credit System - Commitment Charge - Overdrafts - Loan System - Classification of Loans and Advances - Secured and Unsecured - Guaranteed Advances – Types of Borrowing – IMPS – SWIFT – NEFT - RTGS	15	CO4
V	Negotiable Instruments Act,1881 - Definition of Negotiable Instrument - Characteristics of negotiable instrument - Promissory Note -Definition, Features of Promissory Note - Definition of Bills of Exchange, Features, Types - Bill of Exchange and Promissory Note - Holder and Holder in Due Course-Payment in Due Course – Holder for Value – MICR Cheque - Definitions - Distinguishing Features of Cheque - Crossing, Types of crossing - Endorsement, Types of endorsement – Material Alteration - Paying Banker - Rights and Duties – Statutory Protection - Dishonour of Cheques - Role of collecting banker	10	CO5

TEXT BOOKS:

1. Santhanam, B. (2012) *Banking Theory Law & Practice*. Chennai, Tamil Nadu: Margham Publications.
2. Sundaram, K.P.M & Varshney, P.N. (2014) *Banking Law Theory and Practice*. New Delhi, India: Sultan Chand &Co.
3. Muraleedharan, D. (2014). *Modern Banking Theory and Practice*, New Delhi, India: PHI Learning Pvt. Ltd.

REFERENCE BOOKS:

1. Maheswari, S.N. (2014). *Banking Law Theory and Practice*. New Delhi. Kalyani Publications
2. Gordon,E.&Natarajan,K.(2016).*BankingTheoryLawandPractice*.Mumbai,India:Himalaya Publishing House.
3. Tandon, D & Tandon, N (2015). *Management of Banks*. New Delhi, India: Taxmann Publications.
4. Shekhar, K. C. & Shekhar, L. (2013). *Banking Law Theory and Practice*. New Delhi,India: Vikas Publishing

Note: Latest Edition to be used.

WEB RESOURCES

1. <http://www.lawcommissionofindia.nic.in/>
2. <http://www.rbi.org/>
3. <http://www.bankingombudsman.org/>
4. <http://www.allbankingsolutions.com/Banking-Tutor/Pledge-vs-Hypothecation-vs-Mortgage.htm>
5. <https://indianmoney.com/articles/relationship-between-the-banker-and-customer>

<https://financialservices.gov.in/sites/default/files/Negotiable%20Instruments%20Act1881>

Course Title: CORE XI - CORPORATE LAW

Course Code : 45413	Credits : 4
L:T:P:S : 5:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to gain knowledge on the procedures of company formation, meetings and quorum, process of profit distribution and maintenance of company accounts and understand the legal framework of LLP and IBC.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the procedures relating the formation of a company and raising share capital.
CO2	Explain the process of profit distribution and maintenance of accounts.
CO3	Demonstrate the importance of meetings and the quorum required for a meeting and the resolutions that have to be taken depending upon the business decisions.
CO4	Get an insight over Limited Liability Partnership Act, 2008
CO5	Understand the framework of Insolvency and Bankruptcy Code Act.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	2	2	3	2	2	1	1	3	2	2	3	3
CO2	1	1	3	3	2	1	1	3	2	2	3	2
CO3	1	1	1	1	1	1	1	3	1	2	3	1
CO4	1	1	1	3	1	1	1	1	1	2	2	2
CO5	1	2	3	2	1	1	1	3	3	3	3	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	<p>Introduction and Basics, Company Formation, Share Capital, Shareholders and Members (as per the Companies Act, 2013) Introduction - Characteristics of a company - Lifting of corporate veil - Types of companies including one person company, small company and producer company – Association not for profit, illegal association - Formation of company – Promoters, their legal position - Pre-incorporation contract and provisional contracts - Online registration of a company - Memorandum of Association - Doctrine of Ultra Vires - Articles Of Association Contents & Alteration, Distinguish between MoA and AoA - Share capital and shareholders – Prospectus - Statement in Lieu of Prospectus – Meaning, Types of capital - Concept of issue and allotment - Rights and Bonus issue - Dematerialisation of shares - Criteria to become a member, Rights of members - Declaration of Beneficial Interest - Difference between members and shareholders.</p>	20	CO1
II	<p>Profit Distribution & Accounts Profits and Divisible Profits – Declaration and Payment of Dividend – Unpaid Dividend – IEPF in case of Unpaid Dividend – Punishment for failure to pay Dividend - Right to Dividend - Books of Accounts – Consolidation of Accounts - Financial Statements – Reopening of Financial Statements – Voluntary revision of Financial Statements</p>	20	CO2
III	<p>Company Meetings and Management Composition of the board – Introduction to committees - Powers and liabilities of Directors – Number of directors, Types of Directors, Qualification of directors, DIN - Types of company meetings – Quorum - Minutes of meetings – Agenda - Proxies - Voting & Poll - Resolution - Ordinary and Special</p>	10	CO3
IV	<p>The Limited Liability Partnership Act, 2008 Salient Features, Difference between LLP & Partnership, LLP & Company – Formation & Administration of LLP – Compliances under LLP Corporate Social Responsibility Applicability - Policy Drafting – Procedure to be followed by company - Intimation to ROC - Computation of amount to be spent - Purpose for which amount can be spent- consequences of non – Compliance.</p>	10	CO4

V	Insolvency and Bankruptcy Code (IBC) Insolvency and Bankruptcy - A Comparison - Legal Framework for Insolvency and Bankruptcy In India - Objectives of the Code - Structure of the Code - Applicability of the Code - Features of the Code - Institutional Framework under the Code - Voluntary Liquidation under Chapter V - Benefits of IBC	15	CO5
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TEXT BOOK:

1. Kapoor, N.D. (2020). *Elements of Company Law*. New Delhi, India: Sultan Chand & Sons.
2. Sreenivasan, M.R. (2020), *Company Law as per Companies Act, 2013*. Chennai, India: Margham Publications

REFERENCE BOOKS:

1. Kapoor, G.K. & Dhamija, S. (2021). *Company Law*. New Delhi, India: Taxmann Publications
2. Bagriyal, A.K. (2019). *Company Law*. New Delhi, India: Vikas Publishing House Pvt. Ltd.
3. Maheswari, S.N. & Maheswari, S.K (2016). *Company Law*. Mumbai, India: Himalaya Publishing House
4. Garg, K.C, Dhingra, J. & Gupta, V. (2020). *Company Law and Secretarial Practice*. New Delhi, India: Kalyani Publications

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. ICSI Study Material for IBC - <https://www.icsi.edu/media/webmodules/CompanyLaw.pdf>

Course Title: CORE XII - BUSINESS COMMUNICATION

Course Code : 45414	Credits : 4
L:T:P:S : 5:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to improve his verbal and written communication and presentation skills and train and prepare for placements.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Apply communication tools, strategies, and principles to make communication more effective
CO2	Develop an understanding about appropriate verbal skills of communication and presentation skills
CO3	Prepare various forms of business letters, reports, business proposals and forms of internal communication tools
CO4	Explain and illustrate the various interpersonal communication including etiquette and netiquette
CO5	Groom and prepare themselves for placements through various stages

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	3	3	1	2	2	2	3	2	1	3	2	1
CO2	3	3	1	2	2	2	2	2	1	3	2	1
CO3	3	2	1	2	2	1	2	2	1	2	1	1
CO4	3	1	1	2	3	1	2	3	2	1	2	1
CO5	3	1	1	2	3	1	2	3	1	1	2	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to communication: Importance of Business Communication- Types and Effectiveness - Seven Cs of Communication. Using technology to improve business communication - Cross-cultural communication and their challenges in a global field – Technical writing – Executive Summary/Abstract Writing	12	CO1
II	Verbal Communication Effective Public Speaking - Body Language - When, What, How, To Whom to Speak - Presentation skills - Delivering the business presentation using visual aids, Handouts - Glossophobia and Low confidence - Mastering listening skills - Conversational Skills - Criss-Cross communication: upward, downward, lateral, formal, informal, grapevine.	20	CO2
III	Business Correspondence (Written) Guidelines to business communication - Formal & informal Writing - Tools of Business writing - Business Letter, Claims & Response to Claims (Accept, Reject, Partially Accept) – Report writing - Business Proposals - Circular, Notice, Memorandum.	18	CO3
IV	Interpersonal Communication Netiquette (email & online), Telephone Etiquette, Social Etiquette, Dress Etiquette (Corporate Dressing) - Effective Team Communication - Team building, Team spirit – Time management - Agenda, Minutes of meetings – Podcasts – Feedback - Importance of Feedback, Kinds: No Feedback, Positive, Negative, Specific feedback, Constructive Criticism.	17	CO4
V	Placement Grooming Cover Letter, Resume Writing, Pre-Placement Talk, Tests: Aptitude, Technical. Group Discussions, Personal Interview.	8	CO5

TEXT BOOKS:

1. Nawal, M. (2020). *Business Communication*. New Delhi, India: Cengage
2. Rath, P., Shalini, K. & Ray, D. (2018). *Corporate Communication*. New Delhi, India: Cengage
3. Gupta, C.B. (2019). *Essential Business Communication*. New Delhi, India: Cengage
4. Rajendra Pal & Korlahalli J.S. (2015). *Essentials of Business Communication*. New Delhi, India: Sultan Chand & Sons.
5. Taylor, S. (2005). *Communication for Business*. New Delhi, India: Pearson India Education Services.

REFERENCE BOOKS

1. Jain,N. & Mukherji,S. (2020). *Effective Business Communication*. New Delhi, India: McGraw Hill India Pvt. Ltd.
2. Mohan, K. Mohan, R.C. & Nirban, V.S. (2020). *Business Correspondence & Report Writing*. New Delhi, India: McGraw Hill India Pvt. Ltd.
3. Rai, U. & Rai, S.M. (2019). *Business Communication*. Mumbai, India: Himalaya Publishing Pvt. Ltd.
4. Bovee, C.L., Thill, J.V. & Raina, R.L. (2018). *Business Communication Today*. New Delhi, Pearson India Education Services

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. www.businesscommunication.org

SEMESTER V

Course Title: CORE XIII - **BASICS OF COST ACCOUNTING**

Course Code : 45515	Credits	4
L:T:P:S : 6:0:0:0	CIA Marks	: 50
Exam Hours : 03	ESE Marks	: 50

Learning Objectives:

On taking this course the student will be able to possess in-depth knowledge about the basic cost concepts and its objectives, apply cost control and reduction techniques in practical, determine stock levels for efficient materials management, compute labour costs, analyze the implication of overheads and their effective apportionment, prepare the cost ledger and reconcile the cost and financial statements.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Demonstrate the basic concept of cost and cost accounting and how to compute the cost of a product by preparing a cost sheet and quotation for a production industry.
CO2	Discover the need for fixing stock levels for production and its computation. Prepare stores ledger to value of closing stock and the cost of goods sold or sent for production
CO3	Understand the different wage payment systems and their computation, the concept of labour cost and labour turnover and their computation
CO4	Develop knowledge regarding overheads and the concept of allocation and apportionment of overheads to various departments on a suitable basis.
CO5	Create cost ledger and identify the reasons for disagreement of profit and prepare the reconciliation statement

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	1	2	3	3	2	2	2	3	2	3	2	2
CO2	2	2	2	3	1	3	1	2	2	1	2	1
CO3	3	3	2	3	2	2	1	2	2	2	1	1
CO4	2	2	3	3	1	1	1	2	3	3	2	1
CO5	-	1	3	3	1	2	1	2	1	3	2	1

MODULE	CONTENTS OF MODULE	Hours	COs
I	CAS-1: Meaning, nature and scope of Cost Accounting, Cost analysis, Concepts and Classifications, Differences between Cost and Management accounting, Cost and Financial accounting, Cost control and Cost reduction: Meaning, Importance and Distinction- Techniques of cost control – Cost Sheet: Purpose, Preparation of cost sheet, tender and quotation	20	CO1
II	CAS-6: Material purchase control: Level, aspects, need and essentials of material control - Stock level determination - Maximum, Minimum, Reorder, Danger and Average - Stores control - Stores Department, EOQ, Stores records, ABC analysis, VED analysis - Material costing: Issue of materials: FIFO, LIFO, Weighted Average Method – Other methods: HIFO, Simple Average Method, Market price, Base stock method and Standard Price method	20	CO2
III	CAS-7: Labour: Essentials of a good wage system, Methods of Wage Payment: Time Rate, Piece Rate, Taylor, Halsey and Rowan - Different types of Bonus plan: Gantt's task and bonus plan, Merricks multiple piece rate system - Causes of Labour Turnover, Methods of calculating labour turnover: Separation method, Replacement and Flux method - Methods of reducing labour turnover	20	CO3
IV	CAS-3: Overheads: Meaning and Definition, Importance of overhead costs, Classification of overhead costs, Codification of overheads – Departmentalisation of overheads – Methods of apportionment of overheads: Primary and Secondary apportionment – Under-absorption and over-absorption of overheads - Machine hour rate: Meaning, Importance and Computation	15	CO4
V	Preparation of cost ledger – Integral & Non-Integral Accounts - Reconciliation of Cost and Financial Accounts	15	CO5

PROPORTION OF THEORY WILL BE 20% AND PRACTICAL 80%

TEXT BOOK:

1. Khan, M.Y. & Jain, P.K. (2017). *Cost Accounting*. New Delhi, India: McGraw Hill (India) Pvt. Ltd.
2. Maheswari, S.N. & Mittal, S.N (2021). *Cost Accounting Principles and Practice*. New Delhi, India: Shree Mahavir Book Depot
3. Lal, J. & Srivastava, S. (2020). *Cost Accounting*. New Delhi, India: McGraw Hill (India)Pvt. Ltd

REFERENCE BOOKS:

1. Reddy, T.S. & Hariprasad Reddy, Y.T. (2020). *Cost Accounting*, Chennai, India: Margham Publications
2. Jain, S.P & Narang, K. L. (2019). *Cost Accounting*. New Delhi, India: Kalyani Publications
3. Singh, M. & Chauhan, M. (2020). *Cost Accounting*. Mumbai, India: Himalaya Publishing House.
4. Dr. Gupta, S., Dr. Reeta & Dr. Rao, R.P. (2020). *Cost Accounting*. New Delhi: India: Sultan Chand & Sons

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. www.cost-accounting-info.com
2. www.introtocost.info
3. <https://fasab.gov/resources/managerial-cost-accounting-resources>

Course Title: CORE XVI: CUSTOMS AND GOODS & SERVICE TAX

Course Code : 45518	Credits : 4
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able to acquire knowledge on the concept of goods and service tax, its implementation and applications in the current business environment and its registration and payment procedures through the electronic ledger.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the concept of Indirect Tax and Custom Laws and exemption of duties
CO2	Build knowledge on concepts of GST and the implementation of GST in India
CO3	Classify the Goods and services exempted from tax and understand the procedures of registration and collection of tax
CO4	Develop knowledge about Input Tax credit, tax credit in special circumstances and Reverse Charge Mechanism
CO5	Understand the taxability procedures on goods and services, advanced ruling and e-invoice

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	3	2	2	3	1	2	3	2	2	2	3	1
CO2	3	3	2	3	2	2	3	3	2	3	3	2
CO3	3	3	2	3	2	2	3	3	2	3	3	3
CO4	3	3	2	3	2	2	3	3	2	2	3	3
CO5	3	2	2	3	2	2	3	3	2	2	3	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to indirect tax and customs Introduction, Features of indirect tax , Role of indirect taxation, Merits and demerits of indirect tax – Customs law, Basic concepts, Territorial Waters, Types of custom duties, Levy and collection of custom duties, Exemptions from duty	15	CO1
II	Goods and Services Taxes (theory only) Genesis of GST in India, Concepts of GST, Need for GST, Benefits of GST, Framework of GST as introduced in India, Constitutional provisions, GST network. GST Council, GST Registration – Individuals Liable to get Registered – Compulsory Registration – Registration Procedure – GSTN.	15	CO2
III	Place, Time, Value of supply (theory only) Concepts of supply, Classification, Goods and services, Place of supply: within state, interstate, import and export – Time of supply – Valuation, Registration GSTN, Composite and mixed, Goods exempt from tax, List of services exempt from tax, HSN Code – SAC Code.	20	CO3
IV	Input tax credit and reverse charge mechanism Eligible and ineligible input tax credit, Doctrine of Unjust Enrichment, Apportionment of credit and blocked credit, Tax credit in respect of capital goods & special circumstances, Reversal, Reverse Charge Mechanism, Taxability of E-commerce – Taxability of OIDAR - E- way bills	15	CO4
V	Taxation under GST (Theory only) GST Returns – Types of GST Returns – GSTR1 (Outward Supply) – GSTR2 A&B (Inward Supply) – GSTR3B (Consolidated summary Return) – GSTR9 (Annual Return), Anti- profiteering, Payment of tax, Interest, Penalty, Interest on delayed payment of tax, Zero- rated supply	25	CO5

TEXT BOOK:

1. Reddy, T.S. & Murthy, A. (2019). *Business Taxation (Goods & Service Tax-GST)*. Chennai, India: Margham Publishers.
2. Datey V S. & Sachdeva, K. (2018), *Principles of GST and Customs Law*. Chennai, India: Taxmann Publications
3. Saha, R.G., Dr. Shah, D. & Dr. Usha Devi, N. (2020). *GST (Indirect Taxes)*. Mumbai, India: Himalaya Publishing House

REFERENCE BOOK:

1. Dr. Mehrotra, H.C. & Prof. Agarwal, V.P.(2018). *Goods & Service Tax (GST)*. Agra, India: Sahitya Bhavan Publication
2. Bansal, K. M. (2021). *GST & Customs Law*. Chennai, India: Taxmann Publication.
3. Dr. Varadharaj, S. (2019) *Indirect Taxation (GST and Customs)*. Chennai: India. Sri Rudhra Learning.

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. <https://icmai.in/upload/Students/Syllabus2016/Inter/Paper-11-Jan2021.pdf>
2. <https://www.icsi.edu/media/webmodules/Reading%20Material%20Indirect%20Tax.pdf>
3. https://www.researchgate.net/publication/333448381_indirect_tax_GST_book/link/5cee5bb2a6fdcc18c8e9b70f/download

Course Title: CORE XVIII: COSTING METHODS AND TECHNIQUES

Course Code : 45621	Credits : 4
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to understand the costing procedures in various industries like job, process, contract and service and gain knowledge on the emerging trends in cost management and its applications.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the job costing procedures and determine the economic batch quantity
CO2	Identify the operating costing procedures in various service industries and Apply the operating cost techniques
CO3	Analyze the various industries using a process costing and prepare process accounts
CO4	Understand the contract costing system and ascertain notional profits for various contracts
CO5	Build knowledge regarding new costing techniques and apply those techniques for effective cost management

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	1	2	2	3	-	2	1	2	2	3	2	2
CO2	2	3	3	3	1	2	1	3	2	3	3	2
CO3	1	2	2	3	1	3	2	2	1	2	1	2

CO4	2	2	3	3	1	2	1	3	2	2	1	1
CO5	2	2	1	1	2	1	1	3	2	3	2	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	Job & Batch Costing Job Costing: Meaning, Definition of job, Features, Objectives, Merits & demerits – Job Costing Procedures - Batch Costing: Meaning, Determination of Economic Batch Quantity (EBQ)	15	CO1
II	Operating Costing: Meaning, Application of operating costing method, Operating cost units – Operating costing in Transport, Power Supply, Cinema Theatre, Hospital and Lodging house.	15	CO2
III	Process Costing: Meaning of Process costing, Characteristic features, Types of industries using process costing, Advantages of process costing, Disadvantages of process costing–Difference between process costing & job costing - Important aspects of process costing – Process Losses-Normal, Abnormal loss & gain - Process a/c's involving two or three accounts - Scrap value (Excluding inter-process profits and equivalent production)	20	CO3
IV	Contract costing: Characteristic features of contracts and contract costing, System of contract costing - Recording of costs of a contract – Recording of value and profit on contracts – Profit/loss on contracts - Meaning of Notional profit, Computing notional profit based on different phases of completion-Meaning of escalation clause - Need and Importance	25	CO4
V	Emerging trends in cost accounting (Theory only): Target costing: Features, Advantages, Methodology, Methods of establishment of target costs – Activity Based Costing–Problems with traditional costing, concept and usefulness of activity based, cost allocation and stages under ABC - Life cycle: Meaning of life cycle, Characteristics of life cycle, Importance and benefits, Product life cycle costing concept	15	CO5

PROPORTION OF THEORY WILL BE 20% AND PRACTICAL 80%

TEXT BOOK:

1. Khan, M.Y. & Jain, P.K. (2017). *Cost Accounting*. New Delhi, India: McGraw Hill (India) Pvt. Ltd.
2. Maheswari, S.N. & Mittal, S.N (2021). *Cost Accounting Principles and Practice*. New Delhi, India: Shree Mahavir Book Depot
3. Lal, J. & Srivastava, S. (2020). *Cost Accounting*. New Delhi, India: McGraw Hill (India) Pvt. Ltd.

REFERENCE BOOKS:

1. Reddy, T.S. & Hariprasad Reddy, Y.T. (2020). *Cost Accounting*, Chennai, India: Margham Publications
2. Jain, S.P & Narang, K. L. (2019). *Cost Accounting*. New Delhi, India: Kalyani Publications
3. Singh, M. & Chauhan, M. (2020). *Cost Accounting*. Mumbai, India: Himalaya Publishing House.
4. Dr. Gupta, S., Dr. Reeta & Dr. Rao, R.P. (2020). *Cost Accounting*. New Delhi: India: Sultan Chand & Sons

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. www.cost-accounting-info.com
2. www.introtocost.info
3. <https://fasab.gov/resources/managerial-cost-accounting-resources>

Course Title: ELECTIVE II: (B) COMPUTERIZED ACCOUNTING SYSTEM

Course Code : 45623 (B)	Credits : 5
L:T:P:S : 2:0:4:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able increase his employability skills in the area of accounting through the practical application of the concepts of financial accounting using Tally Prime.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the Basic Concepts of Tally
CO2	Apply the various concepts of Accounting in Tally.
CO3	Post the Order Processing activities using Tally.
CO4	Post GST entries and prepare the GST return using Tally.
CO5	Illustrate the payroll process in Tally.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	3	2	2	2	1	2	3	2	-	1	2	2
CO2	3	3	3	3	2	2	3	3	2	2	2	2
CO3	3	2	2	3	2	2	3	2	1	1	2	2
CO4	3	3	2	2	2	2	3	3	3	2	3	2
CO5	3	2	2	2	2	2	3	3	2	2	2	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to Basic Accounts – Introduction to Tally – Gateway of Tally - Company Creation - Accounts Info – Group – Ledger – Single ledger Creation – Multiple Ledger Creation – Inventory Info – Inventory Creation – Stock Group - Units of Measures – Accounting Voucher – Inventory Voucher	20	CO1
II	Cost Centre and Cost Category – Batch wise Details – Price List – Multiple Currency – Bill of Material – Budget and Control – Multiple Godown	20	CO2
III	Order Processing – Sales Order Processing – Purchase Order Processing –Receipt Note – Delivery Note – Order reference – Rejection In – Rejection Out.	20	CO3
IV	Enabling GST – Defining Details – Creation of GST Ledgers – Posting Entry using GST details – GST Reports – ITC Claim – GST Tax Payments – E-filing of GST returns – Vendor TDS.	10	CO4
V	Payroll Administration – Pay Heads – Pay Group –Payroll Voucher – Employee TDS.	20	CO5

REFERENCE BOOKS:

1. Ahamed, R.P. Tally. ERP 9. Chennai, India: Margham Publications.
2. Tally. ERP 9 Auditors' Edition Statutory Audit Reference Book. (2011). Tally Solutions Pvt Ltd.

Note: Latest Edition of the Reading to be used.

WEB RESOURCES

1. Tally. ERP 9 Auditors' Edition Statutory Audit Reference Book, Tally Solutions Pvt. Ltd.
Available at:
<http://mirror.tallysolutions.com/Downloads/Presentations/Chartered%20Accountants/Manuals/StatAuditReferenceBook.pdf>

ASSESSMENT

CIA – Attendance - 5 Marks, Practicals - 30 marks; Internal Test – 15 marks

ESE – Practical Examination for 100 marks (30 marks for VIVA, 20 marks for Record and 50

marks practicals in Lab)

Course Title: ELECTIVE III: (A) ENTREPRENEURIAL DEVELOPMENT AND START UP

Course Code : 45624 (A)	Credits : 5
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able to understand the concept of entrepreneurship, identify significant changes and trends which create business opportunities, analyze the environment for potential business opportunities and provide conceptual exposure on converting idea to an entrepreneurial firm

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the basic concepts of entrepreneurship
CO2	Develop a B-Plan by the evaluation of business ideas and conduct of feasibility study
CO3	Understand the various institutions providing support to entrepreneurial ventures
CO4	Analyze the favorable environment required to run the venture successfully and the role of the government
CO5	Criticize the challenges faced by women and rural entrepreneurs

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO	PSO
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	1	2	3	4	5	6	7	1	2	3	4	5
CO1	2	2	3	3	3	2	1	1	1	2	1	3
CO2	2	2	3	3	3	2	2	1	-	1	2	3
CO3	1	2	1	1	2	2	1	1	1	-	2	3
CO4	1	2	3	2	3	3	1	1	3	2	1	3
CO5	1	2	3	2	3	2	1	1	1	1	-	3

MODULE	CONTENTS OF MODULE	Hours	COs
I	Concept of Entrepreneurship: Entrepreneur - Meaning - Evolution - Functions of an entrepreneur - Traits of an Entrepreneur - Classification of Entrepreneurs – Myths on entrepreneurs – Concept of Intrapreneur – Entrepreneur Vs Intrapreneur - Concept of entrepreneurship – Factors promoting Entrepreneurship – Factors affecting entrepreneurial growth - Reasons for promoting Entrepreneurship - Barriers to entrepreneurship - Reasons of failure	15	CO1
II	Start Up - An Overview: Business Model - Generation of Ideas - Sources of New Ideas - Methods of Generating Ideas, Opportunity Recognition – Feasibility Study: Market, Technical/Operational, Financial, Legal & Social - Opportunity Assessment–Developing an effective Business Plan–Execution of Business Plan - Student Start-up Policy – Government Schemes to support start-ups – Coworking Spaces – Business Accelerators	20	CO2
III	Resource Mobilization & Institutional Support: Angel investors – Crowd-funding - Venture Capital Funds – Stock Market – Supply Chain Finance - Institutional support to entrepreneurs – Need - DIC, TANSIM, NSIC, MSMEDI, SSIC, SIDCO, SIPCOT, IIC, KVIC - Entrepreneurial Development Programs (EDP)– Objective, Need and Relevance of EDPs – Problems of EDPs	15	CO3

IV	Managing Environments: Economic, Technological and Social Environment – Business Cycles – Industry Cycles - Role of Government in promoting entrepreneurship – Policies and Schemes for promotion of MSME in India – Incentives, subsidies & tax concessions – Supporting institutions -Failure, Causes and Preventive Measures – Turnaround Strategies.	20	CO4
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V	Development of Women Entrepreneurship & Rural Entrepreneurship: Women Entrepreneurs – Concept –Growth – Challenges in the path of women entrepreneurship – Development of women entrepreneurship – Opportunities to Women Entrepreneurs – Initiatives, policies & schemes for women entrepreneurs – Grassroot entrepreneurship through Self- Help Groups (SHGs) - Rural entrepreneurship – Need, Importance, Types – Rural Industrialization: Advantages & types – Opportunities for rural entrepreneurs – Risks and problems faced by rural entrepreneurs	20	CO5
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TEXT BOOK:

1. Charantimath, P.M. (2019). *Entrepreneurship Development and Small Business Enterprises*. New Delhi: India. Pearson India Education Services
2. Desai, V. (2019). *Dynamics of Entrepreneurial Development and Management*, Mumbai: India. Himalaya Publishing House.
3. Gordon, E & Natarajan, K. (2020). *Entrepreneurship Development*. Mumbai, India: Himalaya Publishing House Pvt. Ltd.

REFERENCE BOOKS:

1. Fisher, S. & Duane, J. (2016). *The Startup Equation: A Visual Guidebook To Building Your Startup*. New Delhi, India: McGraw Hill (India) Pvt. Ltd.
2. Barringer, B.R. & Ireland, D.R. (2020). *Entrepreneurship: Successfully Launching Ventures*. New Delhi, India: Pearson Education
3. Holt, D.H. (2016). *Entrepreneurship*. New Delhi, India. Pearson Education

Note: Latest Edition of the reading to be used

WEB RESOURCES

1. <https://openstax.org/details/books/entrepreneurship>
2. <https://www.entrepreneur.com/>
3. <https://openpress.usask.ca/entrepreneurshipandinnovationtoolkit/chapter/chapter-1-introduction-to-entrepreneurship/>
4. <https://vtechworks.lib.vt.edu/bitstream/handle/10919/70961/Chapter%206%20Entrepreneurship%20-%20Starting%20a%20Business.pdf?sequence=11&isAllowed=y>

ELECTIVE III: (B) MARKETING MANAGEMENT

Course Code : 45624 (B)	Credits : 5
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able to understand the concepts of marketing and consumer behaviour and gain knowledge on the currently prevalent marketing environment.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the concepts and approaches in marketing and analyze the role of marketing in economic development
CO2	Identify the various factors influence consumer behaviour and locate Market Information system
CO3	Determine the elements of marketing mix and develop a new product plan
CO4	Apply different methods of pricing and create a channel of distribution
CO5	Recognize the E-marketing tools and evaluate the impact of social media marketing

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	3	3	2	2	3	2	2	2	3	-	1	3
CO2	3	3	3	2	3	1	1	3	2	3	-	3
CO3	3	2	3	3	2	2	2	2	1	2	1	3
CO4	2	2	3	2	1	3	1	3	2	1	2	2
CO5	3	2	3	2	3	1	2	3	2	1	2	3

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to Marketing : Marketing: Definition, Nature, Scope and Features of Marketing, Importance of Marketing - Concepts and Approaches to Marketing - Product vs. Service Marketing – Market: Classification of market - Role of Marketing in Economic Development - Innovations in Marketing - Meta marketing.	15	CO1
II	Consumer Behaviour: Definition of Consumer behavior, An overview of consumer behavior, Significance - Buying motives - Determinants of consumer behavior – Decision-making process - Market Segmentation, Bases of segmentation - Marketing Research, Process – MIS, Need for Marketing Information System.	20	CO2
III	Product & Marketing Mix strategies: Product, Features of a product – Classification of goods – Service product - Elements of marketing mix (7P’s) - Product Line – Product positioning - Product differentiation - New product Development – Product Life cycle stages and strategies – Product Portfolio Management Framework – BCG Matrix, Ansoff Matrix - Branding - Packaging and labeling.	20	CO3
IV	Value design - Pricing, Place & Promotional strategies: Pricing: Objectives, Factors influencing pricing decisions, Kinds of pricing, Methods of pricing - New product pricing strategy- Channels of Distribution, Importance, Levels, Channel Members –Promotion – Communication Mix – Basics of Advertising, Sales Promotion and Personal Selling.	20	CO4
V	Development & Issues in Marketing: E-commerce: Significance of E-Commerce – e-Marketing, Tools of e- marketing, e-Tailing, Types of E-Tailers, Advantages of e-tailing - Shopping malls – Social Media Marketing, Importance of Social Media, Advantages and Disadvantages - Services Marketing – Intrusive Marketing - Green Marketing - Rural marketing – Direct Marketing – B2B & D2C marketing - Consumer Protection – Consumerism in India.	15	CO5

TEXT BOOK:

1. Kotler, P (2016). *Marketing Management*. New Delhi, India: Pearson Education
2. Pillai, R.S.N. & Bagavathi. (2018). *Modern Marketing Principles*. New Delhi, India: S.Chand & Co.

REFERENCE BOOKS:

1. Sontakki, C.N. (2018). *Marketing Management*. New Delhi, India: Kalyani Publishers
2. Dr. Jayasankar, J. (2013). *Marketing*. Chennai, India: Margham Publications
3. Karunakaran. K. (2017). *Marketing Management Text and cases in Indian context*. India: Himalaya Publishing House.
4. Sherlekar, S.A & Krishnamoorthy, R. (2018). *Marketing Management Concepts and Cases*. Mumbai, India: Himalaya Publishing House.

Note: Latest edition of the reading to be used

Mumbai WEB RESOURCES

1. www.learnmarketing.net
2. www.marketingprofs.com
3. www.marketmotive.com
4. www.marketing91.com

Course Title: ELECTIVE III: (C) HUMAN RESOURCE MANAGEMENT

Course Code : 45624 (C)	Credits : 5
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

This course will facilitate the student to gain knowledge on the concept of human resources and methods to make optimum use of human capital and also explore the knowledge of recent trends such as E HRM, Human Resource Audit and their contemporary issues.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the basic concept of human resource management and its evolution and challenges
CO2	Articulate human resource planning using quantitative and qualitative dimensions
CO3	List the methods of training and explain its role towards human resource development
CO4	Explain performance appraisal methods and their link with compensation.
CO5	Understand the concept of employee health, safety, digital HRM and the welfare measures of the employees.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	1	1	1	1	1	1	1	2	3	-	1	3
CO2	3	1	1	1	1	3	1	3	2	3	-	3
CO3	3	1	1	1	2	3	3	2	1	2	1	3
CO4	3	1	1	1	2	3	3	3	2	1	2	2
CO5	3	2	2	2	2	3	3	3	2	3	3	3

MODULE	CONTENTS OF MODULE	Hours	COs
I	Human Resource Management - Concept and functions, Role, Status and competencies of HR manager, HR policies, Evolution of HRM, Emerging challenges of Human Resource Management - Workforce diversity, Empowerment, Downsizing, VRS, Work Life Balance	15	CO1
II	Human Resource Planning - Quantitative and qualitative dimensions, Job analysis – Job description & job specification – Recruitment, concept & sources – Selection, concept & process - Test & interview – Placement - Induction & socialization, Retention - Artificial Intelligence in Talent Acquisition: Meaning, Role, Benefits, Application and Challenges of AI based Recruitment.	15	CO2
III	Training and Development - Concept and importance, Role specific and competency-based training, Training and development methods: Apprenticeship, Understudy, Job Rotation, Vestibule Training, Case Study, Role Playing, Sensitivity Training, In-basket, Management Games, Conferences and Seminars, Coaching and Mentoring, Management Development Programs, Training Process Outsourcing	20	CO3
IV	Performance appraisal & Employee Engagement Performance appraisal: Nature, objectives and process, Performance management, Methods of Performance Appraisal, Potential appraisal, Employee counseling, Job changes - Transfers and promotions - Human Resource Audit – Compensation, Concept and policies, Base & supplementary compensation, Individual, group & organization incentive plans, Fringe benefits, Performance linked compensation, Employee Stock Option, Pay Band Compensation System, Job Evaluation Employee Engagement: Meaning, Definition, Types, Importance, Factors; Benefits, Impact on performance, Methods to promote employee engagement.	20	CO4
V	Employee Health and Safety; - Employee welfare - Social Security (excluding legal provisions) - Employer-employee relations: An overview, Grievance handling & redressal - Industrial disputes, Causes & Settlement machinery - Digital HRM – Digital Workforce - Human Resource Information System & Digital HRM – Artificial Intelligence in Talent Acquisition - Impact of HRM practices on organizational performance - HR Audit, Contemporary issues in Human Resource Management	20	CO5

TEXT BOOK:

1. Khanka, S.S. (2019). *Human Resource Management – Text and Cases*. New Delhi, India: S. Chand Publishing.
2. Durai, P. (2020). *Human Resource Management* New Delhi, India: Pearson India Education Services.
3. Dr. Jayashankar, J. (2013). *Human Resource Management*, Chennai:India, Margham Publications.

REFERENCE BOOKS

1. Rao, V.S.P. (2020). *Human Resource Management*. Chennai, India: Taxmann Publications
2. Aswathappa, K. (2017). *Human Resource Management Text and Case*. New Delhi, India: McGraw Hill (India) Pvt. Ltd
3. Gupta, S.K. & Joshi, R. (2020). *Fundamentals of Human Resource Management*. Chennai, India: Kalyani Publishers.

Note: Latest Edition of the reading to be

used WEB RESOURCES

1. https://www.researchgate.net/publication/305954894_Human_Resource_Management_Theory_and_Practice/link/57a740ce08aee07544c130bd/download
2. http://www.opentextbooks.org.hk/system/files/export/32/32088/pdf/Human_Resource_Management_32088.pdf
3. <https://brauss.in/hrm-basic-notes.pdf>



DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE

(AUTONOMOUS)

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College with Potential for Excellence, Linguistic Minority Institution

Affiliated to University of Madras

Arumbakkam, Chennai –

600 106

Curricula developed and implemented with relevance to the regional developmental needs

ALLIED IV – FORENSIC PSYCHOLOGY

COURSE OUTCOMES

- CO1 –To demonstrate understanding of the major concepts, theoretical perspectives, and empirical findings historical and current trends in forensic psychology.
- CO2 –To summarize the techniques of criminal investigation.
- CO3 –To critically analyse the development of habitual criminal behaviour.
- CO4 –To understand the treatment and management of sexual offenders.

CORE PAPER – VI SOCIAL PSYCHOLOGY I

COURSE OUTCOMES

- CO1 - To Outline the nature, history, principles and scope of social psychology and methods used in social psychology research
- CO2 – To understand social cognition and its potential sources of error
- CO3 – To describe the strategies used to form and maintain positive impression.
- CO4 – To elucidate the ways to resist persuasion
- CO5 – To analyze the causes of marital happiness and relationship failure.

ALLIED III - STATISTICS IN PSYCHOLOGY

COURSE OUTCOMES

- CO1 –To interpret and classify a great deal of information.
- CO2 – To describe the information in the form of visual representation
- CO3 --To infer different elements of a sample or population.
- CO4 -- To summarize what already exists in a given population
- CO5 -- To compute, predict and prepare the results of a study
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PG DEPARTMENT OF JOURNALISM AND COMMUNICATION

1.1 CURRICULUM DESIGN & DEVELOPMENT

Curricula developed and implemented have relevance to the REGIONAL developmental needs

Programme Name & Code – BA Journalism 61

Academic Year 2022-2023

	Course Title	COs of all courses
1.	Reporting for Media – I	CO1: Evaluate newsworthiness of information and understanding the structure of news flow. CO2: Demonstrate an understanding of story idea creation and alternative story forms in journalism CO3: Comprehend the basic structure and format of a hard/soft news story (lead, body, and conclusion). CO4: Produce Content for Print, Broadcast and blogs and websites CO5: Demonstrate an understanding of journalism ethics.
2.	History of Media in India	CO1: Students would be able to acquaint themselves with the glorious journey of journalism. CO2: Students would be able to enhance understanding of the origin and of the print, electronic and web media. Electronic and web media CO3: Students would be able to inculcate the knowledge of growth of print, electronic and web media 3.CO4: Students would be able to acquaint themselves with technological advancements in print, electronic and web media. CO5: Students would be able to throw light on the present status of various mass media.
3.	Designing: Photoshop, Illustrator and In Design	CO1: Gain knowledge about Visual Communication and its concepts. CO2: Acquire an insight of Communication Elements and its Process. CO3: Obtain familiar with Design Concept, Color Theory and the fundamentals of Graphic Design. CO4: Apply acquired communication skills effectively.



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		CO5: Apply the Models, Design, Color Concept and the Graphic Design in the media industry.
4.	Digital Storytelling	CO1: To understand various techniques behind history, culture, traditions, and craft of digital storytelling. CO2: To understand digital media and its effective use as a form of communication. CO3: To communicate ideas effectively in written, oral, and visual form to a range of audiences. CO4: To demonstrate mastery of the concepts, techniques, and tools in one or more digital media specialties. CO5: To develop professional quality digital media productions by promptly applying knowledge and skills including best practices and standards.
	Writing for Media – II	CO1: Understand the copy flow in a newspaper industry. CO2: Analyse the concepts and techniques behind newspaper writing. CO3: Comprehend the need for public relations. CO4: Understanding of different types of web writing. CO5: Understanding of news blogging and microblogging.
5.	Social, Economic and Political Issues in India	CO1: Assess social issues in India. Evaluate on various causes for social problems. CO2: Review on various social problems and its implications. CO3: Explain various forms in which Economic problems occur. CO4: Create news reports on political issues. CO5: Discuss environmental problem and its complexities while writing news stories.
6.	Broadcast Journalism	CO1: Explain the unique features of broad cast media and create particular content. CO2: Create news suitable for broadcast media CO3: Assess the writing trends based on genres of broadcast journalism. CO4: Apply ethical values and legal procedures while creating live reporting from the field. CO5: Engage in team work to produce appropriate content for media.



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7.	Copywriting and Editing	<p>CO1: Understand the essential communication tool for print and broadcast journalists, public relation professionals.</p> <p>CO2: Understand the nuances of writing for media</p> <p>CO3: Comprehend and create Feature Stories, Obituaries, Rewrites and Roundups.</p> <p>CO4: Write effective articles for newsletters, prepare fliers and brochures and news releases.</p> <p>CO5: Analyse the role of translation in writing for the digital media</p>
8.	Broadcast Journalism	<p>CO1: Explain the unique features of broad cast media.</p> <p>CO2: Create news suitable for broadcast media.</p> <p>CO3: Assess the future trends in broadcast journalism</p> <p>CO4: Apply ethical values and legal procedures while creating live reporting from the field</p> <p>CO5: Make use of editing skills in constructing news for Television and Radio</p>
9.	Political issues in India	<p>CO1: Outline the evolution of political thoughts in India</p> <p>CO2: Analyse the democratic process and organization of political system in India</p> <p>CO3: Interpret the issues of governance and governability</p> <p>CO4: Evaluate marketing politics, themes and issues</p> <p>CO5: Relate media and politics</p>
10.	Photo journalism	<p>CO1: Make use of the knowledge of lighting while shooting indoor and outdoor photography.</p> <p>CO2: Create photo essay and photo feature for specific themes.</p> <p>CO3: Apply the technical knowledge while operating camera for the desired result.</p> <p>CO4: Construct a suitable composition in photograph to convey the intended message.</p> <p>CO5: Apply the principles of photography to create appealing photographs.</p>
11.	Economic issues in India	<p>CO1: Sketch the development of Indian Economy.</p> <p>CO2: Evaluate on various economic issues and its implications.</p> <p>CO3: Elaborate on various causes for economic problems.</p>



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		CO4: Analyse liberalisation, globalisation and its consequences on Indian CO5: Create news stories on economic issues. society.
12.	Indian Constitution and Legal System	CO1: Outline the historical evolution of Indian Constitution. CO2: Appraise the special provision of Indian constitution relating to mass media. CO3: Analyse various constitutional amendments. CO4: Explain the judicial process, procedure and structure. CO5: Identify the need for reforming constitution.
13.	Film Appreciation	CO1: Appraise the technical, creative and aesthetic aspects of film Production CO2: Recognise the film language CO3: Appraise films in terms of style and mise-en-scene. CO4: Evaluate films in their historical context. CO5: Examine motion pictures as a technology, business, cultural, product, entertainment medium and industrial art form.
14.	Human Rights Reporting	CO1: Inculcate human rights approach in their Journalistic pursuits. CO2: Relate provisions in Indian Constitution for human rights issues. CO3: Evaluate the role of Human rights activist. CO4: Recognise various forms of Human rights issues. CO5: Aware of Civil, Political, Economic and social rights of the citizen.
15.	Press Laws and Ethics	CO1: Outline historical evolution of laws relating to press in India. CO2: Remember the important acts relating to mass media. CO3: Analyse the ethical issues in media. CO4: Explain the laws and constitutional provisions pertaining to human rights in India. CO5: Agree on the need for ethical practices while carrying out Journalistic duties.
16.	Online Journalism	CO1: Recognize the distinct characters of online Journalism. CO2: Familiarize with MOJO and Data Journalism. CO3: Trace the development of internet and online Journalism. Identify writing styles suitable for online Journalism.



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		CO4: Distinguish different tools to interact with audience. Use multimodality and interactivity while creating content for online Journalism. CO5: Recognize the distinct characters of online Journalism.
17.	Internship	CO1: Evaluate news sources for their credibility. CO2: Select and organise the news according to news values. CO3: Meet the deadline pressures. CO4: Adopt reporting, writing and editing skills for news creation. CO5: Acquire technical skills in producing the news.
18.	Writing for Media (Interdisciplinary Elective)	CO1: Analyse the structure of news reports. CO2: Make use of language proficiency in writing reports. CO3: Adopt good writing skills and create news reports. CO4: Acquaint with different writing styles for different formats of news. CO5: Familiarise different writing styles and applying creativity in writing for the media.
19.	Documentary	CO1: Acquire technical skills to produce a documentary. CO2: Employ creativity in producing a documentary. CO3: Realise the importance of team work. Choose topic which is relevant and select an inspiring angle. CO4: Adopt good writing skills in narrating the story. CO5: Conceptualise the topic to suit the target audience.
20.	News Production	CO1: Acquire the technical skills to produce news for broadcast media CO2: Organize the news according to news values for broadcasting CO3: Realise the need for accuracy. CO4: Acquire good writing skills while writing for news bulletins CO5: Employ ethical values in fact checking to produce the content of the news story
21.	Mass Communication Theories	CO1: Analyse the determinants of news content. CO2: Create news stories knowing the power and reach of media. CO3: Relate media society relationship.



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		CO4: Illustrate the evolution of mass media theories. CO5: Categorize and relate various events in the society to mass communication theories.
22.	Media Organization	CO1: Assess the conceptual issues in media organization. CO2: Interpret media as business and social institution. CO3: Examine the behaviour in media organization and organizational behaviour. CO4: Discuss organizational structures and functions of different departments in printing and publishing industry. CO5: Discuss the economics of media.
23.	Web Magazine	CO1: Acquire technical skills to produce Tabloid.
24.	Tabloid	CO2: Employ creativity in producing the Tabloid. CO3: Create contents suitable for different formats. CO4: Adopt ethical values in selecting and disseminating news. CO5: Discuss various perspectives of the news story before writing for publication.
25.	Environmental Journalism	CO1: Aware of the laws related to Environment. CO2: Realise the need to disseminate information about the current state of environment in order to protect it. CO3: Create contents suitable for different formats. CO4: Employ language proficiency in writing articles to create awareness about conservation. CO5: Follow ethical guidelines in reporting human-environment interactions.
26.	Advocacy Journalism	CO1: Distinguish Advocacy Journalism from Opinionated Journalism CO2: Follow Journalistic Standards and ethics while reporting CO3: Analyse the effectiveness and reach of Government policies. CO4: Relate to historical context while addressing an issue. CO5: Aware of contemporary issues in the society.
27.	Development Journalism	CO1: Aware of the problems related to the concept of Development. CO2: Critically evaluate government policies related to Development and its impact.



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		CO3: Analyse the role of International Agencies towards Development. CO4: Create content and approach the issue in various angles. CO5: Examine the reach of Development policies.
28.	Cultural Journalism	CO1: Analyse the impact of technology on Culture and relate culture as a social institution CO2: Examine the relationship between culture and politics. CO3: Study the relationship between culture and Economics. CO4: Recount the significance of culture in freedom of expression. CO5: Analyse the role of culture in solving social problem and transmitting values.



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PG DEPARTMENT OF JOURNALISM AND COMMUNICATION

1.1 CURRICULUM DESIGN & DEVELOPMENT

Curricula developed and implemented have relevance to the REGIONAL developmental needs

Programme Name & Code – MA Journalism and Communication 48

Academic Year 2022-2023

	Course Title	COs of all Courses
1.	Human Communication	CO1: Understand the definition, need and importance of communication as expression and skill. CO2: Trace the importance of communication in human development. CO3: Learning communication patterns and its need in an organization. CO4: Gain adequate knowledge on public communication system. CO5: Apply knowledge of the theories of communication to practice.
2.	Reporting and Writing Skills	CO1: Evaluate newsworthiness of information and understanding the structure of news flow. CO2: Demonstrate an understanding of story idea creation and alternative story forms in journalism CO3: Comprehend the basic structure and format of a hard/soft news story (lead, body, and conclusion). CO4: Produce Content for Print, Broadcast and blogs and websites CO5: Demonstrate an understanding of journalism ethics.
3.	Editing Skills	CO1: Understand the Duties and Responsibilities of an Editor in a newspaper industry. CO2: Analyse the concepts and techniques behind news editing. CO3: Comprehend the basics of editing.



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		CO4: Understanding of different types of fonts and type. CO5: Demonstrate an understanding of news editorials.
4.	Information and Communication Technology	CO1: Understand the Components of information & Communication CO2: Enable students to understand the basics of broadcasting and broadcasting agencies. CO3: Gain Knowledge of accountability in news production in digital scenario. CO4: Study the impact of Communication in Development CO5: Grasp elements of Communication in Development
5.	Travel Photography	CO1: Learn how to use the fundamental elements of photography in ways that convey a sense of place CO2: Deepen your understanding of the fundamental tools of travel photography CO3: Create expressive photographs that reveal your unique impression of a destination CO4: Reinforce the ongoing creation of travel photography both around the corner and around the world CO5: Develop the concept of digital output and producing the final product
6.	Photo journalism	CO1: Learn how to use the fundamental elements of photography in ways that convey a sense of place CO2: Deepen your understanding on analyzing and creating effective photographs CO3: Create expressive photographs that reveal your unique impression of a destination CO4: Understand and write text to accompany photography CO5: Develop the concept using photo editing and build visual sequences.
7.	Media Skills	CO1: Learn the elements and principles of composition CO2: Deepen understanding to use different coloring technique and its practical applications in design.



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		<p>CO3: Understand multiple image types and to select best application of each for graphic design, print and the photography</p> <p>CO4: Utilize effectively multiple methods of manipulating the existing artwork and workspace</p> <p>CO5: Develop the concept of digital output and producing the final product</p>
8.	Online Journalism and Web Management	<p>CO1: Enable the students to understand the distinct characteristics of online journalism</p> <p>CO2: To develop skills to encourage the production of media messages using variety of digital tools.</p> <p>CO3: To encourage students to appreciate and participate in Digital Media content writing</p> <p>CO4: To help students to generate contents for each social media platforms and acquire the skills</p> <p>CO5: To help students create content with credibility and authenticity</p>
9.	Mass Communication Theories	<p>CO1: Analyse the determinants of communication theories</p> <p>CO2: Discuss the importance of studying theory</p> <p>CO3: Illustrate the evolution of mass media theories.</p> <p>CO4: Relate media society relationship from a political perspective.</p> <p>CO5: Categorize and relate various events in the society to mass communication theories.</p>
10.	Media, Culture and Society	<p>CO1: Understand the relationship between the state, media and the public.</p> <p>CO2: Critique the media content from the audience perspective</p> <p>CO3: Acquire deep knowledge on the functions and influence of Media in Culture and Society</p> <p>CO4: Analyze media performance and content from a gender perspective</p> <p>CO5: Evaluate the popular culture and its characteristics from a culture perspective.</p>



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11.	Communication Research Methods	<p>CO1: Understand the basics of communication research</p> <p>CO2: Outline the basic framework of research process</p> <p>CO3: Explore several different kinds of samples and sampling techniques used in mass communication research.</p> <p>CO4: Understanding the basic conceptualisation behind perfect data collection</p> <p>CO5: Critically analyse research methods and develop the skills for writing a thesis.</p>
12.	Digital Marketing	<p>CO1: To understand the basic Concepts of Digital marketing and the road map for successful Digital marketing strategies.</p> <p>CO2: Creating market Positioning with respect to the Digital marketing</p> <p>CO3: Understanding the importance of Social media Platforms importance in Digital Marketing</p> <p>CO4: Collecting, analyzing, enabling and optimizing organization's digital ecosystem in the making of data-informed decisions.</p> <p>CO5: To understand the technological importance of digital marketing</p>
13.	Human Interest Stories	<p>CO1: To develop the ability to frame Human Interest stories which relates to current events and help people to evaluate the impact of such events</p> <p>CO2: To be able to write Human Interest stories to evoke the emotion of reader/viewer and raise awareness of worthy causes</p> <p>CO3: To create stories without losing the value of Human Interest Journalism</p> <p>CO4: Reinforce the ongoing creation of travel photography both around the corner and around the world</p> <p>CO5: Develop the concept of digital output and producing the final product</p>
14.	Cultural Journalism	<p>CO1: To write stories on arts and creative work, and on the individuals, institutions and policies that make or enable the creative work.</p>



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		<p>CO2: To develop the aesthetic sense in the art and cultural coverage.</p> <p>CO3: To distinguish culturally valuable works from their lesser counterparts.</p> <p>CO4: To deduce the increased interconnectedness of economic and cultural processes.</p> <p>CO5: Develop the concept of digital output and producing the final product</p>
15.	Mobile Journalism	<p>CO1: To study the Socio-cultural implications of mobile phone communication and its contribution to information explosion.</p> <p>CO2: To understand the need, benefits and significance of mobile journalism.</p> <p>CO3: To learn the origins and characteristics of mobile journalism, differences and similarities with conventional journalism, and the applications of mobile journalism.</p> <p>CO4: To practically understand the usage of mobile phones as a reporting tool.</p> <p>CO5: To apply Mobile journalism techniques for different modes of news gathering and news processing, using open source voice, text and video.</p>
16.	News Production	<p>CO1: To understand the basic concepts of Broadcast Journalism</p> <p>CO2: To acquaint students with different modes of writings based on the technology and transmission.</p> <p>CO3: To identify and write record, produce and edit several formats of radio programmes including news stories, and features.</p> <p>CO4: To illustrate the basics of broadcast genres and essentials of journalism.</p> <p>CO5: To put theory to practice and produce digital outputs</p>
17.	Media Management	<p>CO1: To familiarize students to Indian media organization and their management practices.</p> <p>CO2: To introduce students to principles of Media business management</p> <p>CO3: Understand Commercials and sponsorship in electronic media</p>



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		CO4: Evaluate the different Organizations roles and perform a career-oriented approach CO5: To create programs with credibility and accountability according to the uprising trending technologies
18.	Advertising	CO1: Analyse the different types of advertising& advertising agencies CO2: Understand the components of a brand image CO3: Learn the Elements of ad copy in advertisement CO4: To understand the Elements of media budgeting, planning and buying. CO5: Acquire knowledge on campaigning advertisement
19.	Public Relation & Corporate Communication	CO1: To learn the basic concepts of Public relation and its tools. CO2: Explore the role and importance of corporate communications CO3: Learn to conduct public relation campaigns CO4: To understand the techniques involved in maintaining the brand and organisational image CO5: To enhance their skills for organizing public relation campaigns and press releases
20.	Dissertation	CO1: To display the knowledge and capability required for independent work. CO2: To create, analyze and critically evaluate different technical/research solutions CO3: To clearly present and discuss the conclusions as well as the knowledge and arguments that form the basis for these findings CO4: To identify the issues that must be addressed within the framework of the specific dissertation in order to take into consideration CO5: To facilitate student to carry out extensive research and development project or technical project at place of work through problem and gap identification, development



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		of methodology for problem solving, interpretation of findings, presentation of results and discussion of findings in context of national and international research.
21.	Documentary Production	CO1: To identify content from real life, books and print materials. CO2: To improve the data collection and research skills for documentary. CO3: To strengthen the script writing ability of the student. CO4: To draft a formal documentary proposal. CO5: To make a socially responsible documentary.
22.	Deprivation Coverage	CO1: To understand the concept of deprivation and its effect in society CO2: To explore and identify areas of deprivation. CO3: To improve the communication, questioning, listening, writing and news gathering skills. CO4: To incorporate human interest angle in the news stories. CO5: To write a factual news story on the deprivation.
22.	Event Management	CO1: To enables students to plan, execute and comprehend various events with relevant skills for each event. CO2: Acquire and apply the skills required to plan an event CO3: Enhance their innovativeness in managing the media CO4: Plan an event with the knack of organizational skill CO5: Demonstrate a planned event displaying promotional skills
23.	Developmental Communication	CO1: Aware of the problems related to the concept of Development CO2: Critically evaluate government policies related to Development and its impact CO3: Analyse the role of International Agencies towards Development



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		<p>CO4: Create content suitable for different formats</p> <p>CO5: Approach the issue in various angles. Examine the reach of Development policies</p>
24.	Health Communication	<p>CO1: Understand the role of communication and its affect in promoting and maintaining health and wellness for all individuals</p> <p>CO2: Develop effective health messages for individuals and publics by understanding how the media, literacy and policy affect the perceptions of health.</p> <p>CO3: Create a content in social media- based on agriculture, health, education, population planning, sanitation, environment protection and socio-economic development.</p> <p>CO4: Create photo stories which assess the factors that affect health literacy.</p> <p>CO5: Writing essay for health stories in effective manner</p>
25.	Media Laws and Ethics	<p>CO1: To learn the basic structure of Indian Constitution.</p> <p>CO2: Examines the various media laws, policy and regulatory frameworks in India</p> <p>CO3: Explore the legalistic perspective of IPR in media laws</p> <p>CO4: Apply knowledge of self-regulation and other ethical practices in profession</p> <p>CO5: Comprehend media constitutional laws and ways to solve simple media law cases.</p>
26.	Film Studies and Appreciation	<p>CO1: To understand various theoretical, historical, and critical approaches to films.</p> <p>CO2: Acquire knowledge on history of Cinema, cinema movements</p> <p>CO3: To facilitate exploration of the history of cinema and also critically analyze movies that are being screened.</p> <p>CO4: To understand how film reflects societal concerns.</p> <p>CO5: Analyse structures of power, economics, and ideology and Film Genres</p>



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27.	Digital Story Telling	CO1: To understand various techniques behind history, culture, traditions, and craft of digital storytelling. CO2: To understand digital media and its effective use as a form of communication. CO3: To communicate ideas effectively in written, oral, and visual form to a range of audiences. CO4: To demonstrate mastery of the concepts, techniques, and tools in one or more digital media specialties. CO5: To develop professional quality digital media productions by promptly applying knowledge and skills including best practices and standards.
28.	Internship	CO1: To extend the skills and knowledge they acquired from relevant theory components CO2: To create, analyze and critically evaluate experiential learning. CO3: To engage in continuous learning and development of new skills appropriate for their field CO4: To build professional portfolio. CO5: To facilitate students' opportunity to work and experience actual operations in the real business world


Signature of the HOD

Signature of the Principal



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**DEPARTMENT
OF
B.COM (FINANCE AND TAXATION)**

Regional Subjects

SYLLABUS

2022-2023

ELECTIVE III – PROJECT WORK & VIVA VOCE

Semester	VI
Subject	ELECTIVE III – PROJECT WORK & VIVA VOCE
Course Code	23/62628
Maximum Marks	CIA– 40 Marks ESE–100 Marks
Credits/Instructional Hours	5 Credits/90 Hours
Exam Duration	-
L:P:T:S	5:0:0:0

1. To learn to do project which will help in higher studies.
2. To develop skills like typing and MS Office.
3. To use the knowledge gained to draw insights from financials
4. To prepare project reports in a proper manner.
5. To answer questions related to their Project work

- (1) Project Work is an integral part of B.Com (Finance & Taxation) Degree Course. It is a sort of job testing program designed to bridge the gap between theory & practice and create a natural interest in the practical aspects of the Finance & Taxation domain so as to stimulate trainee's desire to face its challenges and problems.
- (2) The project work shall broadly relate to
 - (a) Accounting & Auditing
 - (b) Tax Laws Practice
 - (c) Management Accounting & Decision Making
 - (d) Auditing & Assurance Services
 - (e) Wealth Management Services
 - (f) Financial Management
 - (g) Capital Markets & Financial services.

The above domains are not exhaustive. Students can choose any domain related to the Finance & Taxation management.

- (3) The students should submit a project report in the sixth semester during the last week of February. Project Work Evaluation & Viva Voce examinations shall be conducted during March. The report shall not exceed 50 typed pages, excluding tables, figures, bibliographies and appendices.
- (4) The paper on Institutional Training shall carry hundred marks divided as follows:

Project Report	- 60 Marks
Viva Voce	
Internal Marks	- 20 Marks
- (5) The Evaluation of project Reports and Viva voce shall be co-ordinated by the H.O.D. and Senior Faculty members of the department along with external examiners appointed. The external examiner in consultation with internal examiner should conduct Viva-Voce and evaluate the report.
- (6) The decision of the Head of the Department shall be final and binding on the student with respect to the project work.

Course Structure: Paper IV

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	CORE PAPER-IV Indian Writing in English and in Translation		
Category of the Course C	Year & Semester First Year & First Semester	Credits 4	Subject Code 2265104
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Course Outcomes	CO1: Understand the evolution of Indian Writing in English (k2) CO2: Delineate the texts in their respective social, cultural and political contexts (k4) CO3: Deconstruct socio-cultural issues such as gender, caste and region (k4) CO4: Appraise the multiple linguistic and literary traditions (k4) CO5: Assess the varied relationships between literatures produced in different regional languages (k5) CO6: Appreciate the social, cultural and linguistic diversity of India (k5)		
Course Outline	UNIT I Indian Classical literary Tradition; impact of English Studies on India; Colonialism; Nationalism; Nativism and Expatriatism; Socio-Cultural issues such as gender, caste and region		
	UNIT 2 Poetry The following Selections from A.K. Ramanujan’s “Love and War” (The Oxford Indian Ramanujan , ed., Molly Daniels, OUP, 2004). Kapilar, Akananooru pg. 82 Purananooru pg. 356 Rabindranath Tagore Gitanjali: 12,36,63, 12) The Time my journey takes is long 36) This is my prayer to Thee 63) Thou hast made me known to friends Nissim Ezekiel “Background Casually” (Indian Writing in English ed. Makarand Paranjape,		

	K.K Daruwalla Mehrotra (OUP, 1992) ArunKolatkar Kamala Das	Macmillan 1993, p.112) “Hawk” from The Anthology of Twelve Modern Indian Poets Ed. A.K. <i>From Jejuri</i> The Bus A Scratch An Introduction, Dance of the Eunuchs
	UNIT 3 Drama Girish Karnad	Hayavadana
	UNIT 4 Prose M.K. Gandhi B.R. Ambedkar	Prose and Fiction Chapters 4,7,8,9&13 from Hind Swaraj Extracts 4, 5 and 6 <i>from</i> Annihilation of Caste ed. Mulk Raj Anand (Delhi: Arnold Publishers, 1990, pp. 47-54)
	UNIT 5 Shashi Deshpande Short Story The following selections from Routes: Representations of the West in Short Fiction from South India in Translation eds. Vanamala Viswanatha, V.C. Harris, C. Vijayashree and C.T. Indra (Macmillan 2000). Kannada Masti Venkatesa Iyengar Malayalam P. Surendran Tamil PudumaiPithan	Fiction <i>That Long Silence</i> The Sorley Episode Synonyms of the Ocean Teaching

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PSO/PO	PSO							PO					
	1	2	3	4	5	6	7	1	2	3	4	5	6
CO1	H	H	H	L	L	H	L	H	M	H	L	M	M
CO2	H	H	H	L	L	M	L	H	M	H	L	H	H
CO3	M	M	H	L	L	M	L	H	H	H	L	H	H
CO4	H	H	H	L	L	H	L	H	H	H	L	H	H

CO5	H	H	H	L	L	H	L	H	H	H	L	H	H
CO6	M	H	H	L	L	M	L	H	H	H	L	H	H

Recommended Texts: Standard editions of texts

Reference Books:

1. K.R. Srinivasalyengar, 1962, –**History of Indian Writing in English**, Sterling Publishers, New Delhi.
2. Herbert H. Gowen, 1975, **A History of Indian Literature**, Seema Publications, Delhi.
3. William Walsh, 1990, **Indian Literature in English**, Longman, London.
4. Subhash Chandra Sarker, 1991, **Indian Literature, and Culture**, B.R. Publishing Corporation, Delhi.
5. M.K. Naik&Shyamala A Narayan, 2001, **Indian English Literature 1980-2000: A Critical Survey** ,D.K. Fine Art Press (P) Ltd., New Delhi.
6. TabishKhair, 2001, **Babu Fictions: Alienation in Contemporary Indian English Novels.**, OUP.
7. RajulBharagava Ed., 2002, **Indian Writing in English: The Last Decade**,Rawat Publications, New Delhi.
8. K. Satchidanandan, 2003, **Authors, Texts, Issues: Essays on Indian literature**, Pencraft International, New Delhi.
9. P.K. Rajan ed., 2004, **Indian Literary Criticism in English: Critics, Texts, Issues**,Rawat Publications, New Delhi.
10. Bruce King, 2001, **Modern Indian Poetry in English**, OUP, New Delhi.
11. Amit Chaudri, 2001, **The Picador Book of Modern Indian Literature**, Macmillan, London.
12. A.K. Mehrotra, 2003, **An Illustrated History of Indian Literature in English**. Permanent Black, New Delhi.

Website, e-learning resources

http://en.wikipedia.org/wik/indian_wring_in_english

Course Structure: ELECTIVE PAPER IV

Course Code :	Credits : 03
L:T:P:S : 3:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Subject: INTRODUCTION TO TRANSLATION STUDIES **Subject Code: 2265316**

COURSE OUTCOMES

- CO1: Identify the role of translation in society (K2)
- CO2: Illustrate basic concepts of translation (K3)
- CO3: Demonstrate fundamental skills in translation (K3)
- CO4: Examine translation in the Indian context (K4)
- CO5: Perform practical tasks in translation (K6)

Unit 1 Basic concepts of Translation (10 Hrs)

- 1.1 **Kinds of Translation**
 - 1.1.1. Interlingual
 - 1.1.2. Intralingual
 - 1.1.3. Intersemiotic
- 1.2 Concepts to be derived from practice
 - 1.2.1 Source Language and Target Language
 - 1.2.2 Equivalence
 - 1.2.3 Word for word, Sense for Sense

Unit 2 Translation in the Indian context (15 Hrs)

- 1.3 Introduction to Short Fiction from South India by Mini Krishnan
- 1.4 **Translating Culture Codes**

Unit 3 Literary Texts in translation (10 Hrs)

- 3.1 VM Basheer - Nose
- 3.2 Cho Dharman - Dry Leaves
- 3.3 C.S. Chellappa - Vaadivasal (OUP)
- 3.4 Rajam Krishnan - Lamps in the Whirlpool (OUP)

Unit 4 Application of Translation (10 Hrs)

- 4 **Dubbing and Subtitling**
 - 4.1 Film Harry Potter and the Order of the Phoenix
 - 4.2 Advertisements

Suggested Reading

Munda, Jeremy. 'New Directions From the New Media'. Introducing Translation Studies. Routledge, New York. 2008.

Unit 5 Practical Application Tasks (7 Hrs)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PSO/PO	PSO							PO					
	1	2	3	4	5	6	7	1	2	3	4	5	6
CO1	L	M	H	M	L	M	L	L	M	H	L	L	M
CO2	M	M	M	L	L	M	L	L	M	M	L	L	L
CO3	L	L	M	M	L	L	L	L	L	L	L	M	L
CO4	H	M	H	L	L	M	L	M	H	H	H	L	L
CO5	L	M	L	H	M	L	M	L	L	L	L	M	M

Recommended Reading

Baker, Mona, In Other Words: A Course Book on Translation. London: Routledge
 Bassnet, Susan. Translation Studies. London & New York : Routledge, 1991.
 Catford, J.C. A Linguistic Thoery of Translation: An Essay in Applied Linguistics
 Duff, Alan, Translations. Oxford: OUP, 1989.
 London: OUP, 1965.
 Newmark, Peter. A Textbook of Translation. London: Prentice Hall, 1988.
 Savory, Theodore. The Art of V. London: Cape, 1957.
 Steiner George. After Babel: Aspects of Language and Translation. V. London:

Course Structure: Paper XIII

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	CORE PAPER XIII- Writings by and on Women		
Category of the Course C	Year & Semester 2nd year & Fourth Semester	Credits 4	Subject Code 2265418
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Objectives of the Course	CO1: Demonstrate an understanding of the politics of gender and authorship (k3) CO2: Examine patriarchy and its influence on women's lives and creative processes (k4) CO3: Identify and critique gendered oppression (k2&k4) CO4: Examine how women writers have challenged gender-based oppression (k4) CO5: Understand the intersectionality of gender, class, caste, race, etc. (k2) CO6: Read texts within the theoretical framework of feminism (k5)		
Course Outline	UNIT 1: Varieties of Feminism – concept of gender – androgyny- Language of women – environment and women- double marginalisation.		
	UNIT 2: Poetry: Anne Bradstreet Prologue Marianne Moore Poetry Sylvia Plath Lady Lazarus. Maya Angelou Still I Rise Charmaine D'Souza When God made me a Whore (Rajani P, V. Rajagopalan, Nirmal Selvamony, eds., Living & Feeling , Dept. of English., M.C.C.)		
	UNIT 3: Prose: John Stuart Mill On subjection of women Chapter 1 (V.S. Seturaman & C.T. Indraed.,		

	1994, Victorian Prose, Macmillan India, Chennai. pp-318)
Virginia Woolf	A Room of One's Own (chapters 3 & 4) (Jennifer Smith ed., 1998, A Room of One's Own Cambridge UP, New Delhi.)
Vandana Shiva	"Women in Nature" (from <i>Staying Alive</i>)
Alice Walker	In Search of Our Mother's Garden
UNIT 4: Fiction	
Arundathi Roy	The God of Small Things
Jean Rhys	Wide Sargasso Sea
Kate Chopin	The Awakening
UNIT 5: Drama	
Lorraine Hansberry	Raisin in the Sun
Jane Harrison	Stolen

C – Core; E – Elective; ED – Extra disciplinary

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PSO	PSO							PO					
	1	2	3	4	5	6	7	1	2	3	4	5	6
CO1	H	H	H	L	L	M	L	H	H	H	L	L	M
CO2	H	H	H	L	L	L	L	M	H	H	L	L	H
CO3	H	H	H	L	L	L	L	M	H	H	L	L	H
CO4	H	H	H	L	L	M	L	M	H	H	L	L	H
CO5	H	H	H	L	M	L	L	M	H	H	L	L	H
CO6	H	H	H	L	L	M	L	H	H	H	L	L	M

Recommended Texts:

1. Sandra M. Gilbert and Susan Gubar, ed., 1985, **The Norton Anthology of Literature by Women**, New York.
2. Rajani P. , V. Rajagopalan, and NirmalSelvamony, **Who says my hand a needle better fits: An Anthology of American Women Writing**, Dept. of English, Madras Christian College, Tambaram.
3. Standard editions of texts.

Reference Books :

1. Lisa Tuttle, 1986, **Encyclopedia of Feminism**, Facts on File Publications, New York.
2. Catherine Belsey & Jane Moore, eds., 1977, **The Feminist Reader**, II ed., Macmillan, London.
3. Kathy J. Wilson, 2004, **Encyclopedia of Feminist Literature**, Greenwood Press, Westport.

Core Structure: Paper XIV

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	CORE PAPER XIV - Postcolonial Literature		
Category of the Course C	Year & Semester 2nd year & Fourth Semester	Credits 4	Subject Code 2265419
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Objectives of the Course	CO1: Demonstrate an understanding of the concepts related to the study of postcolonialisms (k3) CO2: Examine imperialism and its impact on the history, culture and language of various once colonised nations (k4) CO3: Identify and critique racism as a colonial construct (k2&k4) CO4: Examine how writers from former colonies question the hegemony of the colonial histories (k4) CO5: Understand the importance of multiplicity of stories (k2) CO6: Read texts within the theoretical framework of postcolonial studies (k5)		
Course Outline	UNIT 1: Key Concepts in Post-coloniality (14 concepts) Abrogation, appropriation, binarism, cartography, centre/margin, dependency theory, ethnicity, ecological imperialism, hegemony, hybridity, orality, other, post-colonialism/postcolonialism, subaltern		
	UNIT 2: India, Pakistan and Srilanka Agha Shahid Ali Dacca Gauzes (India- poem) Nissim Ezekiel A Very Indian Poem in Indian English (India-poem) Alagu Subramaniam Solomon's Justice (Sri Lanka- short story) Sa'adat Hasan Manto Khol do! (Pakistan short story) Edward Said "Crisis" in <i>Orientalism</i> from David Lodge's <i>Modern Criticism and Theory</i>		
	UNIT 3: Australia, New Zealand and Canada <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">Henry Lawson</div> <div style="width: 50%;">The Drover's Wife (Australia- short story)</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;">Witi Ihimera</div> <div style="width: 50%;">The Whale (New Zealand- short story)</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;">A.D. Hope</div> <div style="width: 50%;">Australia (Australia- poem)</div> </div>		

	Jack Davis	Kullark (Australia- drama)
	UNIT 4: African Subcontinent and West Indies Kofi Awoonor The Weaver Bird (Ghana poem) Chinua Achebe Things Fall Apart (Nigeria- novel) Chinmamanda Adichie The Danger of a Single Story (prose) Benjamin Zephaniah - Dis Poetry (West Indies- poem) Bob Marley – Buffalo Soldier (West Indies- song)	
	UNIT 5: Canada Margaret Atwood Surfacing (Canada- novel) George Ryga Ecstasy of Rita Joe (Canada - drama)	

C – Core; E – Elective; ED – Extra disciplinary

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/ PSO	PSO							PO					
	1	2	3	4	5	6	7	1	2	3	4	5	6
CO1	M	H	M	L	L	M	L	H	H	M	L	L	M
CO2	H	H	H	L	L	M	L	H	H	M	L	L	H
CO3	L	L	H	L	M	M	L	M	H	M	L	L	M
CO4	H	M	H	L	L	M	L	H	H	H	L	L	M
CO5	M	H	H	L	L	M	L	M	H	M	L	L	M
CO6	H	H	H	L	L	M	L	H	H	M	L	L	L

Recommended Texts:

1. Bill Ashcroft, Gareth Griffiths and Helen Tiffin, 1998, **Key Concepts in Post-Colonial Studies**, London
2. Ken Goodwin and Alan Lawson, 1990, The Macmillan Anthology of Australian Literature, Melbourne.
3. Alagu Subramaniam, 1964, The Big Girl, Ceylon.
4. Ashcroft, Griffith & Tiffin, eds., 1995, Post-Colonial Studies Reader, Routledge, London.
5. Standard editions of texts.

Reference Books/Websites:

1. King, Bruce, ed. *The New National and Postcolonial Literatures: An Introduction*, Oxford: Clarendon, 1996.
2. Killam, G. D. *The Novels of Chinua Achebe*. *Studies in African Literature Series*, London: Heinemann, 1978. P 7
3. Sarkar Parama, *Postcolonial Literatures*, Orient Black Swan, 2016
4. NPTEL course on Postcolonial Literature
<https://nptel.ac.in/noc/courses/noc17/SEM1/noc17-hs12/>
5. Chimamanda Ngozi Adichie: The danger of a single story
https://www.ted.com/talks/chimamanda_ngozi_adichie_the_danger_of_a_single_story/transcript?language=en

Course Structure: Elective

Course Code :	Credits : 03
L:T:P:S : 3:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	ELECTIVE PAPER V- Film Studies		
Category of the Course E (Elective within the department) /ED	Year & Semester Second Year & Fourth Semester	Credits 3	Subject Code 2265420
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Course Outcomes	CO1: Identify different kinds of films (k1) CO2: Identify various technical aspects of cinema (k1) CO3: Sketch the evolution of cinema in India (k3) CO4: Critically analyse cinema from various perspectives (k4) CO5: Appreciate and review films (k6)		
Course Outline	UNIT I History of Cinema in India; Major landmarks in India Cinema Satyajit Ray- “What is Wrong with Indian Films?”		
	UNIT 2 Kinds of Films Historical Patriotic Documentary Thrillers etc.		
	UNIT 3 Art of Film Making: Some Important Techniques Acting/ Photography/Direction/Script Writing etc		
	UNIT 4 Films and Entertainment Films and Social Responsibility		
	UNIT 5 Review of Films The Godfather Shutter Island		

C – Core; E – Elective; ED – Extra disciplinary

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PSO/PO	PSO							PO					
	1	2	3	4	5	6	7	1	2	3	4	5	6
CO1	L	H	H	L	L	L	H	L	L	H	H	L	L
CO2	L	L	L	L	L	L	M	L	L	H	H	H	L
CO3	M	M	H	L	L	L	M	H	L	H	H	M	H
CO4	M	M	M	L	L	L	M	L	L	H	H	L	L
CO5	L	M	M	L	L	L	L	L	H	H	H	H	L

1.Recommended Texts:

1. Ed. Bill Nichols, 1993 ,**Movies and Methods** Vol. I, Edition ,Seagull Books, Calcutta.
2. Ed. Bill Nichols, 1993, **Movies and Methods** Vol. II, Edition Seagull Books, Calcutta.
3. Susan Hayward, 2004, **Key Concepts in Cinema** Studies, Routledge, London.
4. Rajadhyaksha, Ashish. *Indian Cinema: A Very Short Introduction*. OUP, 2016.

Reference Books :

1. Louis Giannetti, 1972, **Understanding Movies**, Prentice Hall, New Jersey.
2. Ed. S. Vasudevan, 2000, **Making Meaning in Indian Cinema**, OUP, New Delhi.

Website: www.academicinfo.net/film.html.

Course Structure: Value Added Course

Course Code :	Credits : 01
L:T:P:S ::	CIA Marks :
Exam Hours :	ESE Marks :

Title of the Course / Paper	Value Added Course: Theatre Art		
Category of the Course VAC(Value Added Course)	Year & Semester Second Year & Fourth Semester	Credits 1	
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Course Outline	<ol style="list-style-type: none"> 1. Approach to characterization 2. Director's concept 3. Basic Acting and Different Approach 4. Improvisation 5. Navarasa Trainig 6. Speech Training 7. Text and Acting 8. Scene Work 9. Play Production 		

Optional
English Literature for UGC NET/SET Examinations

Year and Semester: Second Year and Fourth Semester

The Elizabethan Age / Chaucer to Shakespeare: Historical Perspective and Background; Origins of Drama; Elizabethan Plays, Prose and Sonnets.

Geoffrey Chaucer, William Gower, Edmund Spenser, University Wits. Philip Sydney, Shakespeare, Ben Jonson, Christopher Marlowe and Thomas Kyd.

- **The Jacobean Age:** Historical Perspective and Background; the Revenge Tragedies; the Metaphysical Poets; the Cavalier Poets.

John Webster, Thomas Middleton, Thomas Heywood, Francis Bacon and John Bunyan .

- **The Restoration Period:** Historical Perspective and Background; Restoration Satire; Comedy of Manners.

John Dryden, John Milton, John Bunyan, William Congreve, Samuel Butler and William Wycherley.

- **The Augustan Age:** Historical Perspective and Background; Satire and Sentimental Comedy.

Alexander Pope, Jonathan Swift, Daniel Defoe, Joseph Addison, Richard Steele, Samuel Johnson, Samuel Richardson, Henry Fielding, Oliver Goldsmith, George Smollett, Laurence Sterne and Richard Sheridan .

- **The Romantic Age:** Precursors ; Transitionists; Romantic Poets and Essayists.

Robert Burns, William Blake, Thomas Gray, William Collins, William Wordsworth, S.T. Coleridge, P.B.Shelley, John Keats, Charles Lamb, Leigh Hunt, William Hazlitt, Thomas De Quincey, Ann Radcliffe and Jane Austen.

- **The Victorian Age:** Historical Perspective and Background; Victorian Poets, Pre-Raphaelites, Essayists, Novelists.

John Stuart Mill, Thomas Carlyle, John Ruskin, Thomas Hardy, Charles Dickens, Thackeray, The Bronte Sisters, Mathew Arnold, Alfred Tennyson, Robert Browning, D.G. Rossetti, Charles Swinburne and William Morris.

- **The Twentieth Century (Modernism & Postmodernism) / Contemporary Period:** Historical Perspective and Background; Edwardian and Georgian Poets; Imagists; Symbolists; War Poets; Movements; Impact of World Wars I & II on Literature; Modern & Postmodern writers. Walter Pater, Oscar Wilde, Ezra Pound, T.S.Eliot, Bernard Shaw, Rudyard Kipling, Joseph Conrad, George Orwell, Henry James, E. M. Foster, Aldous Huxley,

D.H. Lawrence, James Joyce, Virginia Woolf and Somerset Maugham.

Samuel Beckett, Harold Pinter, Ted Hughes, Salman Rushdie, Kurt Vonnegut, Thomas Pynchon, John Barth, William S. Burroughs, Vladimir Nabokov and Italo Calvino.

- **American and Non British Literatures:** Historical Perspective and Background; Colonization, Colonizers and the Colonized; Commonwealth Literature; Subaltern Literature; Third World Literature.

American Writers: Walt Whitman, Ralph Waldo Emerson, H.D. Thoreau, Emily Dickinson, Edgar Allan Poe, Robert Frost, Mark Twain, Ernest Hemingway, Wallace Stevens, William Faulkner, Herman Melville, Robert Frost, E.E. Cummings, John Steinbeck, William Faulkner, Eugene O’Neil, Tennessee Williams, Arthur Miller and Nathaniel Hawthorne.

Non - British Literatures: Chinua Achebe, Ngugi Wa Thiong’o, Nadine Gordimer, V.S. Naipaul, Taslima Nasrin, Patrick White, Judith Wright, Margaret Laurence, Margaret Atwood, Rudy Wiebe, Rohinton Mistry, M.G. Vassanji, Michael Ondaatje, Alice Walker, Toni Morrison, Maya Angelou, Jean Rhys, R.K. Narayan, Mulk Raj Anand, Kamala Das, Kamala Markandaya, Girish Karnad, Toru Dutt, Sri Aurobindo, Sarojini Naidu, Eunice De Souza, Nissim Ezekiel, A.K. Ramanujan, Chetan Bhagat, Vikram Chandra, Vikram Seth, Amitav Ghosh, Anitha Desai, Jhumpa Lahiri, Arundhati Roy and Kiran Desai.

All Nobel Prize and Pulitzer Prize Winners

- **Literary Theory and Criticism:** Plato, Aristotle, Horace, Longinus, Philip Sidney, John Dryden, Alexander Pope, Samuel Johnson, Thomas Carlyle, John Stuart Mill, Karl Marx, Friedrich Nietzsche, Matthew Arnold, T.S. Eliot, Northrop Frye, F.R. Leavis, I.A. Richards, Jacques Lacan, Carl Gustav Jung, Simone de Beauvoir, Noam Chomsky, Jacques Derrida, Ferdinand de Saussure, Irving Babbitt, Cleanth Brooks, Mikhail Bakhtin, Roland Barthes, Michel Foucault, Julia Kristeva, Edward Said, Hayden White and Linda Hutcheon.
- **Rhetoric and Prosody:** Figures of Speech: Alliteration, Antithesis, Apostrophe, Assonance, Metaphor, Simile, Paradox, Pun, Synecdoche, Metonymy, Hyperbole and Oxymoron.
- Rhyme and Metre, Rhythmic Patterns and Literary Term

Recommended Texts:

Andrew Sanders – An Oxford History of English Literature.

Patricia Waugh - Contemporary Critical Theory.

Peter Barry- Beginning Theory.

M.H. Abrams – A Glossary of Literary Terms.

An Outline History of English Literature by W.H. Hudson.

A Critical Handbook of Literature in English by Shubhamoy Das.

History of English Literature by W.J. Long.

History of English Literature by Edward Albert.

History of English Literature by T. Singh.

An Introduction to Literary and Cultural Theory by Peter Barry.

Contemporary Literary and Cultural Theory by P.K. Nayar.

An Introduction to English Criticism by B. Prasad.

English Literary Objective Questions by Amita Rowley Thaman.

A Textbook for Objective Questions in English Literature by Manoj Kumar.

Lodge, David. Modern Criticism and Theory

NATIONAL NEEDS

MARKETING

SUBJECT CODE-01207

Total hours- 90 hrs

Credits- 5

Course Description-The student would be able to understand and comprehend the marketing eco system.

UNIT – I

Nature, scope and significance of marketing – Basic concepts of marketing – Different types of markets – consumer and market, consumer co-operatives and consumer councils, modern marketing – Marketing environment.

UNIT – II

Product – New product – Product planning and development, product life cycle – marketing of manufactured goods - consumer goods - industrial goods – classification – characteristics and channels of distribution.

UNIT – III

Price- pricing objectives and price determination – Basic methods of setting prices – pricing strategies and policies - pricing strategy of new products.

UNIT – IV

Marketing structure – wholesale and retail – basic whole sale distribution structure - function and services of wholesale – Retail distribution – Basic retail structure - large, Medium and small scale retail institutions – super markets, departmental and chain store.

UNIT – V

Promotional programme - advertising and sales promotion efforts – social economic effects of advertising personal selling – salesmanship – Nature and function of salesman – Recruitment – sales organization and selling methods.

Recommended Texts:

1. Kotlar, Philip, Marketing Management, Prentice Hall, New Delhi.
2. Stanton, Etzel, Walker, Fundamentals of Marketing, Tata-McGraw Hill, New Delhi.
3. Marketing - J.Jaishanker.
4. Rajan and Ranjan Marketing
5. Marketing Management by C.P. Gupta

Reference Books:

1. Saxena, Rajan, Marketing Management, Tata-McGraw Hill, New Delhi.
2. McCarthy, E.J., Basic Marketing: A managerial approach, Irwin, New York.
3. Kootz,O'Donnell , Weighrich : Essentials of Management.
4. Marketing Management by Dr. A. Murthy

Course Outcomes

CO1	To explain the marketing concepts
CO2	To outline the stages involved in a product life cycle.
CO3	To illustrate the objectives of pricing,classify and analyse the pricing strategies.
CO4	To summarise the marketing structure and its functions
CO5	To explain the promotional programmes and examine its effects.

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	3	2	3	2	2	3	3
CO2	3	2	3	2	2	3	3
CO3	3	3	3	3	3	3	3
CO4	3	2	3	2	2	3	3
CO5	3	3	3	2	2	3	3

Correlation levels: 1- Weak 2-Medium 3-High

ENTREPRENEURIAL DEVELOPMENT

SUBJECT CODE- 01103

Total hours- 90 hrs

Credits - 5

Course Description-The student would be able to understand who is an entrepreneur, what are his/her functions, what is the kind of support he/she gets from government and non government agencies if he/she becomes one. At the end of the course, the student would be able to conceive a business idea, write a project proposal and get fully equipped to become an entrepreneur.

UNIT – 1

Entrepreneurship - Meaning - Role and importance of entrepreneurship – Characteristics of entrepreneurs – Relationship between entrepreneur, entrepreneurial and entrepreneurship - Functions of entrepreneurs – Types of entrepreneurs.

UNIT – II

Evolution of Indian entrepreneurship - Role of entrepreneurship in economic development in India .

UNIT - III

Policies and programmes of government and non-government organizations in entrepreneur development.

UNIT –IV

Small scale Enterprises – Small scale industries and Indian economic development - Small scale industries and entrepreneurial development - Concessions – Incentives and subsidies to small industries - SIDBI.

UNIT – V

Project appraisal – Classification of projects – Formation of business idea – Contents of project report.

Recommended Books:

1. Srinivasan N.P. & C.B. Gupta Entrepreneurial Development.
2. Dr. V. Radha Entrepreneurial Development.
3. Jayashree Suresh - Entrepreneurial Development.
4. Prassanna Chandra - Entrepreneurial Development
5. Bhattacharya H – Entrepreneurial Development

Reference Books:

1. Vasanth Desai Problems & Prospects of small industries in India.
2. Khan - Management of small scale industries.
3. Dr. N. Premavathy - Entrepreneurial Development
4. J.M. Parkin - How to Finance small Business Enterprises.

Course Outcomes

CO1	To explain the meaning, functions of entrepreneurs and classify their types..
CO2	To demonstrate the evolution of entrepreneurs and explain their role in economic development..
CO3	To evaluate the policies and programmes of government and non-government organizations in entrepreneurial development.
CO4	To examine the role, of small scale enterprises in economic development in the light of incentives given by the government.
CO5	To be able to conceive a business idea and prepare a project report.

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	3	2	3	2	2	3	3
CO2	3	2	3	2	2	3	3
CO3	3	3	3	2	3	3	3
CO4	3	3	3	2	3	3	3
CO5	3	3	3	1	2	3	3

Correlation levels: 1- Weak 2-Medium 3-High

FISCAL ECONOMICS – II

SUBJECT CODE- 01621

Total hours- 90 hrs
Credits -4

Course Description- A study of government expenditure and revenue and understanding taxation policy, fiscal federalism and local financing.

UNIT – I

Public Debt – Meaning - Objectives of Public debt – Classification of Public debt – Effects of Public debt – Repayment of public debt – Management of public debt.

UNIT – II

Deficit Financing – Meaning – Objectives of Deficit Financing - Role of deficit financing – Effects of deficit financing on money supply, prices, and distribution.

UNIT – III

Fiscal Federalism – Meaning - Principles – Problems of imbalance in financial Resources – Finance Commission – Functions – Recommendations of the latest Finance commission.

UNIT – IV

Fiscal policy – Meaning - Objectives of fiscal policy - Instruments of fiscal policy – Role of fiscal policy in a developing economy with reference to India.

UNIT – V

Local finance – Functions – Sources of finance to local bodies – Village Panchayat – Municipalities – Corporation – Problems of Local Finance.

Recommended Texts :

1. Tyagi .B.P, Public Finance
2. Sankaran .S, Fiscal Economics

Reference Books:

1. Sundaram K.P.M, Fiscal Economics
2. Cauvery and others, Fiscal Economics
3. Bhargava .R.N, Indian Public Finance
4. Mithani .D.M, Public Finance

Course Outcomes

CO1	Summarize the various aspects of public debt
CO2	Understand the meaning and objectives of deficit financing
CO3	Evaluate the imbalances in the financial resources
CO4	Analyse the role of fiscal policy in a developed economy
CO5	Evaluate the role of local bodies with respect to India

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	2	2	2	3	2	3	3
CO2	2	2	3	2	1	3	3
CO3	2	3	2	2	1	3	3
CO4	2	2	3	3	2	3	3
CO5	2	3	3	2	2	3	3

Correlation levels: 1- Weak 2-Medium 3-High

INTERNATIONAL ECONOMICS – II

SUBJECT CODE- 01622

Total hours- 90 hrsCredits
-4

Course Description- Students can understand the nuances of trade between countries.

Unit - I

Exchange rate – Meaning- Determination of exchange rate – Fixed and flexible exchange rate -. Foreign Exchange market. – Functions – Transfer function – Credit function – Hedging function.

Unit - II

Theories of Exchange rate - Mint theory - Purchasing power parity theory
– Balance of payment theory .

Unit – III

Role of Foreign Capital in economic development – Issues in Foreign Capital
- Foreign Direct investment – Multinational Corporations – Foreign aid.

Unit – IV

Present International monetary system – IMF – SDR – International
Liquidity, International Debt.

Unit – V

Trade and Development – Economic integration – meaning – types - World
Bank, GATT, WTO - Structure objectives, functions and working.

Recommended texts

1. Jingham. M.L , International Economics (Vrindha Publications).
2. M.C. Vaish and Sudama, International Economics Oxford and IBH

Reference Books:

1. B.O. Sodersten (1980), International Economics
2. Kindleberger C.P, International Economics
3. Paul. R. Krugman and Maurice. (2005), International Economics theory and Policy
4. Dr. Radha (2007), International Economics, (Prasanna Publications Ist Edition

Course Outcomes

CO1	To explain the determination of exchange rate..
CO2	To explain the theories showing how exchange rate is determined.
CO3	To outline the role of foreign capital in economic development.
CO4	To analyze the present international monetary system.
CO5	To outline the meaning and types of economic integration.

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	3	1	2	2	3	3	3
CO2	3	3	3	2	2	3	3
CO3	3	1	1	1	3	3	3
CO4	1	3	3	1	2	3	3
CO5	2	1	2	2	3	3	3

Correlation levels: 1- Weak 2-Medium 3-High

HUMAN RESOURCE MANAGEMENT (till 2019 batch)

SUBJECT CODE-

Total hours- 90 hrs
Credits -4

Course Description – The course deals with the recruitment, training and promotion of human resource.

UNIT – I

Human Resource Management: The Philosophy of management Concepts – Objectives – Functional – Evolution of Management – Development theory and Management.

UNIT – II

Job Analysis- Design and Evaluation: Concepts – Methods of job Analysis – Job description – Specialisation – Job design - Job enlargement – Job enrichment - Job evaluation.

UNIT – III

Recruitment and Selection: Concepts – Sources of Recruitment – Methods of Recruitment. Selection: Concepts – Selection process – Selection Tools – Application Bank. Training and Development: Concepts – Ascertaining Training Methods – Methods of Training and Development.

UNIT – IV

Promotion and Career Planning: Concepts - Criteria for promotion - Demotion. Career planning: Concepts - Stages in career-planning - Specific problems and solutions thereof.

UNIT – V

Human resources and Productivity: Factors of Productivity- Role of the Management in increasing productivity- organization for productivity- Motivation: Concepts- Theories of Motivation- Motivation Techniques.

RECOMMENDED BOOKS:

1. J. Jaishanker Human Resource Management
2. Dr. Radha Human Resource Development
3. Dr. N. Premavathy Human Resource Management
4. Dr. C.P. Gupta Human Resource Management
5. Dr. A.Murthy Human Resource Management

REFERENCE BOOKS

1. Philip kotler . Mc Graw Hill Human Resource Management
2. Snell Bohlander Human Resource Management
3. Prasanna Chandra Human Resource Management
4. Narko Blaug, Information To Economics Of Education, Penguin
5. V.S.P.Rao, Human Resouces Management –Text&Casio-Excel Books-New Delhi

Course Outcomes

CO1	To understand evaluation & function of human resource management
CO2	They can aware about job analysis , job description, job design, job speciation & job evaluation
CO3	They can have clear idea about recruitment, selection, training & development process
CO4	They can able to gain ample of skills such has career planning & criteria of promotion
CO5	They can equip them self through motivation

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3

Correlation levels: 1- Weak 2-Medium 3-High

ENVIRONMENTAL ECONOMICS

SUBJECT CODE- 01623

Total hours-90 hrs

Credits -5

Course Description-The course deals with the understanding of the resources available in the economy, utilization of the resources and measures for its sustainability.

UNIT – I

Economics and Environment – Definition and role of Environmental Economics – Scope and significance of Environmental economics – Ecology and Ecosystem – Relationship between the environment and the Economic system – Environment as a Resource – Environmental Quality.

UNIT – II

Resources – Concepts and definition – Classification of Resources – Renewable and non-renewable resources – Atomic Energy - Definition and meaning of Conservation of Resources – Material Substitution – Product Life Extension – Recycling – Waste reduction

UNIT – III

Environmental Regulation in India - Evolution of environmental policy in India; Preservation and conservation of water resources - Air and water Acts; fiscal incentives; enforcement and implementation issues; emerging options – Eco-taxes and eco-subsidies; case studies on pollution control in India

UNIT – IV

Pollution as an Economic problem – Pollution Control – Optimum level – Moral suasion – Direct control – Regulation – Fiscal technique – Effluent charges and subsidies compared.

UNIT – V

International Environmental policy – Transfrontier pollution – International Agreements – Stockholm Conference on Human Environment – Recommendations – United Nations Conference on Environment and Development at Rio- De Janerio (Agenda 21, june,1992) – An assessment.

Recommended Texts:

1. Hanley, N., J.F. Shogren, and B. White, Environmental Economics: In Theory and Practice, Oxford University Press, 2006.
2. Kolstad, C., Environmental Economics, Oxford University Press, 2000.
3. Conrad, J.M. and C. Clark, Natural Resource Economics – Notes and Problems, Cambridge University Press, 1987.
4. Dasgupta, P.S. and G.M. Heal, Economic Theory and Exhaustible Resources, University Press (Selected chapters), 1979.
5. Bhattacharya, R.N. (2001), Environmental Economics – An Indian Perspective, Oxford University Press, Delhi.

Reference Books:

1. Karpagam .M, Environmental Economics- A text book
2. Sankaran. S, Environmental Economics.
3. Pearce. G.W, Environmental Economics.
4. Joseph J.Sereca & Michael K.Taussing, Environmental Economics

Course Outcomes

CO1	Demonstrate comprehensive knowledge and understanding of environmental economics
CO2	Apply the principles, and identify environmental resources that are vital for economic development.
CO3	Ability to Analyze, interpret, and draw conclusions of environmental policy in India.
CO4	Capability to set up vision and mapping of tasks for pollution control, to prevent environmental degradation.
CO5	To understand the impact of economic policies in society and international environment in context to sustainable development,

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	3	3	3	3	3	3	3
CO2	3	3	1	3	3	3	3
CO3	3	3	3	2	3	3	3
CO4	3	3	2	1	3	3	3
CO5	3	2	2	3	3	3	3

Correlation levels: 1- Weak 2-Medium 3-High

CORE - XV
ENTREPRENEURIAL DEVELOPMENT

Course Code :	Credits 04
Lecture : 5 Hours per week	CIA Marks : 40
Exam Hours : 03	ESE Marks :60

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	<ul style="list-style-type: none"> Define entrepreneur, understand the several theories of entrepreneurship and recognize the entrepreneurial development in India. 	K1,K2
CO2	<ul style="list-style-type: none"> Conceive new business ideas and identify project opportunities together with problems to be faced. 	K6,K2,K1
CO3	<ul style="list-style-type: none"> Analyze and select the types of organization and interpret about the growth, expansion, diversification and strategies. 	K4,K2
CO4	<ul style="list-style-type: none"> Find the sources of finance and integrate the knowledge about government incentives, subsidies policies, tax concession to SSI units. 	K1,K3
CO5	<ul style="list-style-type: none"> Acquire the awareness about the role and scope of women entrepreneur, rural entrepreneur and NGO's. 	K2
CO6	<ul style="list-style-type: none"> Develop entrepreneurship skills. 	K6

Mapping of Course Outcomes to Program Outcomes:

PO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4
CO1	3	3	3	3	3	3	3	2	3	2	3
CO2	3	3	3	3	3	3	3	3	3	2	3
CO3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	2	3
CO5	3	3	3	3	3	3	3	3	3	2	3
CO6	3	3	3	3	3	3	3	3	3	2	3
Average	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.83	3.00	2.17	3.00
Correlation	3= Strong 2= Medium 1= Low										

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	Entrepreneur – Meaning – Various Theories – Scope of Entrepreneurial Development - Characteristics of Entrepreneur – Differences between the related terms – Common Myths on Entrepreneur–Types of Entrepreneurs –Functions of an Entrepreneur– Classification of Entrepreneurs– The Role of Entrepreneurship in the Economic Development – Entrepreneurial scene in India	12	CO1
2	Establishing an Enterprise – Creation of Business Ideas – Existing Companies – Products – Government Policies – Make in India – Start up India –Idea Generation Methods – Focus Groups – Brainstorming – Creative Problem Solving – Legal Consideration – Project Identification and Formulation – The Business Plan – The Marketing – Finance – Organizational Plan – Institutional Finance and Other Support Functions to Small Entrepreneurs (NSIC, SIDO, SSIB, SISI, DIC, TCO’s and other Specialized Institutions)	12	CO2
3	Selection of Types of Organization – Factors influencing the choice of Organization–Launch and Early Management Decisions–Managing Initial Problems & Growth–Expansion and Diversification Strategies – Why go for Public Issue of Shares – Tackling Problem Areas – Succession to Business	12	CO3
4	Government Incentives, Subsidies and Policies – Need and Importance of various Subsidies to SSI units – Tax Concessions – Advantages and Disadvantages of Incentives and Subsidies – EOU and EPZ – Marketing Assistance – Raw Material – Government Policies after July 1991 –MUDRA Banks–Objectives–Functions.	12	CO4
5	Women Entrepreneurs – Concept – Growth - Problems of Women Entrepreneurs – Future of Women Entrepreneur – Rural entrepreneurship – Growth of Rural Industrialization – Problems of Rural Industries – Developing Rural Entrepreneurship – Scope and Role of NGO’s – Entrepreneurship in Family-owned business – Government as Entrepreneur	12	CO5

TEXT BOOKS: Latest edition of the books to be referred.

1. Jayashree Suresh, Entrepreneurial Development, Margham Publications.Chennai-17, sixth Edition.

REFERENCE BOOKS

1. Charantimath Poornima, Entrepreneurship development-Small Business Enterprises Pearson Education,
2. Raj Shankar, Entrepreneurship Theory and Practice, Vijay Nicole and ImprintsPvt.Ltd.
3. Vasant Desai, Dynamics of Entrepreneurial Development & ManagementTwenty Fourth Edition. Himalaya Publishing House. Mumbai
4. E. Gordon & K. Natrajan Entrepreneurship Development, Himalaya PublishingHouse
5. Dr. C.B. Gupta & Dr. S.S. Khanka Entrepreneurship And Small Business

Management. Sultan Chand & Sons. Fifth Edition

6. S.S.Khanka, Entrepreneurial development, S.Chand and co., New Delhi.
7. Gupta C.B and Srinivasan N.P. Entrepreneurial Development, Sultan and Sons, New Delhi.
8. P. Saravanavel, Entrepreneurial Development – Ess Pee Kay publishing House.
9. Jaswer Singh Saini, entrepreneurship Development, deep and deep publications, New Delhi



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Arumbakkam, Chennai – 600 106

Core Paper I – Financial Accounting-I [National Level]

Course Code : 2106101	Credits : 4
L:P:T:S : 5:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand Accounting standards, the relevant provisions specified, calculation of average due date and Computation of claim for loss of stock/ Loss of profit [Fire insurance]
CO2	Recall errors and its types, entries for rectification and its impact on GP/ NP and suspense account
CO3	Classify investments and solve practical problems based on application of AS 13
CO4	Apply the provisions of AS 6 for determining depreciation on assets.
CO5	Prepare the Final Accounts of a Sole Trading Concern incorporating important adjustments and provision for revenue recognition as per AS 9.
CO6	Differentiate single and double entry system and solve problems through statement of affairs and conversion method

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	1	3	2	1	-	2	-
CO2	1	3	2	1	2	2	-
CO3	1	3	-	1	-	2	-
CO4	1	3	1	1	1	2	-
CO5	1	3	2	1	1	2	-
CO6	1	2	2	1	1	1	-

S.No	CONTENTS OF MODULE	Hrs	Cos
1	UNIT- I Introduction to Accounting concepts and conventions, Accounting standards in India [AS and Ind AS], Introduction to AS 1- Disclosure of Accounting policies. Average Due date – Insurance Claims – Average Clause (Loss of stock & Loss of profit)	15	1,2
2	UNIT- II Classification of errors – Rectification of errors – Preparation of Suspense Account – Investment Accounts AS 13, Classification of investments- Carrying amount of investments- Profit/loss on sale of investments- Disclosure and reporting	15	3
3	UNIT- III Depreciation – Meaning, Causes, Types –Provisions in AS 6 –Methods of depreciation- Straight line method, Written down value method [Change in method excluded], Sinking fund method, Annuity method, Revaluation method, Depletion method.	15	4

Signature of the HOD

Signature of the Principal



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4	UNIT- IV Preparation of Final Accounts of a Sole Trading Concern with adjustments and accounting for Closing Stock, Outstanding, Accrual and Prepaid items, Depreciation, Bad debts & Provision, Reserve for Discount on debtors and creditors, Interest on Capital and Drawings, Manager's Commission, loss of stock by fire and recovery of insurance claims. Introduction to AS 9- Revenue recognition	15	5
5	UNIT- V Accounting from incomplete records – Meaning, Features, Limitations, Distinction between incomplete records [single entry] and Double Entry System – Estimation of Profit / Loss under Statement of Affairs method- Preparation of final statements by Conversion Method	15	6

TEXT BOOKS:

1. Gupta R. L., & Gupta V. K. (2019). Financial Accounting. 8th Ed. Sultan Chand & Sons. New Delhi, India. (ISBN: 978-81-8054-732-4)
2. Jain. S. P., & Narang K. L. (2019). Financial Accounting. Kalyani Publishers, New Delhi, India. (ISBN: 978-93-2723-123-6)
3. Shukla, M. C., Gupta, S. C., & Grewal T. S. (2017). Advanced Accounts. 19 Ed. S. Chand Publishing, New Delhi, India. (ISBN: 978-93-5253-314-5)
4. The Institute of Chartered Accountants of India. (2018). Intermediate (IPC) Course Study Material - Paper-1 Accounting. The Institute of Chartered Accountants of India (ICAI), New Delhi, India.

REFERENCE BOOKS:

1. Gupta R. L., & Radhaswamy M. (2018). Advanced Accountancy, Vol. I. 13th Ed. Sultan Chand & Sons, New Delhi, India. (ISBN: 978-81-8054-699-0)
2. Tulsian P. C. & Tulsian Bharat (2020). Tulsian's Principles and Practice of Accounting With Quick Revision Book. 5th Ed. CA Examination Series, MCGrawHill Education, New Delhi, India. (ISBN: 978-93-8981-169-8)

Note: Latest editions of the books shall be referred

Signature of the HOD

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CORE PRACTICAL - I A

(PRACTICAL EXAMINATION AT THE END OF ODD SEMESTER)

Course Code :	Credits 4
L: T: P: S : 0:0:3:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Learning Objectives:

This course opens the window to the students about

- the methods of experimental physics
- the Emphasis to laboratory techniques as accuracy of measurements & data analyze
- Concept that is learnt in the classroom will be translated to the laboratory sessions thus providing a hands-on leaving experience.

Course Outcomes: At the end of the Course, the Student will be able to

Knowledge level - K1(Remembering) ,K2(Understanding),K3(Applying) ,K4(Analyzing) , K5(Evaluating) ,K6(Creating)

CO 1	Apply the knowledge of mathematics physics fundamentals and using instrumentation, technics to arrive at solutions for various problems.	K3
CO 2	Translate basics laws and theories to demonstrations to determine various preparations of materials given.	K2
CO 3	Relate application of experiment in real life situation.	K3
CO 4	Demonstrate experiments involving basic concept of properties of matter, sound, heat, optics and usage of KT tools.	K3



Dr. D. UTHRA
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 Chennai- 600 106.

Mapping of Course Outcomes to Program Outcomes:

Strongly correlated - 3 moderately correlated - 2 weakly correlated -1

CO/P O/ PSO	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	3	3	3	3	3	3	2	3	3	3	3	3	2
CO2	3	3	3	3	3	3	3	3	2	3	3	3	3	3	2
CO3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	2
CO4	3	3	3	3	3	3	3	3	2	3	3	3	3	3	2

LIST OF EXPERIMENTS:

1. Young's modulus – Non-uniform bending – Pin & microscope.
2. Rigidity modulus – Torsional pendulum (without identical masses).
3. Surface tension and interfacial surface tension – drop weight method.
4. Comparison of viscosity of liquid by burette method – Hare's apparatus given.
5. Sonometer – Relative density of a solid and liquid.
6. Specific heat capacity of liquid – Method of mixtures (Half-time correction).
7. Focal length, Power, R and refractive index of a long focus convex lens.
8. Spectrometer – refractive index of a liquid – hollow prism.

Note:

- Use of Digital balance is permitted
- Error and statistical analysis of data
- Plotting graphs using software for a given data
- Learning to use software to detecting the values of electrical components and basics laws of physics

CORE PRACTICAL - I B

(PRACTICAL EXAMINATION AT THE END OF EVEN SEMESTER)

Course Code :	Credits 4
L: T: P: S : 0:0:3:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Learning Objectives:

- This course opens the window to the students about
- the methods of experimental physics
 - the Emphasis to laboratory techniques as accuracy of measurements & data analyze
 - Concept that is learnt in the classroom will be translated to the laboratory sessions thus providing a hands-on learning experience.

Course Outcomes: At the end of the Course, the Student will be able to

Knowledge level - K1(Remembering) ,K2(Understanding),K3(Applying) ,K4(Analyzing) ,
K5(Evaluating) ,K6(Creating)

CO 1	Apply the knowledge of mathematics physics fundamentals and using instrumentation, techniques to arrive at solutions for various problems.	K3
CO 2	Translate basic laws and theories to demonstrations to determine various preparations of materials given.	K2
CO 3	Relate application of experiment in real life situation.	K3
CO 4	Demonstrate experiments involving basic concept of properties of matter, sound, heat, optics and usage of KT tools.	K3

Mapping of Course Outcomes to Program Outcomes:

strongly correlated - 3 moderately correlated - 2 weakly correlated -1

CO/P O/ PSO	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	3	3	3	3	3	3	2	3	3	3	3	3	2
CO2	3	3	3	3	3	3	3	3	2	3	3	3	3	3	2
CO3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	2
CO4	3	3	3	3	3	3	3	3	2	3	3	3	3	3	2

LIST OF EXPERIMENTS:

1. Young's modulus – Uniform bending – Optic lever – scale and telescope
2. Rigidity modulus and moment of inertia – Torsional pendulum (with identical masses)
3. Coefficient of viscosity of liquid using graduated burette (radius of capillary tube by Mercury pellet method)
4. Sonometer – Verification of laws and frequency of tuning fork.
5. Specific heat capacity of a liquid – Newton's law of cooling.
6. Focal length, Power, R and refractive index of a concave lens.
7. P.O. Box – Temperature coefficient of resistance of a coil
8. Potentiometer - Low range Voltmeter calibration.

Note:

- Use of Digital balance is permitted
- Error and statistical analysis of data
- Plotting graphs using software for a given data
- Learning to use software to detecting the values of electrical components and basics laws of physics



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PG DEPARTMENT OF BIOTECHNOLOGY

Course Title: Pharmaceutical Biotechnology - Extra Disciplinary: 1

Course Code :		Credits :	03
L:T:P:S	: 3:0:0:0	CIA Marks	: 40
Exam Hours :	03	ESE Marks	: 60

LEARNING OBJECTIVES:

The course content helps student to understand the basic concepts, scope and applications of pharmacology. The course imparts the basic knowledge of Industrial production of pharmaceutical products, Drug designing and gene therapy. The content provides an importance and role of biotechnology in pharmaceutical industry.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Analyze the various types of drugs and its applications.
CO2	Demonstrate with pharmacokinetics and pharmacodynamics parameters of biopharmaceutical.
CO3	Exhibit knowledge in formulation and delivery of drugs.
CO4	Enumerate the various sources of biopharmaceuticals and its application
CO5	Comprehend the therapeutic value of biosimilar drugs
CO6	Illustrate the drug discovery process and pre-clinical studies of various therapeutic products.

Mapping of Course Outcomes to POs/PSOs:

CO/PO/PSO	PO						PSO				
	1	2	3	4	5	6	1	2	3	4	5
CO 1	2	1	1	2	1	2	1	2	3	2	2
CO 2	1	1	3	3	1	1	1	2	3	2	1
CO 3	1	1	2	2	2	2	1	2	2	2	1



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CO 4	1	1	2	3	1	1	1	3	2	3	2
CO 5	1	1	2	3	1	1	1	2	2	2	1
CO 6	1	1	2	3	2	2	1	2	3	2	2

Course Title: Pharmaceutical Biotechnology, Extra Disciplinary: 1

Sl NO	CONTENTS OF MODULE	Hr s	Cos
1	Pharmacology & Pharmacogenomics: Introduction to Pharmacology; Pharmacological Classification of Drugs - Analgesics, Antipyretics, Anti-inflammatory, Antidepressants and CNS Stimulants, Anti-hypertensive Drugs and Anti-hyper lipidemic Drugs; Pharmacogenomics - Types of Genetic Variations, Drug Metabolizing enzymes, Pharmacodynamics – Drug efficacy, pharmacokinetics –ADME and Therapeutic drug monitoring.	9	CO1 CO2
2	Drug Formulation and Delivery: Capsules – Requirements, Method of Capsule Filling, Importance of Base Absorption; Tablets – Types, Granulation, Technology on large-scale; Controlled and sustained release dosage forms-enteric-coated tablets and capsules; Parental injections, Ointments and Creams, Emulsion and Suspensions; Stabilizing excipients; Delivery of biopharmaceuticals – oral delivery systems, pulmonary delivery, nasal, transmucosal, Parenteral Products, transdermal delivery system, Liposomes and Nanoparticles.	9	CO3
3	Biopharmaceuticals and its sources Biopharmaceuticals – Introduction, History of the pharmaceutical industry, age of biopharmaceuticals, Applications of biopharmaceuticals; Pharmaceuticals of animal origin- the androgens, the oestrogens, progesterone, Prostaglandins; Pharmaceutical substances of plant origin- Alkaloids, Flavonoids, xanthines and terpenoids; Pharmaceutical substances of microbial origin-Penicillin derivatives.	9	CO4
4	Biosimilar drugs as therapeutics Growth Hormones- Interferon, Interleukins, Erythropoietin, Insulin Hormone, Somatotropin, Human Growth Hormone, Somatostatin, Vaccines, Monoclonal Antibody Based Pharmaceuticals; Recombinant Blood products- Anticoagulants- Hirudin,	9	CO5



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	Antithrombin, Thrombolytic agents- Tissue plasminogen activator, Streptokinase, Urokinase; Therapeutic enzymes- Superoxide dismutase, Dnase, α -Galactosidase, Debriding agents, Digestive aids.		
5	Drug Development Processes Drug discovery and delivery process- Types of Clinical Research, Phases of Clinical Research; Pre-clinical studies-Toxicity (Reproductive toxicity and Teratogenicity, Mutagenicity, Carcinogenicity and Other tests); Clinical trials - Clinical trial design, Trial size design and study population.	9	CO6

Text Books:	
1.	Hiten J. Gutka, Harry Yang, Shefali Kakar (2018). <i>Biosimilars: Regulatory, Clinical, and Biopharmaceutical Development</i> , (1st ed), USA: Springer, ISBN: 978-3-319-99679-0.
2.	Oliver Kayser (Editor), Heribert Warzecha (Editor) (2012). <i>Pharmaceutical Biotechnology: Drug Discovery and Clinical Applications</i> , (2nd Edition), Germany: Wiley VCH, ISBN: 978-3-527-32994-6.
3.	John F. Corpenner, Mark C. Manning (2012). <i>Rational Design of stable formulation Theory and Practice</i> , (1st edition), US: Springer Science, ISBN: 9781461351313.

Reference Books:	
1	Crommelin, Daan J. A., Sindelar, Robert, Meibohm, Bernd (Eds.) (2019). <i>Pharmaceutical Biotechnology Fundamentals and Applications</i> , (5 th Ed), Springer International Publishing, ISBN: 978-1-4614-6485-3.
2	Yui-Wing F. L. and Stuart S. (2019). <i>Pharmacogenomics: Challenges and Opportunities in Therapeutic Implementation</i> , (2nd Ed), TX, USA: Academic Press, ISBN: 9780128126264.

SEMESTER I

Course Code	Course Title	Category	L	T	P	S	Credits
	BIOTECHNIQUES, FUNGI & LICHENS	Core paper - I	6	0	0	0	4

Year	Semester	CIA	ESE	Exam Hours
First	First	50	50	03

LEARNING OBJECTIVES:

On taking this course the student will be able to understand the working principle and applications of light and electron microscopes. The student will also be able to understand the working mechanism and applications of rotary and sledge microtome. They also will be able to recognize Habit, life forms and reproductive structures of lower forms of plants. The student will be able to understand the classification of Fungi and Lichens. The subject also throws light on the economic importance of Fungi and Lichens.

COURSE OUTCOMES

At the end of the Course, the Student will be able to:

	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)
CO1	Understand the basic principles and scope of Biotechniques.	K1,K2, K3, K4, K5,K6
CO2	Acquire fundamental knowledge about Bio-instruments.	K1,K2, K3, K4, K5,K6
CO3	Assess knowledge of fungi with respect to classification and its importance to mankind.	K1,K2, K3, K4, K5,K6
CO4	Identify various life forms of Fungi.	K1,K2, K3, K4, K5,K6
CO5	Outline the salient features and importance of Lichens.	K1,K2, K3, K4, K5, K6

K1 - Remember

K4 - Analyze

K2 - Understand

K5 - Evaluate

K3 - Apply

K6 - Create

MAPPING OF COURSE OUTCOMES TO PO/PSO:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	3	2	1	2	2	1	1	2	3	2	1	1	2
CO2	3	3	3	2	3	2	1	1	3	2	3	3	2
CO3	3	3	3	2	3	1	1	2	3	3	3	3	2
CO4	3	3	3	3	3	3	1	2	3	2	3	1	1
CO5	3	3	3	3	2	1	1	2	3	3	3	2	1

STRONGLY CORRELATED -3; MODERATELY CORRELATED – 2; WEAKLY CORRELATED -1

S. NO	CONTENTS OF MODULE	Hrs.	COs
1	<p>MODULE – I BIOTECHNIQUES 1.1 Working principle, Construction and Applications of Light Microscopes: Compound and Phase contrast Microscope 1.2 Working Principle, Construction and Applications of Transmission Electron Microscope (TEM). 1.3 Microtomes – Rotary and Sledge (Wood Microtome) – Structure and Applications. 1.4 Sectioning - Free hand section and Serial section (Microtomy). 1.5 Stains – Types and Uses; Methods of Staining - Simple and Differential Staining; Positive and Negative staining; single and double staining. 1.6 Fixatives - Types (FAA and Carnoy’s fluid; Glutar-aldehyde and Osmium Tetroxide) and uses.</p>	18	CO1
2	<p>MODULE – II Principle, technique and applications of the following Bio-techniques: 2.1 pH meter: Basic principles of pH meter and its operation, types of Electrodes, Measurement of pH, and Applications. 2.2 Centrifugation: Principle, types of centrifuges (Bench & Ultra) and Applications. 2.3 Colorimeter: Principle, operations and uses; Beer – Lambert’s Law. 2.4 Whole mount preparations (Algae and Fungi); Special techniques: Smear, Squash, and Maceration.</p>	18	CO2
3	<p>MODULE – III FUNGI 3.1 Introduction and Evolution of Fungi. 3.2 General characteristics, Habit, Nutrition types, cell structure, mycelium – its modifications. 3.3 Reproduction: Vegetative, Asexual, Sexual, Para-sexual; Fruiting bodies, Life cycle patterns.</p>	18	CO3

	3.4 Classification of Fungi by G.C. Ainsworth (1971) - Order level 3.5 Economic importance of Fungi.		
4	MODULE – IV Structure and reproduction with reference to the following fungal forms: 4.1 <i>Albugo</i> 4.2 <i>Mucor</i> 4.3 <i>Peziza</i> 4.4 <i>Agaricus</i> 4.5 <i>Colletotrichum</i> 4.6 <i>Puccinia</i>	18	CO4
5	MODULE – V LICHENS 5.1 General features, Nature, Occurrence, distribution, thallus organization, types, Vegetative, Asexual and Sexual Reproduction. 5.2 Occurrence, Structure and life cycle of <i>Usnea</i> . 5.3 Economic importance of Lichens 5.4 Role in Succession and Monitoring Pollutants.	18	CO5

TEXT BOOKS:

1. Vashishta B.R, Sinha A.K & Anil Kumar (2016). *Botany for Degree Students – Fungi*, S. Chand & Company, ISBN:9789352533008
2. Annie Ragland, Arumugam. N (2016). *Fundamentals of Plant Anatomy and Microtechniques*, Saras Publication, ISBN :9788193307663
3. Awasthi D.D (2013). *A hand book of lichens* (1st Ed), M/s Bishen Singh Mahendra Pal Singh, ISBN: 9788121101813
4. Ponmurugan P & Gangathara Prabhu B (2013). *Biotechniques*, MJP Publishers, ISBN :9788180941191
5. S.V.S Rana (2012). *Biotechniques (Theory & Practice)*, Rastogi Publications (3rd Ed), ISBN:9788171339938
6. Sharma O.P (2008). *Fungi And Allied Microorganisms*, McGraw Hill India, ISBN:9780070700383
7. Prasad M.K & Krishna Prasad M (2000). *Outlines of Microtechnique*, Emkay Publications, ISBN: 9788185712291

REFERENCE BOOKS:

1. Gray P (2020). *Handbook of Basic Microtechniques-* Alpha Edition, ISBN: 9789354009150
2. Edward Chee Tak Yeung, Claudio Stasolla, Michael John Sumner (2015). *Plant Microtechniques and Protocols* (1st Ed), Springer Nature. ISBN:9783319199436
3. Alexopoulos C.J, Mims C.W, Blackwell M (2007). *Introductory Mycology* (4th Ed.), Wiley, ISBN: 9788126511082
4. Webster, J. (2007). *Introduction to Fungi*, Cambridge University Press (3rd Ed.), ISBN: 9780521727006

5. Vernon Ahmadjian & Mason E. Hale (1974). *The Lichens*, Academic Press Inc, ISBN: 978012044950

WEBSITES:

1. <https://microbiologyonline.org/about-microbiology/introducing-microbes/fungi>
2. <https://www.anbg.gov.au/lichen/what-is-lichen.html>

CORE PAPER: II PRACTICAL – I

BIOTECHNIQUES, FUNGI & LICHENS

L	T	P	Cr
0	0	3	2

LEARNING OUTCOMES:

At the end of the Course, the Student will be able to:

1. Understand the basic principles and uses of Microscopes.
2. To prepare and identify microslides of Fungi, Lichens.

BIOTECHNIQUES

1. Maceration technique
2. Freehand sectioning – Any plant material.
3. Identification of Stains and Fixatives
4. Photographs of Microscopes, pH meter, Centrifuge, Colorimeter.

FUNGI

1. Whole mount preparations of Fungi
2. Sectioning of Macroscopic fungi
3. Economic importance of fungi and Lichens (Photographs)
4. Preparation of agar media for fungal culture (Protocol).
5. Identification of Fungi included in Theory Syllabus.

LICHENS

1. Identification of Lichens included in Theory Syllabus.

Field visit / trip to collect the Fungi/Lichens in natural Habitat

Course Code	Course Title	Category	L	T	P	S	Credits
	VERMITECHNOLOGY	Part IV: NME -I	2	0	0	0	2

Year	Semester	CIA	ESE	Exam Hours
First	First	50	50	03

LEARNING OBJECTIVES:

On learning this course Students will be able to develop skills and self employability to prepare the vermicompost in a limited space and demonstrate and describe the various methods of decomposing process. The students will also get the knowledge on vermiculture and production of bio-manure and will get self-employment. They will also turn towards organic farming; will help to maintain a pollution free environment.

COURSE OUTCOMES

At the end of the Course, the Student will be able to:

	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)
CO1	Understand the scope of Vermiculture techniques and apply different wastes for vermicompost	K1,K2 &K3
CO2	Discuss the role of local species of earthworm in vermitechology and vermicompost production	K1 & K2
CO3	Design and apply the knowledge for the construction of various vermibeds for compost production and Procedure for vermicompost a bio-manure	K3 & K4
CO4	Evaluate the quality and quantity of vermicompost	K5
CO5	Create and apply methods to reduce the bio-enemies of earthworms during vermicomposting process	K6

K1 - Remember

K-2 - Understand

K3 - Apply

K4 - Analyze

K-5 - Evaluate

K-6 - Create

MAPPING OF COURSE OUTCOMES TO PO/PSO:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	3	3	2	3	3	3	3	3	3	3	3	3	3
CO2	3	2	3	3	3	2	3	3	3	3	3	3	3
CO3	3	3	2	3	3	3	2	3	3	3	2	3	3
CO4	3	3	2	3	3	3	3	3	3	3	2	3	3
CO5	3	3	3	2	3	2	2	2	2	2	3	2	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED - 2, WEAKLY CORRELATED -1

S. NO	CONTENTS OF MODULE	Hrs.	COs
1	MODULE – I VERMITECHNOLOGY 1.1. Introduction: Definition and concept of vermiculture. 1.2. Influence of soil organisms in vermiculture- bacteria, earthworms, entomofauna mites etc. 1.3. Litter degradation and decomposition. 1.5. Problems in vermiculture and remedial solutions.	06	CO1
2	MODULE – II 2.1. Types of earthworms: Endemic and exotic species of earthworms. 2.2. Ecological classification of earthworms- epigeic, anecic and endogeic forms. 2.3. Physical, chemical and biological changes caused by earthworms in soil- drilospheres and vermicasts.	06	CO2
3	MODULE – III 3.1 Vermicomposting- Vermicomposting materials, Vermicomposting methods (raised bed method and pot method). 3.2 Establishment of vermiculture unit: materials required and maintenance of vermiculture unit.	06	CO3
4	MODULE – IV 4.1. Vermicompost- harvesting of vermicompost- quality, properties and advantages over chemical fertilizers, packing and marketing- cost benefit analysis.	06	CO4
5	MODULE – V 5.1. Natural enemies of earthworms- pets, parasites and pathogens affecting earthworms. 5.2. Use of earthworms in food and medicine- ayurvedic and unani medicine. 5.3 Recycling of food wastes in vermiculture. 5.4. Application and scope of vermiculture.	06	CO5

TEXT BOOKS:

1. Jordan E.L and Verma P.S (2009). *Invertebrate Zoology*, S. Chand & Company, ISBN:9788121903677
2. Gupta P.K (2008). *Vermicomposting For Sustainable Agriculture*, Agrobios, ISBN:9788177542349

REFERENCE BOOKS:

1. Edwards C.A (2011). *Vermiculture Technology: Earthworms, Organic Wastes, and Environmental Management*, CRC Press, ISBN:978143980987
2. Subba Rao N.S (1995). *Soil Microorganisms and Plant Growth*, Science Publishers, ISBN:9781886106185

WEBSITES:

1. <https://technology4agri.wordpress.com/2013/02/12/vermiculture-an-introduction/>
2. https://vermiculture.com/vermiculture/?doing_wp_cron=1574957760.9421699047088623046875

SEMESTER II

Course Code	Course Title	Category	L	T	P	S	Credits
	ALGAE AND BRYOPHYTES	Core paper - 3	6	0	0	0	4

Year	Semester	CIA	ESE	Exam Hours
First	Second	50	50	03

LEARNING OBJECTIVES:

On taking this course the student will be able to recognize Habit, life forms and reproductive structures of lower forms of plants. The student will be able to understand the classification of Algae and Bryophytes. The subject also throws light on the economic importance of algae. It provides knowledge on structure and reproduction of certain selected Bryophytes forms.

COURSE OUTCOMES

At the end of the Course, the Student will be able to:

	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)
CO1	Classification of different forms of algae and its evolution	K1, K2, K3, K4, K5
CO2	Study about different forms of Algae.	K1, K2, K3, K4, K5
CO3	Acquire knowledge on the commercial importance of Algae.	K1, K2, K3, K4, K5, K6
CO4	Classification of different forms of Bryophytes and its evolution	K1, K2, K3, K4, K5
CO5	Acquire knowledge on the commercial importance of Bryophytes.	K1, K2, K3, K4, K5, K6

K1 - Remember

K2 - Understand

K3 - Apply

K4 - Analyze

K5 - Evaluate

K6 - Create

MAPPING OF COURSE OUTCOMES TO PO/PSO:

CO/PO/PS O	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	3	2	1	2	2	1	1	1	3	3	2	2	3
CO2	3	3	3	2	3	1	1	2	3	3	3	3	2
CO3	3	3	3	2	3	1	1	1	3	2	2	2	3
CO4	3	3	3	3	3	1	1	2	3	3	3	3	2
CO5	3	3	3	3	2	2	1	2	3	3	3	3	2

STRONGLY CORRELATED -3; MODERATELY CORRELATED – 2; WEAKLY CORRELATED -1

S. NO	CONTENTS OF MODULE	Hrs.	COs
1	<p>MODULE – I ALGAE 1.1 Introduction and Evolution of Algae. Classification of Algae F.E. Fritsch (1945) 1.2 Distribution - Range of thallus organization – Pigmentation- Flagellation- Reserve food – Reproduction (Vegetative/ Asexual/ Sexual) and Life cycle patterns. 1.3 General characteristics of major classes of Algae (Cyanophyceae, Chlorophyceae, Bacillariophyceae, Phaeophyceae, and Rhodophyceae).</p>	18	CO1
2	<p>MODULE – II Life history of the following representative genera of Algae: 2.1 <i>Nostoc</i> 2.2 <i>Ulva</i> 2.3 <i>Caulerpa</i> 2.4 <i>Navicula</i> (Diatom) 2.5 <i>Sargassum</i> 2.6 <i>Gracilaria</i></p>	18	CO2
3	<p>MODULE – III 3.1 Algal Biotechnology: Single Cell Proteins (SCP): <i>Spirulina</i> as single cell protein - production and harvesting of algal biomass – factors affecting biomass production. 3.2 Seaweed cultivation in India – Resources, methods, problems and uses of seaweeds. 3.3 Economic importance of Algae: Algae as food and fodder, use of algae in agriculture and space research, commercial products of algae: Agar - Agar,</p>	18	CO3

	Alginates, Carrageen in, Diatomite, Minerals and Elements - Algae in Cosmetics, Medicine, Bio-fuels and Bio-fertilizers. 3.4 Conservation of Algae: Threats to freshwater and marine algae, Threatened Algal species and its conservation.		
4	MODULE – IV BRYOPHYTES 4.1 Introduction and Evolution of Bryophytes. Classification (Proskauer (1957)). 4.2 General Characteristics of the Major Subdivision: Hepaticopsida, Anthocerotopsida and Bryopsida. 4.3 Fossil Bryophytes - Fossil Hepaticopsida, Fossil Bryopsida. 4.4 Economic Importance of Bryophytes.	18	CO4
5	MODULE – V A detailed study of Morphology, Anatomy and Reproduction of the following Genera: 5.1 <i>Marchantia</i> 5.2 <i>Anthoceros</i> 5.3 <i>Polytrichum</i>	18	CO5

TEXT BOOKS:

1. Sambamurty A.V.S.S (2020). *A Textbook of Bryophytes, Pteridophytes, Gymnosperms and Paleobotany*, Dreamtech Press, ISBN: 9789389447187
2. Vashishta B.R, Singh V.P & Sinha A.K (2012). *Botany for Degree Students – Algae*, S. Chand & Company, ISBN:9788121935210
3. Sharma O.P (2011). *Text book of Algae*, McGraw Hill Education, ISBN:9780070681941
4. Vashishta. B.R, Sinha A.K & Adarsh Kumar (2011). *Botany for Degree Students – Bryophytes*, S. Chand & Company, ISBN:9788121935692

REFERENCE BOOKS:

1. Watson E.V (2018). *The Structure and Life of Bryophytes*, Scientific publishers, ISBN: 9789388043533
2. Dinabandhu Sahoo (2013). *Common Seaweeds of India*, I K International Publishing House Pvt. Ltd, ISBN:9788190777063
3. Perumal, G M, Anand, N (2009). *Manual of Freshwater Algae of Tamil Nadu*, Bishen Singh Mahendra Pal Singh, ISBN:9788121106948
4. Smith G.M. (1994). *Manual of Phycology*, Scientific Publishers Journals, ISBN: 9788172330910
5. Fritsch F.E (1935). *Structure and Reproduction of Algae*, Cambridge University Press, ISBN: 9780521050418

Course Code	Course Title	Category	L	T	P	S	Credits
	ALLIED ZOOLOGY - II	Allied Paper - 2	6	0	0	0	4

Year	Semester	CIA	ESE	Exam Hours
First	Second	50	50	03

LEARNING OBJECTIVES:

On taking this course the student will list the distinctive features and importance of various cell organelles. The students will be able to know how sex determined in man and will know the genetic disorders caused by chromosomal mutations and students able to understand the physiological activities of various organ and organ systems. The students will able to know the treatment methods of sewage effluents and also develop a self-employability on Apiculture, Sericulture and Poultry farming.

COURSE OUTCOMES

At the end of the Course, the Student will be able to:

	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)
CO1	Understand and Discuss the animal cell structure, stem cell and its applications, cancer cell, and its properties. Acquire the knowledge on molecular structure of Gene, Inborn errors of metabolism and X and Y linked inheritance in man	K1,K2, K3,K5,K6
CO2	Discuss the gametogenesis process– Fertilization- Cleavage and Gastrulation in Frog and in Man.	K1,K2,K3, K4, & K5
CO3	Analyse various physiological activities of different organs and organ systems in Man. Apply the knowledge on functions of different hormones	K1, K2, K3, K4, K5, K6
CO4	Create a awareness, scope and importance of sericulture and apiculture	K1,K2, K3 K4,K5&K6
CO5	Create a awareness, scope and importance of poultry rearing techniques for commercial production Evaluate the quantity and quality of poultry and dairy production	K2, K3, K4, K5 &K6

K1 - Remember

K2 - Understand

K3 - Apply

K4 - Analyze

K5 - Evaluate

K6 – Create

MAPPING OF COURSE OUTCOMES TO PO/PSO:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	2	3	3	2	2	3	2	3	3	3	3	2	2
CO2	2	3	3	3	2	2	3	3	3	3	3	2	1
CO3	3	3	3	3	2	2	3	2	3	3	3	2	3
CO4	2	2	3	3	2	2	3	3	3	2	3	2	3
CO5	2	2	3	2	2	2	3	3	3	2	3	3	3

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

S. NO	CONTENTS OF MODULE	Hrs.	COs
1	<p>MODULE – I CELL BIOLOGY 1.1. Organization of eukaryotic cell (Animal cell) - Stem cell - types of stem cell, application of stem cells, stem cell therapy. Cancer cell- types and properties of cancer cells.</p> <p>GENETICS 1.2. Molecular structure of Gene-Gene concept- Gene function- Inborn errors of metabolism with reference Amino Acid metabolism (Albinism, Alkaptonuria and Phenylketonuria) Genetic Engineering and its applications- X and Y – linked inheritance.</p>	18	CO1
2	<p>MODULE – II DEVELOPMENTAL BIOLOGY 2.1 Gametogenesis – Spermatogenesis, Oogenesis, Fertilization- Cleavage and Gastrulation in Frog and in Mammals (Man).</p>	18	CO2
3	<p>MODULE – III HUMAN PHYSIOLOGY: 3.1. Digestion, Structure of Heart, Cardiac cycle, composition of blood, Heart diseases- Ischemia, Myocardial infarction, Rheumatic Heart disease, Stroke. 3.2. Excretion-Structure of Kidney, Nephron, Mechanism of Urine formation and Kidney failure. 3.3. Endocrine glands- Structure and functions of Pituitary, thyroid, Islets of Langerhans, Adrenal, Testis and Ovary.</p>	18	CO3
4	<p>MODULE – IV ECONOMIC ZOOLOGY SERICULTURE 4.1. Commercial variety of mulberry, Biology of Mulberry Silk worm – types of silkworm Rearing operation – CHAWAKI and late age rearing techniques – physical and commercial characters of cocoon. APICULTURE 4.2. Apiculture – Biology of Different Honey Bee Types, bee hives method of beekeeping application for modern methods of apiculture – Extraction of honey – Economic importance of honey.</p>	18	CO4

5	MODULE – V POULTRY REARING 5.1. Morphology of different breeds of Chicken, Poultry rearing - Brooding and rearing of chicks, by products of poultry - Nutritive value of Egg. DAIRY FARMING 5.2. Dairy Cattle Classification- Indigenous and exotic breeds - Morphology Description- Dairy cattle Management	18	CO5
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TEXT BOOKS:

1. Supriti Sarkar (2014). *Introduction to Economic Zoology*, New Central Book Agency, ISBN: 9788173818998
2. Shukla G.S (2014). *Economic Zoology*, Rastogi Publications, ISBN:9789350780350

REFERENCE BOOKS:

1. Ashok Kumar Rathoure (2015). *Applied and Economic Zoology*, Daya Publishing House, ISBN:9789351246466
2. Ram Prabhu Jayasurya R (2013). *Economic Zoology*, Saras Publication, ISBN:9789382459262

WEBSITES:

1. [https://www.sciencedaily.com/terms/cell_\(biology\).htm](https://www.sciencedaily.com/terms/cell_(biology).htm)
2. <https://plato.stanford.edu/entries/cell-biology/>
3. <https://bscb.org/learning-resources/softcell-e-learning/what-is-a-cell/>

Course Code	Course Title	Category	L	T	P	S	Credits
	GARDENING	VALUE ADDED COURSE	30	0	0	0	2

LEARNING OBJECTIVES:

After completion of this course, student will be able to gain knowledge and importance of gardening. They will be able to be successful Entrepreneurs.

S. NO	CONTENTS OF MODULE	Hrs.	COs
1	MODULE – I Gardening – Introduction, features, and types 1.1 Scope and introduction to gardening. 1.2 Different kinds of gardens (Indoor and Outdoor). 1.3 Gardening features, and the importance of the garden. 1.4 Tools used in gardening: Axe, crowbar, Hoe, Hosepipe, knives, labels, Lawnmower, Pickaxe, pruning shear, Saw, Secateurs, Sieve, spade and Shovel, Sprinklers/rainbirds, Sickle, Sword, Trowel, Watering can and pots/containers.	6	CO1
2	MODULE – II Different types of Gardens and their importance 2.1 Home garden – suitable plants for home gardening 2.2 Detailed aspects of roof garden, terrace garden, and vertical garden 2.3 Advantages and limitations in establishing different types of gardens 2.4 Importance, features, and maintenance of commercial gardening	6	CO2
3	MODULE – III Different kinds of plants suitable for gardening 3.1 Suitable plants for different kinds of gardens. 3.2 Different shade-loving plants for home gardening. 3.3 Suitable annuals, perennials, and flowering trees for commercial/ornamental gardening. 3.4 A detailed description of potted plants such as outdoor, foliage, flowers, creepers, climbers, etc.	6	CO3
4	MODULE – IV 4.1 Soil and its preparation: Physical texture and composition of the soil, soil types, soil pH, preparation of beds, and preparation of soil mixtures/garden soil. 4.2 Fertilizers, Organic Manures, and Substrates: Fertilizers; Farm Yard Manure (FYM), compost, leaf mold, bone meal, Oilcakes, wood ash, charcoal, peat moss, Sphagnum Moss, shredded bark, sawdust, and wood shavings; Vermiculite and Vermicompost. 4.3 Potting, Repotting, and Transplantation: Types of pots, Plants suitable for pot culture, Potting, Repotting, and Transplantation.	6	CO4

	4.4 Pruning: Introduction, objectives; Types and seasons of pruning, special pruning techniques, differential pruning technique, pruning of flowering and fruit plants		
5	MODULE – V Plant Propagation techniques 5.1 Introduction to plant propagation 5.2 Asexual Propagation / vegetative propagation: Concept, advantages, disadvantages/limitations; propagation by specialized vegetative structures (Bulb, Tubers, root, stem corm, Rhizome, runner, offset, suckers, etc.) 5.3 Types of propagation- Cutting, layering, grafting, and budding.	6	CO5

TEXT BOOKS:

1. Pramila Mehra (2019). *Teach Yourself Gardening*, Hind Pocket Books, ISBN : 9353494516

REFERENCE BOOKS:

1. Kevin Espiritu (2019). *Field Guide To Urban Gardening*, Cool Springs Press, ISBN : 076036396X

WEBSITES:

1. https://agritech.tnau.ac.in/horticulture/horti_Landscaping_vertical%20gardening.html

FIRST SEMESTER
Course Title: CORE THEORY T1-VISUAL PROGRAMMING
(For Students admitted from 2022 onwards)

Course Code	:	Credits	: 03
L:T:P:S	: 2:1:0:0	CIA Marks	: 50
Exam Hours	: 03	ESE Marks	: 50

Course Objectives:

- Demonstrate knowledge of programming terminology and how applied using Visual Basic (e.g., variables, selection statements, repetition statements).
- Develop a Graphical User Interface (GUI) based on problem description
- Develop an Event Planning Chart based on problem description so as to define the processing that is to occur based on specific events
- Develop an Algorithm to verify processing is accurate
- Develop and debug applications using Visual Basic 2010 (or version required for the course) that runs under Windows operating system
- Develop programs that retrieve input from a file as opposed to input only provided by user

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Introduction to GUI. Common terms of Visual Programming. Concepts of Visual Programming. Program design tools with its properties.
CO2	Programming Paradigms. Development of program. Coding using control structures.
CO3	Demonstration of Form design. Explanation for passing parameters by val and byref. Importance of Function procedure.
CO4	Create Menus, MDI Forms Implementing Arrays Usage of MS Flex Grid control
CO5	Implementation of Error Handling. Usage of Dialog Boxes. Importance of OLE.

Mapping of Course Outcomes to Program Specific Outcomes:

	PS O1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	3	3	3	3	2
CO2	3	3	2	3	3	2
CO3	3	3	3	3	3	2
CO4	3	3	3	3	2	3
CO5	3	3	3	2	3	3

3-Strong 2-Medium 1-Low

Sl No.	Contents of Module	Hrs	COs
1	Introduction to Visual Basic- introduction Graphical User Interface (GUI), Programming Language (Procedural, Object Oriented, Event Driven),The Visual Basic Environment-VB Controls Textboxes, Frames, Check Boxes , Option Buttons, List Boxes & Combo Boxes, Images, Setting a Border & Styles, The Shape Control, The line Control, Working with multiple controls and their properties, Coding for controls.	15	CO1
2	Variables, Constants, and Calculations-Variables, Variables Public, Private, Static, Constants, Data Types, Naming -rules/conventions, Constants, Named & intrinsic, Declaring variables, Scope of variables, Val Function, Arithmetic Operations, Formatting Data- handling Strings - Decision & Conditions- If Statement, If then-else Statement, Nested If Statements, Do/Loops, For/Next Loops, Case Structure , Displaying Message in Message Box- Using Call Statement to call a procedure.	15	CO2

3	Sub-Procedures and functions - Using common dialog box, Creating a new sub-procedure, Passing Variables to Procedures, Passing Argument ByVal or ByRef, Writing a Function Procedure, Multiple Forms -Creating , adding, removing Forms in project.	15	CO3
4	Menus, MDI Form - Arrays Single-Dimension Arrays, Initializing an Array using for Each statement, Two dimensional arrays- MSFlex Grid Control.	15	CO4
5	Trapping Program Errors, The Err Object, - COM/OLE - automation - DLL Servers - OLE Drag and Drop.	15	CO5

Text Books:

1. Gary Cornell, “Visual Basic 6 from the Ground up”, First Edition, 1999, TataMcGraw-Hill.
2. Steven Holzner, “Visual Basic 6 Black Book”, Second Edition, 1999, [Oreilly](#).

Reference Books:

1. Noel Jerke, “Visual Basic 6 (The Complete Reference)”, Second Edition, 1999, TataMcGraw-Hill.
2. Overland Brian, “Visual Basic 6 in Plain English”, Third Edition, 1999, JohnWiley.

E-References:

1. www.tutorialspoint.com/listutorials/visual-basic/

FIRST SEMESTER

Course Title: CORE THEORY T2- FUNDAMENTALS OF DIGITAL ELECTRONICS
(For Students admitted from 2020 onwards)

Course Code	: 18-20/15102	Credits	: 04
L:T:P:S	: 3:1:0:0	CIA Marks	: 50
Exam Hours	: 03	ESE Marks	: 50

Course Objectives:

- *To Impart the Knowledge of Fundamentals of Electronics.*
- *To discover the Knowledge of Microprocessor and its Units.*
- *To discuss and utilization of Various Number Systems and Architectures of Microprocessors.*
- *Demonstration of Flip Flops and the Registers associated.*
- *Outlining the Commands and Instructions of Processors*

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	<ul style="list-style-type: none"> ● To demonstrate the functional codes of Binary Systems. ● To study about the concepts of Logic Gates.
CO2	<ul style="list-style-type: none"> ● To clarify the concepts of Boolean Functions. ● To gain knowledge about universal gates
CO3	<ul style="list-style-type: none"> ● Extracting the nature of Combinational Logic Circuits
CO4	<ul style="list-style-type: none"> ● To impart the applications of Encoders and Decoders. Classification of Flip-flops. ● To differentiate the types of Registers and their applications.
CO5	<ul style="list-style-type: none"> ● Demonstrating the Classification of Counters. ● Differentiating the types of ROM ,RAM

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	3	2	2	2	2
CO 2	3	3	3	2	3	3
CO 3	3	2	3	2	3	3
CO 4	3	3	3	2	3	2
CO 5	3	3	2	3	2	2

3-Strong 2-Medium 1-Low

Sl No.	Contents of Module	Hrs	COs
1	Digital Computers and Digital Systems - Number Systems & Codes: Number System - Base Conversion - Binary Codes - Code Conversion. Digital Logic: Logic Gates - Truth Tables - Universal Gates.	10	CO1
2	Boolean Algebra: Laws & Theorems - SOP, POS Methods - Simplification Of Boolean Functions - Using Theorems, K-Map, - Implementation Using Universal Gates.	12	CO2
3	Binary Arithmetic: Binary Addition - Subtraction - Arithmetic Building Blocks - Adders – Subtractors - Combinational Logic: Multiplexers - Demultiplexers - Decoders - Encoders	15	CO3
4	Sequential Logic: RS, JK, D, And T Flip-Flops - Edge-Triggered - Master-Slave Flip-Flops, Registers: Shift Registers - Types of Shift Registers.	10	CO4
5	Counters: Asynchronous Counters Ripple, Mod, Up-Down Counters- Synchronous Counters - Types of ROM and RAM.	15	CO5

TEXT BOOKS:

1. **M.Moris Mano**, “Digital Logic and Computer Design”, First Edition, 2004, Pearson

REFERENCE BOOKS:

1. **D. P. Leach & A. P. Malvino**, “Digital Principles and Applications”, Fifth Edition, 2002, TMH
2. **T. C.Bartee**, “Digital Computer Fundamentals”, Sixth Edition, 1991, TMH.
3. **R.J.Tocci**, “Digital System Principles and Applications”, Tenth Edition, 2012, Pearson Education.

E-REFERENCES:

1. <http://nptel.iitm.ac.in/video.php?subjectId=117106086>
2. <http://nptel.iitm.ac.in/Onlinecourses/Srinivasan/>

FIRST SEMESTER

Course Title: CORE PRACTICAL P4-VISUAL PROGRAMMING LAB

(For Students admitted from 2018 onwards)

Course Code	: 18-20/XXXX	Credits	: 02
L:T:P:S	: 0:0:2:0	CIA Marks	: 50
Exam Hours	: 03	ESE Marks	: 50

Course Objectives:

- To improve the programming skills of the students with respect to advance concepts of Visual Basic.

Lab exercise

1. Building simple applications with VB (Calculator and String Functions)
2. Working with intrinsic controls (Radio buttons, Check boxes , Picture boxes, Timer and Shape control)
3. Application using MDI form
4. Application using menus
5. Application using Common Dialog Boxes
6. Application using Functions (pass by value and Reference) and Procedures.
7. Building simple applications using MSFlex Grid control.

FIRST SEMESTER

Course Title: **NON MAJOR ELECTIVE 1- Fundamentals of Information Technology**
(For Students admitted from 2020 onwards)

Course Code	: 20XXXX	Credits	: 02
L:T:P:S	: 2:0:0:0	CIA Marks	: 50
Exam Hours	: 03	ESE Marks	: 50

Course Objectives:

- *Develop a Graphical User Interface (GUI) based on problem description*
- *Understanding the Digital Domain*
- *Develop applications using Fundamentals of computers.*
- *Depth knowledge in Computer architecture and types of Network security.*

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	<ul style="list-style-type: none"> ● Introduction to Information Technology ● Understanding the Digital Domain. Representing Numbers and text in Binary codes.
CO2	<ul style="list-style-type: none"> ● Fundamentals of Computers: Computer Hardware-Software-System ● Development of Software applications. Introduction of Software translators MLL-HLL-ALL
CO3	<ul style="list-style-type: none"> ● Demonstration of Transmission of Information. ● Creating the Fundamentals of Communications. Explanation of Fiber optics-Wireless communications.
CO4	<ul style="list-style-type: none"> ● Goals of computer networking. ● Developing Goals Topologies-LAN, WAN, MAN.
CO5	<ul style="list-style-type: none"> ● Implementation of Internet Architecture ● Types of Network Security Incorporating Internet applications-Internet address-Domain name-E-mail..

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	3	3	2	3	3
CO2	3	3	3	2	3	3
CO3	3	3	3	3	2	2
CO4	3	3	3	3	3	3
CO5	3	3	3	3	2	3

3-Strong 2-Medium 0-Low

SI No.	Contents of Module	Hrs	COs
1	Introduction to Information Technology-Understanding the Digital Domain-Representing Numbers and text in Binary-binary code	06	CO1
2	Fundamentals of Computers: Computer Hardware-Software-System. Software-Application software-Translators-MLL-HLL-ALL.	06	CO2
3	Transmission of Information: Fundamentals of Communications-Fiber optics-Wireless Communications-ISDN.	06	CO3
4	Computer Networking: Goals-Topologies-Local Area Networks-Wide Area Networks-Communication Protocol	06	CO4
5	Internet Architecture-Types of Network Security-Internet applications-Internet address-Domain name-E-mail.	06	CO5

Text Books:

1.

Introduction to Information Technology PelinAksoy, LauraDeNardis, Cengage Learning India Private Limited, First Indian Reprint 2008.

E-References:

1. http://www.tutorialspoint.com/computer_fundamentals/index.htm
2. https://www.tutorialspoint.com/basics_of_computers/index.htm

SECOND SEMESTER

Course Title: **CORE THEORY T4-DATA STRUCTURES**
(For Students admitted from 2022 onwards)

Course Code	:		Credits	: 04
L:T:P:S	:	3:1:0:0	CIA Marks	: 50
Exam Hours	:	03	ESE Marks	: 50

Course Objectives:

- Explaining the concept of data structures and its applications
- Structuring the Applications of Arrays, Searching Techniques.
- Emphasizing the types of Linked Lists and Polynomials.
- Explaining the Types of Trees.
- Elaborating the concepts of Graphs, Dijkstra's Shortest Path

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	To Demonstrate the Definition and Classification of Arrays. To study about the concepts of Searching Techniques. To impart the concepts of Sorting Techniques.
CO 2	To elaborate the operations and applications of Stack. To impart the applications of Queues and operations on the Queues.
CO 3	To elaborate the Addition of Polynomials. To study the Operations on Linked Lists.
CO 4	Representation of Trees. To impart the knowledge of Tree Traversals, Threaded Binary Trees.
CO 5	Representation of Exception and Pre-Defined Exception. To Point out the Importance of Graphs, Traversals and Algorithms.

Mapping of Course Outcomes to Program Specific Outcomes:

	PS O1	PS O2	PS O3	PS O4	PS O5	PS O6
CO 1	3	3	3	3	2	3
CO 2	3	3	3	2	3	3
CO 3	3	3	3	3	3	3
CO 4	3	3	3	3	2	2
CO 5	3	3	3	2	2	2

3-Strong 2-Medium 1-Low

Sl No.	Contents of Module	Hrs	COs
1	Data Structures – Definition and Classification - Arrays – Array Operations – Representation of Arrays – Applications of Arrays. Searching Techniques – Linear Search – Binary Search. Sorting techniques – Bubble Sort, Selection Sort, and Insertion Sort	10	CO1
2	Stack – Operations on Stacks - Stack applications – Infix to Postfix notation and Evaluation of Postfix notation. Queues - Operations on the Queues - Circular queue – Dequeue	10	CO2
3.	Introduction to the Linked List - Basic operations on linked list – Singly Linked Lists – Doubly Linked Lists – Circularly Linked Lists – Addition of Polynomials.	10	CO3
4.	Trees - Basic Terminology - Binary Trees - Representation of Trees and Binary trees - Binary Tree Traversals – Binary Search Trees - Threaded Binary Trees.	15	CO4
5.	Graphs – Basic Terminology – Representation of Graphs - Graph Traversals– Minimum Cost Spanning tree - Dijkstra’s Shortest Path.	15	CO5

Text Book:

1. S. Sahni & E. Horowitz, “Fundamentals of Data Structure”, Second Edition, 1999, Galgotia Publications.
2. Alfred V. Aho, John E. Hopcraft, Jeffrey D. Ullman, “Data Structures and Algorithms”, 2009, Addison-Wesley Edition, Wiley Publications, 2017.

Reference Books:

1. G.A. Vijayalakshmi Pai, “Data structures and Algorithms- Concepts, Techniques and Applications”, First Edition, 2011, Tata McGraw-Hill.
2. Dr. A. Chitra, “Data Structures”, 2009, Vijay Nicole Imprints Private Limited.

E-References:

1. http://nptel.iitm.ac.in/courses/Webcourse-contents/IIT-%20Guwahati/data_str_algo/frameset.htm
2. <http://www.personal.kent.edu/~rmuhamma/Algorithms/algorithm.html>
3. n.wikibooks.org/wiki/Data_structures

SECOND SEMESTER

**Course Title: NON MAJOR ELECTIVE 2-HTML and Web Design
(For Students admitted from 2020 onwards)**

Course Code	:		Credits	:	02
L:T:P:S	:	2:0:0:0	CIA Marks	:	50
Exam Hours	:	03	ESE Marks	:	50

Course Objectives:

- *Demonstrate knowledge of Web programming terminology and how applied using Web Browsers (e.g., Web writing styles, election statements, design and management ,etc.)*
- *Develop a Graphical User Interface (GUI) based on problem description*
- *Develop an Event Planning Chart based on problem description so as to define the processing that is to occur based on specific events*
- *Develop an Algorithm to verify Image size and padding*
- *Develop and debug applications using Hyperlinking from graphics.*
- *Develop programs that retrieve input from a file as opposed to input only provided by user*

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	<ul style="list-style-type: none"> ● Introduction to WWW. ● Common terms of Web writing styles, Web design and management. ● Concepts of HTML Programming. ● Introduction to Telnet and FTP
CO2	<ul style="list-style-type: none"> ● Basics of HTML. ● Development of Hyperlinks and style sheets. ● Introduction of Lists and Backgrounds.
CO3	<ul style="list-style-type: none"> ● Demonstration of Graphics format for Web use. ● Creating and arranging the elements in Web page. ● Explanation for Image size and padding.
CO4	<ul style="list-style-type: none"> ● Create Hyper linking from Graphics. ● Developing Thumbnail using Graphics. ● Creating Tables – Formatting Tables.
CO5	<ul style="list-style-type: none"> ● Implementation of Layouts: Creating Division-Based Layouts ● Usage of Frames layout. ● Incorporating Audio and Video using Frames.

Mapping of Course Outcomes to Program Specific Outcomes:

	PS O1	PS O2	PS O3	PS O4	PS O5	PS O6
CO1	3	3	3	2	3	2
CO2	3	3	2	3	3	3
CO3	2	3	3	3	2	2
CO4	3	3	3	2	3	2
CO5	2	3	3	3	2	3

3-Strong 2-Medium 1-Low

Sl No.	Contents of Module	Hrs	COs
1	World Wide Web: Introduction the web defined – web browser details – web writing styles – web presentation outline, design ,and management – registering web pages. Searching the World Wide Web: introduction – directories, search engines and meta search engines – search fundamentals – search strategies – how does a search engine works. Telnet and FTP : introduction – telnet and remote login – File transfer – Computer Viruses	06	CO1
2	HTML Basics: Understanding HTML – Setting Up the Document Structure – Formatting Text by Using Tags – Using Lists and Backgrounds – Creating Hyperlinks and Anchors Style Sheets and Graphics: Introduction to Style sheets	06	CO2
3	Graphics: Selecting a Graphics Format – Preparing Graphics for Web Use – Inserting Graphics – Arranging Elements on the Page – Controlling Image Size and Padding	06	CO3
4	Hyper linking from Graphics – Utilizing Thumbnail Graphics – Including Alternate Text for Graphics- Navigation: Creating Navigational Aids – Creating Tables – Formatting Tables	06	CO4
5	Layouts: Creating Division-Based Layouts – Creating User Forms – Using Frames for Layout – Incorporating Audio and Video	06	CO5

Text Book:

1.

Microsoft Step by Step – HTML and XH, FaitheWempen, Prentice Hall of India PrivateLimited, New

Delhi

E-References:

1.http://www.tutorialspoint.com/html_webdesign/index.html

Course Title: Financial Mathematics using R

Course	M. Sc Maths
Exam Hours	03

Credits	04
CIA Marks	50
ESE Marks	50

Course objectives

- To understand the fundamental concepts of Probability distribution and Testing of Hypothesis.
- To enable the students to model the real-world problems through Multi Factor model and Discrete Time Model.
- To understand the concepts of Continuous Time Model and Monte Carlo Simulation.

Course outcomes: At the end of the course, students will be able to

CO1	Demonstrate understanding of basic concepts in probability distributions and test the significance
CO2	Demonstrate understanding of concepts relating to multi-factor model
CO3	Employ methods related to these concepts in Discrete time model
CO4	Apply logical thinking to problem solving in Continuous time model
CO5	Demonstrate understanding of basic concepts in Monte Carlo simulation

CONTENTS OF MODULE

UNIT-I: Statistical Analysis with R:

Basic statistics, Probability distribution and random numbers, Hypothesis testing, what is hypothesis testing? t-Test of population mean, Regression Analysis, Yield curve analysis using principal component analysis

Section 1 : 2

UNIT-II: Modern Portfolio Theory and CAPM:

Mean-variance portfolio, Market portfolio, Derivation of CAPM, The extension of CAPM: Multi-factor model, Arbitrage Pricing Theory, Fama-French's 3 factor model, The form of the efficient frontier. Interest rate swap, Pricing of interest rate swaps and the derivation of discount factors, Valuation of interest rate swaps and their risk

Section 2 : 4,5

UNIT-III Discrete Time Model - Tree Model:

Single period binomial model, Derivative pricing, Pricing by risk neutral measure, Multi period binomial model, Generalization to the multi period model, Pricing call options, Trinomial model

Section 2 : 6

UNIT-IV Continuous Time Model and the Black-Scholes Formula:

Continuous rate of return, Ito's lemma, The Black-Scholes formula, Implied volatility

Section 2 : 7

UNIT-V: Monte Carlo Simulation:

The basic concept of Monte Carlo simulation, Variance reduction method, Antithetic variates method, Moment matching method, Exotic options, Multi asset options, Control variates method

Section 3: 8

Recommended Text:

Shuichi Ohsaki, Jori Ruppert-Felsot, Daisuke Yoshikawa, “R Programming and Its Applications in Financial Mathematics”, CRC Press, 2018.

Reference Book:

1. Martin Boxter and Andrew Rennie, *Financial Calculus: An Introduction to Derivatives Pricing*, Cambridge University Press, Cambridge, 1996.
2. Damien Lamberton and Bernard Lapeyre, (Translated by Nicolas Rabeau and Francois Manton), *Introduction to Stochastic Calculus Applied to Finance*, Chapman and Hall, 1996
3. Marek Musiela and Marek Rutkowski, *Martingale Methods in Financial Modeling*, Springer Verlag, New York, 1988.
4. Robert J.Elliott and P.Ekkehard Kopp, *Mathematics of Financial Markets*, Springer Verlag, New York, 2001 (3rd Printing).

Mapping of Course Outcomes to Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6		PSO1	PSO2	PSO3
CO1	2	2	1	2	3	2		2	3	2
CO2	3	2	2	1	2	1		1	2	3
CO3	3	3	1	2	2	1		2	3	2
CO4	2	2	1	1	1	2		1	2	3
CO5	2	2	2	2	1	1		2	2	2

3 –
High
2 –

Medium 1 - Low

Course Title: MATHEMATICAL ECONOMICS

Course	M Sc MATHEMATICS
Exam Hours	03

Credits	03
CIA Marks	50
ESE Marks	50

Course objectives

- Improve the mathematical skills necessary to study economics.
- Find the solution for constrained optimization problems using methods of Dynamic Equilibrium with lagged adjustment.
- Use Linear Programming- primal and dual techniques in economic analysis

Course Outcomes: At the end of the Course, the Student will be able to

CO1	Explain Perfect Competition and Imperfect Competition methods. Monopoly and its Applications and Dynamic Equilibrium with lagged adjustment.
CO2	Examine Parato Optimality and the efficiency of Perfect competition and Effects in consumption and Production.
CO3	Evaluate Linear Programming problems. Able to apply the simplex methods to production and diet problems.
CO4	Represent the concepts of two-person zero sum game and saddle points.
CO5	Express the differentiate and applications of difference and difference equations.

COs	CONTENTS OF MODULE
CO1	<p>UNIT-I:</p> <p>Market Equilibrium: Assumptions of Perfect Competition – Demand Functions – Supply Functions – Commodity Equilibrium – Applications of the Analysis – Factor Market Equilibrium – Existence of Uniqueness of Equilibrium – Stability of Equilibrium – Dynamic Equilibrium with lagged adjustment.</p> <p>Imperfect Competition: Monopoly and its Applications – Duopoly and Oligopoly – Monopolistic Competition – Monopsony, Duopsony and Oligopsony – Bilateral Monopoly</p> <p>Chapter 6 : Sections 6.1 to 6.7</p>
CO2	<p>UNIT-II:</p> <p>Welfare Economics: Parato Optimality and the efficiency of Perfect competition – The efficiency of Imperfect competition – External. Effects in consumption and Production – Taxes, Subsidies and Compensation – Social Welfare functions – The theory of Second Best.</p>

	Chapter 7 : Sections 7.1 to 7.7
CO3	UNIT-III: Linear Programming- primal and dual, Graphic method – simplex method- Applications to production and diet problems. Non-Linear programming, Hawkin- simon conditions- method and applications.
CO4	UNIT-IV: Input and output analysis structure of an economy assumptions- technical co-efficient outputs and prize determination. Game theory: Basic concepts: two-person zero sum game- saddle points- examples of co-operative and non-co-operative games.
CO5	UNIT-V: Difference and differential equations – first and second order linear differential and difference equation. Applications to total marginal and average functionals.
Recommended Text Book :	
1. J.M.Henderson and R.E.Quandt, <i>Micro Economic Theory- A Mathematical Approach</i> , (2 nd Edn) McGraw Hill, New York, 1971.	
2. Basic Econometrics- Damodar N. Gujarati, Dawn C. Porter	
Reference Books :	
1. William J. Baumol. <i>Economic Theory and Operations Analysis</i> , Prentice Hall of India, New Delhi, 1978	
2. A.C.Chiang, <i>Fundamental Methods of Mathematical Economics</i> , McGraw Hill, New York, 1984	
3. Michael D. Intriligator, <i>Mathematical Optimization and Economic Theory</i> , Prentice Hall, New York, 1971.	
4. Kautsoyiannis, <i>Modern Microeconomics</i> (2 nd edn) MacMillan, New York, 1979	
5. AC Chang , <i>Fundamental methods of Mathematical Economics</i> .	
6. M.D. Intriligator , <i>Mathematical Optimization and Economic Theory</i> .	

Mapping of Course Outcomes to Program Outcomes and Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6		PSO1	PSO2	PSO3
CO1	3	3	2	1	2	2			2	3
CO2		3	2	2	2	2		3		3
CO3	3	3	2	1	1	2		3	2	3
CO4		3	2	1	2	2		3	2	3
CO5	3	3	2	2	2	2		3		3

3 –
High
2 –

Medium 1 - Low



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College with Potential for Excellence, Linguistic Minority Institution

Affiliated to University of Madras

Arumbakkam, Chennai - 600 106

Department: Biochemistry		Academic Semester: (EVEN)	
Semester: II	Section: A	Course Code: 2124212A	Course: Bioethics, IPR and HR
Course Incharge: Dr P.T.Srinivasan & S.Vaidehi		No. of credits: 03	

Content delivery	e.g. Chalk and Talk, PPT presentation, Quiz, Assignments
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COURSE OUTCOMES: At the end of the course, the student will be able to:

CO1	Outline International Instruments On Human Rights
CO2	Compare the powers and functions Of SHRC AND NHRC
CO3	Valuate The Moral Sentiments Of Adamsmith and Thiruvalluvar
CO4	Analyze The Bioethics Of Cloning And Recombinant Drugs Production
CO5	Apply Article 21 In Different Case Studies And IPR and IPP. Prioritize Biosafety Measures From Biohazards.

Mapping of CO / PO:

	PO1	PO2	PO3	PO4	PO5
CO1	1	1	1	1	1
CO2	1	1	3	1	1
CO3	1	1	3	3	1
CO4	1	1	3	3	1
CO5	1	1	3	3	1

Correlation levels:

1 - Weak

2 - Medium

3 - High



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Arumbakkam, Chennai – 600 106

COURSE DELIVERY PLAN Dec 22- Apr 23

Lecture	Module	Topics	Instructional Hours	Date of completion	Faculty Sign
1	1	Introduction to HR, - HR definition	1	21-12-2022	
2		Nature of Human rights	1	23-12-2022	
3		Types of Human rights	1	03-01-2023	
4		Historical Development of HR.	1	05-01-2023	
5		Historical Development of HR. fundamental rights	1	05-01-2023	
6		Features and importance of fundamental rights	1	09-01-2023	
7		International Instruments- UDHR Article 1-15	1	11-01-2023	
8		UDHR article 16-30	1	13-01-2023	
9		United Nation commission for HR- Council and its instruments, office	1	13-01-2023	
10		ICCPR- overview, purpose, structure, Part 1 & 2(Article 1-5)	1	19-01-2023	
11		ICCPR- Part III,IV,V,VI(Article 6-53)	1	23-01-2023	
12		ICESR- Article 1-31	1	25-01-2023	
13		ICCPR & ICESR comparison	1	25-01-2023	
14		Development of HR in India – (functions)-	1	28-01-2023	
15	2	Article 21 of Indian Constitution	1	31-01-2023	
16		Protection of Human Rights Act 1993	1	02-02-2023	
17		NHRC- Structure, office and functions	1	02-02-2023	
18		SHRC- Structure, office and functions	1	06-02-2023	
19		Economics of HR and Human Relations	1	08-02-2023	
20		Theory of moral sentiments by Adam Smith.	1	10-02-2023	
21		Theory of moral sentiments by Adam Smith.	1	10-02-2023	
22	3	Economic philosophy of Thiruvalluvar	1	14-02-2023	
23		Economic philosophy of Thiruvalluvar	1	16-02-2023	
24		Fundamental rights - definition, rights	1	18-02-2023	
25		Women rights- Case studies currently happening Hijab case, Sexual harrasement in kids and small children	1	18-02-2023	



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26		Newspaper articles- right to livelihood	1	21-02-2023	<i>[Signature]</i>	
27		Right to food, water articles from newspapers and discussion in class	1	23-02-2023	<i>[Signature]</i>	
28		Right to education - Students view by open discussion	1	25-02-2023	<i>[Signature]</i>	
29		Right to medical care and shelter.	1	25-02-2023	<i>[Signature]</i>	
30	4	Bioethics- Definition; transgenesis- method	1	28-02-2023	<i>[Signature]</i>	
31		Ethical concerns regarding transgenesis.	1	02-03-2023	<i>[Signature]</i>	
32		Cloning - procedure	1	06-03-2023	<i>[Signature]</i>	
33		Bioethical issues of reproductive cloning	1	06-03-2023	<i>[Signature]</i>	
34		Bioethical issues of therapeutic cloning	1	09-03-2023	<i>[Signature]</i>	
35		Applications of cloning- Therapeutic cloning and	1	11-03-2023	<i>[Signature]</i>	
36		FDA approved cloned foods	1	13-03-2023	<i>[Signature]</i>	
37		Bioethics in animal genetic engineering - IAEC guidelines of animal experiments;	1	15-03-2023	<i>[Signature]</i>	
38		Bioethics in animal genetic engineering - IAEC guidelines of animal experiments;	1	17-03-2023	<i>[Signature]</i>	
39		Bioethics in plant genetic engineering	1	20-03-2023	<i>[Signature]</i>	
40		Ethics of using recombinant drug.	1	21-03-2023	<i>[Signature]</i>	
41		4	Genetically modified foods & Gmo's	1	22-03-2023	<i>[Signature]</i>
42			Contradiction & health hazards of GMF.	1	23-03-2023	<i>[Signature]</i>
43			Labeling procedure of GMF	1	23-03-2023	<i>[Signature]</i>
44			Regulations of field experiments and release of GMOs into the field,	1	25-03-2023	<i>[Signature]</i>
45			Regulations of field experiments and release of GMOs into the field continued	1	27-03-2023	<i>[Signature]</i>
46	Biohazards		1	28-03-2023	<i>[Signature]</i>	
47	Biohazards		1	31-03-2023	<i>[Signature]</i>	
48	Biosafety measures		1	31-03-2023	<i>[Signature]</i>	
49	5		Intellectual Property Rights- Definition, types	1	03-04-2023	<i>[Signature]</i>
50			patent act in India and its amendments	1	05-04-2023	<i>[Signature]</i>
51		Patent filing procedure	1	06-04-2023	<i>[Signature]</i>	
52		Copyright, trademark	1	10-04-2023	<i>[Signature]</i>	
53		Infringements in IPR	1	12-04-2023	<i>[Signature]</i>	
54		Geographical Indications & tradeseecret	1	13-04-2023	<i>[Signature]</i>	



DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE

(Autonomous)

Reaccredited by NAAC with "A++" grade
College with Potential for Excellence, Linguistic Minority Institution
Affiliated to University of Madras
Arumbakkam, Chennai – 600 106

TEXT BOOKS:

1. Benchamp, T. (1979). Contemporary issues in bioethics. Oxford university press -
2. Benchamp, T. (2020). Principles of Animal Research Ethics. Oxford university press - ISBN 10: 0190939125 / ISBN 13: 9780190939120
3. DeGrazie, T. A. (2015). Biomedical Ethics. Amazon

REFERENCES:

1. Dubey, R. (2014). A Textbook of Biotechnology . S. Chand - ISBN 10: 8121926084 / ISBN 13: 9788121926089
2. T.G.Agitha, N. & (2009). Principles of intellectual Property. Eastern Book Company Lucknow - ISBN 10: 8170121132 / ISBN 13: 9788170121138
3. Acharya, N. (2014). Text book of Intellectual property rights. Asia Law House

WEB LINKS:

1. <https://ipindia.gov.in/>
2. <https://www.ohchr.org/en/instruments-mechanisms/instruments/international-covenant-civil-and-political-rights>
3. https://www.wto.org/english/tratop_e/trips_e/intell_e.htm
4. <https://nhrc.nic.in/>
5. <https://www.shrc.tn.gov.in/>


Course Incharge


Head of the Department

Head
Department of Biochemistry
Dwaraka Doss Goverdhan Doss
Vaishnav College (Shift II)
Arumbakkam, Chennai-600 106:

M.SC., BIOCHEMISTRY
SECOND SEMESTER

Course Title: BIOETHICS, IPR AND HUMAN RIGHTS
(Elective Paper - III)

L:T:P:S: 3:0:0:1	Credit:03
CIA Marks	: 40
Exam Hours	ESE Marks : 60

Course Outcomes: At the end of the Course, the Student will be able to:

CO NUMBER	CO Statement
CO1	Outline International Instruments On Human Rights
CO2	Compare The Powers And Functions Of SHRC AND NHRC and Philosophies of Adamsmith and Thiruvalluvar.
CO3	Interpret Women's Right in India.
CO4	Analyze The Bioethics Of Cloning And Recombinant Drugs Production
CO5	Apply IPR and IPP and Prioritize Biosafety Measures From Biohazards.

Mapping of Course Outcomes to Program specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	1	1	1	1
CO2	1	1	3	1	1
CO3	1	1	3	3	1
CO4	1	1	3	3	1
CO5	1	1	3	3	1

CORRELATION : 3-STRONG 2- MEDIUM 3- LOW

S.No.	Content of Module	Hrs	Cos
MO1	Introduction to HR, definition fundamental rights- International Instruments- UDHR- United Nation commission for HR- ICCPR (International Covenant on civil and political rights)- Historical Development of HR.	9	CO1
MO2	Development of HR in India – Article 21 of Indian Constitution- Protection of Human Rights Act 1993- NHRC- SHRC (functions)- Economics of HR and Human Relations – Theory of moral sentiments by Adam Smith. Economic philosophy of Thiruvalluvar .	9	CO2
MO3	Students activity – Assignment/seminar- case study- definition, women rights, newspaper articles- right to livelihood, right of women, right to food, water, education, medical care and shelter.	9	CO3
MO4	Bioethics- Definition; Ethical concerns regarding transgenesis. Bioethical issues of reproductive and therapeutic cloning - Applications of cloning- Therapeutic cloning and FDA approved cloned food. Bioethics in animal genetic engineering – IAEC guidelines of animal experiments; bioethics in plant genetic engineering, ethics of using recombinant drug.	9	CO4
MO5	Genetically modified foods- contradiction – health hazards. Labeling- Regulations of field experiments and release of GMOs into the field, Biohazards, Biosafety measures. Intellectual Property Rights- Introductions – Patent Procedure in India.	9	CO5

TEXT BOOKS AND REFERENCE BOOKS

1. Benchamp, T. (1979). *Contemporary issues in bioethics*. Oxford university press -
2. Benchamp, T. (2020). *Principles of Animal Research Ethics*. Oxford university press - ISBN 10: 0190939125 / ISBN 13: 9780190939120
3. DeGrazie, T. A. (2015). *Biomedical Ethics*. Amazon

REFERENCE BOOKS

1. Dubey, R. (2014). *A Textbook of Biotechnology*. S. Chand - ISBN 10: 8121926084 / ISBN 13: 9788121926089
2. T.G.Agitha, N. &. (2009). *Principles of intellectual Property*. Eastern Book Company Lucknow - ISBN 10: 8170121132 / ISBN 13: 9788170121138
3. Acharya, N. (2014). *Text book of Intellectual property rights*. Asia Law House



**DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE
(AUTONOMOUS)**

College with Potential for Excellence

Linguistic Minority Institution. Affiliated to University of Madras

Department: MICROBIOLOGY		Academic Semester: 2021- 2022(ODD SEMESTER)	
Semester: III	Section: A	Course Code: 2026320	Course: Principles of Bioprocess Technology and Pharmaceutical Microbiology
Course Instructor: Dr.P.Vidya		Contact Hours /week:	No. of credits: 4
CIA:50		ESE : 50	Exam Hours: 03

Prerequisites if any:

Code No	Course Name	Description	Semester
2026320	Principles of Bioprocess Technology and Pharmaceutical Microbiology		III

Sl No	CONTENTS OF MODULE	Hrs	Cos
1	Introduction to Bioprocesses: Traditional and modern applications of fermentation technology- Interaction between; Microbiology and Biochemistry - Range of fermentation processes - primary and secondary metabolites - components of fermentation process; Microbial growth kinetics, Batch culture, Continuous Culture, Fed – Batch – Types, applications, fermentation kinetics	9	CO1
2	Upstream Processing: Screening methods for industrial microbes - strain selection and improvement- Media requirements & Medium formulation, Rheology of fermentation broth- Sterilization - batch and continuous heat sterilization of liquid media, filter sterilization of liquid media and Air, Bioreactor design and operation, Fermentation monitor and control	9	CO2
3	Downstream processing: Role and importance of downstream processing in biotechnological processes. Economics and downstream processing in Biotechnology, Primary Separation and Recovery Processes-- Cell disintegration- Extraction-Purification- Drying and crystallization	9	CO3

4	Overview of Pharmaceutical microbiology: Ecology of microorganisms: Atmosphere, water, skin, respiratory flora of workers, raw materials, packaging, building equipment and their control measures; Design and layout of sterile manufacturing unit; Contamination and Spoilage of Pharmaceutical products: sterile injectable and non-injectable, ophthalmologic preparation, implants	9	CO4
5	Production of Pharmaceutical products & Quality assurance: Vaccines – Immunodiagnostic - immuno-sera – immunoglobulin - Antibiotics: Penicillin, Griseofulvin, Metronidazole; Enzymes- Streptokinase, Streptodornase; Quality assurance and quality management in pharmaceuticals: In – Process, Final - Product Control and Sterility tests; Regulatory aspects: BIS (IS), ISI, ISO, WHO and US certification.	9	CO5

Content delivery:	Point Presentation, Quiz and Assignments
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Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Recognize the history , rudiments and notions of bioprocess technology and illustrate the industrial method of fermentation for various primary and secondary metabolites
CO2	Execute screening of industrially important microbes, strain improvement,media formulation, sterilization and analyze various parameters to be monitored and controlled during fermentation processes and develop a strategy for fermenter design
CO3	Understand the ethics of major unit operations followed in downstream processing for various economically important products
CO4	Assess the source of contamination and device safe working practices in pharmaceutical industry and to articulate with antimicrobial preservation of pharmaceutical formulations during production and in products
CO5	Formulate antibiotics , therapeutic enzymes and immunological products and apply Standard protocols in pharmaceutical industry - IP, BP, USP and EP

Mapping of Course Outcomes to Program Outcomes and Program Specific Outcome:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	1	2	1	1	3	2	2	3	3
CO2	3	2	2	3	2	2	3	2	1	3	3
CO3	3	2	1	1	1	1	3	1	2	3	3
CO4	3	3	3	2	3	2	3	2	3	3	2
CO5	3	2	2	2	1	1	3	3	2	3	3
CO6	3	2	1	3	2	1	2	2	1	3	3
CO7	3	2	3	2	3	3	2	3	2	2	3

Correlation levels: 1- Weak 2-Medium 3-High

COURSE DELIVERY PLAN - Principles of Bioprocess Technology and Pharmaceutical Microbiology

Lecture #	Module #	Topics	Instructional Hours	Date of Completion	RBTL Level	Faculty Sign	HOD Sign
1.	1	Introduction to bioprocesses	9	26-07-2022	K1	<i>Jms.</i>	<i>Jms.</i>
2.		Traditional and modern applications of fermentation technology		28-07-2022	K3		
3.		Interaction between; Microbiology and Biochemistry		01-08-2022	K4		
4.		Range of fermentation processes - primary and secondary metabolites - components of fermentation process		02-08-2022	K5		
5.		Microbial growth kinetics		03-08-2022	K2		
6.		Batch culture, Continuous Culture, Fed – Batch		04-08-2022	K6		
7.		Applications and fermentation kinetics		08-08-2022	K5		
8.	2	Screening methods for industrial microbes	9	10-08-2022	K3	<i>Jms.</i>	<i>Jms.</i>
9.		Upstream Processing: Strain selection and improvement		16-08-2022	K4		
10.		Media requirements & Medium formulation		18-08-2022	K6		
11.		Rheology of fermentation broth		20-08-2022	K2		
12.		Sterilization - batch and continuous heat sterilization of liquid media		23-08-2022	K1		
13.		Filter sterilization of liquid media and Air		25-08-2022	K1		
14.		Bioreactor design and operation		26-08-2022	K3		
15.		Fermentation monitor and control		30-08-2022	K4		
16.		Downstream processing: Role and importance of		01-09-2022	K5		

		downstream processing in biotechnological processes.					
17.	3	Economics and downstream processing in Biotechnology	9	09- 09- 2022	K6	<i>Jmt.</i>	<i>Jmt.</i>
18.		Primary Separation		12- 09- 2022	K1		
19.		Recovery Processes		13- 09- 2022	K4		
20.		Cell disintegration		14- 09- 2022	K2		
21.		Extraction- Purification		21- 09- 2022	K5		
22.		Drying and crystallization		26- 09- 2022	K4		
23.		Ecology of microorganisms: Atmosphere, water		28- 09- 2022	K2		
24.		Ecology of microorganisms: skin, respiratory flora of workers		29- 09- 2022	K2		
25.		Ecology of microorganisms: packaging, building equipment and their control measures;		30- 09- 2022	K3		
26.	4	Design and layout of sterile manufacturing unit	9	03- 10- 2022	K6		
27.		Contamination and Spoilage of Pharmaceutical products		06- 10- 2022	K4		
28.		Contamination and Spoilage of Pharmaceutical products: Sterile injectable and non-injectable		10- 10- 2022	K5		
29.		Contamination and Spoilage of Pharmaceutical products: ophthalmologic preparation, implants		12- 10- 2022	K4		
30.		Introduction to Production of Pharmaceutical		14- 10- 2022	K2		

		products & Quality assurance					
31.	5	Production of Pharmaceutical products & Quality assurance: Vaccines – Immunodiagnostic – immuno-sera – immunoglobulin	9	17- 10- 2022	K3	Jmc.	Jmc.
32.		Antibiotics: Penicillin, Griseofulvin, Metronidazol		25- 10- 2022	K5		
33.		Enzymes- Streptokinase, Streptodornase;		07- 11- 2022	K4		
34.		Quality assurance and quality management in pharmaceuticals		08- 11- 2022	K5		
35.		In – Process, Final - Product Control and Sterility tests		08- 11- 2022	K3		
36.		Regulatory aspects: BIS (IS), ISI		09- 11- 2022	K2		
37.		Regulatory aspects: ISO, WHO and US certification.		10- 11- 2022	K2		

TEXT BOOKS:

1. Tim Sandle, Madhu Raju Saghee (2017). *Cleanroom Management in Pharmaceuticals and Healthcare* (2nd Edition) Euromed Communications; ISBN: 978-0957349193.
2. Madhu Raju Saghee, Tim Sandle, Edward C. Tidswell (2011). *Microbiology and Sterility Assurance in Pharmaceuticals and Medical Devices* (2017 ed) United kingdom, Business Horizons, ISBN: 978-8190646741
3. P. F. Stanbury, Peter F. Stanbury, Allan Whitaker, Stephen J (2010) Hall Principles of Fermentation Technology (3rd ed). Butterworth-Heinemann. ISBN:0750645016

REFERENCE BOOKS:

1. Michael E. Aulton, Kevin M. G. Taylor. (2017). *Aulton's Pharmaceutics: The Design and Manufacture of Medicines* (5th ed) Elsevier, ISBN: 978-0702070051
2. Bjorn K. Lydersn , Nancy A. D'Elia, Kim L. Nelson (2011) *Bioprocess Engineering* (5th ed). Wiley - Interscience; ISBN: 0471035440.

Jmc.

Course Instructor

H. H. H.

Dept. IQAC Coordinator

Jmc.

HOD

FIRST SEMESTER (SYLLABUS)

Course Title: DESIGN AND ANALYSIS OF ALGORITHMS

Course Code:	Credits	04
L:T:P:S : 4:0:0:0	CIA Marks	: 50
Exam Hours : 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking this course, student will be able to understand the fundamental approaches in the design of algorithms and the impact of algorithm design in practice, to analyze the asymptotic performance of algorithm, to analyze different computational models (e.g., divide-and-conquer), order notation and various complexity measures (e.g., running time, disk space), to analyze and design the complexity/performance of different algorithms, to apply important algorithmic design paradigms and methods of analysis, to learn insights of lower bound theory problems and NP-hard and NP-complete problems.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Know the essentials of algorithms. Analyze the asymptotic performance of algorithms. Gain insights of basic elementary data structures.
CO2	Describe the divide-and-conquer and greedy paradigm. Explain when an algorithmic design situation calls for it. Recite algorithms that employ this paradigm. Synthesize divide-and-conquer, greedy algorithms and analyze them.
CO3	Discuss the dynamic-programming paradigm and implementation of dynamic programming in various algorithmic designs and analyze them.
CO4	Define the design of backtracking, branch and bound paradigm. Describe the algorithms using this paradigm. Synthesize and analyze them.
CO5	Know the concepts of non-deterministic algorithms, Lower bounds theory problems and the classes NP-hard and NP-complete problems.
CO6	Synthesize appropriate algorithm for a design situation

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	2	2	3	2	3	3	2	2	2	2
CO 2	3	3	3	2	3	3	2	2	3	3	3	3	2
CO 3	2	3	3	2	3	3	2	3	3	3	2	3	3
CO 4	2	3	3	2	2	3	2	3	3	3	2	3	2
CO 5	2	2	2	2	2	3	3	2	3	3	2	2	2
CO 6	3	3	3	2	3	3	3	2	3	3	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
1	UNIT I: Introduction: Definition of Algorithm – pseudo code conventions – recursive algorithms – Time and Space Complexity –	10	CO1
	Asymptotic Notations (O, Ω, Θ). Elementary Data Structures: Stacks and Queues – Trees – Graphs		
2	UNIT II: Divide and conquer: General Method Quick sort, Selection sort – Finding maximum and minimum – merge sort. Greedy Method: General Method – knapsack problem – Tree vertex splitting – Job sequencing with deadline – Optimal storage on tapes.	14	CO2
3	UNIT III: Dynamic Programming: General Method – multistage graphs – all pairs shortest paths – single source shortest paths – Search techniques for graphs – DFS-BFS-connected components – biconnected components.	12	CO3
4	UNIT IV: Back Tracking: General Method – 8-queens – Sum of subsets – Graph Coloring – Hamiltonian cycles. Branch and Bound: General Method – Traveling Salesperson problem.	12	CO4
5	UNIT V: Lower Bound Theory: Comparison trees – Oracles and advisory arguments. NP-Hard and NP Complete Problems: Non-deterministic Algorithms-The classes of NP-Hard and NP-Complete. NP Hard Problem: Clique Decision Problem (CDP)	12	CO5, CO6

TEXT BOOKS:

1. E Horowitz, S Sahni and S Rajasekaran (2008). *Computer Algorithms* (2001 edition), Galgotia Publishers, ISBN 81-7515-257-5
2. G Brassard and P Bratley (1997). *Fundamentals of Algorithms* (1st Edition), Prentice Hall India Learning Private Limited, ISBN 8120311310
3. Rajesh K. Shukla (2015). *Analysis and Design of Algorithms: A Beginners's Approach* (1st Edition), Wiley, ISBN 978-8126554775

REFERENCE BOOKS:

1. Cormen Thomas H, Charles S. Leiserson, Ronald L. Rivest, Clifford Stein (2012). *Introduction to Algorithms* (3rd edition), MIT Press Ltd, ISBN 9780262033848
2. Anany Levitin (2017). *Introduction to the Design and Analysis of Algorithms* (3rd edition) Pearson, ISBN 978-0132316811
3. Jon Kleinberg, Eva Tardos (2006). *Algorithm Design* (3rd edition revised), Pearson Education, ISBN 9780132131087

E- REFERENCES:

1. <https://nptel.ac.in/courses/106/106/106106131/>
2. <https://nptel.ac.in/noc/courses/noc20/SEM1/noc20-cs27>
3. <https://www.cs.duke.edu/courses/fall08/cps230/Book.pdf>

THIRD SEMESTER (SYLLABUS)

Course Title: SOFT COMPUTING TECHNIQUES

Course Code:	Credits	04
L:T:P:S : 4:0:0:0	CIA Marks	: 50
Exam Hours : 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking this course the student will be able to gain a basic understanding of neural network theory and fuzzy logic theory, to identify different neural network architectures, algorithms, applications and their limitations, Comprehend the fuzzy logic and the concept of fuzziness involved in various systems and fuzzy set theory, Analyze appropriate learning rules for each of the architectures and learn several neural network paradigms and its applications, Develop the concepts of fuzzy sets, knowledge representation using fuzzy rules, approximate reasoning, fuzzy inference systems, and fuzzy logic, Basic knowledge of Genetic algorithm and operators.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Gain basic knowledge of Artificial Neural Network, Fuzzy logic and Genetic algorithms
CO2	Analyse different neural network architectures
CO3	Get insight into classical sets and fuzzy sets
CO4	Develop the concepts of fuzzy relations and fuzzy propositions
CO5	Gain knowledge of Genetic algorithms and the various operators
CO6	Gain knowledge of various Algorithms

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	3	3	2	2	3	3	3	3	3	2
CO 2	3	2	3	3	3	3	3	3	3	2	3	3	3
CO 3	3	3	3	3	3	3	2	3	3	3	3	3	3
CO 4	3	3	3	3	3	3	3	3	3	3	2	3	3
CO 5	3	3	2	3	3	3	3	3	3	3	3	3	3
CO 6	3	2	3	3	3	3	3	3	2	3	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
1	Introduction: Neural Networks – Fuzzy Logic – Genetic Algorithms – Hybrid Systems. Artificial Neural Network – Fundamental Concept – Basic Models of Neural Network – Important Terminologies of	9	CO1

	ANN – McCulloch-Pitts Neuron – Linear Separability – Hebb Network.		
2	Supervised ANNs Algorithms and Techniques – Perceptron Networks – Adaptive Linear Neuron – Multilayer perceptron – Radial Basis Function Network. Unsupervised ANNs Algorithms and Techniques- Self-Organizing Maps(SOM), Restricted Boltzmann Machines, Autoencoders.	9	CO2
3	Introduction to Classical Sets and Fuzzy Sets: Methods to define Classical Set - Types of Classical Set - Operations and Properties of Classical Set - Operations on Fuzzy Set - Operations on Classical Relations and Fuzzy Relations - Composition of Classical Relations and Fuzzy Relations. Membership Functions: Features of Membership functions.	9	CO3
4	Fuzzification and Defuzzification – Lamda – Cuts for Fuzzy sets and Fuzzy Relation. Genetic Algorithm -Introduction – Basic Terminologies in Genetic Algorithm -Simple GA – General Genetic Algorithm – Chromosome Encoding -Fitness Function.	9	CO4
5	Genetic Operators-Selection-methods-Crossover-Types of Crossover-Mutation-Types-Termination– Traditional Algorithm vs. Genetic Algorithm – The Schema Theorem- Advantages and Limitations of GA- Applications of GA.	9	CO5, CO6

TEXT BOOKS:

1. SN Sivanandan and SN Deepa (2007). *Principles of Soft Computing*, Wiley India.

REFERENCE BOOKS:

1. S Rajasekaran and GAV Pai (2003), *Neural Networks, Fuzzy Logic and Genetic Algorithms*, PHI.
2. Timothy J Ross (1997). *Fuzzy Logic with Engineering Applications*, McGraw-Hill.
3. JSR Jang, CT Sun and E Mizutani (2004). *Neuro-Fuzzy and Soft Computing* (Pearson Education), PHI.

E- REFERENCES:

1. <http://www.nptel.iitm.ac.in/video.php?subjectId=117105084>
2. www.nptel.iitm.ac.in/syllabus/111106049
3. www.iitg.ac.in/rkbc/CE602/GA.pdf

L:T:P:S : 4:0:0:0
Exam Hours : 03

CIA Marks : 50
ESE Marks : 50

LEARNING OBJECTIVES:

On taking this course the student will be able to gain a basic understanding of neural network theory and fuzzy logic theory, to identify different neural network architectures, algorithms, applications and their limitations, Comprehend the fuzzy logic and the concept of fuzziness involved in various systems and fuzzy set theory, Analyze appropriate learning rules for each of the architectures and learn several neural network paradigms and its applications, Develop the concepts of fuzzy sets, knowledge representation using fuzzy rules, approximate reasoning, fuzzy inference systems, and fuzzy logic, Basic knowledge of Genetic algorithm and operators.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Gain basic knowledge of Artificial Neural Network, Fuzzy logic and Genetic algorithms
CO2	Analyse different neural network architectures
CO3	Get insight into classical sets and fuzzy sets
CO4	Develop the concepts of fuzzy relations and fuzzy propositions
CO5	Gain knowledge of Genetic algorithms and the various operators
CO6	Gain knowledge of various Algorithms

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	3	3	2	2	3	3	3	3	3	2
CO 2	3	2	3	3	3	3	3	3	3	2	3	3	3
CO 3	3	3	3	3	3	3	2	3	3	3	3	3	3
CO 4	3	3	3	3	3	3	3	3	3	3	2	3	3
CO 5	3	3	2	3	3	3	3	3	3	3	3	3	3
CO 6	3	2	3	3	3	3	3	3	2	3	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
1	Introduction: Neural Networks – Fuzzy Logic – Genetic Algorithms – Hybrid Systems. Artificial Neural Network – Fundamental Concept – Basic Models of Neural Network – Important Terminologies of	9	CO1

	ANN – McCulloch-Pitts Neuron – Linear Separability – Hebb Network.		
2	Supervised ANNs Algorithms and Techniques – Perceptron Networks – Adaptive Linear Neuron – Multilayer perceptron – Radial Basis Function Network. Unsupervised ANNs Algorithms and Techniques- Self-Organizing Maps(SOM), Restricted Boltzmann Machines, Autoencoders.	9	CO2
3	Introduction to Classical Sets and Fuzzy Sets: Methods to define Classical Set - Types of Classical Set - Operations and Properties of Classical Set - Operations on Fuzzy Set - Operations on Classical Relations and Fuzzy Relations - Composition of Classical Relations and Fuzzy Relations. Membership Functions: Features of Membership functions.	9	CO3
4	Fuzzification and Defuzzification – Lamda – Cuts for Fuzzy sets and Fuzzy Relation. Genetic Algorithm -Introduction – Basic Terminologies in Genetic Algorithm -Simple GA – General Genetic Algorithm – Chromosome Encoding -Fitness Function.	9	CO4
5	Genetic Operators-Selection-methods-Crossover-Types of Crossover-Mutation-Types-Termination– Traditional Algorithm vs. Genetic Algorithm – The Schema Theorem- Advantages and Limitations of GA- Applications of GA.	9	CO5, CO6

TEXT BOOKS:

1. SN Sivanandan and SN Deepa (2007). *Principles of Soft Computing*, Wiley India.

REFERENCE BOOKS:

4. S Rajasekaran and GAV Pai (2003), *Neural Networks, Fuzzy Logic and Genetic Algorithms*, PHI.
5. Timothy J Ross (1997). *Fuzzy Logic with Engineering Applications*, McGraw-Hill.
6. JSR Jang, CT Sun and E Mizutani (2004). *Neuro-Fuzzy and Soft Computing* (Pearson Education), PHI.

E- REFERENCES:

4. <http://www.nptel.iitm.ac.in/video.php?subjectId=117105084>
5. www.nptel.iitm.ac.in/syllabus/111106049
6. www.iitg.ac.in/rkbc/CE602/GA.pdf

FIRST SEMESTER

Course Title: CORE THEORY 2 –

COMPUTER ORGANIZATIONS AND ARCHITECTURE

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

Conceptualize the basics of Organizational and Architectural issues of a digital Computer. Understanding the concepts of Boolean algebra, Logical Operations and various Adders. Learn various types of Flip-Flops and Data Transfer Techniques in Digital Computer and Articulate design issues in the development of Processor or other components that satisfy design requirements and objectives to explain different types of Addressing Modes and Memory Organization.

Course outcomes: At the end of course, the student will be able to

COS	Content of module
CO1	Detailed representation about number systems and boolean algebra.
CO2	Describe the various types of flip flops, registers and circuit system.
CO3	Analyse the stack organization and identify the addressing modes.
CO4	Interpret peripheral devices with memory access.
CO5	Acquire a good knowledge about memory hierarchies and mapping.
CO6	Gain knowledge about Virtual memory and data manipulation

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	2	1	3	1	1	3	3	2	2	3
CO 2	3	2	3	3	3	2	1	2	3	2	2	2	1
CO 3	3	3	3	2	3	1	1	1	3	2	2	3	2
CO 4	3	3	1	3	2	3	2	2	3	2	2	3	3
CO 5	3	3	2	2	2	2	1	1	3	3	3	3	2
CO 6	3	3	2	2	2	2	2	1	3	3	3	3	1

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	HRS	COS
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1	UNIT I: Number System – Converting numbers from one base to– Complements – Binary Codes– Boolean algebra – Properties of Boolean algebra – Boolean functions. – Logical Operations – Logic gates - Adder – Subtractor.	9	CO1
2	UNIT II: Decoders – Multiplexers- Flip Flops – Triggering of flip-flops – Analyzing a sequential circuit – State reduction – excitation tables – Design of sequential circuits – Counters. –shift registers.	9	CO2
3	UNIT III: Central processing unit: General register and stack organizations, instruction formats - Addressing modes, Data transfer and manipulation - program control, RISC.	9	CO3
4	UNIT IV: Input-output organization - peripheral devices, I/O interface, modes of transfer- Interrupt, Direct memory access, I/O processor.	9	CO4
5	UNIT V: Memory Organization - Memory Hierarchy- Main memory- Auxiliary memory-Associative memory and its mapping techniques - Cache memory-cache memory mapping techniques- Virtual Memory.	9	CO5, CO6

TEXT BOOKS

1. M. Morris Mano (2007). Computer System Architecture (3rd Edition), PHI, ISBN: 9789332585607.
2. D. P. Leach and A. P. Malvino (2002). Digital Principles and Applications (5th Edition), TMH, ISBN: 9780070141704.

REFERENCE BOOKS

1. William Stallings (2015). Computer Organization and Architecture (10th Edition), Pearson Education, ISBN: 9780134101613.
2. M. Morris Mano (2007). Digital Logic and Computer Design (3rd Edition) , Pearson Education, ISBN:817758409X
3. V.C. Hamacher, G. Vranesic, S. G. Zaky (2000). Computer Organization (Revised Edition), TMH, ISBN: 0471467405.

E-REFERENCES

1. <http://www.freetechbooks.com/computer-organization-and-design-fundamentals-t347.html>
2. <http://www.nptel.iitm.ac.in/video.php?subjectId=106102062>
3. <https://freevideolectures.com/course/2277/computer-organization>
4. <http://www.infocobuild.com/education/audio-video-courses/computer-science/ComputerOrganizationArchitecture-IIT-Madras>

FIRST SEMESTER

Course Title: CORE THEORY 3 - DATABASE MANAGEMENT SYSTEMS

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Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks :
40	

LEARNING OBJECTIVES:

On taking this course the student will be able to assess the applications of DBMS, difference between File Systems vs. DBMS, identify the data models and understand the DBMS structure and identifies the Entity, Attribute and Entity Relationship Diagrams. Understand the Relational Algebra concepts, selection, projection, relational calculus which helps in understanding queries. Study the concepts of functional dependencies and the need of normalization and Normal forms I, II, III, IV BCNF and know the properties of transaction management and the recovery management. Compile various file organization methods and access methods to store the data.

Course outcomes: At the end of course, the student will be able to

CO1	Describe a database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS. Design ER-models to represent simple database application scenarios.
CO2	Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data for current needs. Develop applications using DDL, DML queries.
CO3	Identifies the Functional dependencies, decompositions, lossless join, and dependency preserving decomposition. Classify the various normalization techniques and improve the database design by applying it.
CO4	Use the concept of a transaction and design the database using some tools which satisfies the ACID properties when concurrent transaction occurs in a database. Evaluate the sophisticated access protocols to control access to the database.
CO5	Identifies the suitable File organization methods and access methods and design the database for storing the data.
CO6	Develop and evaluate a real database application using a database management system.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	3	3	3	2	2	3	3	3	2	3
CO 2	3	3	3	3	3	3	3	2	3	3	3	2	3
CO 3	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 4	3	3	3	3	3	2	2	2	3	3	3	3	3
CO 5	3	3	3	3	3	3	2	3	3	3	3	3	3
CO 6	3	3	3	3	3	3	2	2	3	3	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S. No	CONTENTS OF MODULE	Hrs	COs
1	UNIT- I Introduction to DBMS and ER Model-Advantage of DBMS approach, various view of data, data independence, schema and sub-schema, primary concepts of data models, Database languages, Database administrator and users, data dictionary, overall system Architecture. Basic concepts of ER Model , mapping constraint, keys, ER diagram, weak and strong entity sets, specialization and generalization, aggregation.	9	CO1

2	UNIT- I Domains, Relations and Keys, Relational Algebra & SQL - Domains, Relations, kind of relations, relational database, various types of keys-candidate, primary, alternate and foreign key. Relational algebra, SQL- set operations, aggregate functions, null values, nested sub queries, views, join relations, DDL in SQL.	9	CO2
3	UNIT- III Functional Dependencies and Normalization -Basic definitions, trivial and non-trivial dependencies, introduction to normalization, non-loss decomposition, FD diagram, first, second, third Normal forms, dependency preservation, BCNF, multivalued dependencies and fourth normal form, Join dependency and fifth normal form.	9	CO3
4	UNIT- IV Transaction, concurrency and Recovery-Basic concepts of Transaction, ACID properties , Transaction states, implementation of atomicity and durability, concurrent executions, basic idea of serializability, concurrency control-two phase locking and deadlock handling, Recovery system-Failure Classification, Storage Structure ,Recovery and Atomicity , Log-Based Recovery, Shadow Paging.	9	CO4
5	UNIT- V Storage structure and file organizations-Overview of physical storage media, magnetic disks-performance and optimizations, basic idea of RAID, file organizations, organization of records in files, basic concepts of indexing, ordered indices, basic idea of B-tree and B+-tree organization.	9	CO5, CO6

TEXT BOOK

1. Henry Forth, Abraham Silberschatz, S. Sudharshan (2006).*Database System Concepts* (5thEdition), McGraw Hill Publications.
2. R. Elmasri, S.B. Navathe (2007). *Fundamentals of Database Systems* (5th Edition), Pearson Education.

REFERENCE BOOKS

1. Raghu Ramakrishnan , Johannes Gehrke(2014) ,*Database Management Systems*(3rd Edition), McGraw Hill Publications.
2. J. Date, A. Kannan and S. Swamynathan, (2009). *An Introduction to Database Systems* (8thEdition), Pearson Education.

E- REFERENCES:

1. <https://www.coursera.org/course/datasci>
2. <http://www.nptel.iitm.ac.in/video.php?subjectId=106106093>
3. <https://gateoverflow.in/47124/which-video-lecture-will-be-the-best-for-dbms>

SECOND SEMESTER

Course title: **ELECTIVE 2 - OBJECT ORIENTED ANALYSIS AND DESIGN**

Course Code :	Credits : 03
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

On taking the course, the students will be able to understand the concept of object-oriented development, and create a static object model and a dynamic behavioral model and a functional model of the system. They can easily understand the approaches to system design and object design, and the techniques of translating design to implementation.

Course Outcome: At the end students will be able to

CO1	Analyze object basics and UML
CO2	Gain knowledge about attributes and relationship.
CO3	Interpret axioms and do a case study
CO4	Detailed study about Micro level process
CO5	Digital signatures
CO6	Gain knowledge about various testing strategies.

Mapping of Course Outcomes to Program Specific Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	3	2	2	2	2	2	2	3	3	2	2	2	2
CO2	3	3	2	2	3	1	3	3	1	3	3	3	2
CO3	3	2	2	2	3	2	3	3	2	3	2	3	2
CO4	2	3	2	2	2	2	2	2	2	2	2	2	3
CO5	3	3	2	2	3	2	2	3	2	3	3	3	3
C06	2	2	2	3	3	3	2	2	2	2	3	2	2

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

SNO	CONTENT OF MODULE	Hrs	COS
1	UNIT-I: System development - object basics - development life cycle - methodologies - patterns - frameworks - unified approach - UML.	9	CO1
2	UNIT-II: Use Case models - object analysis - object relations - attributes - methods, class and object responsibilities - case studies	9	CO2
3	UNIT-III: Design processes - design axioms - class design - object storage - object interoperability - case studies.	9	CO3
4	UNIT-IV: User interface design - view layer classes - micro - level processes - view layer interface - case studies.	9	CO4
5	UNIT-IV: Quality assurance tests - testing strategies - object orientation on testing - test cases - test plans - continuous testing - debugging principles - system usability - measuring user satisfaction - case studies	9	CO5,CO6

TEXT BOOKS:

1. Ali Bahrami, (1999). *Object Oriented Systems Development*, McGraw Hill. ISBN no:13-978-0-07-026512-7
2. Grady Booch (2007). *Object Oriented Analysis and Design*, (Third Edition), Addison Wesley, ISBN no :0-8053-5340-2
3. Bernd Bruegge, (2004). *Object oriented software engineering*, (Second Edition), Pearson Education. ISBN no: 13 978-93332518681.

REFERENCE BOOKS:

1. James Rumbaugh, Michael R. Blaha, (2004). *Object-Oriented Modeling and Design with UML* , (Second Edition),Prentice Hall ISBN no: 978-81-317-1106-4
2. AtulKahate, (2000). *Object Oriented Analysis &Design*, Tata McGraw-Hill. ISBN no: 0-07-058376-5
3. Roger Pressman, (2005). *Software Engineering*, (Sixth Edition), TMH. ISBN no: 13:978-007-126782-3.

E-REFERENCES:

1. <http://www.exforsys.com/tutorials/ood/ood-introduction.html>
2. <http://www.devshed.com/c/a/Practices/Introducing-UMLObjectOriented-Analysis-and-Design>

SECOND SEMESTER SYLLABUS

Course Title: CORE THEORY-5 **DATA STRUCTURES AND ALGORITHMS**

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks :
40	
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

Develops skills in implementations and applications of data structures. Implements basic algorithms for sorting and searching. Implements basic data structures such as stacks, queues and trees. Applies algorithms and data structures in various real-life software problems.

Course outcomes: At the end of course, the student will be able

CO1	Define data structures like array, stack, queues and linked list.
CO2	Explain insertion, deletion and traversing operations on data structures.
CO3	Identify the asymptotic notations to find the complexity of an algorithm.

CO4	Compare various searching and sorting techniques.
CO5	Choose appropriate data structure while designing the algorithms.
CO6	Design advanced data structures using nonlinear data structures.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	2	3	3	1	3	2	1	3	3	2	2	3
CO 2	3	2	3	3	3	2	1	2	3	2	2	2	1
CO 3	3	3	3	2	3	1	1	1	3	2	2	3	2
CO 4	3	3	1	3	2	3	2	2	3	2	2	3	3
CO 5	3	3	2	2	2	2	1	1	3	3	3	3	2
CO 6	3	3	2	2	2	2	2	1	3	3	3	3	1

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	HRS	COS
1	UNIT I: Abstract data types asymptotic notations – complexity analysis – Arrays- representation of arrays – Linked lists: Singly linked list - Circular linked lists – Doubly linked lists – stacks – queues - circular queues – Postfix Notation.	10	CO1, CO2
2	UNIT II: Trees – Binary Trees – Binary Tree Traversals – Binary Tree Representations – Binary Search Trees – Threaded Binary Trees -Introduction to AVL Trees-Red-Black Trees, Splay Trees, B-Trees .	8	CO3, CO4
3	UNIT III: – Representation of Graphs – Graph Implementation – Graph Traversals- Minimum Cost Spanning Trees – Shortest Path Problem.	9	CO5
4	UNIT IV: Divide and conquer – Quick sort, Merge sort – Greedy Method: General Method –knapsack problem.	9	CO6
5	UNITV: Back Tracking: General Method – 8-queens - Branch and Bound: General Method - Traveling Salesperson problem.	9	CO2

TEXT BOOKS

1. E. Horowitz, S. Sahni and S. Rajasekaran (2001). *Computer Algorithms*, Galgotia publishers, ISBN:9788173716126
2. E.Horowitz, S. Sahni and Mehta(2000).*Fundamentals of Data Structures in C++*, Galgotia publishers,ISBN:0929306376

REFERENCE BOOKS

1. G. L. Heileman(1999). *Data Structures, Algorithms and Object Oriented Programming*, Revised Edition, TMH, ISBN: 0070278938.
2. A.V.Aho, J.D. Ullman, J.E. Hopcraft (1983). *Data Structures and Algorithms*, Revised Edition, Addison Wesley publishers, ISBN: 0201000237.
3. A.V. Aho, J.E. Hopcroft, J.D. Ullmann (1974).*The design and analysis of Computer Algorithms*, Revised Edition, Addison Wesley publishers,ISBN:0201000237.

E-REFERENCES

1. www.freetechnbooks.com/a-practical-introduction-to-data-structures-and-algorithm-analysis-third-edition-c-version-t804.html
2. www.nptel.iitm.ac.in/courses/106101060
3. <http://www.nptel.iitm.ac.in/courses/106104019/>
4. <https://www.techiedelight.com/best-online-courses-data-structures-algorithms/>
5. <https://freevideolectures.com/course/2279/data-structures-and-algorithms/>

SECOND SEMESTER

Course Title: CORE THEORY 6 - **COMPUTER NETWORKS**

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Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks :
40	
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

On taking this course the student will be able to assess the basic taxonomy and terminology of the Computer Networks and the layers of OSI model and TCP/IP model and various Transmission Medias. Understand the Telephone System Structure of Physical layer and Data link layer protocols. Describe data link layer and MAC layer concepts, design issues, and protocols. Gain core knowledge of Network layer Routing protocols and IP addressing. Discuss the Session layer design issues, Transport layer services, and protocols.

Course outcomes: At the end of course, the student will be able to

CO1	Gain a basic knowledge of Networking and functions of each layer in OSI and TCP/IP model. Demonstrate the network topology.
CO2	Diagnose the problems of a Current Multiplexing Techniques.
CO3	Classify the various multiple access protocols and identify the deficiencies in existing protocols, and then go onto formulate new and better protocols.
CO4	Apply the mathematical background of routing protocols. Analyze the collision occurred in current networks. Classify the classes of IP protocols and select the IP addresses for the given network.
CO5	Describe the issues surrounding in Session layer and Transport layer and identify how to rectify.
CO6	Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies.

Mapping of Course Outcomes to Program Specific Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	3	3	3	2	2	2	2	2	3	2	3	2	2
CO2	3	3	3	2	2	3	3	2	2	3	3	3	2
CO3	3	2	3	2	3	2	3	3	2	3	2	3	2
CO4	2	3	3	3	2	3	2	3	2	2	2	2	3
CO5	3	3	2	3	2	3	2	3	2	3	3	3	3
CO6	2	2	2	3	3	3	3	3	2	2	3	2	2

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

SNO	CONTENT OF MODULE	Hrs	COS
1	UNIT I: Introduction: Network Hardware – Software – Reference Models – OSI and TCP/IP Models. Physical Layer: Transmission Media- Wireless Transmission -Narrow Band ISDN.	9	CO1
2	UNIT II: Telephones Structure: Local Loops – Trunks, Multiplexing, and Switching. Data Link Layer: Design Issues – Error Detection and Correction - Elementary data link protocols - Sliding Window Protocols .	9	CO2
3	UNIT III: Medium Access Sub Layer: Channel Allocation Problem. Multiple Access Protocols: ALOHA – Carrier Sense Multiple Access Protocols – Collision Free Protocols – Limited Contention Protocols. Bridges: Transparent Bridges – Spanning Tree Bridges – Source Routing Bridges.	9	CO3
4	UNIT IV: Network layer Design Issues. Routing Algorithms: Shortest Path Routing – Flooding – Distance Vector Routing – Link State Routing – Hierarchical Routing. Congestion control algorithms: General Principles – Congestion Control in Virtual Circuit Subnets – Choke Packets – Load Shedding – Jitter Control. IP protocol: IP Address – Subnets - Internet Control Protocol.	9	CO4
5	UNIT V: Transport layer: Elements – Connection management – Addressing, Establishing & Releasing a connection – Transport Control Protocol: TCP Protocol – TCP segment Header – Connection Management – Congestion control.	9	CO5, CO6

TEXT BOOK

1. A.S.Tanenbaum (2003). *Computer Networks* (4th Edition), Pearson Education, Prentice hall of India Ltd.

REFERENCE BOOKS

1. B. Forouzan (1998). *Introduction to Data Communications in Networking*, TMH.
2. Fred Halsall (1995). *Data Communications, Computer Networks and Open Systems*, Addison Wesley.

E-REFERENCES:

1. <http://www.technolamp.co.in/2010/08/computer-networks-tanenbaum-powerpoint.html>
2. <http://www.freetechbooks.com/computer-networks-performance-and-quality-of-service-t830.html>
3. <https://freevideolectures.com/course/3162/computer-networking-tutorial>
4. http://video.bilkent.edu.tr/course_videos.php?courseid=32

THIRD SEMESTER**SYLLABUS****Course Title: CORE THEORY 9 - ENTERPRISE COMPUTING**

Course Code:	Credits	: 04
L:T:P:S : 4:0:0:0	CIA Marks	: 40
Exam Hours: 03	ESE Marks	: 60

LEARNING OBJECTIVES:

On taking this course, student will be able to understand the various concepts of Enterprise programming, developing RMI Application, Servlet and session management and learn data manipulation using JDBC, develop web applications using JSP, implement Javamail API and familiarize the students with the concepts of reusable classes using JavaBeans, Hibernate and Spring Framework applications.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand various concepts of Enterprise Computing, analyze and implement the RMI Architecture for the necessary applications.
CO2	Implement Session management using Servlet and implement JDBC for the database connectivity.
CO3	Develop Web applications using JSP and JSP error pages.
CO4	Design an application that sends and receives email with attachments.
CO5	Implement Database connectivity through Hibernate Framework and also build web applications using Spring MVC.
CO6	Study and use modern tools for rapidly building enterprise applications.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	2	3	3	2	2	2	3	3	3	2	3
CO 2	3	3	2	3	3	2	2	2	2	3	3	3	3
CO 3	2	3	2	2	3	2	3	3	2	3	3	2	3
CO 4	3	3	2	3	3	2	2	2	2	3	2	3	2

CO 5	2	3	3	3	3	3	3	3	3	3	2	3	3
CO 6	3	3	3	3	3	3	3	3	3	2	3	2	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
1	UNIT-I: Need for Enterprise Programming – J2EE Advantage – Enterprise Architecture types– Architecture of J2EE – J2EE Components – J2EE Containers – Introducing RMI – RMI Architecture – Application Development with RMI – RMI over IIOP.	9	CO1
2	UNIT-II: Introduction to Servlets – Servlet Life Cycle – Servlet API Basics – HTTP Redirects –Cookies –State and Session Management –Hidden Fields – URL rewriting –Session Management with the Servlet API –Inter Servlet Communication – Server Side Includes and Request Forwarding –Data Base Access with JDBC.	9	CO2
3	UNIT-III: JSP: Introduction JSP –Examining MVC and JSP –JSP scripting elements & directives –Working with variables scopes – Error Pages –using Java Beans in JSP.	6	CO3
4	UNIT-IV: Javamail: Working with Java Mail –Understanding Protocols for Javamail –Components –Javamail API –Understanding Java Messaging Services: JMS Components EJB Fundamentals – EJB Architecture – EJB Roles – Introduction to Session Beans, Entity Beans & Message Driven Beans.	9	CO4
5	UNIT-V: Hibernate: Overview of Hibernate, Hibernate Architecture, Hibernate Mapping Types, Hibernate O/R Mapping, Hibernate Annotation, Hibernate Query Language – Spring MVC – Overview of Spring, Spring Architecture, bean life cycle, XML Configuration on Spring, Aspect – oriented Spring, Managing Database, and Managing Transaction.	12	CO5, CO6

TEXT BOOKS:

1. Jason hunter, William Crawford (2001). *Java Server Programming* (2nd Edition), O'Reilly Media, Inc., ISBN: 9780596000400.
2. J McGovern, RAdatia, Y Fain (2003). *J2EE 14 Bible*, Wiley-dreamtech India Pvt Ltd.
3. James Holmes, Herbert Schildt (2000). *Struts: The complete Reference* (2nd Edition), TMH.
4. H.Schildt (2002). *Java 2 Complete Reference* (5th Edition), TMH.

REFERENCE BOOKS:

1. K Moss (1999). *Java Servlets* (Second Edition), TMH.
2. Joseph O'Neil (1998). *Java Beans from the Ground Up*, TMH.
3. TomValesky (2000). *Enterprise JavaBeans*, Addison Wesley.
4. Cay S Horstmann & Gary Cornell (2002). *Core Java Vol II Advanced Features* (8th Edition), Addison Wesley.

E- REFERENCES:

1. <https://www.tutorialspoint.com/servlets/servlets-first-example.htm>
2. <http://www.servlets.com/jservlet2/examples/>
3. http://www.j2eetutorials.50webs.com/JSP_example1.html
4. <http://www.javatpoint.com/ejb-tutorial>
5. <https://slideplayer.com/slide/7362666/>

THIRD SEMESTER

Course Title: **CORE THEORY 10 - PROGRAMMING IN PYTHON**

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Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks :
40	

Exam Hours : 03

LEARNING OBJECTIVES:

On taking this course the student will be able to develop a basic understanding of programming and the Python programming language and understand the basics of Strings, Lists and Tuples, learn how to design object-oriented programs with Python classes, learn how to use class inheritance in Python for reusability and how to use exception handling in Python applications for error handling, to provide knowledge on how to develop the ability to write database applications in Python, to develop the skills of designing Graphical user interface in Python and to acquire knowledge about Data science in Python using numpy.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	To acquire basic programming skills of Python programming language.
CO2	To develop applications using python sequence.
CO3	Implement basic object oriented concepts like inheritance and polymorphism.
CO4	Develop GUI applications using PyGTK. and GUI applications.
CO5	To have basic knowledge of implementing data science in python.
CO6	To use python as a tool for research.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 2	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 3	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 4	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 5	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 6	3	3	3	3	3	3	2	2	3	3	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S. No	CONTENTS OF MODULE	Hrs	COs
1	UNIT-I : Introduction to Python - Installing in various Operating Systems - Variables and Data Types - Operators –	9	CO1

	Conditional Statements- if-if-else-nested if – Looping – for-while-nested loops– Control Statements- break-continue-pass- Input/output Statements		
2	UNIT-II: Sequences -String Manipulations - Lists – Tuples – Mapping and Set types - Dictionaries –Set- Functions-Defining a function – calling a function – types of function – function arguments-lambda function- Exception Handling - Modules	9	CO2
3	UNIT-III : File handling - Object Oriented Programming - Classes - Objects –Attributes - Inheritance - Overloading - Polymorphism -Interacting with Databases - Introduction to MySQL - interacting with MySQL – Database connection -creating database table, insert operation, read operation-update operation-delete operation - Regular Expressions - Text handling	9	CO3
4	UNIT-IV: Introduction to Graphics programming - Introduction to GTK - PyGTK - Developing GUI applications using PyGTK–Tooltip, Check button, Combo box, Menus, Calendar, Image, Image processing- Network Programming - socket module - server socket methods - client socket methods - general socket methods- Web services using SOAP	9	CO4, CO6
5	UNIT-V: Data Science in Python –Numpy – Numpy introduction, Data types Object – dtype-Numerical operations on Numpy arrays– Changing the dimensions of arrays -matrix arithmetic Scipy–introduction – basic functions – special function – optimization – linear algebra – Pandas-Introduction to Series and DataFrames – reading and writing data – Data Exploration – Data Munging-Introduction to version control system – subversion/Git	9	CO5, CO6

TEXT BOOKS:

1. Allen B Downey(2012), *Think Python: How to Think Like a Computer Scientist*(1st Edition), O’Reilly Publications.
2. Jeff McNeil(2010), *Python 26 Text Processing: Beginners Guide*, Packet Publications.
3. Mark Pilgrim(2009), *Dive into Python*(2nd edition), Apress publications.

REFERENCE BOOKS:

1. Kent D Lee(2010), *Python Programming Fundamentals*(2nd Edition), Springer,.
2. John V Guttag , *Introduction to Computation and Programming Using Python*, Prentice Hall of India.

E- REFERENCES

1. <http://wwwswaroopchcom/notes/python>
2. http://enwikibooksorg/wiki/Python_Programming
3. <http://docspythonorg/release/301/tutorial/>
4. <http://learnpythonthehardwayorg/>
5. <https://wwwcourseraorg/course/interactivepython>
6. <http://wwwpython-courseeu/pandasphp>

7. http://wwwspoken_tutorialorg
8. <https://www.coursera.org/learn/python-data?specialization=python>
9. <https://www.coursera.org/learn/python-programming-introduction>

THIRD SEMESTER

Course Title: CORE THEORY 11 - DATAWAREHOUSING AND DATAMINING

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Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks :
40	
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

On taking this course the student will be able to understand and implement classical models and algorithms in data warehousing and data mining. To analyze the data, identify the problems, and choose the relevant algorithms for the chosen dataset. To compare and contrast different conceptions of data mining, to characterize the kinds of patterns that can be discovered by association rule mining, classification and clustering

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	To appreciate the basic principles, concepts and applications of data warehousing and data mining
CO2	Have a good knowledge of the preprocessing techniques
CO3	To perform Data Mining using association rules
CO4	To get insights from data using classification and prediction techniques
CO5	Knowledge of clustering techniques and outliers
CO6	To be able to apply data mining techniques to real world data by cleaning the data, integrating the data from different sources, predicting a model to group the data tuples into classes, discovering patterns using association rule mining and grouping the data set into clusters.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	3	3	3	2	2	3	3	3	2	3
CO 2	3	3	3	3	3	3	3	2	3	3	3	2	3
CO 3	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 4	3	3	3	3	3	2	2	2	3	3	3	3	3
CO 5	3	3	3	3	3	3	2	3	3	3	3	3	3

CO 6	3	3	3	3	3	3	2	2	3	3	3	3	3
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3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S. No	CONTENTS OF MODULE	Hrs	COs
1	UNIT I: Introduction to data warehousing – OLAP – Data Mining tasks – Data Mining versus Knowledge Discovery in Data bases – Mining Issues – Metrics – Social implications of Data mining Data Mining Techniques – Introduction – A statistical perspective on Data Mining – similarity measures – Decision Trees – Neural Networks – Genetic Algorithms.	9	CO1
2	UNIT II: Data Preprocessing: Why preprocess the data – Data cleaning – Data Integration – Data Transformation – Data Reduction – Data Discretization.	9	CO2
3	UNIT III: Data Mining Techniques: Association Rule Mining – The Apriori Algorithm – Multilevel Association Rules – Multidimensional Association Rules – Constraint Based Association Mining.	9	CO3
4	UNIT IV: Classification and Prediction: Issues regarding Classification and Prediction – Decision Tree induction – Bayesian Classification – Back Propagation – Classification Methods – Prediction – Classifiers accuracy.	9	CO4
5	UNIT V: Clustering Techniques: cluster Analysis – Clustering Methods – Similarity and Distance Measures – Hierarchical Methods – Partitional Methods – Outlier Analysis.	9	CO5, CO6

TEXT BOOKS:

1. Jiawei Han, MichelineKamber, Jian Pei (2008), *Data Mining: Concepts and Techniques*, 2nd edition, Morgan Kaufmann.
2. Mohammed J.Zaki,Wagnew Meira,Jr,Wagner Meira,(2014),*Data Mining and Analysis*,Cambridge University Press.
3. Charu C.Aggarwal(2015),*Data Mining*, 2nd edition,Springer International Publishing.

REFERENCE BOOKS:

1. RasmusLerdorf MH Dunham (2003), *Data Mining: Introductory and Advanced Topics*, 2003, Pearson Education.
2. PaulrajPonnaiah(2001), *Data Warehousing Fundamentals*, 2001, Wiley Publishers.
3. SN Sivananda and S Sumathi(2006), *Data Mining*, 2006,Thomsan Learning, Chennai.

E-REFERENCES:

1. <http://nptel.iitm.ac.in/video.php?subjectId=106106093>
2. <http://cecs.louisville.edu/datamining/PDF/0471228524.pdf>
3. <http://www.spoken-tutorials.org>
4. <https://www.udemy.com/fundamentals-of-data-mining/>
5. <https://www.coursera.org/learn/cluster-analysis>

THIRD SEMESTER

Course Title: CORE THEORY 12 - SOFTWARE TESTING

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks :
40	
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES

On taking this course the student will be able to study fundamental concepts in software testing, including software testing objectives, process, criteria, strategies, and methods, to discuss various software testing issues and solutions in software unit test; integration, regression, and system testing, to learn how to planning a test project, design test cases and data, conduct testing operations, manage software problems and defects, generate a testing report, to learn various software testing process like verification and validation, to gain the techniques and skills on how to use modern software testing tools to support software testing projects.

Course outcomes: At the end of course, the student will be able to

CO1	Discuss about the concept of bugs and analyses the principles in software testing to prevent and remove bugs.
CO2	Discuss about domains and path Analyze Linguistic and Structural Metric
CO3	Discuss about Verification and Validation. Analyse various levels of Testing, Testing Approaches, and Types of Testing & Test Plan.
CO4	Analyze Defect Management Discuss about Acceptance testing and special test.
CO5	Analyze various automation testing tools.
CO6	Gain the knowledge about various testing tools.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	3	3	2	3	3	3	3	3	3	3	3	2	3
CO2	3	2	3	3	2	3	3	3	3	2	3	3	3
CO3	3	3	3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	2	3	3	3	3	3	3	2	3	3
CO5	3	3	2	3	3	3	3	2	3	3	3	3	3
CO6	3	2	3	3	3	2	3	3	2	3	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No.	CONTENT OF MODULE	Hrs	COs
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1	UNIT I: Introduction: Purpose – Productivity and Quality in Software – Testing Vs Debugging Model for Testing – Bugs – Types of Bugs – Testing during Development Life-cycle. Requirement Traceability matrix-Work Bench. Principles of software testing, Salient features of Good Testing-Challenges in Testing-cost Aspect of Testing-Developing Testing Methodologies.	9	CO1
2	UNIT II: Domain Testing: Domains and Paths – Domains and Interface Testing- Metrics –Linguistic and Structural Metric.	9	CO2
3	UNIT III: Software Testing Process-Verification and Validation-Levels of Testing-Testing Approaches-Types of Testing-Test Plan.	9	CO3
4	UNIT IV: Test Model - Defect Management-Levels of Testing-Acceptance Testing-Special Tests-Test Planning.	9	CO4
5	UNIT V: Software Testing Tools Overview- QTP Tools-Performance Testing Tools-LoadRunner Tool. Testing Management Tools-TestDirector-GUI Testing-SilkTest-Open Source Testing Tool-JMeter.	9	CO5,CO6

TEXT BOOKS

1. B. Beizer (2003). *Software Testing Techniques*, Second Edition), DreamTechIndia, New Delhi. (UNIT I and II).
2. K.V.KK. Prasad (2005). *Software Testing Tools*, DreamTech. , India, New Delhi.
3. (UNIT III, IV and V).
4. M.G.Limaye (2009). *Software Testing Principles, Techniques and Tools*, TataMc.Graw Hill Education Private Limited, New Delhi.(UNIT III and IV)

REFERENCE BOOKS

1. I.Burnstein (2003). *Practical Software Testing*, Springer International Edition.
2. M G Limaye (2009). *Software Testing*, TMH, New Delhi.

E-REFERENCES

1. <http://awards.istqb.org/award-winner/boris-beizer.html>
2. <http://www.testingreferences.com/testinghistory.php>
3. <http://www.swquality.com/users/pustaver/Books/books.htm>
4. <http://www.bullseye.com/coverage.html>
5. https://www.tutorialspoint.com/software_testing/
6. <https://lecturenotes.in/subject/129/software-testing-st>
7. www.ecs.csun.edu/~rlingard/COMP595VAV/SoftwareTesting.ppt

THIRD SEMESTER

Course Title: **ELECTIVE 3 - CRYPTOGRAPHY**

Course Code :	Credits : 03
L:T:P:S : 4:0:0:0	CIA Marks :
40	
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES

To understand the mathematics behind cryptography, security concepts, vulnerabilities, different types of cryptosystems and attacks attacks on various cryptosystems.

Course outcomes: At the end of course, the student will be able

COS	Content of module
CO1	Gain knowledge about Conventional encryption model
CO2	Analyse Euclidean Algorithm and Number theory
CO3	Understanding Key exchanges.
CO4	Detailed representation of Hashing functions.
CO5	Describe the various Digital signatures logic.
CO6	Apply different encryption and decryption techniques

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	2	1	3	1	1	3	3	2	2	3
CO 2	3	2	3	3	3	2	1	2	3	2	2	2	1
CO 3	3	3	3	2	3	1	1	1	3	2	2	3	2
CO 4	3	3	1	3	2	3	2	2	3	2	2	3	3
CO 5	3	3	2	2	2	2	1	1	3	3	3	3	2
CO 6	3	3	2	2	2	2	2	1	3	3	3	3	1

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	HRS	COS
1	UNIT I: Conventional encryption model –Security Concepts- Substitution and Transposition Ciphers- DES algorithm –AES algorithm - Random number generation.	9	CO1
2	UNIT II: Number Theory: Modular arithmetic – Euler’s theorem – Euclid’s algorithm – Extended Euclidean Algorithm and its applications. Chinese remainder theorem – Prime numbers and factorization –Discrete Logarithms.	9	CO2
3	UNIT III: Principles of Public key Cryptography– RSA algorithm – Key Management- Diffie – Hellman key exchange	9	CO3
4	UNIT IV: Message Authentication and Hash functions: Authentication requirements –Authentication function- Message Authentication codes-Hash functions-Secure Hash Algorithm.	9	CO4
5	UNIT V: Digital Signature and Authentication Protocols: Digital Signature Authentication Protocols –Digital Signature Standard.	9	CO5 ,CO6

TEXT BOOK

1. Stallings. W (2013). Cryptography and Network Security Principles and Practice, Pearson Education, Delhi, ISBN: 9788131761663.

REFERENCE BOOKS

1. Charlie Kaufman, Radia Perlman, Mike specimen (2016). Network Security Private Communication in a public world, Prentice Hall PTR, ISBN: 9789332586000
2. Michael Welsehenbach (2013). Cryptography in C & C++, Apress, ISBN: 9781430250999.

E-REFERENCES

1. <http://www.webopedia.com/TERM/C/cryptography.html>
2. <http://www.sagemath.org/pdf/en/reference/cryptography/cryptography.pdf>
3. <http://www.freetechbooks.com/lecture-notes-on-cryptography-t565.html>
4. <https://nptel.ac.in/courses/10610503/>
5. <https://nptel.ac.in/courses/106105162/>

THIRD SEMESTER

Course Title: CORE THEORY T10-DOT NET PROGRAMMING (For Students admitted from 2020 onwards)

Course Code	: XX29319 XX29213(A) (XX-Year of admission)	Credits	: 04
L:T:P:S	: 3:1:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- To understand .NET Platform and its core functionalities.
- To develop windows and web applications with Microsoft SQL and Visual Studio.
- To understand and develop user defined Applications using MVC framework.
- To strengthen Object Oriented Programming using advance VB.NET concepts

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Explore Microsoft .NET Integrated Development Environment (IDE)
CO2	Understand the basic concepts of VB.NET framework.
CO3	Developing programs using VB .NET.
CO4	Illustrate and implement the concepts of Class and objects, Inheritance, Overloading, Exceptions and File Handling in VB.NET
CO5	Building ASP.NET Programming through Web Server Controls, Validation Controls and DataList Web Server Controls.
CO6	Apply ADO.NET and OLEDB concepts for establishing connectivity among applications with reduced code complexity and develop network applications

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	3	3	2	3
CO2	3	3	1	2
CO3	3	3	1	2
CO4	3	2	1	3
CO5	3	2	2	2
CO6	3	3	3	2

3-Strong 2-Medium 1-Low

SI No.	Contents of Module	Hrs	COs
1	Introducing Microsoft .NET:- Microsoft .NET platform: .NET Enterprise Servers, .NET framework and .NET Building block Services - .NET Namespaces. Common Type System(CTS), Common Language Specification(CLS) and CLR Execution (Class loader, verifier, JIT compilers).	12	CO1
2	VB.Net Basics: VB Dot Net Framework Basics - Visual Studio Environment – Data Types , Variables, constants ,Operators and Expressions – Decisions and Conditions - Loops - Sub Procedures and Functions – Built-in functions - Arrays - Structures- Enumerators – Delegates and Events.	12	CO2,CO3
3	VB.Net Advanced: Windows Forms and Basic Controls - Timer control - Graphics and Animation: The Graphics Environment – Simple Animation – Scroll Bar Controls - Menus and Status Bars- Multi Form applications - Class and Objects - Inheritance - Exception Handling.	12	CO3,CO4

4	ASP.NET Basics: ASP.NET Language Structure - Page Structure - Page event, Properties & Compiler Directives. Basic Web Server Controls: TextBox, Label, Button, CheckBox, RadioButton and LinkButton. Validation Controls: RequiredValidator, CompareValidator and RegularExpressionValidator. DataListWebserver Controls: ListBox, CheckedList, RadioButtonList, DropDownList and Data Grid control.	12	CO5
5	Working with Data: Benefits of ADO.NET, ADO.NET Architecture, Main classes in ADO.NET, Developing a Windows/Web application using database. OLEDB Connection class, Command class, Transaction class, DataAdaptor class, DataSet class. ASP.NET Advanced: MVC Pattern, Life Cycle, Controllers, Actions, Views, Data Model. Model Binding, using Databases. Request and Response Objects, Cookies.	12	CO6

Text Books:

1. Jeff Prosize, Programming Microsoft .NET - Microsoft Press, 1st Edition, 2009.
2. Visual Basic.Net Black Book by Steven Holzner Dreamtech Press
3. The Complete Reference Visual Basic .NET Jeffery R. Shapiro Tata McGraw Hills
4. Thuan Thai, .NET Framework, O'Reilly publications, 3rd edition, 2009

Reference Books:

1. David S Platt, Introducing Microsoft .NET ,Microsoft press, 3rd Edition, 2003
2. Murach's Beginning Visual basic .Net By Anne Bohem
3. Freeman, Adam, Pro ASP.NET MVC, après, 2013
4. Paul Yao, David Durant, Programming .NET Compact Framework 3.5, Pearson Education, 2nd Edition, 2010.

E-References:

1. http://www.nptelvideos.com/visualbasic_net/visualbasicnet_video_tutorials.php
2. <http://www.nptelvideos.com/video.php?id=1775&c=21>
3. <https://freevideolectures.com/course/3002/dot-net-tutorial/1>
4. http://www.philadelphia.edu.jo/academics/qhamarsheh/uploads/Lecture_14_Introduction_to_ASP.pdf
5. <http://sigc.edu/department/computerscience/studymet/AdvancedASP.NET.pdf>

SECOND SEMESTER

Course Title: CORE THEORY T6-MOBILE APPLICATION DEVELOPMENT (For Students admitted from 2020 onwards)

Course Code	: XX29210 (XX-Year of admission)	Credits	: 04
L:T:P:S	: 3:1:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- To introduce Android platform and its architecture.
- To learn activity creation and Android UI designing.
- To be familiarized with Intent, Broadcast receivers and Internet services.
- To work with SQLite Database and content providers.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define Android applications, download and install Android Studio, work in development environment and to execute the First Android Application.
CO2	Illustrate the use of activities, fragments and intents in Android to invoke Built-in Applications and use of notification in Android.
CO3	Design and implement the user interfaces using basic widgets, views, view groups and layouts of Android.
CO4	Work with user interface to handle pictures and menus and explain data storage options using the internal and external storage using Shared Preferences, files, SQLite database and Content Providers.
CO5	Illustrate the formation of SMS and E-mail in the mobile phones and demonstrate the Location Based Services (LBS) and consumption of Web Services in Android using JSON and Sockets.
CO6	Developing Android Services by establishing communication between a service and an activity and illustrating the steps for publishing Android applications.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	2	3	3	2
CO2	3	2	2	3
CO3	3	3	2	2
CO4	3	3	2	3
CO5	3	3	3	2
CO6	3	3	2	2

3-Strong 2-Medium 1-Low

SI No.	Contents of Module	Hrs	COs
1	Introduction to Android – Features of Android-Architecture of Android-Obtaining the Required Tools- Creating First Android Application - Anatomy of Android Application-Components of Android Application-Lifecycle of Activity. Intents: Creating Intents, Types of Intents, Intents returning result, Intent Filters, Calling Built-In Application Using Intents and Displaying Notifications using PendingIntent. Fragments: Lifecycle of Fragment, Types of Fragments and how to create and use fragments.	12	CO1,CO2
2	Screen Layouts: Linear, Table, Relative, Absolute and Grid. Basic Views: Toast, TextView, EditText, Button, AutoCompleteTextView, CheckBox, ToggleButton,	12	CO3

	ImageButton, RadioButton, SeekBar, ListView, ImageView, DatePicker and TimePicker- Adapting to Display Orientation - Creating the views programmatically.		
3	Menus: OptionsMenu, ContextMenu and PopupMenu. Data Persistence: Saving and Loading using Shared Preferences - Persisting Data to Files - SQLite Database: Create, Insert, Delete, Update and Select queries. Content Provider: Creating and using Content Provider.	12	CO4
4	Sending SMS - Sending E-Mail- Location – Based Services: Displaying Maps - Getting Location Data. Networking: Consuming Web Services Using HTTP - Consuming JSON Services - Sockets Programming.	12	CO5
5	Developing Android Services: Lifecycle of Service, Types of service and Creating own services. Threading: Worker thread and Async thread. Publishing Android Applications: Preparing for Publishing - Deploying APK Files.	12	CO6

Text Book:

1. J.F. DiMarzio, “**Beginning Android Programming with Android Studio**”, 4th Edition, Wiley Publications, 2017.

Reference Books:

1. Wei Meng Lee, “**Beginning Android 4 Application Development**”, Wiley Publications, 2013.
2. Anubhav Pradhan, Anil V Deshpande, ‘Mobile Applications Development’, First Edition.
3. Barry Burd ‘Android Applications Development all in one for Dummies’, First Edition.
4. “Teach Your self Android Application Development in 24 hours” First Edition, SAMS.
5. Rick Boyer, “**Android 9 Development Cookbook**”, 3rd Edition, Packt Publishing, 2018.
6. Reto Meier and Ian Lake, “**Professional Android**”, 4th Edition, Wiley Publishers.

E-References:

1. <http://developer.android.com/>
2. <https://www.tutorialspoint.com/android/index.htm>
3. <https://abhiandroid.com/>

FIRST SEMESTER

Course Title: CORE THEORY T1-PRINCIPLES OF DATABASE MANAGEMENT SYSTEMS (For Students admitted from 2020 onwards)

Course Code	: XX29101 (XX-Year of admission)	Credits	: 04
L:T:P:S	: 3:1:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- To understand the fundamentals of data models and conceptualize and depict a database system using ER diagram
- To make a study of SQL and relational database design.
- To know about data storage techniques and query processing.
- To impart introductory knowledge on NoSQL.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Explain difference between file system and database system, the basic concepts of data models and its classification like ER model, relational model, network model, object oriented model and case study as ER model.
CO2	Discuss the relational database terminologies; analyze types of keys in relational database system. Understand the Relational algebra and improve the performance of database by normalization and hence the types of normal forms.
CO3	Implementation of Relational Database in Oracle SQL, analyzing of DDL, DML and DRL statements, Joins, Group functions and Integrity Constraints with syntax and examples.
CO4	Demonstrate the types of PL/SQL statements with examples and hence discuss the purpose of Cursors, Triggers, Procedures and Functions in PL/SQL with its implementation.
CO5	Apply the database tuning methodologies on Indexes, Database Design, and Queries. Explain the Transaction States and properties of Transactions and acquire the basic knowledge about concurrency techniques over databases.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	3	2	3	3
CO2	3	3	3	3
CO3	3	3	2	2
CO4	3	2	2	2
CO5	3	2	2	2

3-Strong 2-Medium 1-Low

Sl No.	Contents of Module	Hrs	COs
1	Introduction to Databases- Characteristics of the Database -Advantages of using DBMS - Categories of Data Models-Schemas and Instances -Three-Schema Architecture-Data Independence- Conceptual Modeling using ER Model: Entities and Attributes, Entity types and Entity sets, Relationship types, Degree of a Relationship Type, Weak Entity types, Notations for ER diagrams, Naming Conventions, An Example ER diagram.	12	CO1
2	Relational Model Concepts: Domains, Attributes, Tuples, Relations, Types of Keys- Relational Algebra: Unary Operations, Operations from Set Theory, Cartesian product, Division and Rename. Normalization: Purpose of Normalization – Functional Dependencies –First Normal Form, Second	12	CO2

	Normal Form, Third Normal Form-Boyce-Codd Normal Form (BCNF).		
3	Basic SQL: Attribute Data types and Domains in SQL -DDL Commands- DML Commands-Select statement using where, in, between, order by, like, distinct, relational operators and logical operators- Numeric functions-Character functions-Date functions- -SQL Group functions - SQL Set Operators – Commit-Rollback-Integrity Constraints in SQL.	12	CO3
4	Nested Query-Inner Joins-Outer Joins-Format of PL/SQL Block-Decision making statements in PL/SQL-Looping Statements in PL/SQL-Implicit Cursor- Explicit Cursor- Built-in Exceptions -User-Defined Exceptions.	12	CO4
5	Indexing: Types of Indexing - Transaction and System Concepts: Transaction States, The System Log, Commit point of a Transaction, Desirable properties of Transactions- Concurrency Control: Two-phase locking technique.	12	CO5

Text Books:

1. Ramez Elmasri and Shamkant B. Navathe, “**Fundamentals of Database Systems**”, 7th Edition, Pearson Education, 2017. (Units I,II,V)
2. Sharad Maheswari and Ruchin Jain, “**Introduction to SQL and PL/SQL**”, Firewall Media, 2016. (Units III,IV)

Reference Books:

1. Avi Silberschatz, Henry F. Korth and S. Sudarshan. “**Database System Concepts**”, 6th Edition, McGraw Hill.
2. Raghurama Krishnan and Johannes Gehrke, “Data Base Management Systems”, TMH 3rd Edition,2003
3. Majumdr, Bhattacharyya,” Data Base Management Systems”, TMH ,96.

E-References:

1. <https://nptel.ac.in/courses/106/105/106105175/>
2. <https://www.db-book.com/db6/slide-dir/index.html>
3. <https://beginnersbook.com/2015/04/dbms-tutorial/>
<https://www.technolamp.co.in/2011/09/database-management-systems-dbms-imp.html>

SECOND SEMESTER

Course Title: **CORE THEORY ELECTIVE 1-INTRODUCTION TO MULTIMEDIA**
(For Students admitted from 2020 onwards)

Course Code	: XX29213(B) (XX-Year of admission)	Credits	: 04
L:T:P:S	: 4:0:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- This course aims to introduce the fundamental elements of multimedia.
- It will provide an understanding of the fundamental elements in multimedia.
- The emphasis will be on learning the representations, perceptions and applications of multimedia.
- Software skills and hands on work on digital media will also be emphasized.
- On completion of the subject, the students will understand the technologies behind multimedia applications and master the skills for developing multimedia projects.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Describe the types of media and define multimedia system.
CO2	Describe the process of digitizing (quantization) of different analog signals (text, graphics, sound and video).
CO3	Use and apply tools for image processing, video, sound and animation.
CO4	Apply methodology to develop a multimedia system.
CO5	Apply acquired knowledge in the field of multimedia in practice and independently continue to expand knowledge

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	3	3	3	3
CO2	2	3	3	2
CO3	3	2	3	3
CO4	2	2	2	2
CO5	2	2	2	3

3-Strong 2-Medium 1-Low

Sl No.	Contents of Module	Hrs	COs
1	Introduction to Multimedia: What is multimedia, Components of multimedia, Web and Internet multimedia applications, Transition from conventional media to digital media. Computer Fonts and Hypertext. Usage of text in Multimedia, Families and faces of fonts, outline fonts, bitmap fonts International character sets and hypertext, Digital fonts techniques.	12	CO1
2	Audio Fundamentals and Representations : Digitization of sound, frequency and bandwidth, decibel system, data rate, audio file format, Sound synthesis, MIDI, wavetable, Compression and transmission of audio on Internet, Adding sound to your multimedia project, Audio software and hardware.	12	CO2
3	Image Fundamentals and Representations: Colour Science , Colour, Colour Models, Colour palettes, Dithering, 2D Graphics, Image Compression and File Formats :GIF, JPEG, JPEG 2000, PNG, TIFF, EXIF, PS, PDF, Basic Image Processing [Can Use Photoshop], Use of image editing software, White balance correction, Dynamic range correction, Gamma correction, Photo Retouching.	12	CO3

4	Video and Animation: Video Basics , How Video Works, Broadcast Video Standards, Analog video, Digital video, Video Recording and Tape formats, Shooting and Editing Video (Use Adobe Premier for editing), Video Compression and File Formats . Video compression based on motion compensation, MPEG-1, MPEG-2, MPEG-4, MPEG-7, MPEG-21, Animation: Cell Animation, Computer Animation, Morphing.	12	CO4
5	Multimedia Authoring: Multimedia Authoring Basics, Some Authoring Tools, Macromedia Director & Flash .	12	CO5

Text Books:

1. Tay Vaughan, "Multimedia making it work", Tata McGraw-Hill, 2008.
2. Rajneesh Aggarwal & B. B Tiwari, "Multimedia Systems", Excel Publication, New Delhi, 2007.

Reference Books:

1. Li & Drew, "Fundamentals of Multimedia", Pearson Education, 2009.
2. Fred Halsall, "Multimedia Communications: Applications, Networks, Protocols and Standards", Addison Wesley, 2000
3. Parekh Ranjan, "Principles of Multimedia", Tata McGraw-Hill, 2007
4. Anirban Mukhopadhyay and Arup Chattopadhyay, "Introduction to Computer Graphics and Multimedia", Second Edition, Vikas Publishing House.

E-References:

1. Anatomy of a Sound Board. PC Magazine Online Located at: <http://www.zdnet.com/cshopper/features/9510/feature2/sub3.html>
2. Berinato, S. (1997). Streaming video enters spotlight. PC Week Online. [On-line]. Available: <http://www8.zdnet.com/pcweek/news/0728/28video.html>
3. CyberTech Information Group. (1997). Streaming video. [On-line]. Available: <http://www.web-ads.com/cbertech/vivofree.html>

FIRST SEMESTER

Course Title: CORE THEORY T3-ADVANCED DATA STRUCTURES AND ALGORITHMS (For Students admitted from 2020 onwards)

Course Code	: XX29103 (XX-Year of admission)	Credits	: 04
L:T:P:S	: 4:0:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- To impart the knowledge about the concepts of data structures and algorithms.
- To enable the students to analyze the efficiency of algorithms.
- Train the students to design and analyze linear and non-linear data structures.
- Enable the students to implement suitable data structures and algorithms in real time applications

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Analyze the performance of algorithms using asymptotic notations.
CO2	Evaluate and provide suitable techniques for solving a problem using basic properties of Data Structures.
CO3	Illustrate different types of algorithmic approaches to problem solving.
CO4	Understand the nature of problems and to develop prototypes or applications of varying complexities.

CO5	Determine the drawbacks of data structures and algorithms and assess the tradeoffs involved.
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Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	3	3	3	2
CO2	3	3	3	2
CO3	3	3	3	3
CO4	3	3	3	3
CO5	3	3	3	3

3-Strong 2-Medium 0-Low

Sl No.	Contents of Module	Hrs	COs
1	Introduction: Abstract data types - asymptotic notations – complexity analysis – Arrays- representation of arrays. Linked lists: Singly linked list- Circular linked lists – Doubly linked lists. Stacks: Operation, array representation of a stack, Application – expression evaluation, Recursion – Towers of Hanoi. Queues: operations - circular queues.	12	CO1
2	Trees – Basic terminologies, Binary Trees – Binary Tree Traversals – Binary Tree Representations – Binary Search Trees – Threaded Binary Trees- AVL Trees-Red- Black Trees.	12	CO2
3	Graphs: Representation of Graphs – Graph Implementation – Graph Traversals – BFS, DFS, Single-Source Shortest Path Problem- Dijkstra’s algorithm, Bellman-Ford algorithm. Minimum Cost Spanning Trees by Prim’s and Kruskal’s algorithm– All Pair Shortest Path Problem- Floyd Warshall algorithm.	12	CO3
4	Divide and Conquer – Quick sort, Merge sort, Binary Search. Greedy Method: General Method – knapsack problem.	12	CO4
5	Back Tracking: General Method – 8-queens, Sum of Subsets. Branch and Bound: General Method – Travelling Salesperson problem.	12	CO5

Text Books:

1. E. Horowitz, S. Sahni and S. Rajasekaran, "Computer Algorithms", Galgotia Publishers, 2001.
2. E. Horowitz, S. Sahni and Mehta, "Fundamentals of Data Structures in C++", Galgotia Publishers, 2000.

Reference Books:

1. G. L. Heileman, "Data Structures, Algorithms and Object Oriented Programming", Revised Edition, TMH, 1999.
2. A.V. Aho, J.E. Hopcroft, J.D. Ullmann, "The Design and Analysis of Computer Algorithms", Pearson Education Asia, Addison Wesley Publishers, 2006.
3. S.K. Basu, "Design Methods and Analysis of Algorithms", Fourth Edition, 2013.
4. Kruse R.L, Leung B.P, Tondo C.L, "Data structures and Program design in C", Pearson, Second Edition, 2007

E-References:

1. <https://nptel.ac.in/courses/106/102/106102064/>
2. <https://www.programiz.com/dsa>
3. https://www.tutorialspoint.com/data_structures_algorithms/index.htm
4. <https://www.javatpoint.com/daa-tutorial>

FIRST SEMESTER

**Course Title: CORE PRACTICAL P2- ADVANCED JAVA PROGRAMMING LAB
(For Students admitted from 2020 onwards)**

Course Code	: XX29107 (XX-Year of admission)	Credits	: 02
L:T:P:S	: 0:0:5:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- The course covers Graphical User Interface (GUI) networking, JavaScript and database
- Student will be able to use advanced technology in Java such as Remote method Invocation, JSP.
- Student will be able to develop web application using Java Servlet.

Lab Exercises:

1. Design a form and implement java script showing all the major form validations.
2. JavaScript program illustrating the Date and Math Objects
3. JavaScript program to handle different events.
4. Basic Servlet Programming
5. Servlet Collaboration-Request Dispatcher
6. Session Management and Implementation of Cookies using Servlet
7. Developing a web application with MySQL Database using Servlet
8. Designing online applications with JSP
9. Creating Web services with RMI.

*******End of First Semester*******

THIRD SEMESTER

**Course Title: CORE THEORY ELECTIVE 3-INTRODUCTION TO INTERNET OF THINGS
(For Students admitted from 2020 onwards)**

Course Code	: XX29322(A) (XX-Year of admission)	Credits	: 04
L:T:P:S	: 4:0:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- To understand the fundamentals of Internet of Things
- To learn about the basics of IOT protocols
- To build a small low cost embedded system using RaspberryPi.
- To apply the concept of Internet of Things in the real world scenario

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Interpret the vision of IoT from a global context
CO2	Describe the fundamentals of IoT and M2M
CO3	Analyze applications of IoT in Raspberry Pi
CO4	Appreciate the role of big data, cloud computing and data analytics in a typical IoT system
CO5	Determine the market perspective of IoT
CO6	Illustrate the application of IoT in Industrial Automation and identify Real World Design Constraints.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	3	3	2	2
CO2	3	3	2	2
CO3	3	3	3	3
CO4	3	3	3	3
CO5	3	2	3	3
CO6	2	1	3	3

3-Strong 2-Medium 1-Low

SI No.	Contents of Module	Hrs	COs
1	Introduction - Physical Design of IoT- Logical Design of IoT- IoT Enabling Technologies - IoT Levels & Deployment Templates.	12	CO1
2	IoT and M2M - M2M – Difference between IoT and M2M-SDN and NFV for IoT - IoT system management –Need for SNMP-Network operator requirements- NETCONF - YANG - IoT System Management with NETCONF-YANG.	12	CO2
3	IoT Platforms Design Methodology: Ten steps in IoT design methodology- IoT Physical Devices & Endpoints: Basic building blocks of IoT devices – Exemplary device: Raspberry Pi – Linux on Raspberry Pi – Raspberry Pi Interfaces – Programming Raspberry Pi with Python.	12	CO3
4	IoT Physical Servers and Cloud Offerings :Introduction to Cloud storage models and Communication APIs – WAMP/AutoBahn for IoT – Xively Cloud for IoT – Python Web Application Framework -DJANGO — Amazon Web Services for IoT – Amazon EC2 – Amazon AutoScaling – Amazon S3 – AmazonRDS – Amazon DynamoDB – Data Analytics for IoT: Apache Hadoop –MapReduce Programming Model – Hadoop	12	CO4

	MapReduce job Execution – MapReduce job for Execution Workflow.		
5	Case Studies and Real-World Applications: Realworld design constraints – Applications: Asset Management - Smart Grid - Commercial Building Automation - Smart Cities - Participatory Sensing.	12	CO5,CO6

Text Books:

1. ArshdeepBahga, Vijay Madiseti, "Internet of Things: A Hands-on Approach" , First Edition, Universities Press, 2015.
2. Jan Holler, VlasiosTsiatsis , Catherine Mulligan, Stamatis , Karnouskos, Stefan Avesand. David Boyle, "From Machine-to-Machine to the Internet of Things - Introduction to a New Age of Intelligence", Elsevier, 2014.

Reference Books:

1. Dieter Uckelmann, Mark Harrison, Michahelles, Florian (Eds), "Architecting the Internet of Things", Springer, 2011.
2. Honbo Zhou, "The Internet of Things in the Cloud: A Middleware Perspective", CRC Press, 2012.
3. Olivier Hersent, David Boswarthick, Omar Elloumi , "The Internet of Things – Key applications and Protocols", Wiley, 2012
4. AmmarRaves, SamereSalam, "Internet of Things – From Hype to Reality", First Edition, Springer Publishers, 2017.
5. Raj Kamal, "Internet of Things Architecture and Design Principles", First Edition, Mc-Graw Hill Education, 2017.
6. AgusKurniawan, "Smart Internet of Things Projects", First Edition, Packt Publishing Ltd., 2016.

E-References:

1. <https://nptel.ac.in/courses/106/105/106105166/>
2. <https://www.edureka.co/blog/iot-tutorial/>

<https://www.javatpoint.com/iot-internet-of-things>

THIRD SEMESTER

Course Title: CORE THEORY ELECTIVE 2-COMPUTER FORENSICS AND BIOINFORMATICS
(For Students admitted from 2020 onwards)

Course Code	: XX29321 (A) (XX-Year of admission)	Credits	: 04
L:T:P:S	: 4:0:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- To provide an understanding Computer forensics fundamentals
- To analyze various computer forensics technologies
- To provide computer forensics systems
- To identify methods for data recovery.
- To understand Genomic data acquisition and analysis, comparative and predictive analysis in Bioinformatics field.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Demonstrate competency in the collection, processing, analyses, and evaluation of evidence.
CO2	Demonstrate competency in the principles of crime scene investigation, including the recognition, collection, identification, preservation, and documentation of physical evidence. Classify and apply the acquisition tools
CO3	Identify the role of the forensic scientist and physical evidence within the criminal justice system. Identify and examine current and emerging concepts and practices within the forensic science field.
CO4	To get introduced to the basic concepts of Bioinformatics and its significance in Biological data analysis.
CO5	Describe the history, scope and importance of Bioinformatics and role of internet in Bioinformatics
CO6	Classify different types of Biological Databases. Introduction to the basics of sequence alignment and analysis

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	3	3	2	3
CO2	3	3	3	3
CO3	3	3	1	3
CO4	3	2	3	3
CO5	3	2	2	3
CO6	2	1	3	3

3-Strong 2-Medium 1-Low

Sl No.	Contents of Module	Hrs	COs
1	Understanding of Computer Forensics: Computer Forensics vs other related disciplines – A brief history of Computer Forensics – Understanding Case law – Developing Computer Forensics resources-Preparing for Computer Investigation.	12	CO1
2	Data Acquisition: Understanding Storage Formats for Digital Evidence – Determining the Best Acquisition Model – Contingency Planning for Image Acquisitions – Using Acquisition Tools – Validating Data Acquisition.	12	CO2
3	Processing Crime and Incident Scenes: Identifying Digital Evidence – Collecting Evidence in Private Sector Incident Scenes – Seizing Digital Evidence at the Scene – Storing Digital Evidence.	12	CO3

4	Introduction to Bioinformatics – Databases and Matrices – Biological Database – Database Searching – Scoring Matrices.	12	CO4,CO5
5	Sequence Alignment – Pair wise sequence alignment – Multiple sequence alignment. Probabilistic Modes - Markov chain - Hidden Markov Models.	12	CO6

Text Books:

1. Bill Nelson, Amelia Philips and Christopher Stewart, "Guide to Computer Forensics and Investigations", Cengage Learning, 2010.
2. Ruchi Singh and Richa Sharma, Bioinformatics, University Press, Hyderabad, 2010.
3. Richard Durbin, Sean Eddy, Anders Krogh, and Graeme Mitchison, "Biological Sequence Analysis: Probabilistic Models of Proteins and Nucleic Acids", Cambridge University Press, 2008.

Reference Books:

1. Jay G Heiser and Warren G Kruse, "Computer Forensics: Incident Response Essentials", Addison Wesley, New Delhi, 2010.
2. Robert M Slade, "Software Forensics: Collecting Evidence from the scene of a Digital Crime", Tata Mc Graw Hill, New Delhi, 2011.
3. Arthur M Lesk, "Introduction to Bioinformatics", Oxford University Press, 2014.
4. Bishop M.J., Rawlings C.J. (Eds.), "DNA and protein sequence analysis: A Practical Approach", IRL Press, Oxford, 2010

E-References:

1. <https://www.bioinformatics.org/>

**Course Title: CORE THEORY T11-PRINCIPLES OF CLOUD COMPUTING
(For Students admitted from 2020 onwards)**

Course Code	: XX29320 XX29213(A) (XX-Year of admission)	Credits	: 04
L:T:P:S	: 4:0:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- To introduce the broad perspective of cloud architecture and model
- To understand the concept of virtualization and design of cloud Services
- To be familiar with the lead players in cloud.
- To study the various security issues in cloud computing.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Analyze the core concepts of the cloud computing paradigm: Evolution, characteristics, advantages and challenges brought about by the various models and services in cloud computing.
CO2	Develop the ability to understand and use the architecture of compute and storage cloud, service and delivery models.
CO3	Apply fundamental concepts in cloud infrastructures to understand the tradeoffs in power, efficiency and cost.
CO4	Analyse and develop multimedia cloud application.
CO5	Implementation of cloud platform using python

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	3	3	2	2
CO2	3	3	3	2

CO3	3	3	3	2
CO4	3	3	3	3
CO5	3	3	3	3

3-Strong 2-Medium 1-Low

SI No.	Contents of Module	Hrs	COs
1	Introduction to Cloud Computing – Definition of Cloud – Characteristics of Cloud Computing – Cloud Models – Cloud Service Examples – Cloud Based Services and applications- Cloud Concepts and Technologies.	12	CO1
2	Cloud Services and Platforms: Compute Services – Storage Services – Database Services – Application Services – Content Delivery Services – Analytic Services – Deployment and Management Services – Identity and Access Management Services – Open Source Private Cloud Software. Developing for Cloud: Cloud Application Design – Reference Architectures for Cloud Applications – Cloud Application Design Methodologies – Data Storage Approaches.	12	CO2
3	Python for Cloud: Python for Amazon Web Services – Python for Google Cloud Platform – Python for Windows Azure – Python for MapReduce – Python Packages of Interest – Python Web Application Framework Django.	12	CO3

4	Cloud Application Benchmarking and Tuning: Introduction – Workload Characteristics – Application Performance Metrics – Design Consideration for Benchmarking Methodology – Benchmarking tools – Deployment Prototyping – Cloud Security.	12	CO4
5	Case Studies: Cloud for Manufacturing Industry – Cloud for Healthcare – Cloud for Education – Load Testing and Bottleneck Detection – Hadoop Benchmarking – Live Video Streaming App – Video Transcoding App.	12	CO5

Text Book:

1. Arshdeep Bahga and Vijay Madiseti, " **Cloud Computing: A Hands on Approach**", University Press, Hyderabad, 2014.

Reference Books:

1. Barrie Sosinsky, " **Cloud Computing Bible**", Wiley Publishing Inc, 2013.
2. John W. Rittinghouse and James F. Ransome, " **Cloud Computing: Implementation, Management, and Security**", CRC Press, 2010.
3. Kai Hwang, Geoffrey C Fox, Jack G Dongarra, " **Distributed and Cloud Computing, From Parallel Processing to the Internet of Things**", Morgan Kaufmann Publishers, 2012

E-References:

1. <https://nptel.ac.in/courses/106/105/106105167/>
3. https://www.tutorialspoint.com/cloud_computing/index.html
4. <https://www.guru99.com/cloud-computing-for-beginners.html>

<https://www.youtube.com/watch?v=LICA-ILkO4w>

STATISTICAL METHODS-I

Subject code: 31102

Total Hours - 90

Credits- 4

Course Description-The student would be able to understand scientifically the methods of conducting a statistical enquiry, presentation of data and its analysis through different statistical tools. The student would be able to apply the statistical tools to virtual data ,obtain the results,interpret results and draw conclusions.

UNIT-I

Meaning - Definition, nature, significance and limitations of statistics - Conducting a statistical enquiry – Planning & executing the enquiry - Application of statistics. Collection of data – Sources of primary data - Direct personal interview, indirect oral investigation, information from correspondents, mailed questionnaire method, schedules sent through enumerators.

UNIT-II

Classification and tabulation – Meaning – Types - Geographical, chronological, qualitative, quantitative – Tabulation - Meaning, Difference between tabulation and classification, Parts of a table, Types of tables, Formulation of frequency distribution.

UNIT-III

Measures of central Tendency - Introduction - Objectives of average, Requisites of good average - Types of averages - Arithmetic mean, median, mode.

UNIT-IV

Measures of dispersion - Range - Merits and limitations, Inter quartile range and quartile deviation - Merits and demerits, Standard deviation, Coefficient of variation. Skewness – Meaning – Types - Karl Pearson's and Bowley's measure of skewness.

UNIT-V

Index numbers - Meaning, uses, steps in the construction of index numbers - Weighted and unweighted index numbers - Simple Aggregate - Simple Average of Price Relatives -- Laspeyre – Paasche - Fisher's ideal Index, Bowley's, method - Time reversal and factor reversal tests.

Recommended Texts:

1. S.P. Gupta – Statistical Methods
2. R.G.D. Allen – Mathematics for economists
3. P.R. Vittal - Mathematical Statistics
4. Damodhar &Gujarathi - Economic models
5. H, Cramer (1946) - Mathematical Methods of Statistics, (Princeton).

Course Outcomes

CO1	To explain and apply the statistical methods involved in conducting a statistical enquiry
CO2	To distinguish and apply the various methods of presentation of data.
CO3	To apply and evaluate the various measures of central tendency.
CO4	To apply and evaluate the various measures of dispersion and skewness
CO5	To illustrate the application of index numbers through different methods.

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	3	3	2	2	3	3	3
CO2	3	2	2	2	2	3	3
CO3	3	3	2	2	2	3	3
CO4	3	3	2	2	2	3	3
CO5	3	3	2	2	2	3	3

Correlation levels: 1- Weak 2-Medium 3-High

MONETARY ECONOMICS

Subject code: 31208

Total hours –90

Credits -4

Course Description- To learn and analyse the monetary practices and the financial institutions in India.

UNIT-I

Money; Definition – Functions - Concepts - Measurement of money -Current Indian practices

UNIT-II

Role of money in macro economy - The classical approach - The Keynesian approach – Post - Keynesian developments – Classical Dichotomy – Don Patinkin's Real Balance Effect – Pigou Effect.

UNIT-III

The demand for money and Supply of money- The classical approach - The Keynesian approach - Post - Keynesian developments – Baumol's Asset demand for money – Tobin's Portfolio Balance Approach - Friedman's Restatement.

UNIT-IV

Monetary Policy – Objectives – Instruments –Role and functions of RBI - Role of RBI in economic growth and development - Financial intermediaries – NBFIs - Role – Implications for monetary policy - Gurley - Shaw thesis.

UNIT-V

Monetary system in India - A review of its working - International monetary system - Problems and prospects - The European monetary systems - European economic and monetary union - The euro and economic policy in the euro zone.

Recommended Texts:

1. Laidler,D.E.W, The Demand For Money: Theories And Evidence Allied Publisher.
2. Pierce,D.G. - Monetary Economics:Theories, Evidence And Policy; Butter Worths.
3. Monetary Economics – M.L. Jhingan 1986. 6th Edition.Vrinda Publications P. Ltd.
4. Vaishney and Maheshwari – Monetary Economics.
5. Ishwar .C. Dhingra – Monetary Economics
6. Sankaran. S. – Monetary Economics.

Reference Books:

1. Graham Bird, The International Monetary System & The Less Developed Countries,
2. R.B.I.(198 5) - Working Of The Monetary Systems
3. Friedman, The Role Of Monetary Policy, A.E.R,
4. Johnson,H.G, Essays In Monetary Economics
5. M. Friedman and A.W. Schwartz (Money and Business Cycles)

Course Outcomes

CO1	Paraphrase concepts related to money and monetary practises currently practiced in India
CO2	Enumerate various approaches related to monetary schools of evolution
CO3	To appraise the approaches given by economists like Keynes, Baumol, Tobin and Friedman
CO4	Analyze the role of monetary policy and the role of financial institution in India
CO5	Compare the monetary systems in India with that of European monetary systems

FINANCIAL MARKETS AND SERVICES- II

Subject code: 31419

Total hours – 90

Credits -4

Course Description - The course deals with the functioning of the banking sector.

UNIT-I

Banking system in India – RBI- Commercial Banks – Co-operative Banks, Agricultural Finance – Industrial Development Banks – NABARD – SIDBI - Exim Bank. Non Banking Financial Companies – Functions – Role – Problems.

Unit-II

Consumer Finance – Significance – Benefits to consumer - Different types of loans available to consumers – Pledge – Mortgage – Hypothecation – Assignment consumer protection Act. 2002.

Unit-III

Derivative markets - Operations and features – Trading systems- Pricing derivatives – Currency and interest swaps – Derivative market in India.

Unit-IV

Financial Services – Merchant Banking – Role and responsibilities - Public Issue, Underwriting, Leasing, Factoring – Steps involved and types and benefits of leasing - Regulations by SEBI

Unit-V

Venture Capital – Features – Importance of Venture capital financing - Stages - Types - SEBI Regulations on Venture Capital

Recommended Text:

1. Prasanna Chandra, Fundamentals of Financial Management Tata McGraw Hill
2. Dr. S.Guruswamy (2009), Financial Management.

Reference Books:

1. Financial Management, Indian Institute of Banking and Finance(IIBF)
2. I.M. Pandey, Financial Management
3. Schall and Hataey, Introduction to Financial Management.
4. Khan and Jain, Financial Management

Course Outcomes

CO1	To demonstrate and recall comprehensive knowledge of Banking system in India.
CO2	To apply the principles and features of consumer finance in real life.
CO3	To analyze the operations, and significance of derivative markets in India.
CO4	To possess comprehensive knowledge of various financial services, and understand its growing importance in increasing investments for economic development.
CO5	To understand the need for Venture Capital finance, in promoting investments in large investment projects.

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	3	3	3	2	3	3	3
CO2	3	2	3	2	3	3	3
CO3	3	3	2	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	3	2	3	3	3	3	3

Correlation levels: 1- Weak 2-Medium 3-High



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Arumbakkam, Chennai – 600 106

DEPARTMENT OF MATHEMATICS WITH COMPUTER APPLICATIONS

MATHEMATICS WITH COMPUTER APPLICATIONS

FIRST SEMESTER(SYLLABUS)

Course Title: Core Paper-I: Algebra and Trigonometry

Course Outcomes: At the end of the course, students will be able to

CO1	Evaluate summation of series using binomial, exponential and logarithmic series
CO2	Evaluate the sum of the powers of the given equation and also the relation between the roots and coefficients of an equation
CO3	Solve polynomial equations using Newton's Method and Horner's Method, Compute inverse of the matrix using Cayley Hamilton theorem and also obtain eigen values and eigen vectors of different types of matrices.
CO4	Expand $\sin\theta$, $\cos\theta$ and $\tan\theta$ in terms of θ , $\sin\theta$, $\cos\theta$ in multiples of θ
CO5	Classify relation between circular and hyperbolic functions and solve problems using hyperbolic & inverse – hyperbolic functions

FIRST SEMESTER(SYLLABUS)

Course Title: Core Paper-II: Differential Calculus

Course Outcomes: At the end of the course, students will be able to

CO1	Evaluate the nth derivative Using Leibnitz Rule
CO2	Finding the maxima and minima for the functions of two variables
CO3	Calculate the Envelope, Evolute, radius of curvature and circle of curvature
CO4	Finding the angle between radius vector and tangent.
CO5	Calculate the asymptotes of the curve

Signature of the HOD

Signature of the Principal



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FIRST SEMESTER (SYLLABUS)

Course Title: Core Paper-III: Programming with Python

Course Outcomes: At the end of the course, students will be able to

CO1	Understand the concept of operators, data types in python programming.
CO2	Understand control statements and Looping
CO3	Apply the concept of functions in python programming.
CO4	Understand the concept of formatting operator and strings
CO5	Analyze the structures of list, tuples and maintaining dictionaries

FIRST SEMESTER (SYLLABUS)

Course Title: Core Paper-IV: Python Programming – Lab

FIRST SEMESTER(SYLLABUS)

Course Title: Part IV Paper: Non – Major Elective-I

Course Outcomes: At the end of the course, students will be able to

CO1	Solve real time problems on Ratio and Proportion.
CO2	Determine percentages effectively.
CO3	Expound Profit and loss and Discounts
CO4	Compute Simple Interest, and Compound Interest through secondary data.
CO5	Efficiently solve equations and problems on Ages and Numbers.



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SECOND SEMESTER (SYLLABUS)

Course Title: Core Paper-V: Analytical Geometry

Course Outcomes: At the end of the course, students will be able to

CO1	Understand the concept of equation of straight line, circle, conic, chord and tangent, normal equations of hyperbola
CO2	Solve the problems in System of Planes - Length of the perpendicular – Orthogonal projection
CO3	Estimate the angle between the line and plane, coplanar lines and shortest distance to skewness.
CO4	Understand the concept of equation of sphere and its applications
CO5	Understand the concept of equation of cone and its types

SECOND SEMESTER(SYLLABUS)

Course Title: Core Paper-VI: Integral Calculus and Vector Analysis

Course Outcomes: At the end of the course, students will be able to

CO1	Evaluate the Integral using Reduction formula
CO2	Calculate Area and Volume using double and triple Integral
CO3	Evaluate the Indefinite Integral using the properties of Beta and Gamma function.
CO4	Calculate directional derivatives, Curl, divergence.
CO5	Solve Line and Surface Integral using Greens, stokes and Gauss theorem

SECOND SEMESTER(SYLLABUS)

Course Title: Core Paper-VII: Java and Data Structures

Course Outcomes: At the end of the course, students will be able to

CO1	Knows the reason about the evolution of Java its development. Study the basic of Java and to develop code. Importance of Java comparing the other language.
CO2	Develop program using constructors and its types. Definition of inheritance and Writing programmed related to it. Differentiate string class and string buffer.

Signature of the HOD

Signature of the Principal



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CO3	Concept of packages, interface, threads. Implementing the concept Exception handling various application. Significance of exception handling. Life cycle of thread.
CO4	To Demonstrate the Definition and Classification of Arrays. To elaborate the operations and applications of Stack. To impart the applications of Queues and operations on the Queues.
CO5	To elaborate the Addition of Polynomials. To study the Operations on Linked Lists. Representation of Binary Trees and Tree Traversal. To Point out the Importance of Graphs, Traversals and Algorithms.

SECOND SEMESTER(SYLLABUS)

Course Title: Core Paper-VIII: Data Structures using Java – Lab

SECOND SEMESTER(SYLLABUS)

Title: Non – Major Elective Paper II-Functional Mathematics-II

Course Outcomes: At the end of the course, students will be able to

CO1	Acquire skills of Solving Problems on Time & work and Pipes and Cisterns
CO2	Determine Time and Distance, Relative speeds efficiently.
CO3	solve problems on Area and volume of 3 dimensional objects
CO4	Untangle problems on Polygons, their interior angle and diagonals
CO5	Expound problems on Stocks and shares.

THIRD SEMESTER(SYLLABUS)

Course Title: Core Paper – IX Differential Equations

Course Outcomes: At the end of the course, students will be able to

CO1	Solve linear differential equation and Demonstrate Bernoulli's equation and exactness of first order differential equations
CO2	Exhibit Clairaut's form and solve linear differential equations with constant coefficients
CO3	Apply variation of parameter method to solve second order differential equations
CO4	Demonstrate Partial differential equations and its solutions
CO5	Implement Charpit's method

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THIRD SEMESTER(SYLLABUS)

Course Title: Allied Paper- PROBABILITY AND STATISTICS –I

Course Outcomes: At the end of the course, students will be able to

CO1	Illustrate and describe sample spaces and events for random experiments. and calculate probabilities of event in discrete sample spaces and conditional probabilities of events using Baye's theorem.
CO2	Calculate the expected value of a probability distribution, obtain moments and its generating function and also obtain probability generating function
CO3	Apply the concepts of characteristic function and Chebychev's Inequality and demonstrate the theorems related to convergence in probability
CO4	Study the relationship between two or more variables
CO5	Illustrate the concept of a probability distribution and sketch the same to real world problems involving various distributions like Binomial, Poisson and Normal distribution, Uniform distributions Geometric, Exponential, Gamma, Beta distributions and identify the Inter relationship between distributions.

THIRD SEMESTER(SYLLABUS)

Course Title: Core Paper – X Operating Systems

Course Outcomes: At the end of the course, students will be able to

CO1	Describe the basic structure and functionality of operating system. Inter process communication.
CO2	Allocation of process through scheduling algorithms. Define critical section problems and its usage.
CO3	Prevention of multiple process execution through the concept of semaphores. Apply the deadlock handling mechanisms to solve the given problem. Understand various techniques of allocating memory to processes.
CO4	Understand the strategies of memory management schemes and the usage of virtual memory. Apply suitable page replacement algorithms to avoid thrashing. Understand the structure and organization of the file system
CO5	Understand the principles of protection and security mechanisms

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FOURTH SEMESTER(SYLLABUS)

Course Title: Core Paper – XI **Integral Transforms**

Course Outcomes: At the end of the course, students will be able to

CO1	Analyse Laplace transform and the conditions of existence of Laplace transform
CO2	Implement the Laplace transform technique to solve differential equations
CO3	Study the expansion of periodic functions using Fourier Series
CO4	Demonstrate the Fourier transform and its properties
CO5	Apply Z transform for difference equations

FOURTH SEMESTER(SYLLABUS)

Course Title: Allied Paper II- **PROBABILITY AND STATISTICS – II**

Course Outcomes: At the end of the course, students will be able to

CO1	Identify a statistic and point out its importance in application and summarize the theoretical aspect of normal and non-normal populations.
CO2	Explain the bound for defining most efficient estimates derived from Rao Cramer inequality and compare the process of finding interval estimation with the process of finding point estimation.
CO3	Fit best approximation for a given set of data and also compare and analyze whether two sets of data are coming from same population or different population
CO4	Analyze the variability of samples under the given distributions and also obtain its confidence intervals
CO5	Point out the existence of most powerful test by summarizing the theoretical aspects of Neymann Pearson result.



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FOURTH SEMESTER(SYLLABUS)

Course Title: Core Paper XII- DISCRETE MATHEMATICS

Course Outcomes: At the end of the course, students will be able to

CO1	Analyse the divisibility of integer and also representation of
CO2	Apply Boolean algebra concepts in disjunctive and conjunctive normal form
CO3	Identifying, designing and analyzing circuits, logical gates and combinatorial circuits
CO4	Demonstrate recursive function and classify homogeneous and non-homogeneous linear recurrence relations
CO5	Demonstrate Proportional logic and Predicate logic

FIFTH SEMESTER

Course Title: Core Paper –XI -Algebraic Structures

Course Outcomes: At the end of the Course, the Student will be able to

CO1	Demonstrate and classify the Group structure and its operations satisfying various properties, Use Lagrange's Theorem to categorize the cyclic subgroups of a group
CO2	Classify and demonstrate examples of subgroups, normal subgroups, quotient groups, Isomorphism and homomorphism of Groups.
CO3	Explain the notion of permutations and its operations, Cayley's theorem Inner automorphism and their properties
CO4	Differentiate and demonstrate the characteristics between Rings, Ideals, Quotient Rings, Integral Domains, Fields, Homomorphism and Isomorphism of Rings
CO5	Classify and illustrate the different types of Ideals and their properties, Field of Quotient of an Integral Domain and Euclidean rings

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FIFTH SEMESTER

Course Title: Core Paper –XII - Real Analysis

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Summarizing the basic definitions and properties in sets and functions of real numbers and determining its limit
CO2	Comprehend the notions of sequence and classify the nature of the sequence of real numbers
CO3	Calculate the limit of a sequence and identify the convergence of series of real numbers
CO4	Examine the convergence of various types of series of real numbers
CO5	Interpret the idea of continuous functions of metric space

FIFTH SEMESTER

Course Title: Core Elective I – Discrete Mathematics

Course Outcomes: At the end of the Course, the Student will be able to

CO1	Use logical connectives and identify Tautology and contradiction
CO2	Explain normal forms and write the compound statements in normal forms
CO3	Demonstrate recursive function and classify homogeneous and non-homogeneous linear recurrence relations
CO4	Solve problems using generating functions for recurrence relations and illustrate different type of graphs and the operations on graphs
CO5	Implement graph algorithms and describe Eulerian and Hamiltonian graphs.

FIFTH SEMESTER

Course Title: Core Elective II – Operation Research-I

Course Outcomes: At the end of the Course, the Student will be able to

CO1	Define, formulate linear programming problems and solution using Graphical, Simplex method.
CO2	Solve Linear Programming Problems using various techniques
CO3	Be able to Analyze and solve Transportation using appropriate method.
CO4	Be able to Analyze and solve Assignment problems.
CO5	To know the basic characteristic features of a queuing system and acquire skills in analyzing queuing models.

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SIXTH SEMESTER

Course Title: Core Paper XIV - Linear Algebra

Course Outcomes: At the end of the Course, the Student will be able to

CO1	Define and demonstrate Polynomial rings, Euclidean Ring over a field $F[x]$ and its properties, Explain Eisenstein Criteria for irreducibility of Polynomials and apply the same to investigate the irreducibility of given polynomials.
CO2	Classify and Demonstrate the concepts of vector spaces, subspaces, span, linear independence, basis, dimension and apply these concepts to various vector spaces and subspaces
CO3	Define Dual space ,Norm ,Orthogonality of vectors and discuss its properties, Compute inner products and determine orthogonality on vector spaces, including Gram-Schmidt orthogonalization,
CO4	Define Algebra over F point out that $\text{Hom}(V,V)$ is an Algebra over F , Discuss about Linear transformations, Characteristic Roots and Characteristic Vectors Kernel Range of linear transformations and Compute rank nullity of associated vector spaces.
CO5	Associate Linear Transformations with matrices and Describe matrix of a transformation for a given basis and Demonstrate similarity transformation using Triangular forms.

SIXTH SEMESTER

Course Title: Core Paper –XV - Complex Analysis

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Evaluate, Analyze and formulate the Analytic and harmonic functions.
CO2	Determining the integral of analytic functions and its derivatives
CO3	Evaluate the integral of function using series and residues
CO4	Estimate the value of some improper real integrals.
CO5	Interpret the notions of linear fractional transformations

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SIXTH SEMESTER

Course Title: Core Paper –XVI - Mechanics

Course outcomes: At the end of the course, the student will be able to

CO1	Classify types of forces and categorize Lami's theorem and its applications
CO2	Explain different forces acting on a rigid body
CO3	Illustrates the laws of motion and Kinematics
CO4	Explain projectiles and classify different ranges in projectiles
CO5	Demonstrate moment of inertia and categorize them

SIXTH SEMESTER

Course Title: Core Elective III – Operation Research-II

Course Outcomes: At the end of this Course, the Student will be able to

CO1	Be able to design and solve Networks Models using CPM, PERT.
CO2	To know and apply the Various Types of inventory models.
CO3	Able to solve simple problems of replacement and implement practical cases of decision making under different business environments.
CO4	Be able to Analyze and solve problems in Game Theory.
CO5	Estimate optimum solution for sequencing problems.

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துவாரகதாஸ் கோவர்தந்தாஸ் வைணவக் கல்லூரி (தன்னாட்சி)

அரும்பாக்கம், சென்னை – 600 106.

தமிழ்த்துறை

பாடத்திட்டம் - 2022 - 2023

(2020 - 2021 கல்வியாண்டு முதல்)

OUTCOME BASED EDUCATION

பட்டப்படிப்பு – முதலாம் ஆண்டு – முதற்பருவம் (First Semester)

(செய்யுள், சிறுகதைகள், நாடகம், மொழிப்பயிற்சி, இலக்கிய வரலாறு)

Course Code : 23AT16101 / 2335101	Credits : 03
L:T:P:S : 4:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Outcomes: At the end of the Course, the Student will be able to:

CO1	மகாகவி பாரதியாரின் தமிழ், கண்ணன் என் அரசன்; பாவேந்தர் பாரதிதாசனின் நூலைப்படி; நாமக்கல் கவிஞர் வெ. இராமலிங்கம்பிள்ளையின் புதிய சமுதாயம், தூய்மை சோதி; கவிஞராயிறு தாராபாரதியின் வெறுங்கை என்பது மூடத்தனம் ஆகிய கவிதைகளிலிருந்து தமிழின் ஆழம், அரசனின் ஆளுமைத் திறம், சமுதாயப் பார்வை, தன்னம்பிக்கையின் ஆழம், ஆகியன அறியப்பெற்றன. இவற்றின் மூலம் படித்தல் திறன், கவிதை வாசிப்புத் திறன், கவிதை இயற்றும் திறன் ஆகியன சிறப்பாக வெளிப்பட்டன.
CO2	ஈரோடு தமிழன்பனின் வசப்படுவாயா வள்ளுவ? எனும் கவிதையிலிருந்து வள்ளுவரின் சிறப்பையும் திருக்குறளின் சிறப்பையும் அறிந்து கொள்ளப்பட்டன. கவிக்கோ அப்துல் ரகுமானின் ஐந்தாண்டுக்கு ஒருமுறை, கேள்வி, சித்திர மின்னல்கள், பெயர் ஆகிய கவிதைகளிலிருந்து படிமம், தொன்மம் போன்ற கவிதை உத்திகள் அறிந்து கொள்ளப்பட்டன. கவிப்பேரரசு வைரமுத்துவின் கேள் மனமே கேள், நா.முத்துக்குமாரின் தூர், நாட்டுப்புறப்பாடலான அன்புள்ளம் கொண்ட அம்மாவுக்கு மகள் எழுதும் கடிதம் ஆகிய கவிதைகளிலிருந்து மனித உள்ளத்தின் தன்மையும் பழமையின் சிறப்பும் வறுமையின் திறமும் அறியப்பெற்றன. இவற்றின் மூலம் மரபுக்கவிதையும் வசன கவிதையும் இயற்றும் திறன், நாட்டுப்புறப் பாடல் இயற்றும் திறன் ஆகியன வெளிப்பட்டன.



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CO3	கவிமணி தேசிக விநாயகம் பிள்ளையின் புத்தனும் ஏழைச் சிறுவனும், உமார்கய்யாம் பாடல்கள், த.கோவேந்தனின் சமூகம், ஓடிக்கொண்டிரு, ஆற்றல் ஆகிய மொழிபெயர்ப்புக் கவிதைகள், இரா.தண்டாயுதம் இயற்றிய மலேசிய நாட்டுப்புறப் பாடல்கள், வால்ட்விட்மனின் என்பாடத் துவக்கம், என்னை நானே பாடுகிறேன் ஆகிய கவிதைகளின் வழி அயல்நாட்டுக் கவிஞர்களின் அறிமுகமும் மொழிபெயர்ப்புத் தன்மையும் உயரிய சிந்தனையும் பெறப்பட்டன. பாரதிதாசனின் வீரத்தாய் நாடகம் வழி நாடகம் படித்தல் திறனும் நடிப்புத் திறனும் வெளிப்பட்டன.
CO4	புதுமைப்பித்தனின் பொன்னகரம், அறிஞர் அண்ணாவின் செவ்வாழை, ஜெயகாந்தனின் உண்மை சுடும், அம்பையின் பயணம், சோ.தர்மனின் சோகவனம் ஆகிய சிறுகதைகளிலிருந்து சிறுகதை படித்தல் திறனும் சிறுகதை இயற்றும் திறனும் வெளிப்பட்டன.
CO5	கலைச்சொற்கள், வல்லினம் மிகும் இடங்கள், வல்லினம் மிகா இடங்கள், எழுத்துக்களின் வேறுபாடு, ஒலி வேறுபாடு, பொருள் வேறுபாடு, நேர்காணல் முதலான மொழிப்பயிற்சிகளின் வழி மொழியைப் பிழையின்றி எழுதவும் பேசவும் அறிந்து கொள்ளும் திறன்கள் வெளிப்படுத்தப்பட்டன. பாடம் சார்ந்த தமிழ் இலக்கிய வரலாறுகளின் மூலம் தமிழ் இலக்கியங்களின் வரலாற்றை அறிந்து கொள்ளும் திறன் வெளிப்பட்டது.

பட்டப்படிப்பு – முதலாம் ஆண்டு – இரண்டாம் பருவம்
(செய்யுள், உரைநடை, மொழிப்பயிற்சி, இலக்கிய வரலாறு)

Course Code : 23AT16204 / 2335201	Credits : 03
L:T:P:S : 4:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	மீனாட்சி சுந்தரம்பிள்ளையின் சேக்கிழார் பிள்ளைத்தமிழ், தமிழ்விடு தூது, முக்கூடற் பள்ளு முதலான சிற்றிலக்கியங்கள் படிக்கப்பட்டன. மரபு வடிவிலான யாப்புடன் அமைந்த பாடல்கள் புணைய பயிற்சி பெறப்பட்டது.
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CO2	செயங்கொண்டாரின் கலிங்கத்துப் பரணி, புகழேந்திப் புலவரின் நளவெண்பா ஆகிய இலக்கியங்கள் படிக்கப்பட்டன. இதன்மூலம் பண்டைய வரலாறுகளும் வரலாற்று மூலங்களும் படிக்க ஊக்குவிக்கப்பட்டது. புராணங்களில் காணப் பெறும் மனித வாழ்வின் விழுமியங்களையும் வாழ்வியல் முறைகளையும் உணரச் செய்யப்பட்டு வாழ்க்கையைச் செம்மையாக வாழ ஆலோசனை பெறப்பட்டது.
CO3	உமறுப்புலவரின் சீறாப்புராணம், கவியரசு கண்ணதாசனின் இயேசுகாவியம் ஆகியவற்றின் மூலம் இஸ்லாமிய கிறித்துவ சமயங்களின் சிந்தனைகளும் இறைத்தூதர்களின் வரலாறுகளும் பெறப்பட்டன.
CO4	இரா.பி.சேதுப்பிள்ளையின் பாரதப்பண்பாடு, சாமி.சிதம்பரனாரின் ஒற்றுமையே உயர்ந்த பண்பு, கலீல் ஜிப்ரானின் அன்பு, ஏ.கே.செட்டியாரின் தென்னாப்பிரிக்காவில், கணினித் தமிழ் ஆகிய கட்டுரைகளின் வழி உரைநடை வாசிப்புத் திறனும் கட்டுரை எழுதும் திறனும் பெறப்பட்டன.
CO5	ஒரு பொருள் குறித்த பல சொற்கள், பல பொருள் குறித்த ஒரு சொல், அகரவரிசைப்படுத்தல், திணை, காலம், பால், இடம், எண் ஆகிய தொடர்பிழை நீக்கம், இலக்கணக் குறிப்பு ஆகிய மொழிப்பயிற்சி வாயிலாக பிழையின்றி எழுதவும் பேசவும் பயிற்சிகள் பெறப்பட்டன. பாடம் சார்ந்த தமிழ் இலக்கிய வரலாறுகளின் மூலம் தமிழ் இலக்கியங்களின் வரலாற்றை அறிந்து கொள்ளும் திறன் பெறப்பட்டது.

பட்டப்படிப்பு – இரண்டாம் ஆண்டு – மூன்றாம் பருவம்
(செய்யுள், மொழிப்பயிற்சி, இலக்கிய வரலாறு)

Course Code : 22AT16307	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	திருஞானசம்பந்தரின் கோளறு பதிகம், மாணிக்கவாசகரின் அறிவுறுத்தல், திருவெம்பாவை, ஆண்டாளின் வாரணமாயிரம் ஆகிய இலக்கியங்களின் வழி பக்திச் சிறப்பை உணரப்பட்டன. பக்தி இலக்கிய வளர்ச்சிக்கு நாயன்மார்களும் ஆழ்வார்களும் ஆற்றிய பணிகளும் அவர்களுடைய வரலாறுகளும் சிந்தனைகளும் அறியப்பட்டன. மரபுக் கவிதைகள் வாசிக்கும் பயிற்சியும் இயற்றும் பயிற்சியும் பெறப்பட்டன.
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CO2	கம்பரின் வாலிவதைப் படலத்தின் வழி இராமாயணக் கதையும் கம்பரின் கவித்துவமும் அறிந்து கொள்ளப்பட்டன. இதிகாசங்கள் வழி பண்டைய வாழ்வியல் உண்மைகள் உணரப்பட்டன. மரபுக் கவிதைகள் வாசிக்கும் பயிற்சியும் இயற்றும் பயிற்சியும் பெறப்பட்டன.
CO3	சித்தர் பாடல்கள் வழி சித்தர்கள் கூறும் மெய்ஞ்ஞானக் கூறுகளையும், உடலியல், உளவியல் கூறுகளையும் அறிந்து கொள்ளப்பட்டன. சேக்கிழாரின் மெய்ப்பொருள் நாயனார் புராணம் வழி மதம், இனம், மொழி கடந்து மாந்தர்கள் உள்ளத்தில்தான் இறைவன் குடி கொண்டிருக்கின்றான் என்ற உண்மை உணரப்பட்டது. இதன் மூலம் மெய்ஞ்ஞானத்திறன் பெறப்பட்டது.
CO4	இராமலிங்க அடிகளின் திருவருட்பா, டி.வி.ராதாகிருட்டிணன் பதிப்பித்த திருக்கோளூர் பெண்பிள்ளை ரகசியம் ஆகிய பாடல்களின் வழி வாழ்வியலில் பொதிந்துள்ள உண்மைக் கூறுகள் உணரப்பட்டன. வாழ்வியல்முறை அறிந்து கொள்ளப்பட்டன.
CO5	விண்ணப்பக் கடிதங்கள், புகார் கடிதங்கள் ஆகிய மொழிப்பயிற்சியின் வழி கடிதம் எழுதும் திறன் பெறப்பட்டது. பாடம் சார்ந்த தமிழ் இலக்கிய வரலாறுகளின் மூலம் தமிழ் இலக்கியங்களின் வரலாற்றை அறிந்து கொள்ளும் திறன் பெறப்பட்டது.

பட்டப்படிப்பு – இரண்டாம் ஆண்டு – நான்காம் பருவம்

(செய்யுள், மொழிப்பயிற்சி, இலக்கிய வரலாறு)

Course Code : 22AT16408	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	நற்றிணை, குறுந்தொகை, கலித்தொகை, புறநானூறு ஆகிய சங்க இலக்கியங்களின் தேர்ந்தெடுக்கப் பெற்ற பாடல்கள் மூலம் சங்க இலக்கியக் காலத்திலிருந்து தமிழின் மேன்மையும் சிறப்பும் மாந்தர்களின் வாழ்வியலும் உணரப்பட்டது. சங்க இலக்கியம் படிப்பது உறுதி செய்யப்பட்டது. மரபு வடிவிலான யாப்புடன் அமைந்த பாடல்களைப் புணைய பயிற்சி பெறப்பட்டது. இதனால் இலக்கியம் படைக்கும் ஆற்றல் பெறப்பட்டது.
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CO2	சிறுபாணாற்றுப்படையின் வழி மன்னர்கள் மற்றும் புலவர்களின் வாழ்வியல் முறைகள் அறிந்து கொள்ளப்பட்டன. எட்டுத்தொகை, பத்துப்பாட்டு ஆகிய இலக்கியங்களின் வரலாறுகளும் அவற்றில் இடம்பெற்றுள்ள செய்திகளும் அறியப்பட்டன.
CO3	திருத்தக்கதேவர் இயற்றிய சீவகசிந்தாமணியில் காந்தருவ தத்தையார் இலம்பகத்தின் வழி காப்பியத்தின் கதை அறிந்து கொள்ளப்பட்டது. ஐம்பெருங்காப்பியங்களையும் ஐஞ்சிறு காப்பியங்களையும் படிப்பதன்வழி தொன்று தொட்ட தமிழரின் வாழ்வியல் முறைகளைக் கடைபிடிக்க ஏதுவாகிறது.
CO4	இளங்கோவடிகள் இயற்றிய சிலப்பதிகாரத்தில் இடம்பெறும் புகார் காண்டம் பகுதி வழி காப்பியக் கதை அறிந்து கொள்ளப்பட்டது. அக்கால மணமுறை குறித்தும் அறிந்து கொள்ளப்பட்டது. திருக்குறள் அறத்துப்பாலில் உள்ள காலம் அறிதல், இனியவை நாற்பது, நாலடியார், அறநெறிச்சாரம் ஆகிய இலக்கியங்களிலிருந்து அறநெறிக் கருத்துக்கள் அறியப்பட்டன. மனித வாழ்வியலில் அறநெறி சார்ந்து வாழும் முறை அறியப்பட்டன.
CO5	தமிழிலிருந்து ஆங்கிலத்திற்கும் ஆங்கிலத்திலிருந்து தமிழிற்கும் மொழிபெயர்ப்புப் பயிற்சி பெற்றதன் வழி மொழிபெயர்க்கும் ஆற்றல் பெறப்பட்டது. தமிழிலும் ஆங்கிலத்திலும் பிழையின்றி எழுதவும் பேசவும் பயிற்சி பெறப்பட்டது. பாடம் சார்ந்த தமிழ் இலக்கிய வரலாறுகளின் மூலம் தமிழ் இலக்கியங்களின் வரலாற்றை அறிந்து கொள்ளும் திறன் பெறப்பட்டது.

ELEMENTS OF INSURANCE

COURSE DESCRIPTION: Insurance is a contract, represented by a policy, in which an individual or entity receives financial protection or reimbursement against losses from an insurance company. The company pools clients' risks to make payments more affordable for the insured

UNIT – I

Introduction to Insurance – Type of insurance – Principles of Insurance

UNIT – II

Salient Features of IRDA Act – Administration of IRDA ACT – Regulatory measures of IRDA

UNIT – III

Life Insurance Products – Term, Whole Life, Endowment.

UNIT – IV

Introduction to General Insurance – Fire, Marine and Motor Insurance.

UNIT – V

Government and Insurance Companies – LIC India – Private Players in Insurance.

Recommended Texts:

1. Dr. N. Premavathy, Elements of Insurance, Sri Vishnu Publications
2. Dr. A. Murthy, Elements of Insurance, Margam Publications, Chennai.
3. M.N. Mishra Insurance, Principals & Practice, S. Chavels Co.Ltd

Course Outcomes

CO1	To understand about the various types and principles of insurance
CO2	To analyze the features and regulatory measures of IRDA
CO3	Gain knowledge about various products offered by life insurance companies
CO4	To explain about the various forms of general insurance
CO5	To identify the various government and private insurance companies

Mapping of CO v/s PO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	1	2	3	2	2	3	3	3	3	3	3
CO2	2	3	3	2	2	2	2	2	3	2	3
CO3	3	3	3	2	2	3	3	3	3	2	2
CO4	3	3	3	2	2	3	3	3	3	1	2
CO5	2	2	3	2	2	3	3	3	3	1	2

Correlation levels: 1- Weak 2-Medium 3-High

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	3	2	3
CO2	2	3	3	2	3
CO3	2	3	3	2	3
CO4	2	3	3	2	3
CO5	2	3	3	2	3

Correlation levels: 1- Weak 2-Medium 3-High

ENTREPRENEURIAL DEVELOPMENT

COURSE DESCRIPTION- Students create and can apply logically in an entrepreneurial approach of thoughts to categorize and generate trade opportunity.

UNIT – 1

Entrepreneurship - Meaning - Role and importance of entrepreneurship – Characteristics of entrepreneurs – Relationship between entrepreneur, entrepreneurial and entrepreneurship - Functions of entrepreneurs – Types of entrepreneurs.

UNIT – II

Evolution of Indian entrepreneurship - Role of entrepreneurship in economic development in India

UNIT - III

Policies and programmes of government and non-government organizations in entrepreneur development.

UNIT –IV

Small scale Enterprises – Small scale industries and Indian economic development - Small scale industries and entrepreneurial development - Concessions – Incentives and subsidies to small industries - SIDBI.

UNIT – V

Project appraisal – Classification of projects – Formation of business idea – Contents of project report.

Recommended Books:

1. Srinivasan N.P. & C.B. Gupta Entrepreneurial Development.
2. Dr. V. Radha Entrepreneurial Development.
3. Jayashree Suresh - Entrepreneurial Development.
4. Prassanna Chandra - Entrepreneurial Development
5. Bhattacharya H – Entrepreneurial Development

Reference Books:

1. Vasanth Desai Problems & Prospects of small industries in India.
2. Khan - Management of small scale industries.
3. Dr. N. Premavathy - Entrepreneurial Development
4. J.M. Parkin - How to Finance small Business Enterprises.

COURSE OUTCOMES:

CO1	To understand the importance of the entrepreneur in modern competitive world.
CO2	To analyze /find out the current aspects of polices and programmes of Government and Non-Government organsations to pick up the pace to construct a superior business plans to accomplish successful pathway.
CO3	Collect and examine information to assess the attractiveness of latest trade opportunities in regards to the marketplace and the industry.
CO4	He / She will design a Good Business Plan.

Mapping of CO v/s PO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	2	2	2	2	2	2	2	2	2	2	2
CO2	2	2	2	2	2	2	2	2	2	2	2
CO3	2	2	2	2	2	2	2	2	2	2	2
CO4	2	2	2	2	2	2	2	2	2	2	2

Correlation levels: 1- Weak 2-Medium 3-High

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	2	3	3
CO2	3	2	3	3	2
CO3	3	2	3	2	3
CO4	2	2	3	2	2

Correlation levels: 1- Weak 2-Medium 3-High

INDIAN ECONOMY

Course Description- A study of the various policies and programmes of the Indian Economy

UNIT- I

Concepts of Economic growth and development - Economic and Non Economic Factors affecting economic development – Features of Less Developed, Developing and Developed economies.

UNIT- II

Capital Formation – Meaning & Concept of Human and Physical Capital- Saving and investment pattern during various plans- Skill Development as an essential factor for Human capital formation in India.- Role of self help groups in empowering women .

UNIT- III

Human Resources size and growth rate of population in India – Population as a retarding factor of Economic development – Population policy –Employment policies of the government.

UNIT- IV

Agriculture- Contribution to Economic Development- Food problems and methods to solve it- Measures to Increase Agricultural Productivity- Green Revolution – Program of Agriculture under the five year plans – Present position of Indian Agriculture – Developmental programs and new initiatives undertaken by the current government for enhancing agricultural patters and production- Land reform measures –Agricultural subsidies.

UNIT- V

Transport- Importance – Types -Contribution of the transport sector towards Economic Growth – Evaluation of the growth and forthcoming trends in the transport sector- Rail road Co-ordination

Recommended Texts:

1. Aluvalia , I J and IMD Little (Eds) (1999),India's Economic reforms and Development, Oxford University Press , New Delhi
2. Bardhan, P .K. (1999), The Political Economy of Development in India, Oxford University Press, New Delhi.
3. S. Sankaran. Indian Economy.
4. Ishwar. C. Dhingra (The Indian Economy Environment and Policy)
5. Ruddar Dutt and Sundaram (Indian Economy).

Reference Books:

1. Chakravarty S, (1987), Development Planning: The Indian Experience, Oxford University Press, and New Delhi
2. Dutt. R. (2001), Second Generation Economic Reforms in India, Deep and Deep publications, New Delhi.
3. Amartya Sen (Poverty and Famines) Oxford 1994.
4. Bhagwati . J. Chakravathy. S. (Indian Economic Analysis).
5. Dandekar. V.M. (Poverty in Indian School of Political Economy).

Course Outcomes

CO1	Understand the basics of economic growth and development
CO2	Evaluate the importance of Capital Formation and Human Resource development
CO3	Analyse the population growth and employability status in India
CO4	Understand the relevance of agricultural Research and development in India
CO5	Evaluate the importance of the transport sector in development

Mapping of CO v/s PO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	2	3	2	2	3	2	3	3	2	2	3
CO2	3	2	3	2	2	3	2	2	2	2	2
CO3	2	3	2	3	2	2	2	2	2	2	3
CO4	2	3	2	3	3	2	2	2	3	3	2
CO5	3	3	3	2	2	2	3	3	2	2	3

Correlation levels: 1- Weak 2-Medium 3-High

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	2	2	2
CO2	3	2	3	2	1
CO3	2	2	3	2	1
CO4	3	2	2	3	2
CO5	2	3	3	2	1

Correlation levels: 1- Weak 2-Medium 3-High

FISCAL ECONOMICS - I

Course Description- Fundamentals of Fiscal economics like public expenditure, public revenue and tax system and its types are taught. Students should be able to assess how tax implications affect public budgeting and finance.

Unit – I

Meaning and Scope of Public Finance – Distinction between private and public finance – Role of government – Need for Government activity – Principle of maximum social advantage

Unit – II

Principle of Public expenditure – Classification – Causes and effects of public expenditure with reference to India

Unit – III

Public revenue sources – Distinction between tax revenue and non tax revenue - Taxation – Meaning- Sources of taxation – Classification of taxes – Canons of taxation – Theories of taxation – Impact and incidence of taxation – Effects of taxation

Unit – IV

Individual taxes (with reference to India) Income Tax – Expenditure tax – Wealth tax- Property tax- Estate duty – Gift tax – Death duty – Customs duty – Excise duty- (Goods and Service Tax) – Sales tax – Characteristics of a good tax system – Taxable capacity – Factors determining taxable capacity – Limits – Measurements of taxable capacity

Unit - V

VAT – Centre State – MODVAT – MANVAT - Theories related to VAT – Relations and Intricacies

BIBLIOGRAPHY : Recommended Text

1. Bhargava R.N. (2004) - Public finance: Its theory and working in India, Chaitanya Publishing House
2. Musgrave.R.A. (1976) – The Theory of Public Finance, McGraw Hill, Kogakhusa, Tokyo

Books for Reference

1. Jha.R - Modern Public Economics, Routledge, London
2. Tyagi.B. (1999)- Public Finance, Sultan Chand Publications
3. Sankaran.S (1999)- Fiscal Economics, Margham Publications, 3rd Edition
4. Sundaram.K.P.M (2010) – Fiscal Economics, Sultan Chand Publications, 14th Edition
5. Cauvery and Others – Fiscal Economics
6. Mithani.D.M – Public Finance
7. S.K.Singh (2001) – Public Finance Theory and Practice, 5th Edition
8. Chelliah.R - Fiscal policy in underdeveloped countries
9. Atkinson.A.B & J.E.Siglitz (1980)- Lecturers of Public economics
10. Auerbach A.J and M.Feldsterm(1985)- Hand book of Public Economics, North Holland, Amsterdam
11. Buchanan.J.M (1970) – The Public Finance, Richard D Irwin, Homewood
12. Goode.R (1986) – Government finance in developing countries, Tata Mcgraw Hill, New Delhi
13. Shoup.C.S (1970) – Public Finance Aldne Chicago

14.Shome.P (1995) – Tax policy : hand book, Tax division, Fiscal Affairs Department, International Monetary Fund, Washington D.C



DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE

(AUTONOMOUS)

Re-accredited with “A++” by NAAC

College with Potential for Excellence, Linguistic Minority Institution

Affiliated to University of Madras

Arumbakkam, Chennai – 600 106

DEPARTMENT OF VISUAL COMMUNICATION

CURRICULA DEVELOPED AND IMPLEMENTED HAVE RELEVANCE TO THE REGIONAL

S.NO	NAME OF THE COURSE	COURSE CODE	OUTCOME
1	Screen writing	14311	Screenwriting or scriptwriting is the art and craft of writing scripts for mass media such as feature films, television productions or video games.



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Arumbakkam, Chennai – 600 106

DEPARTMENT OF VISUAL COMMUNICATION

CURRICULA DEVELOPED AND IMPLEMENTED HAVE RELEVANCE TO THE NATIONAL

S.NO	NAME OF THE COURSE	COURSE CODE	OUTCOME
1	Writing for Media	14102	s a media or strategic communication professional, you will need to synthesize and make sense of a great deal of information for your audience, often under a strict deadline. This takes strategy, good storytelling skills, and the ability to focus on the essential information. Audiences respond better to information that is presented in a logical order that supports the overall narrative.
2	Broadcast Journalism	14312	Broadcast journalism is the production and delivery of news stories via radio, TV, or online. This differs from traditional journalism that uses physical means to deliver news, such as newspapers or journals. Sometimes broadcast journalism is called broadcast media.
3	Media Organization	14521	The term “media organization” means a person or entity



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			engaged in disseminating information to the general public through a newspaper, magazine, other publication, radio, television, cable television, or other medium of mass communication.
4	Research Methodology	14522	Research is a method of determining the end result of healthcare interventions for a patient or a system. This type of research looks at such data as how equitable, safe, cost-effective, and efficient a system
5	Media laws	14416	A media law course is an educational program that focuses on the legal aspects of media, including regulations, rights, and responsibilities. It covers topics such as defamation, privacy, intellectual property, freedom of speech, media ethics, and emerging legal issues in the media industry
6	Film Studies	14207	Film Studies is designed to explore and creatively engage with all aspects of filmmaking. It involves analysis of a wide range of texts,



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			including British, American and European cinema, silent film, documentary and experimental film.
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Course Title: ALLIED PAPER IV: PRACTICAL I – FIELD VISITS

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Recollect the list of multiple institutions of Criminal Justice System.
CO2	Explain the functioning of multiple institutions of Criminal Justice System.
CO3	List out the hierarchy and structure of governmental and non-governmental institutions.
CO4	Make rapport with various professionals of Criminal Justice System.
CO5	Evaluate the effectiveness of major social institutions.

Mapping of Course Outcomes to Program Outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3

Course Activities

The students, under the guidance of a teacher may be taken on a visit to the following institutions:	
1. Police Station	2. Modern Control Room
3. Magistrates Court	4. State Human Rights Commission
5. Fire Station	6. Fire and Safety Training Academy
7. Crime Records Bureau	8. Police Boys & Girls Club
9. Forensic Sciences lab	10. Observation home
11. Forensic Medicine Department	12. Juvenile Justice Board
13. Central jail	14. Police Training Academy
15. The Academy of Prisons & Correctional Administration	16. NSG –Nerkurndram, OTA - Chennai
17. Open Air Prisons	18. CBI Academy, BPR&D, NCRB, Indian Parliament

Details of the evaluation procedure:

(i) Each candidate has to submit a field visit report and should appear for a public viva voce before their teachers and class mates.

(ii) The students, after their visits will submit a record of their field visits which will be evaluated at two levels.

(iii) At the first level, for continuous assessment, the teacher will evaluate the students for 40 marks on the following criteria

- Regularity in attending the visits (20 marks)
- Regularity in submission of reports (5 marks)
- Concise of the reports (15 marks)

(iv) At the second level, during the end semester examination, the evaluation will be done by a panel of examiners, including internal examiners, for 60 marks.

- A public viva voce, where the I,II year students will be the audience
- The students will be evaluated on the following criteria
 - Content of presentation (20 marks)
 - Presentation skills (20 marks)
 - Ability to defend the questions (20 marks)

Course Title: ALLIED COURSE V: PRACTICAL II –OUTDOOR TRAINING

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Do physical exercises which keep them healthy.
CO2	Do basic drill movements.
CO3	Play various games which require physical strength.
CO4	Follow commands properly and coordinate with team mates.
CO5	Showcase life saving skills and self defense tactics.

Mapping of Course Outcomes to Program Outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	2	2	3	3	3	2
CO2	3	3	3	2	3	3	3
CO3	2	2	3	3	2	3	3
CO4	3	3	2	2	3	2	3
CO5	3	3	2	3	3	3	2

List of activities student must indulge in

1. Drill- Parade, march past, turnings, salute (All the 5 Semesters)
2. Physical Training (All the 5 Semesters)
 - Running
 - Stretching Exercises
 - Cardio Training
 - Endurance Training
 - Muscle Building Exercises (Pushups, Sit-ups, Chin-ups, etc.)
3. Yoga (4th semester)
4. Self Defense Training (2nd semester)
5. Swimming (1st Semester)
6. Games (4th and 5th Semester)

Internal evaluation

The student need to perform the Parade individually and in the contingent to make sure the effective assessment of Drill movements and synchronization within the contingent.

Breakup of Marks for internal evaluation

- 10 Marks for Performance in Drill Examination.
- 10 Marks for Performance in other activities assessed by the trainers in the relevant Semesters of those particular activities, compiled by the internal examiner
- 10 Marks for attendance for outdoor training
- 05 Marks for confirmation to dress code and turnout
- 05 Marks for discipline

External Evaluation

Students progress in learning drill movements and march past will be assessed both individually and as part of contingent.

Apart from the Parade students performance will also be measured in terms of physical activity tests such as Running 700 meters, push-ups, sit-ups and Chin-ups.

A person with substantial experience in outdoor training and Parade will be invited as the External Examiner. Both internal and external examiner will assess the performance of the student in the evaluation.

Breakup of Marks for External Examination

External 30 Marks (10 Marks for Parade; 10 Marks for Physical Test; & 10 Marks for turnout)

Internal 30 Marks (10 Marks for Parade; 10 Marks for Physical Test; & 10 Marks for turnout)



DEPARTMENT OF SOCIOLOGY

Bachelor in Sociology

(B.A)

Programme Code: 43

Sociology Syllabus (CBCS)

Outcome Based Education Pattern

2020-21

C-Chidambarathan

Dr C Chidambaranathan

Head of the Department

B.A. DEGREE COURSE IN SOCIOLOGY (Choice Based Credit System)

(With Effects From 2020-2021)

First Semester

Subjects	C r e d i t	In str uc ti on ho ur s	E x a m H ou r	Max.Marks		
				Ext.Mark	Int.mark	Tota l
Part-I Language Paper-I	3	4	3	60	40	100
Part-II English Paper-1	3	4	3	60	40	100
Part III Core Subject Paper-I: Principles of Sociology I	5	6	3	60	40	100
Core Subject Paper II : Indian Society	5	6	3	60	40	100
Allied I Paper-1: Social Psychology	4	6	3	60	40	100

Part-IV 1. Basic Tamil 2. Introduction to Sociology	2	2	3	60	40	100
2. Skill based subject (Elective) (Soft Skills)	2	2	3	50	50	100

Second Semester

Subjects	C r e d i t	Inst ruct ion hou rs	Ex am Ho ur	Max.Marks		
				Ext. Mark	Int. mark	Total
Part-I-Language Paper- II	3	4	3	60	40	100
Part-II -English Paper- II	3	4	3	60	40	100
Part III Core Subject Paper-III : Principles of Sociology - II	5	6	3	60	40	100
Core Subject	5	6	3	60	40	100

Paper IV : Social problems in India						
Allied I Paper-2: Social Anthropology	4	6	3	60	40	100
Part-IV 1. Basic Tamil 2. Social Problems	2	2	3	60	40	100
2. Skill based subject (Elective) (Soft Skills)	2	2	3	50	50	100

THIRD SEMESTER

Course components	Subjects	Credit	Inst. hours	Exam hour	Max. Mark		
					Ext. Mark	Int. Mark	Total
Part – I	Language Paper- III	3	6	3	60	40	100
Part – II	English Paper – III	3	6	3	60	40	100
Part –III Core Courses	Paper- V: Classical Social Thinkers I	4	6	3	60	40	100
	Paper - VI : Social Movements in India	4	6	3	60	40	100

Allied Subject – III	Social Demography	4	6	3	60	40	100
Elective - I	Sociology of Sanitation (Or) Sociology of Tourism	3	6	3	60	40	100
Part - IV Soft Skills - III		2		3	50	50	100
3. Environmental Studies					Examination will be held in IV Semester		

FOURTH SEMESTER

Course components	Subjects	Cre dit	Ins t. ho urs	Ex am ho ur	Max. Mark		
					Ext. Mark	Int. Mark	Total
Part – I	Language Paper- IV	3	6	3	60	40	100

Part – II	English Paper – IV	3	6	3	60	40	100
Part –III Core Courses	Paper- VII: Classical Social Thinkers II	5	6	3	60	40	100
	Paper – VIII: Research Methodology and Statistics	5	6	3	60	40	100
Allied Subject – IV	Political Sociology	4	6	3	60	40	100
Part - IV Soft Skills– IV		2		3	50	50	100
3. Environmental Studies		2	6	3	60	40	100

FIFTH SEMESTER

Course components	Subjects	Credit	Inst. Hours	Exam hour	Max. Mark		
					Ext. Mark	Int. Mark	Total
Part – III Core Courses	Paper- IX Rural Sociology	5	6	3	60	40	100
	Paper – X Urban Sociology	4	6	3	60	40	100
	Paper – XI Industrial Sociology	4	6	3	60	40	100
	Paper – XII Sociology of Development	4	6	3	60	40	100
Elective II	Sociology of Industry and work (or) Social Welfare in India	3	6	3	60	40	100
Part – IV	Value Education	2					

SIXTH SEMESTER

Course components	Subjects	Credit	Inst. hours	Exam hour	Max. Mark		
					Ext. Mark	Int. Mark	Total
Part III Core courses	Paper- XIII Medical Sociology	4	6	3	60	40	100
	Paper – XIV Communication, Media and Society	4	6	3	60	40	100
Elective - III	Sociology of Consumer Behaviour (Or) Disaster and Social Crisis (Or)	3	6	3	60	40	100

	Sociology of Gender and Sexuality						
Project Cum Viva Voce		14			60	40	100
Part V	Extension Activities	1					

PRINCIPLES OF SOCIOLOGY I

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Course Code :	Credits : 05
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

To study the basic concepts of sociology

To explain the features of social institutions and process of socialisation

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of sociology and identify its relationship other social sciences. (K1)
CO2	Illustrate the relationship between the individual and society and explain the theories of society. (K2)
CO3	Explain the features of different social institutions and illustrate its types.(K2)
CO4	Classify the different social groups and differentiate its characters. (K4)
CO5	Criticize the theories of socialization and evaluate its agencies. (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	2	2	3	2	3	2	3	3	3	2	3	2
CO4	3	3	3	2	2	3	2	2	2	3	3	3	2	3	2
CO5	3	3	3	3	2	3	3	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	UNIT-1 Introduction 1.1 Origin, Definition, nature and scope of sociology 1.2 Relationship between sociology and other social sciences (Anthropology, Psychology, Economics, History and Political Science) 1.3 Uses of Sociology	18	CO1
2	Unit- II: Individual and Society 2.1 Definition and characteristics of society 2.2 Theories of origin of Society	18	CO2

	2.3 Relationship between individual and society		
3	Unit-III: Social Institutions 3.1 Marriage: Types of Marriage: Polygyny- Polyandry- Monogamy, Functions. 3.2 Family : Theories of Family, Types of Family; Patriarchal and Matriarchal Families- Functions of Family. 3.3 Religion : Elements of Religion – Social Functions of Religion	18	CO3
4	Unit- IV: Groups 4.1 Classification of Group 4.2 Definition, characteristics and functions of primary, secondary and reference groups.	9	CO4
5	Unit- V: Socialization 5.1 Definition and theories of socialization 5.2 Types of socialization 5.3 Agencies of socialization: family- peer group- school- religion- mass media	18	CO5

TEXTBOOKS:

BOOKS FOR STUDY

Applebaum, Richard P. William J. Chambliss. Sociology. Addison - New York

Wesley Educational, 1997.

Rao Shankar C N. Sociology: Primary Principles. New Delhi: S. Chand, 1990.

BOOKS FOR REFERENCE

Caplow, Theodore. Elementary Sociology. New Jersey: Prentice Hall, 1971.

Duncan, O.D., & Mitchell, R., A New Dictionary of Sociology, London: Routledge,

Kegan Paul 1978.

Harlambos, M, Sociology : Themes and Perspectives. New Delhi: Oxford University Press, 1980.

Inkeles, Alex, Foundations of Modern Sociology. New Jersey: Prentice Hall, 1982.

MacIver, R.M. & Page, C. H., Society : An Introductory Analysis. London: Macmillan, 1974.

Ogburn, W.F. & Nimkoff, M. F., Handbook of Sociology. New Delhi: Eurasia, 1966.

Robertson, Ian, Sociology. New York: Worth, 1977.

WEB RESOURCES

<http://ocw.mit.edu/courses/anthropology/21a-219-law-and-society-spring-2003/studymaterials/hobasicconcepts.pdf>

http://www.sagepub.com/upm-data/45619_4.pdf

JOURNALS

<http://www.asanet.org/>

<http://www.britisoc.co.uk/>

<http://www.sociology.org/>

INDIAN SOCIETY

Course Code :	Credits : 05
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES

To study the structural composition of Indian society

To understand the social processes of Indian society

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the cultural and ethnic composition of Indian society.(K1)
CO2	Classify the roots of Hindu social organizations (K2)
CO3	Explain the features of class and caste in india. (K3)
CO4	Point out the characteristic features of marriage and family. (K4)
CO5	Compare the social changes in India. (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	3	3	3	3	2	2	2	3	3	3	3	3	2
CO2	3	3	3	3	3	3	2	2	2	3	3	3	3	3	2
CO3	3	3	2	3	2	3	2	2	3	3	3	3	3	3	2
CO4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	Unit- I: Cultural and ethnic composition of Indian Society 1.1 Linguistic and racial composition 1.2 Religious and ethnic groups 1.3 Tribes of India	18	CO1
2	Unit- II: Roots of Hindu Social Organization 2.1 Varnashrama Dharma 2.2 Doctrine of Karma 2.3 Purusharthas	18	CO2
3	Unit- III: Caste and Class in India	18	CO3

	3.1 Definition and characteristics of caste 3.2 Theories of origin of caste 3.3 Caste in modern India: changing trends and new identities 3.4 Interface of caste and class		
4	Unit-IV: Marriage and Family 4.1 Marriage: Hindu, Christian, Islam: Forms and Divorce Practices. 4.2 Joint Family: Characteristic features and Functions, Changing Trends in Joint Family System	18	CO4
5	Unit-V: Social Change in India 5.1 Islamization, 5.2 Westernization, 5.3 Sanskritization, 5.4 Secularization, 5.5 Industrialization 5.6 Globalization	18	CO5

BOOKS FOR STUDY

Ahuja, Ram. Society in India: Concepts, Theories and Changing Trends. Jaipur: Rawat, 1999.

Kapadia, K.M., Marriage and Family in India. New Delhi: Oxford University Press, 1966.

BOOKS FOR REFERENCE

Hutton, J. K., *Caste in India: Its Nature, Function, and Origin*. New Delhi: Oxford University Press, 1977.

Prabhu, P.H., *Hindu Social Organization*. Madras: Popular Prakasham, 1970.

Singh, Yogendra, *Modernization of Indian Tradition*. New Delhi: Thompson Press, 1973.

Srinivas, M.N., *Social Change in Modern India*. Madras: Allied Publishers, 1970.

Shah A.M., *The structure of Indian Society: Then and Now*. New Delhi, Routledge, 2010.

Venugopal, *Religion and Indian Society: A Sociological Perspective*. New Delhi, Gyan, 1999.

Rao Shankar, *Sociology of Indian Society*. New Delhi: S Chand, 2006.

Jayabalan N., *Indian Society and Social Institutions*, New Delhi, Atlantic, 2001.

WEB RESOURCES

<http://www.hinduwedding.info/marriage-ceremony.html>

http://dev.epw.in/system/files/pdf/1961_13/25/sanskritization_and_westernizationa_dynami_c_vie_w.pdf

<http://voiceofdharma.org/books/imwat/ch6.htm>

SOCIAL PSYCHOLOGY

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Course Code :	Credits : 04
L:T:P:S : 0:0:6:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

To understand the importance of social psych.ology.

To study the personality, culture , collective behavior etc.,

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Recall the importance and methods of social psychology .(K1)
CO2	Illustrate the types and traits of personality.(K2)
CO3	Explain the functions and characteristics of leadership. K3)
CO4	Explain the types and causes of prejudice and aggression. (K4)
CO5	Compare and criticize the principles and techniques of propaganda. (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	3	2	3	2	3	2	3	3	3	3	3	3
CO2	3	3	2	3	2	3	2	2	2	3	3	3	3	3	3
CO3	3	3	2	3	2	3	2	2	3	3	3	3	3	3	3

SI NO	CONTENTS OF MODULE	Hrs	COS
1	Unit- I: Introduction 1.1 Scope and nature of social psychology 1.2 Methods of social psychology	18	CO1

	1.3 Importance of social psychology		
2	Unit- II: Personality and culture 2.1 Personality types and traits 2.2 Influence of culture on personality	18	CO2
3	Unit: III: Collective Behaviour 3.1 Crowd 3.2 Mobs 3.3 Riots	18	CO3
4	Unit-IV: Leadership 4.1 Characteristics of Leadership 4.2 Types of leader 4.3 Functions of leader	18	CO4
5	Unit- V: Aggression and prejudice 5.1 Types and causes of aggression	18	C05

	5.2 Types and causes of prejudice		
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Text Books:

- Bhatia Hansraj. (1974) Elements of social psychology, somaiya publications, bombay.
 Kimball Young (1963) Handbook of social psychology, routledge and kegan paul, London.
 Lindgren, Henry Clay (1998) Social Psychology, Wiley Eastern Publications, New Delhi-1998.

References

- Adinarayanan, S.P., Social Psychology, Longman, India.
 Aronson. Elliot, Wilson D. Timothy and Akery M. Robert (1997) Social Psychology, Longman Publishers.
 Baron, A. Robert Boon Byrne (1998) Social Psychology, Prentice Hall of India, India.

PRINCIPLES OF SOCIOLOGY-II

Course Code	:		Credits	:	05
L:T:P:S	:	0:0:6:0	CIA Marks	:	40
Exam Hours	:	03	ESE Marks	:	60

LEARNING OBJECTIVES:

To study the fundamental concepts of sociology

To understand the characteristic features of different social elements.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of social processes(K1)
CO2	Illustrate the factors and agencies of social control(K2)
CO3	Explain the forms of social stratification (K3)
CO4	Point out the features and forms of social mobility (K4)
CO5	Criticize the factors of social change (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

SI NO	CONTENTS OF MODULE	Hrs	COS
1	Unit I: Social Processes 1.1 Co-operation 1.2 Competition 1.3 Conflict 1.4 Accommodation 1.5 Assimilation	18	CO1
2	Unit II: Social Control	18	CO2

	<p>2.1 Meaning and Definition of Social Control</p> <p>2.2 Factors and Agencies of Social Control</p>		
3	<p>Unit III: Social Stratification</p> <p>3.1 Caste : Meaning, Definition, and Forms (Brahmin, Kshatriya, Vaishya and Sutras)</p> <p>3.2 Class: Meaning, Definition, and Forms (Upper Class, Middle Class and Lower Class)</p> <p>3.3 Gender: Meaning, Definition, and Social Construction of Gender, Gender Inequality</p>	18	CO3
4	<p>Unit IV: Social Mobility</p> <p>4.1 Meaning, Definition</p> <p>4.2 Features and Forms of Social Mobility</p>	18	CO4
5	<p>Unit V: Social Change</p>	18	CO5

	5.1 Evolution, Progression and Deterioration		
	5.2 Factors of Social Change- Biological, Physical and Cultural.		

BOOKS FOR STUDY

- Applebaum, Richard P., William J., Chambliss. Sociology. Addison - New York: Wesley ,1997.
- Caplow, Theodore. Elementary Sociology. New Jersey: Prentice Hall Inc. 1971.
- Inkeles, Alex. Social Change, Reading in Modern Society. NY : Prentice Hall, 1982.
- International Encyclopaedia of Sociology Vol.. I and II.
- Johnson, Harry, M., Sociology - A Systems Introduction. New Delhi: Allied, 1966.
- MacIver, R.M. & Page, C.H., Society: An Introductory Analysis. London: Macmillan, 1974.
- Thio, Alex. Sociology – A Brief Introduction. New York, Addison-Wesley Education, 1997.
- Tumin, Melvin. Social Stratification – The forms and functions of Inequality. New Jersey: Prentice Hall, 1978.

BOOKS FOR REFERENCE

- Abraham Francis, John Henry Morgan, Sociological Thought. Cambridge, Macmillan, 1985.
- Duncan, O.D & Mitchell, R., A New Dictionary of Sociology. London: Routledge Kegan Paul, 1979.
- Haralambos, M., Sociology - Themes and Perspectives. New Delhi: Oxford University Press. 1980.
- Ogburn, W.F. & Nimkoff, M. F., A Handbook of Sociology. New Delhi: Eurasia, 1966.
- Robertson, Ian. Sociology. New York, Worth, 1977.
- Schaefer Richard, T., Robert P Lamm. Sociology. New Delhi: McGraw Hill Company, 1998.

Rao Shankar, C N., Sociology: Primary Principles. New Delhi, S. Chand, 1990.

WEB RESOURCES

http://faculty.upj.pitt.edu/dsantoro/davis_moore.htm

http://www.sagepub.com/ritzerintro/study/materials/reference/77708_8.1r.pdf

JOURNALS

<http://www.inoso.org/>

<http://www.jsswnet>

SOCIAL PROBLEMS IN INDIA

Course Code : Credits : 05

L:T:P:S : 0:0:6:0 CIA Marks : 40

Exam Hours : 03 ESE Marks : 60

LEARNING OBJECTIVES:

To study about the different kinds of social problems in Indian Society.

To understand the characteristic features of Indian social problems.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Recall the causes and types of social problems(K1)
CO2	Classify the types and causes of Unemployment(K2)
CO3	Solve the problems of women and children(K3)
CO4	Analyse the origin and development of Terrorism in India(K4)
CO5	Evaluate the extent of crime in India (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

SI NO	CONTENTS OF MODULE	Hrs	COS
1	<p>Unit- I: Introduction</p> <p>The Concept of Social Problem- Characteristics of Social Problems- Causes and Types of Social Problems- Social Problems and Social Disorganization.</p>	18	CO1
2	<p>Unit-II: Poverty and Unemployment</p> <p>The Concept- Incidence and Magnitude- Causes of Rural Poverty- Problem of the Poor and the Pains of Poverty- Strategies for Alleviating Poverty.</p> <p>Present Features of Unemployment in India- Types- Causes -Consequences.</p>	18	CO2
3	<p>Unit-III: Problems of women and children</p> <p>Women's Harassment- Nature, Extent and Characteristics of Violence Against Women. Domestic</p>	18	CO3

	<p>violence- female infanticide-dowry.</p> <p>Concept and Types of Child Abuse - Incidence of Child Abuse- Causes of Child Abuse - Problem of Child Labour.</p>		
4	<p>Unit-IV: Terrorism</p> <p>The Concept- Characteristics- Objectives- Origin and Development of Terrorist Movement. Mass Support- Support Base - Terrorism in India</p>	18	CO4
5	<p>Unit-V: Crime and Delinquency</p> <p>5.1 Meaning- Types- Causes 5.2 Extent of Crime in India 5.3 Penology and Rehabilitative measures.</p>	18	CO5

Text Books:

- Bhattacharya, S.K., Social Problems in India, Regency Publications, New Delhi, 1994.
- Ahuja Ram, Crime against Women, Rawat Publications, Jaipur, 1987

References:

- Attachand, Poverty and Underdevelopment, Gian Publishing House, Delhi, 1987.
- Prasad, Population Growth and Child Labour, Kanishka Publishers distributors, New Delhi, 2001.

- Kattakayam and Vadackumchery, Crime and Society, A.P.H, Publishing Corporation, New Delhi, 1999.
- Kohli and Sharma, Poverty Alleviation and Housing Problem, Anmol Publications, Pvt. Ltd, New Delhi, 1997
- Kempe, R.S and Kempe C.H., Child Abuse, Fontana, London, 1978.

SOCIAL ANTHROPOLOGY

Course Code :	Credits :	04
L:T:P:S : 0:0:6:0	CIA Marks :	40
Exam Hours : 03	ESE Marks :	60

LEARNING OBJECTIVES:

To study about the religious and cultural aspects of anthropology

To understand the scope and branches of anthropology

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the scope of social anthropology (K1)
CO2	Classify the cultural elements in primitive society (K2)
CO3	Explain the kinds of marriage and kinship (K3)
CO4	Analyse the political organization of primitive society(K4)
CO5	Evaluate the origin and development of religion (K5)

SI NO	CONTENTS OF MODULE	Hrs	COS
1.	Unit-I: Introduction 1.1 Meaning and scope of Anthropology 1.2 Branches of Anthropology	18	CO1
2.	Unit-II: Culture 2.1 Attributes of culture 2.2 Culture traits 2.3 Culture complex 2.4 Culture area 2.5 Culture integration 2.6 Enculturation and transculturation	18	CO2
3.	Unit-III: Marriage and Kinship 3.1 Marriage: Typology by mate selection – levirate and sororate- hypergamy and hypogamy 3.2 Types of decent 3.3 Kinship: consanguinal and affinal 3.4 Kinship: tribe, class, moiety and phratry 3.5 Kinship Behaviour: joking and avoidance relationship	18	CO3

4.	<p>Unit-IV: Economic Organization</p> <p>4.1 Property: Primitive communism- Individual- collective</p> <p>4.2 Stages of Economy: Food gathering – Hunting –Fishing – Pastoralism- Cultivation</p> <p>4.3 Systems of Trade Exchange: reciprocity- redistribution- barter and market</p>	18	CO4
5.	<p>Unit- V: Political Organization</p> <p>5.1 Brand, Tribe and State</p> <p>5.2 Kinship and cheifdom</p> <p>5.3 Primitive law and justice</p> <p>5.4 Types of punishment</p>	18	CO5
6.	<p>Unit-VI: Religion:</p> <p>6.1 Magic : types and functions of magic</p> <p>6.2 Magico- religious functionaries: Shaman- Priest- medicine man- sorcerer</p>	18	CO6

BOOKS FOR REFERENCE

Aron, Raymond, Main Currents in Sociological Thought. Part 1 and 2. London: Penguin, 1967.

Coser, Lewis, A., Masters of Sociological Thought: Ideas in Historical and social context. New York : Harcourt Brace Jovanovidi, 1971.

Craib Ian. Classical Social Theory. Great Britain: Oxford University Press, 1997.

Hearn, Frank, Reason and Freedom in Sociological Thought. U.S.A: Allen and Unwin, 1985.

Timasheff, Sociological Theory: its nature and growth. New York: Random House, 1976.

WEB RESOURCES

http://www.sagepub.in/upm-data/44172_1.pdf

<http://theory.routledgesoc.com/category/profile-tags/ideal-types>

<http://faculty.frostburg.edu/phil/forum/Marx.htm>

SOCIAL MOVEMENTS IN INDIA

Course Code :	Credits	: 04
L:T:P:S : 0:0:6:0	CIA Marks	: 40
Exam Hours : 03	ESE Marks	: 60

LEARNING OBJECTIVES:

To study the different forms of movements.

To know the importance of new social movements in Indian society

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the characteristics of social movements (K1)
CO2	Explain the impact of Socio-Religious movements (K2)

CO3	Evaluate the movements of sub-altern groups.(K3)
CO4	Appraise and criticize the movements in marginalized groups (K5)
CO5	Analyse the contemporary social movements.(K4)

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit- I: Introduction 1.1 Definition and Characteristics of Social Movements 1.2 Types of social movements 1.3 Social movements and social change	18	CO1
2.	Unit-II: Socio- Religious and National Movements 2.1 Brahma Samaj and Arya samas 2.2 Civil Disobedience Movement 2.3 Quit India Movement	18	CO2
3.	Unit-III: Social Reform Movements 3.1 Self respect Movement in Tamil Nadu 3.2 SNDP Movement in Kerala	18	CO3

	3.3 Non-Brahmin Movement in Maharashtra		
4.	Unit-IV: Peasant and Tribal Movements 4.1 Telegana Movement 4.2 Naxalbari Movement 4.3 The Santal Movement 4.4 Jarkhand Movement	18	CO4
5.	Unit- V: New Social Movements 5.1 Dalit Movement 5.2 Women's Movement 5.3 Environmental Movement	18	CO5

Text Books

Rao M.S.A (1979) Social Movements in India, Manohar, New Delhi.

Rao M.S.A (1979) Social Movements and Social Transformation, McMillan, New Delhi.

Banks, J.A (1992) The Sociology of Social Movements, McMillan, London.

References:

Desai, A.R (1979) Peasant Struggle in India, OUP, India.

Desai, A.P (1987) Social Background of Indian Nationalism, Popular Prakasam, Bombay.

Dhanagare, D.N. (1983) Peasant Movements in India: 1920-50, OUP, Delhi.

Oomen, TK(1990), Protest & Change: Studies in Social Movements, Sage India Pvt. Ltd., Delhi.

Selliot, Elmer (1995) From Untouchable Dalit: Essays on The Ambedkar Movement, Manohar, New Delhi.

SOCIAL DEMOGRAPHY

Course Code : Credits : 04

L:T:P:S : 0:0:6:0 CIA Marks : 40

Exam Hours : 03 ESE Marks : 60

LEARNING OBJECTIVES:

To study the scope and importance of social demography

To understand the population processes and structure

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Recall the importance of Social Demography (K1)
CO2	Classify the sources of population data(K4)
CO3	Explain the different population theories(K3)
CO4	Illustrate the population processes and structure(K2)
CO5	Evaluate the population policies and programs(K5)

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit-I: Introduction 1.1 Definition 1.2 Nature, Scope and importance of Social Demography.	18	CO1
2.	Unit-II: Sources of Population Data	18	CO2

	<p>2.1 Census</p> <p>2.2 Vital Registration</p> <p>2.3 Sample Surveys.</p>		
3.	<p>Unit-III: Population Theories</p> <p>3.1 Malthusian Theory of Population, 3.2 Biological Theories- Thomas Saddler, Thomas Doubleday, Spencer and Gini.</p> <p>3.3 Theory of Demographic transition.</p>	18	CO3
4.	<p>Unit-IV: Population processes and structure</p> <p>4.1 Population Structure- Age and Sex, Size and distribution</p> <p>4.2 concepts- fertility, fecundity, factors influencing fertility, measures of fertility</p> <p>4.3 morality, types, causes and measures.</p> <p>4.4 Migration- Types, Push and Pull factors in migration.</p>	18	CO4
5.	<p>Unit-V: Population policies and programmes:</p> <p>5.1 Fertility, Mortality, Migration influencing policies.</p> <p>5.2 Family planning in India.</p>	18	CO5

Text Books:

6. Merton, Robert k., Sociological Theory and Social Structure. Indian Ed. New Delhi: Ameerind Publishing co., 1968.

RESEARCH METHODOLOGY AND STATISTICS

Course Code : Credits : 05

L:T:P:S : 0:0:6:0 CIA Marks : 40

Exam Hours : 03 ESE Marks : 60

LEARNING OBJECTIVES:

To study the scientific methods and techniques in social research

To know the tools and report writing of data collection

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the steps involved in social research (K1)
CO2	Classify the types of research design (K4)
CO3	Explain the different techniques of data collection (K3)
CO4	Illustrate the sampling methods (K2)
CO5	Evaluate the social statistics(K5)

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	UNIT-I: SCIENCE AND SCIENTIFIC METHODS- 1.1 What is Scientific Research	18	CO1

	<p>1.2Types, Importance and uses</p> <p>1.3Steps in Social Research</p> <p>1.4Theory and Facts- Hypothesis.</p>		
2.	<p>UNIT-II: RESEARCH DESIGN</p> <p>2.1Meaning</p> <p>2.2Types – Descriptive, Explorative, Experimental ,Diagnostic and Comparative</p> <p>2.3Functions of research design.</p>	18	CO2
3.	<p>UNIT-III: TECHNIQUE AND TOOLS OF DATA COLLECTION:</p> <p>3.1Schedule Questionnaire, Interview, Observation, Case Study</p> <p>3.2Content analysis ,Social Survey, Projective technic.</p>	18	CO3
4.	<p>UNIT-IV: SAMPLING METHODS AND REPORT WRITING:</p> <p>4.1Types- Probability and Non-Probability Sampling</p> <p>4.2 Report writing- Steps</p>	18	CO4
5.	<p>UNIT-V: STATISTICS</p> <p>5.1Meaning- Scope and importance of statistics in Social Research.</p> <p>5.2 Measures of Central Tendency- Mean- Median- Mode-</p> <p>5.3Measures of Dispersion- Range- Quartile – Standard Deviation-</p>	18	CO5

	5.4 Correlation and Regression. Role of Computers in Research.		
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Text Books:

- Kothari C.R., Research Methodology – Methods and Techniques, wiley eastern limited, Madras, 1985.
- Goode, Williams and Hatt Paul : Methods in Social Research, McGraw- Hill Book Company, London 1981.

REFERENCES:

- Young Pauline V: Scientific Social Surveys and Research. PHI.
- Mitchall, Mark and Jamina Jolley, Research Design Explainer, Holt, Rinehart and Winston inc., New york, 1988.
- Gane, Mike: On Durkheim’s Rules of Sociological Method, Routledge, London, 1988.
- Boalt, Gunnar: The Sociology of Research, Southern Illinois University Press, London, 1969.
- Blalock, J.R., Hubert, M. Social Statistics, Mc Graw Hill. International Editions, Washington, 1981.
- Hunt, Morton: Profiles of Social Research, Russell Sage Foundation, New York, 1920.
- Kothari, C.R., Quantitative Techniques, Vikas Publishing House (Pvt) Ltd. New Delhi – 1978.
- Michael S. Lewis – Beck, (Ed) Experimental Design & Methods, Sage Publications, Toppan, Publishing United Kingdom, 1990.

POLITICAL SOCIOLOGY

Course Code : Credits : 04
L:T:P:S : 0:0:6:0 CIA Marks : 40

Exam Hours : 03

ESE Marks : 60

LEARNING OBJECTIVES:

To study the basic political system in India.

To study the trends in political scenario.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Recall the contribution of Karl Marx and Max Weber in Political Sociology(K1)
CO2	Illustrate the Aristotle's classification of political system(K2)
CO3	Evaluate the merits and demerits of Political system (K5)
CO4	Distinguish between power and authority(K4)
CO5	Explain the different ways of acquiring legitimacy(K3)

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	UNIT – I: INTRODUCTION 1.1 Origin and growth of political sociology 1.2 Definition, nature and scope 1.3 Founding fathers – Karl Marx and Max Weber – their contributions	18	C01
2.	UNIT – II: BASIC POLITICAL SYSTEMS 2.1 Meaning of political systems	18	CO2

	<p>2.2 Aristotle's classification of political systems</p> <p>2.3 Theocratic, Monarchical, Democratic and Totalitarian systems and their relative merits and demerits.</p>		
3.	<p>UNIT – III: INFLUENCE, POWER AND AUTHORITY</p> <p>3.1 Meaning and types</p> <p>3.2 Characteristics of power</p> <p>3.3 Distribution of power</p> <p>3.4 Various theories of political elites</p> <p>3.5 Authority – different ways of acquiring legitimacy.</p>	18	CO3
4.	<p>UNIT – IV: POLITICAL CULTURE AND POLITICAL SOCIALIZATION</p> <p>4.1 Meaning and dimensions of political culture</p> <p>4.2 Meaning and types of political socialization</p> <p>4.3 Agencies of political socialization and their role.</p> <p>4.4 Political Participation – Meaning and Types</p> <p>4.5 Political Apathy</p>	18	CO4

	4.6 Psychological, Social, and Political determinants of participation		
5.	<p>UNIT – V: POLITICAL PARTIES AND PRESSURE GROUPS</p> <p>5.1 Political parties – features and functions</p> <p>5.2 Structures of political parties</p> <p>5.3 Meaning of pressure groups and their relationship with political parties</p> <p>5.4 Types of pressure groups and their role.</p>	18	CO5

Text Book

1. A.K. Mukhopadhyay (1980), Political Sociology, K.P.Begchi&Company, Calcutta.

Reference Books

1. Ali Ashaf and Sharma B.N., (2001), Political Sociology, University Press, Hyerabad.
2. Bhattacharyya.D.C. (2002), Political Sociology, Vijoya Publishing House, Kolkata.
3. Padhy, K.S., (1989), Political Sociology –A Perspective Analysis, Discovery Publishing House, New Delhi.
4. Anthony Orun, (1983), Introduction to Political Sociology, Prentice Hall Inc., Englewood Cliffs, New Jersey.

5.Harold J.Laski, (1978), A Grammar of Politics, George Allen & Unwin publishers Ltd, Great Britain.

RURAL SOCIOLOGY

Course Code : Credits : 05

L:T:P:S : 0:0:6:0 CIA Marks : 40

Exam Hours : 03 ESE Marks : 60

LEARNING OBJECTIVES:

To study the rural social structure and dynamics.

To study the rural social institutions and problems.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the importance of rural sociology(K1)
CO2	Explain the characteristic feature of village pattern and settlement(K3)
CO3	Analyse the changing features of village social structure (K5)
CO4	Evaluate the role and functions of rural social institutions (K5)
CO5	Criticize the problems faced by the rural society (K6)

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	UNIT- I: INTRODUCTION 1.1 Meaning of Rural Sociology 1.2 Nature and Scope	18	CO1

	1.3Importance of the study of Rural Sociology in India.		
2	<p>UNIT-II: RURAL SOCIETY</p> <p>2.1Characteristics of rural society</p> <p>2.2Rural –urban Society: Differentials and Continuum</p> <p>2.3 Village patterns and characteristics</p> <p>2.4Emergences of villages</p> <p>2.5Types of villages</p> <p>2.6 village settlement patterns-Types and pattern of Dwelling.</p>	18	CO2
3.	<p>UNIT-III: RURAL SOCIAL STRUCTURE AND DYNAMICS</p> <p>3.1Caste and social structure in rural India</p> <p>3.2Dominant Caste</p> <p>3.3Sanskritization</p> <p>3.4 Jajmani System</p> <p>3.5 Changing features of village social structure</p> <p>3.6Traditional caste and village community</p> <p>3.7Panchayat Raj</p>	18	CO3
4.	<p>UNIT-IV: RURAL SOCIAL INSTITUTIONS</p> <p>4.1Characteristics and Functions- Rural Economy</p>	18	CO4

	4.2 Family and Marriage 4.3The Polity 4.4 Rural Education 4.5 Rural Religion.		
5.	UNIT-V: RURAL PROBLEMS 5.1Poverty and indebtedness 5.2Child Labour 5.3 Unemployment 5.4Illiteracy 5.5Migration 5.6Health and Sanitation problems.	18	CO5

Text Books

1. Desai A.R. (ed) Rural Sociology in India, Popular Prakastian, Bombay.

Reference Books:

1. Vidyut Joshi (1987) Submerging Villages: Problems and prospects, Ajanta Publications, Delhi.
2. Desai, I.P and Banwarilal Choudhry (ed) (1977) History of Rural Development in Modern India, Vol.II. Impex India, New Delhi.
3. Mishra P.S. (1994) Changing Pattern of village Family in India: A Sociological Study, Ajanta Publications, Delhi.
4. Kumar Aravind (ed) (1998) Encyclopedia of Rural Sociology.

URBAN SOCIOLOGY

Course Code :

Credits : 04

L:T:P:S : 0:0:6:0

CIA Marks : 40

Exam Hours : 03

ESE Marks : 60

LEARNING OBJECTIVES:

To study the urban social structure.

To study the urban planning and criticize it.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Recall the importance of urban sociology
CO2	Classify the types and forms of cities and towns
CO3	Explain the ecological theories
CO4	Analyse the principles and agencies involved in urban planning
CO5	Evaluate the urban social problems

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit-I: Introduction 1.1 Nature, Scope and importance of Urban Sociology 1.2 Urbanisation and Sub-urbanisation 1.3 Urbanism as a way of life 1.4 Rapid urbanisation in India and its implications	18	CO1
2.	Unit-II: Urban Structure	18	CO2

	<p>2.1 Typology and morphology of urban areas</p> <p>2.2 Origin and growth of town and cities</p> <p>2.3 Types and forms of cities in pre-industrial, industrial and post-industrial periods.</p>		
3.	<p>Unit-III: Urban Ecology</p> <p>3.1 Ecological system and ecological elements</p> <p>3.2 Ecological theories: concentric zone theory- sector theory- multiple nuclei theory</p>	18	CO3
4.	<p>Unit-IV: Urban Planning</p> <p>4.1 Role of sociology in urban planning</p> <p>4.2 Principles of Urban planning</p> <p>4.3 Agencies involved in urban planning</p> <p>4.4 case study: Chandigarh</p>	18	CO4
5.	<p>Unit-V: Urban Problems</p> <p>5.1 Urban migration and population density</p> <p>5.2 housing problem</p> <p>5.3 slums</p> <p>5.4 environmental problems –</p> <p>5.5 urban crimes.</p>	18	CO5

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Text Books:

Grint N.P and S. Fava, Urban Society

Rao, M.S.A (1974) Urban Sociology in India, Orient Longman, New Delhi.

Marris Phillip (1968) Urban Sociology, George Allen and Unwin Ltd., London.

Sharma Ramnath (1998) A Text Book of Urban Sociology, Rajhans Press Publication, India.

References

Sharma Rajendra. K (1997) Urban Sociology, Atlantic Publishers, New Delhi.

Flangan G. William, (1999) Urban Sociology, Allyn and Bacon,...

Fava F. Sylvia, (1968) New Urbanism in World Perspectives: A Reader, T.Y. Cowell, New York.

INDUSTRIAL SOCIOLOGY

Course Code :	Credits :	04
L:T:P:S : 0:0:6:0	CIA Marks :	40
Exam Hours : 03	ESE Marks :	60

LEARNING OBJECTIVES:

To study the importance of industrial sociology.

To understand the evolution of industries and its consequences.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the approaches of industrial sociology
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CO2	Identify the evolution of industries
CO3	Analyse the role and structure of Industrial organizations
CO4	Explain the relationship between organization of labour and labour welfare
CO5	Classify the causes and consequences of Industrial conflict

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit- I: Introduction 1.1 Scope and importance of Industrial Sociology. 1.2 Approaches to the study of Industrial Sociology. 1.3 Socio-industrial thought – Taylor, Mayo, Maslow, Mclelland	18	CO1
2.	Unit-II: Evolution of Industry 2.1 Manorial System 2.2 Guild system 2.3 Domestic System 2.4 Factory system	18	CO2
3.	Unit-III: Industrial Organization 3.1 Structure of Industrial Organization. 3.2 Formal and informal organizations. 3.3 Line and staff organization	18	CO3

	3.4 Roles and relationship: Managers, Supervisors and Workers		
4.	Unit – IV: Organisation of Labour and labour welfare 4.1. Origin and growth of trade union in India 4.2 Functions of trade union 4.3 Trade unions in India: problems and issues 4.4 Social security and labour welfare measures	18	CO4
5.	Unit – V: Industrial conflict 5.1 Types of industrial conflict 5.2 Causes and consequences 5.3 Methods of settling industrial disputes	18	CO5

Text Books:

Monappa Arun, Industrial Relations in India, Tata McGraw Hill, New Delhi.

Mongia. J.L. Readings in Indian Labour: and Social Welfare

Pascal Gisbert (1972), Fundamentals of Industrial Sociology, Tata McGraw Hill, New Delhi.

Reference Books

Bose S.N. Indian Labour Code, Eastern Law House Pvt. Ltd., Calcutta

Malik. P.C. The Industrial Law, Eastern Book Co. Lucknow

Moorthy, M.N. Principles of Labour Welfare.

SOCIOLOGY OF DEVELOPMENT

Course Code :	Credits : 04
L:T:P:S : 0:0:6:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

To study the Social development and indicators.

To understand the relationship between social movements and development.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Distinguish economic growth and development
CO2	Identify the relationship between culture and development
CO3	Analyse the importance of social movements in development
CO4	List out the different kinds of developmental disparities
CO5	Evaluate the economic development and social opportunities

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit-I: Introduction 1.1 Definition and meaning of development 1.2 Economic growth and development 1.3 Social development and social indicators 1.4 Ecology and sustainable development	18	CO1

2.	<p>Unit-II: Culture and Development</p> <p>2.1 Development and displacement of tradition 2.2 Culture as a facilitator of development 2.3 Culture impediments for development</p>	18	CO2
3.	<p>Unit-III: Social Movements and Development</p> <p>3.1 Chinese Movement –Mao 3.2 Peasant Movement – Mexico-Emiliano Zapata 3.3 Backward Class Movement and Protective Discrimination</p>	18	CO3
4.	<p>Unit- IV: Development Disparities in India</p> <p>4.1 Social disparity: Education and Health 4.2 Gender Disparity 4.3 Economic Disparity 4.4 Rural – Urban disparity</p>	18	CO4
5.	<p>Unit-V: Economic reforms and development</p> <p>5.1 Structural adjustment in India 5.2 Economic development and social opportunities 5.3 Interdependence between market and governance 5.4 Global divisions</p>	18	CO5

Text Books:

1. Derez, Jean and Amartya Sen., (1996) India: Economic Development & Social Opportunities, UP, New Delhi.
2. Giddens, Anthony (2001) Sociology, 4th Edition, Blackwell pub Ltd, Oxford.
3. Harrison (1989) The Sociology of Modernization and Development, OUP, New Delhi.
4. Sharma, SL (1986), Development: Socio-Cultural Dimensions, Rawat Pub Jaipur.
5. UNDP (2000) Human Development Report, OUP, New Delhi.

MEDICAL SOCIOLOGY

Course Code :	Credits :	04
L:T:P:S : 0:0:6:0	CIA Marks :	40
Exam Hours : 03	ESE Marks :	60

LEARNING OBJECTIVES:

To study the need of social epidemiology

To understand the sociological perspective of health and health care

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Identify the relationship between medicine and sociology
CO2	Differentiate communicable and non-communicable diseases
CO3	Analyse the socio-cultural practice bearing on health in India
CO4	Evaluate the relationship between population and health in India
CO5	Point out the health and social problems

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit-I: Health and Society 1.1 The emerging relationship between medicine and sociology	18	CO1

	1.2 social perspectives of health and health care.		
2.	Unit-II: Communicable and Non-Communicable diseases 2.1 Tuberculosis, Malaria 2.2 Heart diseases, diabetes and Cancer.	18	CO2
3.	Unit- III: Social Epidemiology 3.1 Socio- Cultural factors bearing on health in India 3.2 Common occupational diseases, incidence and prevention of occupational diseases.	18	CO3
4.	Unit-IV: Health Education 4.1 Preventive and protective hygienic Habits. 4.2 Sociology of Health Policy in India. 4.3 Population and health in India.	18	CO4
5.	Unit-V: Health and Social Problems 5.1 Relevance of sex Education revelation of AIDS and HIV 5.2 Aging –Social Gerontology	18	CO5

Text Books:

1. Cockerham, William, C (1978) Medical Sociology, Englewood Cliffs. Prentice Hall.

Reference books:

1. Dak T.M.(1991) Sociology of Health in India, Kaveri Printers Private Ltd., New Delhi.
2. Graham Scombler (1987) Sociological theory and Medical Sociology, Tavistock Publication: London and New York.

COMMUNICATION, MEDIA AND SOCIETY

Course Code : Credits : 04

L:T:P:S : 0:0:6:0 CIA Marks : 40

Exam Hours : 03 ESE Marks : 60

LEARNING OBJECTIVES:

To study the scope and importance of communication.

To understand the impact of mass media in society.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the sociological approaches to communication
CO2	Explain the theories and models of communication
CO3	Classify the different forms of communication skills

CO4	Analyse the impact of mass media
CO5	Evaluate the effects of media on social change

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	<p>Unit-I: Introduction</p> <p>1.1 Definition, scope and functions of communication 1.2 Dimensions of communication 1.3 Sociological approaches to communication 1.4 Relationship between communication, popular culture and society</p>	18	CO1
2.	<p>Unit-II: Models and theories of communication</p> <p>2.1 Models of Communication: Lasswell's formula- Linear Model – Circular Model- Spiral Model – ABX Model- Conceptual Model 2.2 Theories of communication: Harold Inns- Marshal McLuhan- Jurgen Habermas – Baudrillard- John Thompson.</p>	18	CO2
3.	<p>Unit-III: Communication Skills</p> <p>3.1 Oral Skills 3.2 Writing Skills 3.3 Imaging Skills 3.4 Understanding and Responding Skills</p>	18	CO3
4.	<p>Unit-IV: Mass Media and Advertisement</p>	18	CO4

	4.1 Definition and types of advertisement 4.2 Techniques of advertisement 4.3 Advertisement in different media		
5.	Unit-V: Media and Social Change 5.1 Role of print media in social change 5.2 Impact of TV and Films on society 5.3 Impact of Information Technology on Society 5.4 Influence of media on children and youth	18	CO5

Text Books

1. Simms James (1995) Communication, OUP, UK.
2. Kumar J. Kavel (1998), Mass Communication in India, Jaico Books, India.
3. Hornik R. (1988) Development Communication: Information, Agriculture and Nutrition in Third World, New York and London: Longman.

Reference Books

1. Burgoon.M., (ed) (1983) Communication Year Book II Transaction Books, New Jersey.
2. Greedon, Pamela, (ed) (1983) Women in Mass Communication, Sage Publications, New Delhi.
3. Hornik. R. (1988) Development Communication: Information, Agriculture and Nutrition in Third World, New York and London: Longman.
4. Michael W. Gambel and Gamble (1989) Introducing Mass Communication, McGraw Hill, New York.
5. Ronald D. Farra (1997) Mass Communication, McGraw Hill, New York.

NME I INTRODUCTION TO SOCIOLOGY

Course Code :	Credits : 04
L:T:P:S : 0:0:6:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

To study the basic concepts of sociology.

To understand the importance of socialisation.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	List out the relevance of Sociology in contemporary society
CO2	Identify the relationship between individual and society
CO3	Explain the contribution of sociological thinkers about social institutions
CO4	Recall the characteristic features and functions of culture
CO5	Classify the stages and agencies of socialization

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit –I: Sociology 1.1 Meaning & Definition 1.2 nature, and Relevance of sociology in contemporary society	18	CO1
2.	Unit- II: Society 2.1 Definition and characteristics of society	18	CO2

	2.2Origin of Society:Social Contract Theory 2.3Relationship between individual and society		
3.	Unit-III: Social Institutions 3.1Comte: Social Static and Dynamic 3.2Spencer: Organic Analogy 3.3Durkheim: Suicide	18	CO3
4.	Unit- IV: Culture 4.1Definition, characteristics and functions of culture. 4.2Cultural Lag.	18	CO4
5.	Unit- V: Socialization 5.1Meaning, Definition 5.2stages and Agencies of Socialization. 5.3Cooley’s Looking Glass Self	18	CO5

Text Books:

- Bottomore, T.B (1972), Sociology: A Guide to Problems and Literature, George Allen and Unwin, Bombay.
- Gisbert, Pascal.(1973), Fundamental of Sociology, Orient Longman, New Delhi.
- Thomson, Harry. M (1995), Sociology: A Systematic Introduction, Allied Publishers, India.

References :

- Leonard Broom, Principles of Sociology, Media Promoters and Publication Pvt. Ltd., Bombay, 1993.
- Ogburn and Nimkaff, A Handbook of Sociology, Eurasia Publication House, New Delhi, 1966.
- Gisbert, Pavsocal, Fundamentals of Sociology, Orient Longman, Bombay.

Course Code : Credits : 04

L:T:P:S : 0:0:6:0 CIA Marks : 40

Exam Hours : 03 ESE Marks : 60

LEARNING OBJECTIVES:

To study about social problems.

To understand the causes and consequences of social problems.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Knowing about the basic concept of Social Problems
CO2	Identify the causes and consequences of Poverty
CO3	Explain the results of unemployment and its types
CO4	Analyze the problems of women
CO5	Explore the problems of children

Sl.No	CONTENTS OF MODULE	Hrs	COS
1.	Unit- I: Introduction 1.1 Meaning, Definition and features of Social Problem	18	CO1
2.	Unit-II: Poverty 2.1 Meaning, Causes and Consequences of Poverty.	18	CO2

3.	Unit-III: Unemployment 3.1 Meaning, Types, Causes and Consequences of Unemployment.	18	CO3
4.	Unit IV: Problems of Women 4.1 Women Trafficking, Domestic Violence and Sexual Harassment	18	CO4
5.	Unit-V: Problems of Children 5.1 Child sexual abuse, Child Labour and Child Trafficking	18	CO5

Text Books:

- Bhattacharya, S.K., Social Problems in India, Regency Publications, New Delhi, 1994.
- Ahuja Ram, Crime against Women, Rawat Publications, Jaipur, 1987

References:

- Attachand, Poverty and Underdevelopment, Gian Publishing House, Delhi, 1987.
- Prasad, Population Growth and Child Labour, Kanishka Publishers distributors, New Delhi, 2001.
- Kattakayam and Vadackumchery, Crime and Society, A.P.H, Publishing Corporation, New Delhi, 1999.
- Kohli and Sharma, Poverty Alleviation and Housing Problem, Anmol Publications, Pvt. Ltd, New Delhi, 1997
- Kempe, R.S and Kempe C.H., Child Abuse, Fontana, London, 1978.

Electives

Sociology of Tourism

Course Code :	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

This course aims to provide

To study the basic concepts of sociology of tourism

To explain the features and types of tourism and its effect on society

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic knowledge on tourism. (K1)
CO2	Illustrate the lessons on social aspects of tourism (K2)
CO3	Explain the features of understanding tourism as a socio-economic force in social development. (K2)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	2	2	3	2	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	UNIT-I: Introduction to Sociology of Tourism	07	CO1

	<p>1.1 Meaning and Definition of Sociology of Tourism.</p> <p>1.2 Sociological Perspective on Tourism.</p> <p>1.3 Significance of Sociology of Tourism.</p>		
2	<p>UNIT - II: Tourism in India</p> <p>2.1 Tourism Opportunities in India 2.2 Types: Eco-tourism, Health Tourism; 2.3 Religious Tourism; Educational Tourism. Tourism Policies in India.</p>	08	CO2
3	<p>UNIT - III: Tourism and Social Change</p> <p>3.1 Effects of Tourism on Society. 3.2 Tourism and Cultural Exchange.</p> <p>3.3 Impact of Tourism on Locals.</p>	07	CO3

TEXTBOOKS:

1. Apostolopoulos, Y., Leivadi, S & Yiannakis, A., (eds.) 2000, The Sociology of Tourism: Theoretical and Empirical Investigations, London: Routledge.
2. Archer, B.H., 1973. The Impact of Domestic Tourism, Cardiff University of Wales Press,
3. Basawaraj, Gulshetty. 2016. Sociology of Leisure and Tourism Study Lambert publication Bezbaruah, M.P., 1999.
4. "Tourism - Current Scenario and Future Prospects", Yojana, Vol.43.
5. Bhatia, A.K., 2003. Tourism Development, Principles and Practices, New Delhi: Sterling Publishers Pvt. Ltd.
6. Brahmankan, E.B., 1998. Travel and Tourism as a Career, Vol.37, .11.
7. Brij, Bhardwaj, 1999. "Infrastructure for Tourism Growth", Yojana, Vol.43. Chib, S.N., 1981. Perspectives on Indian Tourism-I, Vol.77, .19. -11, Vol.77, .20
8. Chile, Som, N., 1981. Perspectives of Tourism in India, Sarder Patel

- Memorial Lectures, Publications Division, Government of India,
9. Cohen, Erik 1984. The sociology of tourism: approaches, issues, and findings. Annual Review of Sociology 10:373-392.
 10. Dharma Rajan, S., 1999. "Tourism - An Instrument for Development", Yojana, Vol.43, .8. Jacobsen, Jens Kr. Steen. 2000. Anti-tourist attitudes. Annuals of Tourism Research.
 11. Kaul, R.N., 1987. Dynamics of Tourism, New Delhi: a Trilogy K. Publication Pvt., Ltd. Lajipathi Rai, H., 1993. Development of Tourism in India, Rupa Books Pvt., Ltd.
 12. Selvafri, M., 1989. Tourism Industry in India, Bombay. Himalaya Publishing House. Sharma, K.C., 1996. Tourism Policy Planning Strategy, Jaipur. Pointer Publishers.

Sociology of Sanitation

Course Code :	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

The content of the course will enable the students:

1. To understand the role of the public in sanitation
2. To make aware the health and sanitation conditions in India
3. To understand the social aspects of sanitation and social ordering

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of sociology of sanitation and its scope. (K1)
CO2	Illustrate the programmes and policies of sanitation. (K2)
CO3	Explain the social construction of health and sanitation. (K4)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	2	2	3	2	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	UNIT - I :Health and Sanitation 07Hrs 1.1 Social Aspects of Health and Illness. 1.2 Origin and Scope of Sociology of Sanitation 1.3 Problem of Environmental Sanitation in India	08	CO1
2	UNIT - II: Sanitation in India 06Hrs 2.1 Sulabh Sanitation Movement 2.2 Sanitation Policies and Programmes 2.3 Sanitation in Tamilnadu, a Regional Analysis	08	CO2

	UNIT - III : Sanitation and Society		
	07Hrs		
3	3.1 Social Construction of Hygiene and Sanitation 3.2 Scavenging Castes and Social Deprivation 3.3 Sanitation and Dignity of Women	08	CO3

TEXTBOOKS:

1. Akram, Mohammad. 2015. *Sociology of Sanitation*. Delhi: Kalpaz Publications. Chatterjee, Meera. 1988. *Implementing Health Policy*, New Delhi: Manohar Publications.
2. Dalal, Ajit, Ray Shubha, 2005. (Ed). *Social Dimensions of Health*, Rawat.
3. Gupta, Giri Raj (ed.). 1981. *The Social and Cultural Context of Medicine in India*, New Delhi: Vikas Publishing House.
4. Jha, Hetukar. 2015. *Sanitation in India*. Delhi: Gyan Books.
5. Nagla, B K. 2015. *Sociology of Sanitation*. Delhi: Kalpaz Publications.
6. Nagla, Madhu. 2013. *Gender and Health*, Jaipur Rawat Publications Pais,
7. Richard. 2015. *Sociology of Sanitation*. Delhi: Kalpaz Publications.
8. Pathak, Bindeshwar. 2015. *Sociology of Sanitation*. Delhi: Kalpaz Publications.
9. Saxena, Ashish. 2015. *Sociology of Sanitation*. Delhi: Kalpaz Publications.

Sociology of Work and Industry

Course Code :	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

To study the basic concepts of industrial sociology

To explain the dimensions of work and its hazards

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of work, occupation and alienation. (K1)
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CO2	Explain the gender and work in the informal sector. (K4)
CO3	Illustrate the nature and types of industrial hazards and its vulnerability. (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	2	2	3	2	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	Unit I: Interlinking Work and Industry 1.1 Concept of work and occupation 1.2 Work in industrial society 1.3 Alienation: Causes and Consequence	07	CO1
2	Unit- II: Dimensions of Work 2.1 Gender: Women and Industry, Gender Discrimination in Work	08	CO2

	2.2 Nature of Unpaid Work and Forced Labour 2.3 Informal sector in developing countries		
3	Unit III: Risk, Hazard and Disaster 3.1 Nature and Types of Industrial Risk, Hazard and Disaster 3.2 Dimensions and Trends of Vulnerability and Exposure	07	CO3

References:

1. Bell, Daniel. 1976, *The Coming of Post-Industrial Society*, London: Heineman, Introduction, Pp.12-45
2. Breman, Jan. 2003, "The Informal Sector" in Veena Das, (ed.) *The Oxford India Companion to Sociology and Social Anthropology*, New Delhi: OUP, Pp.1287-1312
3. Coser, 1990, "Forced Labour in Concentration Camps" in Erikson, K. and S.P.Vallas (eds.) *The Nature of Work: Sociological Perspectives*, New Haven and London: American Sociological Association, Presidential Series and Yale University Press, Pp. 162-69
4. Devine, Fiona. 1992, "Gender Segregation in the Engineering and Science Professions: A case of continuity and change" in *Work, Employment and Society*, 6 (4) Pp.557-75.
5. Edgell, Stephen. 2006, "Unpaid Work-Domestic and Voluntary work" in *The Sociology of Work: Continuity and Change in Unpaid Work*. New Delhi: Sage, Pp.153-181
6. Erikson, Kai. 1990. "On Work and Alienation" in Erikson, K. and S.P. Vallas (eds.) *The Nature of Work: Sociological Perspectives*. New Haven and London: American Sociological Association, Presidential Series and Yale University Press, Pp. 19-33
7. Etzioni, A. and P.A. Jargowsky. 1990, "The false choice between high technology and basic industry" in K. Erikson and P. Vallas (eds.) *The Nature of Work: Sociological Perspectives*, New Haven and London: Yale University Press, Pp. 304-317
8. Freeman, Carla. 2009, "Femininity and Flexible Labour: Fashioning Class through Gender on the global assembly line" in Massimiliano Mollona, Geert De Neve and Jonathan Parry (eds.) *Industrial Work and Life: An Anthropological Reader*, London: Berg, Pp.257-268
9. Grint, Keith. 2005, "Classical Approaches to Work: Marx, Durkheim and Weber" in *The Sociology of Work: An Introduction*. Polity Press. Cambridge. Pp. 90-112
10. Kumar, Krishan. 1999, *From Post-industrial to Post-modern society*, Oxford: Blackwell Publishers Ltd., Chapter 2 and 6, Pp 6-35 and 154-163
11. Laughlin, Kim. 1995, Rehabilitating Science, Imagining "Bhopal" in George E. Marcus (ed.) *Techno scientific Imaginaries: Conversations, Profiles and Memoirs*, Chicago: University of Chicago Press, Pp. 277-302
12. Ramaswamy E. A. and Uma Ramaswamy. 1981, *Industry and Labour*, New Delhi: Oxford University Press, Chapter 3, Pp.33-65
13. Talib, Mohammad. 2010, *Writing Labour- Stone Quarry workers in Delhi*. New Delhi: OUP, Chapter 1, Pp. 23-54

14. Taylor, Steve. 1998, "Emotional Labour and the new Workplace" in Thompson and Walhurst (eds.) *Workplace of the Future*. London: Macmillan, Pp. 84-100
15. Uberoi, J.P.S. 1970, "Work, Study and Industrial worker in England" in *Man, Science and Society*. IAS: Simla. Pp 34-452.
16. Zonabend, Françoise. 2009, "The Nuclear Everyday" in Massimiliano Mollona, Geert De Neve and Jonathan Parry (ed.) *Industrial Work and Life: An Anthropological Reader*, London: Berg, Pp 167-185

Social Welfare in India

Course Code :	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

1. To understand the basic concepts in social welfare
2. To study the different welfare programmes and policies in India
3. To understand the process of social change and development through social welfare.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of social welfare and identify its agencies. (K1)
CO2	Exemplify the welfare measures of SCs, STs OBCs and minorities. (K4)
CO3	Enlighten the social welfare in Education and Health sector. (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	2	2	3	2	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	<p>Unit I: Introduction</p> <p>1.1 Meaning and Scope of Social Welfare Approach</p> <p>1.2 Concepts - Welfare State, Re-distribution, Democracy, Accountability and Transparency</p> <p>1.3 Agencies of Social Welfare – Government and Non-government</p>	09	CO1
2	<p>Unit II: Welfare Programmes in India</p> <p>2.1 Welfare of Scheduled Castes and Scheduled Tribes</p> <p>2.2 Welfare of Other Backward Classes</p> <p>2.3 Welfare of Minorities</p>	07	CO2
3	<p>Unit III: Social Welfare and Development</p> <p>3.1 Social welfare and Social Legislations</p>	07	CO3

	3.2 Social Welfare Needs: Right to Education; Health care		
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References:

1. Abuja, Ram. 2001. *Social Problems in India*. Jaipur: Rawat Publications. Chowdhry, P.D. 1983. *Social Welfare Administration*. Delhi: Atma Ram Sons. Desai, A.R. 1979. *Rural India in Transition*. Bombay: Popular Prakashan.
2. Dummett, M. 2013. *Breaking the silence: Child sexual abuse in India*. New York, NY: Human Rights Watch.
3. Dwivedi, R. M. 2005. *Poverty and development programmes in India*. New Delhi: New Century Publications.
4. Friedlander, Walter.A.1961. *Introduction to Social Welfare*. New York: Prentice Hall Inc. Goel, S.L. & Jain, R.K. 1988. *Social Welfare Administration: Theory and Practice*, (Vol. I & II). New Delhi: Deep and Deep Publications
5. Jayal, N. G. 2002. *Democracy and the state: Welfare, secularism and development in contemporary India*. New Delhi: Oxford Univ. Press.
6. Madan, G.R. 1990. *Indian Social Problems*. Vol.2. New Delhi: Allied Publishers
7. Mamoria, C. B.1981. *Social Problems and Social Disorganisation in India*. Allahabad: KitabMahal.
8. Pandya, R. 2008. *Women welfare and empowerment in India: Vision for 21st century*. New Delhi: New Century Publications.
9. Patti, R.J. 2000. *The Handbook of Social Welfare Management*. Sage Publications. Sachidev, D.R. 2003. *Social Welfare Administration in India*. Allahabad: KitabMahal. Seth, M. 2001. *Women and development: The Indian experience*. New Delhi: Sage.
10. Sharma, R.N.1993. *Urban Sociology* Delhi: Surjeet Publications.
11. Sivaramakrishnan, K.C. et al.1996. *Urbanisation in India. Basic services & People's*
12. *Participation*. New Delhi: Institute of Social Sciences and Concept publishing co.
13. Talwar, P. P., &Goel, O. P. 1990. *Non-governmental organisations for greater involvement in health and family welfare programmes in India*. New Delhi: National Institute of Health & Family Welfare.
14. Tribhuvan, Robin.D. (Ed).2000.*Studies in Tribal, Rural and Urban Development*. vol.1&2. New Delhi: DPH

Sociology of Gender and Sexuality

Course Code :	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

To study the basic concepts of gender inequality

To explain the features of gender differences in social institutions

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of gender and identify its social construction. (K1)
CO2	Outline the gender differences and inequalities in society. (K4)
CO3	Analyze the resistance of power and subordination towards the gender. (K5)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5

CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	2	2	3	2	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	<p>Unit I: Gender as a Social Construct</p> <p>1.1 Gender, Sex and Sexuality, Gender stereotyping and socialization, Gender role and identity</p> <p>1.2 Gender stratification and inequality, Gender discrimination and patriarchy, Production of Masculinity and Femininity,</p>	08	CO1
2	<p>Unit II: Gender: Differences and Inequalities</p> <p>2.1 Class, Caste</p> <p>2.2 Family, Work</p> <p>2.3 Third Gender</p> <p>Sexual violence</p>	07	CO2
3	<p>Unit III: Gender, Power and Resistance</p> <p>3.1 Power and Subordination</p> <p>3.2 Resistance and Movements (Chipko/ Gulabi Gang)</p>	08	CO3

TEXTBOOKS:

References:

1. Kandiyoti, Deniz. 1991. "Bargaining with Patriarchy" in Judith Lorber and Susan A. Farrell (eds.). 1991. The Social Construction of Gender. Newbury Park, Calif: Sage Publications (pp 104-118).
2. Mangala Subramaniam. 2004 The Indian Women's Movement - - Contemporary Sociology Vol. 33, No. 6, Nov.
3. Newton, Esther. 2000. "Of Yams, Grinders and Gays: The Anthropology of Homosexuality" in Margaret Mead Made Me Gay: Personal Essays, Public Ideas. Durham: Duke University Press (pp 229-237)
4. Palriwala, Rajni, 1999. "Negotiating Patriliney: Intra-household Consumption and Authority in Rajasthan

- (India)", in Rajni Palriwala and Carla Risseuw (eds.). 1996. *Shifting Circles of Support: Contextualizing Kinship and Gender in South Asia and Sub-Saharan Africa*. New Delhi: Sage Publications (pp 190-220).
5. Rege, S. 1998. "Dalit Women Talk Differently: A Critique of 'Difference' and Towards a Dalit Feminist Standpoint Position." *Economic and Political Weekly*, Vol. 33, No. 44 (Oct.31-Nov. 6, 1998)(pp39-48)
 6. Sherry Ortner. 1974. "Is male to female as nature is to culture?" M.Z. Rosaldo and L. Lamphere (eds.) *Women, culture and society*. Stanford: Stanford University Press (pp 67-87)
 7. Stanley, L. 2002. 'Should Sex Really be Gender or Gender Really be Sex', in S. Jackson and S. Scott (eds.) *Gender: A Sociological Reader*, London: Routledge (pp31-41).
 8. U. Kalpagam. 2000. *The Women's Movement in India Today-New Agendas and Old Problems - Feminist Studies* Vol. 26, No. 3, Autumn, 2000
 9. Uberoi, Patricia "Feminine Identity and National Ethos in Indian Calendar Art" In *Economic and Political Weekly* Vol. 25, No. 17 (Apr. 28,1990), (pp WS 41-48).
 10. Whitehead, A. 1981, "I'm Hungry Mum": The Politics of Domestic Budgeting" in K. Young et al. (eds.) *Of Marriage and the Market: Women's Subordination Internationally and its Lessons*. London: Routledge and Kegan Paul (pp.93-116).

Disaster and Social Crisis

Course Code :	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

1. To create awareness regarding the natural disasters and disaster management.
2. To understand the historical development of India's disaster management policy.
3. To study the social crises and their impacts

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of disaster and identify its emergency and relief system. (K1)
CO2	Classify the types, causes and effects of disaster. (K4)
CO3	Explain the features of social crisis and illustrate its management. (K3)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	3	2	3	3	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	<p>UNIT I: Introduction</p> <p>1.1 Disaster and Social Crisis</p> <p>1.2 Emergence of Study of Disaster Management and Social Crisis</p> <p>1.3 Natural Disasters; Disaster Victims; Disaster Relief System and Responses</p>	07	
2	<p>UNIT II: Types, Causes and Effects of Disasters</p> <p>2.1 Earthquake and Tsunami</p> <p>2.2 Tropical Cyclones</p> <p>2.3 Droughts and Floods</p>	08	

3	<p>UNIT III: Social Crisis and Management</p> <p>3.1 Nature and Types of Social Crisis</p> <p>3.2 Terrorism; Communalism and Casteism</p> <p>3.3 Role of the Government and NGOs in Crisis Management</p>	08	
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Reference:

1. Arick, Auf Der Heide. 2002. *Disaster Response: Preparedness and Co-ordination* Online Book: The Center for Excellence in Disaster Management and Humanitarian Assistance.
2. Goel, S.L. and Ram Kumar J T (ed.). 2001. *Disaster Management*, Deep & Deep, New Delhi.
3. Sinha,Prabhas Chandra (ed). 2006. *Disaster Management Process Law, Policy and Strategy*, SBS, New Delhi.
4. Sinha,Prabhas Chandra (ed). 2006. *Disaster Relief Rehabilitation and Emergency humanitarian Assistance*, SBS, New Delhi.
5. Sinha, Prabhas Chandra (ed). 2006. *Disaster Mitigation Preparedness Recovery and Response*, SBS, New Delhi.

Sociology of Consumer Behaviour

- Students will be able to recall the external factors influencing consumer behaviour
- Students will be able to compare and contrast the decision making process for an existing new product.

Course Code :	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

To enlighten with the introductory knowledge of Sociology of Consumer Behaviour

To explain the causes and kinds of consumer behaviour

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the basic concepts of consumer behaviours and its importance. (K1)
CO2	Describe the factors influences the consumer behaviour. (K5)
CO3	Analyze the different types of buying behavior and decision process. (K4)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PS O	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO2	3	3	2	2	2	3	2	2	2	3	3	3	3	3	2
CO3	3	3	3	2	2	3	2	3	2	3	3	3	2	3	2

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	Unit-1 Introduction 1,1 Meaning of Consumer Behaviour 1.2 Scope – Psychological, Social, Cultural and Economic Aspects 1.3 Importance of Consumer Behaviour 1.4 Buyer- Seller- Consumer	08	CO1
2	Unit-2 Factors Influencing Consumer Behaviour	08	CO2

	1.1 Situational Factors- Time, Environment and Credit and Debit 2.2 Social Factors- Family, Reference group, Culture and social Class		
3	Unit-III Consumer Buying-Decision Process 3.1 Buying- Decision for Existing Product- 5 Steps 3.2 Types of Buying Behaviour- Complex, Dissonance Reducing, Habitual and Variety Seeking	08	CO3

TEXTBOOKS:

- 1 Consumer Behaviour., Barra and Kazmi., Excel Books., New Delhi., 2004
- 2 Marketing., 13th Edition., Etzel, Walker and Stamina., Tata-McGraw Hill ., New Delhi., 2004

Course Title: CORE II: ECONOMICS FOR FINANCE

Course Code : 45102	Credits : 4
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to obtain practical knowledge and analytical framework of economics, elucidate the concept of national income, its related concepts and its determination, examine the fiscal role of government, the rationale behind government's intervention and application of fiscal policy, emanate the role of money in the financial system and describe the impact of exchange rate in the domestic economy.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Articulate the concept of National Income and Identify the challenges in National Income computation.
CO2	Examine the functional framework & various instruments of fiscal policy & application of fiscal policy tools and understand the role of government in an economic system
CO3	Define money and describe the different determinants of money demand and supply
CO4	Define monetary policy and its objectives and elucidate different components of monetary policy framework, the operating procedures and instruments of monetary policy
CO5	Understand the concept of exchange rate, analyze the difference between nominal and real exchange rate and describe the impact of exchange rate fluctuation on domestic economy

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	2	3	1	2	1	1	1	2	3	2	1	3
CO2	3	3	2	2	1	2	1	1	3	3	3	2
CO3	2	2	2	1	1	2	1	3	3	2	1	-
CO4	1	3	2	1	1	2	1	-	3	2	2	1
CO5	2	2	2	1	1	2	2	3	3	3	2	3

MODULE	CONTENTS OF MODULE	Hours	COs
I	<p>National Income – Definition, Usefulness and significance, Different concepts of National Income: GDP - Real Vs. Nominal GDP, Gross National product (GNP), Net Domestic Product (NDP), Net National product (NNP), Per capita Income, Personal Income (PI), Disposable Personal Income (DI) - Circular flow of Income (2,3,4 sector model) - Methods of National Income calculation: Product/Value added method, Expenditure method, Income method – Limitations and Challenges of National Income calculation.</p>	20	CO1
II	<p>Public Finance – Role of Government in an economic system – Functional framework – Allocation, Redistribution and stabilization function - Fiscal policy: Objectives, Automatic stabilizer Vs. Discretionary Fiscal Policy, Instruments of Fiscal Policy, Types of fiscal policy, Fiscal policy for long-run economic growth, Limitations of fiscal policy – Crowding effect.</p>	15	CO2
III	<p>Money Market - Concept of money, Characteristics of money, Functions of money, Demand for money, Theories of demand for money – Quantity theory of money (Classical approach), Neo-classical approach, Keynesian theory of demand for money-Behavior toward Risk.</p> <p>Money market – Money supply, Definition, Sources of Money Supply, Measurement of money supply, Determinants of money supply – Money multiplier concept – Determinants of Interest Rate: Concept - Money Multiplier approach to supply of money.</p>	20	CO3
IV	<p>Monetary Policy – Definition, Framework, Objectives, Operating procedures and instrumentation (implementation) – Direct instruments: Cash Reserve Ratio (CRR), Statutory Liquidity Ratio (SLR), Direct Credit - Indirect instruments: Repos, Open market operation, Standing facilities - Monetary Policy Committee – Inflation, Deflation And Reflation: Definition, Types, Causes and effects of inflation on different sectors of the economy, Measures to control inflation.</p>	20	CO4
V	<p>Exchange Rate and its Economic Effects - Foreign Exchange: Meaning - Exchange Rate, Exchange Rate Regimes, Advantages – Nominal Vs. Real Exchange rates, Determination of Nominal Exchange rate – Changes in Exchange rate – Devaluation – Revaluation – Depreciation – Appreciation – Impact of exchange rate fluctuation on domestic economy.</p>	15	CO5

TEXT BOOKS:

1. Muniraju. M., & Podder, S.K. (2014). *Macroeconomics for Business Decisions* Mumbai, India: Himalaya Publishing House.
2. Mithani, D.M. (2019). *Macro Economics*. Mumbai, India: Himalaya Publishing House.

REFERENCE BOOKS:

1. Ahuja. H.L. (2019). *Macro Economics*. New Delhi, India: S. Chand & Sons.
2. Girija, M., Cauvery, R., Sudha Nayak, U.K., & Meenakshi, R. (2018). *Macro Economics*. New Delhi, India: S. Chand & Sons.
3. Sankaran, S. (2019). *Macro Economics*. Chennai, India: Margham Publications
4. Jingham M. L. (2016.) *Macro Economic Theory*. New Delhi, India: Vikas Publishing House

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. www.learn-economics.co.uk
2. www.bookboon.com
3. <http://www2.econ.iastate.edu/tesfatsi/sources.htm>
4. <https://learn.mru.org>
5. www.tutor2u.net

Course Title: NME PAPER I: INTRODUCTION TO SUPPLY CHAIN MANAGEMENT

Course Code : 45103	Credits 2
L:T:P:S : 2:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able to develop a sound understanding of the important role of supply chain management in today's business environment, the current trends, tools & equipment and kindle an interest to choose SCM as a career option.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Outline the key concepts relating supply chain management and logistics management
CO2	Identify the main drivers of supply chain performance and explain their role in supply chain
CO3	Recommend the best mode of transportation under various situation and determine the various factors affecting transportation
CO4	Explain the role of warehouse and the various types of warehouses
CO5	Determine the importance of material handling and list out the various tools and equipment used for material handling & Summarize the role of information technology in SCM

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	-	1	1	2	3	-	2	2	-	2	2	2
CO2	-	2	2	2	3	2	2	1	1	1	3	3
CO3	-	3	3	3	3	2	2	2	1	3	2	2
CO4	-	2	3	3	3	2	2	1	-	2	3	2

CO5	-	2	3	3	3	3	3	3	3	3	2	3
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MODULE	CONTENTS OF MODULE	Hours	COs
I	Supply Chain Management – Introduction, Definition, Objectives, Importance, Functions – SCM as a profession - SCM Vs Logistics	6	CO1
II	Key concepts in SCM - Enablers of supply chain performance - Linking supply chain and business performance – Supply Chain Performance Measures.	6	CO1 CO2
III	Transportation selection – Modes of transportation – Modes of Distribution – Factors affecting network effectiveness – Indian Transport Infrastructure	6	CO3
IV	Value information and Order Management - Distribution Requirement Planning - Just-In-Time system - Warehousing and materials Handling Management - Automated Warehousing System	6	CO4 CO5
V	Information Technology in SCM – Web-based supply chain – E-business and SCM – Benchmarking	6	CO5

TEXT BOOKS:

1. Shah, J. (2016). *Supply Chain Management – Text and cases*. New Delhi, India: Pearson India Education Services.
2. Chopra, S. & Meindl, P. (2019). *Supply Chain Management-Strategy Planning and Operation*. Noida, India: PHI Learning

REFERENCE BOOKS:

1. Natarajan, L. (2018). *Logistics and Supply Chain Management*. Chennai, India: Margham Publications

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. <https://www.inboundlogistics.com/cms/index.php>
2. <https://supplychaindigital.com/>
3. <https://www.supplychainbrain.com/>

4. <https://www.scmr.com/>
5. <https://www.logisticsmgmt.com/>

Course Title: CORE IV- MANAGEMENT CONCEPTS & ORGANIZATIONAL BEHAVIOUR

Course Code : 45205	Credits : 4
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to understand the conceptual framework of management and organizational behaviour.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Define the skills that a manager is expected to possess
CO2	Restate the essentials of planning in management and sketching the organizational structure adopted in any organization
CO3	Analyze the role of recruitment, selection and training and articulate the managerial aspects of controlling and coordinating
CO4	Analyze the organizational and individual behaviour
CO5	Understand & evaluate the importance of leadership skills and motivational needs

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	2	2	3	3	3	1	2	3	2	3	3	3
CO2	3	2	2	2	3	1	2	3	3	3	3	2
CO3	3	2	2	3	3	2	3	3	1	2	2	1
CO4	2	1	1	1	2	2	3	2	3	3	3	2
CO5	3	1	1	2	3	2	3	3	1	3	1	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction - Management: Meaning – Definition - Nature and Scope of Management – Management both Science and Art – Levels of Management – Role and Skills expected of a Manager- Business enterprise- different forms of business- Sole proprietorship- One Person Company, Joint Hindu Family Firm, Partnership firm, Joint Stock Company, Cooperative society; Limited Liability Partnership- Choice of form of Organization - Basic consideration in setting up of enterprise	25	CO1
II	The Process of Management: Management by Objectives (MBO) Planning; Decision-making; Strategy Formulation. Organizing: Basic Considerations; Organization Structure, Departmentation – Functional, Project, Matrix and Network; Delegation and Decentralization of Authority	20	CO2
III	Staffing: Recruitment: Meaning & Sources, Selection, Stages – Interview: Types – Training: Process and Methods of Training – Direction: Meaning, Importance, Principles Controlling: Meaning, Definitions, Nature, Characteristics, Benefits of Control, Importance, Problems – Management By Exception (MBE) - SWOT Analysis – Management Information Systems (MIS) - Coordination: Meaning, Definition, Nature, Importance, Problems - Principles of Coordination – Techniques of Coordination	20	CO3
IV	Introduction to Organizational Behaviour: Introduction to Organization - Organizational behavior - OB Concepts - OB Model - Introduction to Individual Behavior - Motivation at work - Dynamics of group behaviour - Individual & organizational factors to stress - Prevention & Management of stress.	10	CO4
V	Leadership: Concept and Styles; Trait and Situational Theory of Leadership-Motivation: Concept and Importance – Maslow Need Hierarchy Theory - Herzberg Two Factors Theory - McGregor and Ouchi theory - Control: Concept and Process - Communication: Process and Barriers - Transactional Analysis (TA) - Johari Window - Change Management: Resistance to change and strategies to manage change - Conflict levels, causes and resolution - Functional and Dysfunctional aspects of conflict - Emerging issues in management	15	CO5

TEXT BOOK:

1. Gupta, C.B.(2017). *Management Theory & Practice*, NewDelhi, India: Sultan Chand & Sons.

2. Gupta, C.B. (2014). *A Textbook on Organizational behaviour*. New Delhi, India: S. Chand Publications.
3. Natarajan, K & Ganesan, K.P. (2020). *Principles of Management*. Mumbai, India: Himalaya Publishing House.

REFERENCE BOOKS:

1. Gupta, C.B. (2014). *A Textbook on Organizational behaviour*. New Delhi, India: S. Chand Publications.
2. Viswanthan, R. (2018). *Principles of Management – Concepts & Cases*. Mumbai, India: Himalaya Publishing House.
3. McShane, S. L. & Glinow, M. A. V. (2019). *Organizational Behavior*. New York, United States of America: McGraw-Hill Education,

Note: Latest Edition of the reading to be used.

Course Title: NME II - E-COMMERCE

Course Code : 45206	Credits : 2
L:T:P:S : 2:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to improve his knowledge on the concept of e-commerce, its applications and development and the challenges faced while entering into/managing an e-business.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Develop an in-depth knowledge about the concept of E-Commerce and list out the benefits and limitations of the same.
CO2	Understand the application of various E-Commerce applications like E-Marketing, E-Shopping, E- Advertising
CO3	Gain an insight on the role played by Electronic Data Inter-change in the modern world
CO4	Maximize the usage of electronic payment systems like payment using credit cards, debit cards, electronic wallets etc.
CO5	Identify and understand the usage of e-marketing techniques

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	2	1	1	1	3	1	1	2	-	3	2	2
CO2	2	1	1	1	3	1	1	1	-	2	2	3
CO3	2	1	3	3	3	3	3	3	1	3	3	3
CO4	2	2	2	3	3	3	2	3	2	3	3	3
CO5	2	2	3	3	3	3	3	3	2	2	3	3

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to E-Commerce: Definition, Classification of E-Commerce: B2B, B2C, C2B, C2C, Benefits, Limitations, Traditional Commerce Vs E-Commerce, Resources required for Successful implementation of E-Commerce, Threats to E-Commerce Transactions, Disputes.	6	CO1
II	E-Commerce Applications: Entertainment – E-Marketing – E-Advertising and its techniques: Banners, Sponsorships, Portals, Online Coupons - Online Trading – E-Shopping – Mobile Commerce: Advantages, Problems and Future of M-Commerce.	6	CO2
III	Electronic Data Interchange (EDI): Applications – Security and Privacy Issues – Software Implementations – Value Added Networks – Internal Information System – Work-flow Automation and Coordination – Customization – Supply Chain Management	6	CO3
IV	Electronic Payments Systems: Electronic Payment System: Special features required in payment system for e-commerce, Types of e-payment System: E-cash & currency servers, e- cheques, credit cards, smart cards, electronic purses & debit cards - Advantages - Issues of EPS.	6	CO4
V	E-Marketing Techniques: Search Engines, Directories, Registrations, Solicited targeted E-mails, Interactive sites, Banners, Advertising, Spam Mails, E-mail, Chainletters. Applications of 5P's (Product, Price, Place, Promotion, People)	6	CO5

TEXT BOOKS:

1. Dr. Abirami Devi. K & Dr. Alagammai, M. (2019). *E-Commerce*. Chennai, Tamil Nadu, India: Margham Publications.
2. Dr. Raydu, C.S (2018). *E-Commerce & E-Business*. Mumbai, India: Himalaya Publishing House.

REFERENCE BOOKS:

1. Dr. Arora, S. (2020). *E-Commerce*, Chennai, Tamil Nadu, India: Taxmann Publications.
2. Dr. Pandey U.S & Saurabh, S. (2014). *E-Commerce and Mobile Commerce Technologies*. New Delhi, India: Sultan Chand & Sons Private Limited.
3. Bansal, R. Bansal, S. & Bansal, S. (2016). *E-Commerce*. New Delhi, India: Kalyani Publications.
4. Murthy, C.S.V. (2019). *E-Commerce (Concepts, Models, Strategies)*. Mumbai, India: Himalaya Publishing House

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. <https://irp-cdn.multiscreensite.com/1c74f035/files/uploaded/introduction-to-e-commerce.pdf>.
2. <https://saif4u.webs.com/E-ommerce-Notes.pdf>
3. https://backup.pondiuni.edu.in/storage/dde/dde_ug_pg_books/E-%20Commerce.pdf.

Course Title: CORE VI - BUSINESS LAW

Course Code : 45308	Credits : 4
L:T:P:S : 5:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to gain knowledge on the legal framework in which a business is expected to function

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the basic requirements of the Indian contract Act, 1872
CO2	Illustrate how parties can discharge their contract by agreement.
CO3	Understand the general principles and the nature of obligations underlying Contracts of Indemnity & Guarantee and bailment & pledge.
CO4	Point out transactions involving Sale of Goods Act, 1930
CO5	Categorize and understand the various nuances of Intellectual Property Rights and Competition Law in India

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	1	2	3	2	2	1	1	1	1	1	3	1
CO2	1	1	3	2	1	1	1	-	1	1	2	1
CO3	1	1	1	1	1	1	1	1	-	1	1	1
CO4	1	1	3	1	2	1	1	1	2	2	3	1
CO5	1	2	3	2	1	1	1	3	-	1	3	-

MODULE	CONTENTS OF MODULE	Hours	COs
I	<p>Indian Contract Act, 1872 - Essentials of a Contract and Concepts</p> <p>Contract & Agreement: Definition, Meaning, Characteristics – Classification of contracts - Essentials of valid contract - Offer and essentials of valid offers – Acceptance and essentials of Acceptance - Communication of Offer and Acceptance - Revocation of Offer and Acceptance – Consideration - Essentials of Consideration – Stranger to contract – No Consideration no Contract - Contractual Capacity Effects of Minors - Persons of Unsound mind - Persons disqualified from contracting by any other law</p>	20	CO1
II	<p>Indian Contract Act, 1872- Essentials, Performance, Discharge and Breach of Contract</p> <p>Free Consent - Coercion - Undue Influence - Fraud - Misrepresentation – Mistake - Legality of Object - Performance of Contract - Discharge of Contract, By Agreement, By Operation of law, By Breach, By Performance, By Impossibility, By Lapse of time-Breach of Contract-Remedies for Breach of Contract-Quasi Contracts.</p>	15	CO2
III	<p>Indemnity, and Guarantee, Bailment and Pledge</p> <p>Indemnity - Right of indemnity holder when sued and Right of indemnifier - Time of Commencement of indemnifier's liability - Guarantee - Essential features - Kinds of Guarantee - Bailment – Requisites of bailment-Classification–Duties and Rights of Bailor and Bailee - Pledge - Rights and Duties of Pledger and Pledgee – Pledge by Non-Owners-Law of Agency-Lien-Rights relating to Lien - Hypothecation - Charge - Mortgage</p>	10	CO3
IV	<p>Sale of Goods Act, 1930</p> <p>Sale and Agreement to Sell – Meaning - Distinction - Essentials of a contract of sale - Hire Purchase – Pledge – Mortgage – Hypothecation – Lease – Goods: Classification of Goods, Passing of Property in Goods - Conditions and Warranties, Distinction, Express and implied conditions & warranties - Doctrine of Caveat emptor - Transfer of ownership in goods including sale by non-owners - Rights of an unpaid Seller, Buyer's right, Seller's right – Remedies for breach of contract of sale – Auction sale</p>	15	CO4

V	Competition Law, 2002 and Intellectual Property Act Concept of Competition - Need & Importance of Competition Law - Features - Anti Competitive Agreements – Abuse of dominant position – Combinations – CCI (Competition Commission of India) Intellectual Property – Meaning, Types, Overview of Law governing IPR for Copyrights, Trademarks, Patents and Geographical Indications	15	CO5
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TEXT BOOKS:

1. Kapoor, N.D. (2020). *Elements of Merchantile Law*. New Delhi. India: Sultan Chand and Sons
2. Sreenivasan, M.R. (2020). *Business Law*. Chennai, India: Margham Publications.
3. Kuchcal, M.C. (2018). *Mercantile Law*, New Delhi. India: Vikas Publishing House Pvt. Ltd.

REFERENCE BOOKS

1. Arora, S. (2021). *Business Law*, New Delhi. India: Taxman Publications.
2. Dhingra, J. (2019). *Business Law*, New Delhi. India: Kalyani Publishers.
3. Bose, D.C. (2019). *Business Law*, New Delhi. India: PHI Learning Pvt. Ltd.
4. Charantimath, N.A. (2017). *Business Law*. Mumbai, India: Himalaya Publishing House.

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. <https://www.icaai.org>
2. <https://www.icsi.in>
3. www.cramerz.comwww.digitalbusinesslawgroup.com
4. <http://swcu.libguides.com/buslaw>
5. <http://libguides.slu.edu/businesslaw>
6. www.cramerz.com
7. www.digitalbusinesslawgroup.com
8. <http://swcu.libguides.com/buslaw>

Course Title: CORE VII: BANKING THEORY AND PRACTICE

Course Code : 45309	Credits : 4
L:T:P:S : 5:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to get an overview of Indian Banking system, gain knowledge on the technological concepts prevalent in the banking industry, be acquainted with the services under retail and wholesale banking, and be familiarized with negotiable instruments,

Course Outcomes: At the end of the course, the student will be able to:

CO1	Explain the conceptual framework of banking and the role of RBI
CO2	Recall and understand the various functions of commercial banks and its loan system
CO3	Develop the knowledge on various aspects of retail banking and customer grievances and redressal
CO4	Understand the various services provided by banks under wholesale banking
CO5	Know the laws governing the banks under the Negotiable Instruments Act

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	2	3	1	2	1	1	1	3	3	1	3	1
CO2	2	3	1	1	1	2	1	3	3	1	3	1
CO3	3	2	2	2	1	2	1	3	3	1	3	2
CO4	3	3	2	2	1	2	1	3	3	1	3	2
CO5	3	3	2	2	1	1	1	3	1	1	3	1

MODULE	CONTENTS OF MODULE	Hours	COs
I	<p>Banking in the Indian Context - Banking Regulation Act, 1949: Definition of Banking, Licensing, Opening of branches, Functions of Banks, Inspection - Other Forms of Business Permitted for a Banking Company - Businesses Prohibited for a Banking Company - Maintenance of Liquid Assets - Submission of Monthly Returns - Restrictions on Advances - Role of RBI and their functions - Reserve Banks Powers on Inspection - Reserve Banks Powers to Issue Direction</p> <p>- Reserve Banks Power to Control Advances - Tools of Monetary Control-Regulatory Restrictions on Lending-Current affairs-Money market- Financial Inclusion.</p>	12	CO1
II	<p>Commercial Banks and Financial awareness - Functions of commercial banks - Primary, Secondary and Modern Functions - Loan System - Classification of Loans and Advances -Secured and Unsecured - Guaranteed Advances – Types of Borrowings – Precautions to be taken by a banker-General Principles of Sound – Advances – Advances against Goods - Advances against Documents of Title to Goods - Important Documents of Title to Goods –Credit Information Bureau (India) Limited (CIBIL) - Fair Practices Code for Debt Collection – Banking Codes and Standard Board of India (BCSBI) - Role and Functions of BCSBI - Fair Practices Code for Debt Collection-Codes of BCSBI – Precautions taken by banker.</p>	20	CO2
III	<p>Retail Banking: Retail asset - Secured loans and Unsecured loans - Retail Liabilities: Branch Banking - Savings Bank Accounts, Recurring Deposit or Cumulative Deposit Accounts, Current Accounts - Types of customers (Individuals, Firms, Trusts and Companies) - CASA - Legal Aspects of Entries in the Passbook – Effect of Wrong Entries in favor of the Banker - Effect of False Entry in the Pass Book - Closing of a Bank Account - Importance of customer relations – Customer grievances and redressal - Ombudsman - Know Your Customer (KYC) norms</p>	18	CO3

IV	Wholesale Banking - Financial solutions to corporate - Capital Market - Custody Group - Structured Finance and Portfolio Management Project Finance - Strategic Solutions – Syndication and advisory - Credit Monitoring - Credit Risk Management - Cash management services - Group Style of Credit - Cash Credit System - Commitment Charge - Overdrafts - Loan System - Classification of Loans and Advances - Secured and Unsecured - Guaranteed Advances – Types of Borrowing – IMPS – SWIFT – NEFT - RTGS	15	CO4
V	Negotiable Instruments Act,1881 - Definition of Negotiable Instrument - Characteristics of negotiable instrument - Promissory Note -Definition, Features of Promissory Note - Definition of Bills of Exchange, Features, Types - Bill of Exchange and Promissory Note - Holder and Holder in Due Course-Payment in Due Course – Holder for Value – MICR Cheque - Definitions - Distinguishing Features of Cheque - Crossing, Types of crossing - Endorsement, Types of endorsement – Material Alteration - Paying Banker - Rights and Duties – Statutory Protection - Dishonour of Cheques - Role of collecting banker	10	CO5

TEXT BOOKS:

1. Santhanam, B. (2012) *Banking Theory Law & Practice*. Chennai, Tamil Nadu: Margham Publications.
2. Sundaram, K.P.M & Varshney, P.N. (2014) *Banking Law Theory and Practice*. New Delhi, India: Sultan Chand &Co.
3. Muraleedharan, D. (2014). *Modern Banking Theory and Practice*, New Delhi, India: PHI Learning Pvt. Ltd.

REFERENCE BOOKS:

1. Maheswari, S.N. (2014). *Banking Law Theory and Practice*. New Delhi. Kalyani Publications
2. Gordon,E.&Natarajan,K.(2016).*BankingTheoryLawandPractice*.Mumbai,India:Himalaya Publishing House.
3. Tandon, D & Tandon, N (2015). *Management of Banks*. New Delhi, India: Taxmann Publications.
4. Shekhar, K. C. & Shekhar, L. (2013). *Banking Law Theory and Practice*. New Delhi,India: Vikas Publishing

Note: Latest Edition to be used.

WEB RESOURCES

1. <http://www.lawcommissionofindia.nic.in/>
2. <http://www.rbi.org/>
3. <http://www.bankingombudsman.org/>
4. <http://www.allbankingsolutions.com/Banking-Tutor/Pledge-vs-Hypothecation-vs-Mortgage.htm>
5. <https://indianmoney.com/articles/relationship-between-the-banker-and-customer>

<https://financialservices.gov.in/sites/default/files/Negotiable%20Instruments%20Act1881>

Course Title: CORE VIII: FINANCIAL MANAGEMENT - I

Course Code : 45310	Credits : 4
L:T:P:S : 5:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be familiarized with the importance of the finance function and the key business decisions, the various sources of raising funds and its associated costs, gain knowledge on the concept of time value and its applications and the concept of leverage.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Demonstrate an understanding of the overall role and importance of the finance function and gain basic knowledge of financial management.
CO2	Gain an insight on the goals of the finance manager and identify funding sources, instruments and markets.
CO3	Demonstrate knowledge about the value of money over time, its uses and application.
CO4	Identify the firm's business and financial risk and the study the impact of leverage on the expected return, expected EPS and the risk borne by the shareholders through its application.
CO5	Appraise the risk profile of firms, understand the influences of economic and political factors on the cost of various sources of funds, and estimate the specific costs of capital being debt, preference and equity capital and the overall cost of capital, using financial data.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	1	1	2	2	1	1	1	2	1	2	3	2
CO2	1	-	1	1	2	1	1	1	3	2	2	2
CO3	1	2	2	1	1	1	1	1	3	2	1	1
CO4	1	1	3	3	1	2	1	1	1	3	2	2
CO5	1	1	2	2	1	1	1	1	1	3	2	1

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to Financial Management: Financial Management – Meaning & Significance - Key Decision Areas in Financial Management - Objectives and goals of Financial Management - Factors affecting Financial Decisions - Key activities of Finance Manager - Agency Problem - Basics of Risk and Return	15	CO1
II	Sources of Finance: Short term - Money markets instruments – T-bills, Commercial paper, Certificate of deposit, Factoring, Trade credit, Letter of credit, Repurchase agreements Medium term - Leasing, Hire purchasing, External commercial borrowings. Long term - Gilt-edged securities, Equity shares, Hybrid financing instruments, Preference shares, Terms loans, Debentures, Bonds, Venture capital, Retained earnings, Public Deposits, ADR, GDR	5	CO2
III	Time Value of Money: Concept of Time value of Money - Process of Compounding and Discounting – Simple problems on Future Value of a Single amount, Future Value of an Annuity, Present Value of a Single Amount, Present Value of an Annuity (using time value tables only) – Applications – Effective Interest Rate (EIR)	15	CO3
IV	Leverages - Concept of Business and Financial Risk, Operating Leverage, Financial Leverage, Combined Leverage - EBIT-EPS Analysis - Indifference Point of EBIT	20	CO4
V	Cost of capital – Concept, Measurement & Significance – Cost of Equity – Cost of Preference Capital – Cost of Debt – Cost of Retained Earnings - Weighted Average (or) Composite Cost of Capital (WACC)	20	CO5

PROPORTION OF THEORY WILL BE 40% AND PRACTICAL 60%

TEXT BOOKS:

1. Khan, M. Y. & Jain, P. K. (2018). *Financial Management*. New Delhi. McGraw Hill (India) Pvt. Ltd.
2. Pandey I. M. (2021). *Financial Management*, Noida, New Delhi, India: Pearson India Education Services
3. Kishore, R. M. (2020). *Financial Management*. New Delhi, India: Taxmann Publications

REFERENCE BOOKS

1. Murthy, A. (2020). *Financial Management*. Chennai, India: Margham Publications
2. Tulsian, P.C. &Tulsian, B. (2017). *Financial Management – A Self-study Text Book*. New Delhi, India: S. Chand Publishing
3. Chandra, P. (2020). *Fundamentals of Financial Management*. Noida, New Delhi, India: McGrawHill (India) Pvt. Ltd.
4. Rustagi, R.P. (2018). *Financial Management*. New Delhi, India: Taxmann Publications
5. Singhal, A. (2019). *Fundamentals of Financial Management*. New Delhi, India: S. Chand Publishing.

Note: Latest Edition of the reading to be used.

Course Title: CORE X - FINANCIAL MANAGEMENT - II

Course Code : 45412

Credits

4

L:T:P:S : 5:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be understand the impact of capital structure decisions and dividend policy on firm value and gain an in-depth understanding of management tools and techniques used in investment decisions of corporate organizations.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the factors that influence capital structure decisions of a business organization and their impact on the market value of the firm
CO2	Understand the importance and application of the various techniques of capital budgeting for the evaluation of long term projects, their pros and cons and the basis of selection criteria of projects.
CO3	Understand the concept and importance of working capital, factors determining its quantum and its computation, and meaning & determination of operating cycle
CO4	Explain the key strategies & techniques used for managing cash, the determination of the best collection period for accounts receivables & techniques for effective management of inventory.
CO5	Understand the concept of dividend & justify the dividend strategies that support wealth maximization.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	1	1	2	1	1	1	1	2	1	2	2	2
CO2	2	1	3	3	2	1	1	1	3	2	3	1
CO3	2	2	3	3	2	1	1	2	2	2	2	1
CO4	1	2	3	3	2	1	1	1	1	3	2	1
CO5	1	-	1	1	-	1	1	2	1	2	3	1

MODULE	CONTENTS OF MODULE	Hours	COs
I	Capital Structure: Capital structures planning, Factors affecting Capital Structure, Determining Debt and equity proportion – Theories of Capital Structure: Net Income Approach, Net operating income Approach, Traditional Approach, Modigliani - Miller Approach	10	CO1
II	Basics of Capital Budgeting - Cash flow estimation, Investment criteria – Discounted and non-discounted techniques - Net Present Value, Internal Rate of Return, Profitability Index, Payback, Discounted Payback, Accounting Rate of Return (Simple problems)	15	CO2
III	Working Capital Management Policy: Working Capital – Concept, Definition, Need, Planning of working capital – Permanent & Temporary - Operating cycle analysis - Determinants of working capital, Financing of working capital – Computation of Working Capital	15	CO3
IV	Management of Cash, Receivables & Inventory Managing the components of working capital - inventory, receivables and cash – Cash Management – Introduction, Meaning & Importance – Preparation of Cash Budget – Receivables Management – Introduction, Evaluation of credit policy – Inventory Management – Importance, Inventory Management Techniques – EOQ, ABC System, JIT	20	CO4
V	Dividend Policy: Dividend – Concept, Types - Factors affecting dividend payment – Forms of dividend – Dividend Models - Walter’s Model, Gordon’s Model, Modigliani & Miller’s Model	15	CO5

PROPORTION OF THEORY WILL BE 20% AND PRACTICAL 80%

TEXT BOOKS:

1. Khan, M.Y. & Jain, P.K.(2018). *Financial Management*. New Delhi. McGrawHill (India) Pvt. Ltd.
2. Pandey I.M. (2021). *Financial Management*, Noida, New Delhi, India: Pearson India Education Services
3. Kishore, R. M. (2020). *Financial Management*. New Delhi, India: Taxman Publications

REFERENCE BOOKS

1. Murthy, A. (2020). *Financial Management*. Chennai, India: Margham Publications
2. Tulsian, P.C. &Tulsian, B. (2017). *Financial Management – A Self-study Text Book*. New Delhi, India: S. Chand Publishing
3. Chandra, P. (2020). *Fundamentals of Financial Management*. Noida, New Delhi, India: McGraw Hill (India) Pvt. Ltd.
4. Rustagi, R.P. (2018). *Financial Management*. New Delhi, India: Taxman Publications
5. Singhal, A. (2019). *Fundamentals of Financial Management*. New Delhi, India: S. Chand Publishing.

Note: Latest Edition to be used.

Course Title: CORE XII - BUSINESS COMMUNICATION

Course Code : 45414	Credits : 4
L:T:P:S : 5:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to improve his verbal and written communication and presentation skills and train and prepare for placements.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Apply communication tools, strategies, and principles to make communication more effective
CO2	Develop an understanding about appropriate verbal skills of communication and presentation skills
CO3	Prepare various forms of business letters, reports, business proposals and forms of internal communication tools
CO4	Explain and illustrate the various interpersonal communication including etiquette and netiquette
CO5	Groom and prepare themselves for placements through various stages

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	3	3	1	2	2	2	3	2	1	3	2	1
CO2	3	3	1	2	2	2	2	2	1	3	2	1
CO3	3	2	1	2	2	1	2	2	1	2	1	1
CO4	3	1	1	2	3	1	2	3	2	1	2	1
CO5	3	1	1	2	3	1	2	3	1	1	2	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to communication: Importance of Business Communication- Types and Effectiveness - Seven Cs of Communication. Using technology to improve business communication - Cross-cultural communication and their challenges in a global field – Technical writing – Executive Summary/Abstract Writing	12	CO1
II	Verbal Communication Effective Public Speaking - Body Language - When, What, How, To Whom to Speak - Presentation skills - Delivering the business presentation using visual aids, Handouts - Glossophobia and Low confidence - Mastering listening skills - Conversational Skills - Criss-Cross communication: upward, downward, lateral, formal, informal, grapevine.	20	CO2
III	Business Correspondence (Written) Guidelines to business communication - Formal & informal Writing - Tools of Business writing - Business Letter, Claims & Response to Claims (Accept, Reject, Partially Accept) – Report writing - Business Proposals - Circular, Notice, Memorandum.	18	CO3
IV	Interpersonal Communication Netiquette (email & online), Telephone Etiquette, Social Etiquette, Dress Etiquette (Corporate Dressing) - Effective Team Communication - Team building, Team spirit – Time management - Agenda, Minutes of meetings – Podcasts – Feedback - Importance of Feedback, Kinds: No Feedback, Positive, Negative, Specific feedback, Constructive Criticism.	17	CO4
V	Placement Grooming Cover Letter, Resume Writing, Pre-Placement Talk, Tests: Aptitude, Technical. Group Discussions, Personal Interview.	8	CO5

TEXT BOOKS:

1. Nawal, M. (2020). *Business Communication*. New Delhi, India: Cengage
2. Rath, P., Shalini, K. & Ray, D. (2018). *Corporate Communication*. New Delhi, India: Cengage
3. Gupta, C.B. (2019). *Essential Business Communication*. New Delhi, India: Cengage
4. Rajendra Pal & Korlahalli J.S. (2015). *Essentials of Business Communication*. New Delhi, India: Sultan Chand & Sons.
5. Taylor, S. (2005). *Communication for Business*. New Delhi, India: Pearson India Education Services.

REFERENCE BOOKS

1. Jain,N. & Mukherji,S. (2020). *Effective Business Communication*. New Delhi, India: McGraw Hill India Pvt. Ltd.
2. Mohan, K. Mohan, R.C. & Nirban, V.S. (2020). *Business Correspondence & Report Writing*. New Delhi, India: McGraw Hill India Pvt. Ltd.
3. Rai, U. & Rai, S.M. (2019). *Business Communication*. Mumbai, India: Himalaya Publishing Pvt. Ltd.
4. Bovee, C.L., Thill, J.V. & Raina, R.L. (2018). *Business Communication Today*. New Delhi, Pearson India Education Services

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. www.businesscommunication.org

SEMESTER V

Course Title: CORE XIII - **BASICS OF COST ACCOUNTING**

Course Code : 45515	Credits	4
L:T:P:S : 6:0:0:0	CIA Marks	: 50
Exam Hours : 03	ESE Marks	: 50

Learning Objectives:

On taking this course the student will be able to possess in-depth knowledge about the basic cost concepts and its objectives, apply cost control and reduction techniques in practical, determine stock levels for efficient materials management, compute labour costs, analyze the implication of overheads and their effective apportionment, prepare the cost ledger and reconcile the cost and financial statements.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Demonstrate the basic concept of cost and cost accounting and how to compute the cost of a product by preparing a cost sheet and quotation for a production industry.
CO2	Discover the need for fixing stock levels for production and its computation. Prepare stores ledger to value of closing stock and the cost of goods sold or sent for production
CO3	Understand the different wage payment systems and their computation, the concept of labour cost and labour turnover and their computation
CO4	Develop knowledge regarding overheads and the concept of allocation and apportionment of overheads to various departments on a suitable basis.
CO5	Create cost ledger and identify the reasons for disagreement of profit and prepare the reconciliation statement

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	1	2	3	3	2	2	2	3	2	3	2	2
CO2	2	2	2	3	1	3	1	2	2	1	2	1
CO3	3	3	2	3	2	2	1	2	2	2	1	1
CO4	2	2	3	3	1	1	1	2	3	3	2	1
CO5	-	1	3	3	1	2	1	2	1	3	2	1

MODULE	CONTENTS OF MODULE	Hours	COs
I	CAS-1: Meaning, nature and scope of Cost Accounting, Cost analysis, Concepts and Classifications, Differences between Cost and Management accounting, Cost and Financial accounting, Cost control and Cost reduction: Meaning, Importance and Distinction- Techniques of cost control – Cost Sheet: Purpose, Preparation of cost sheet, tender and quotation	20	CO1
II	CAS-6: Material purchase control: Level, aspects, need and essentials of material control - Stock level determination - Maximum, Minimum, Reorder, Danger and Average - Stores control - Stores Department, EOQ, Stores records, ABC analysis, VED analysis - Material costing: Issue of materials: FIFO, LIFO, Weighted Average Method – Other methods: HIFO, Simple Average Method, Market price, Base stock method and Standard Price method	20	CO2
III	CAS-7: Labour: Essentials of a good wage system, Methods of Wage Payment: Time Rate, Piece Rate, Taylor, Halsey and Rowan - Different types of Bonus plan: Gantt’s task and bonus plan, Merricks multiple piece rate system - Causes of Labour Turnover, Methods of calculating labour turnover: Separation method, Replacement and Flux method - Methods of reducing labour turnover	20	CO3
IV	CAS-3: Overheads: Meaning and Definition, Importance of overhead costs, Classification of overhead costs, Codification of overheads – Departmentalisation of overheads – Methods of apportionment of overheads: Primary and Secondary apportionment – Under-absorption and over-absorption of overheads - Machine hour rate: Meaning, Importance and Computation	15	CO4
V	Preparation of cost ledger – Integral & Non-Integral Accounts - Reconciliation of Cost and Financial Accounts	15	CO5

PROPORTION OF THEORY WILL BE 20% AND PRACTICAL 80%

TEXT BOOK:

1. Khan, M.Y. & Jain, P.K. (2017). *Cost Accounting*. New Delhi, India: McGraw Hill (India) Pvt. Ltd.
2. Maheswari, S.N. & Mittal, S.N (2021). *Cost Accounting Principles and Practice*. New Delhi, India: Shree Mahavir Book Depot
3. Lal, J. & Srivastava, S. (2020). *Cost Accounting*. New Delhi, India: McGraw Hill (India)Pvt. Ltd

REFERENCE BOOKS:

1. Reddy, T.S. & Hariprasad Reddy, Y.T. (2020). *Cost Accounting*, Chennai, India: Margham Publications
2. Jain, S.P & Narang, K. L. (2019). *Cost Accounting*. New Delhi, India: Kalyani Publications
3. Singh, M. & Chauhan, M. (2020). *Cost Accounting*. Mumbai, India: Himalaya Publishing House.
4. Dr. Gupta, S., Dr. Reeta & Dr. Rao, R.P. (2020). *Cost Accounting*. New Delhi: India: Sultan Chand & Sons

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. www.cost-accounting-info.com
2. www.introtocost.info
3. <https://fasab.gov/resources/managerial-cost-accounting-resources>

Course Title: CORE XIV- INCOME TAX LAW AND PRACTICE - I

Course Code : 45516	Credits : 4
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be introduced to the basic concepts of income tax and its provisions and its application under various heads of income

Course Outcomes: At the end of the course, the student will be able to:

CO1	Examine the basic concepts of relating to rate of tax liability and understand the basic concepts of income tax, total income and the different heads of income
CO2	Apply and practice the computation of salary income
CO3	Compute the gross annual value of house property and its computation under different circumstances.
CO4	Define the allowable and non-allowable expenses and provisions relating to income from business & profession
CO5	Define income tax authorities and their role and understand the different forms of assessment

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	3	2	1	2	1	2	2	2	1	3	3	1
CO2	3	2	2	3	3	2	3	1	1	2	3	1
CO3	2	1	2	3	2	1	2	1	2	3	2	1
CO4	3	3	3	3	3	1	2	2	3	2	1	3
CO5	3	3	1	1	3	1	2	1	1	1	3	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	Definitions – Income; Person; Assessment year; Previous year; Assesses; Residential Status – of individual, HUF, Firm & Company, scope of Total Income and Incidence of Tax; Agricultural Income - Computation of Agricultural Income - Exempted Incomes – Concept of GTI and Taxable Income	12	CO1
II	Income from Salaries - Definition - Basis of charge - Types of allowances – allowances exempt from tax, special allowances, allowances partially exempted - Perquisites when taxable & not taxable and their valuation for tax purposes - Provident Fund - Recognized Provident fund, Statutory Provident fund, PPF - Gratuity - Pension - Commuted, Uncommuted - Leave Salary - Deduction from Salary Income	33	CO2
III	Income from House property - Basis of charge - Self-occupied Property - Annual value – Deemed to be let-out – Let-out – Treatment for Unrealized Rent and Vacancy Loss – Annual Value - Gross Annual value, Net Annual value - Deductions u/s 24 from House property Income	20	CO3
IV	Income from business/Profession - Expenses specifically allowed and inadmissible expenses - Provision relating to Depreciation - Block of assets - Deemed Profits & Undisclosed Income - Compulsory maintenance of books of accounts - Professionals – Chartered Accountants, Doctors, Engineers, Advocates - Computation of Income	20	CO4
V	Income Tax Authorities - Power of Assessing officers, Powers of Central Board of Direct taxes - Role and Powers of Income Tax Commissioner - Self-assessment - Best Judgment Assessment - Income Escaping Assessment	5	CO5

PROPORTION OF THEORY WILL BE 20% AND PRACTICAL 80%

TEXT BOOKS:

1. Dr. Singhania, V.K., *Students' Guide to Income Tax*. New Delhi. Taxman Publications
2. Dr. Mehrotra, H.C. & Dr. Goyal, S.P. *Income Tax Law & Accounts*. Agra. Sahitya Bhavan Publications.
3. Gaur, V.P. & Narang, D.B. *Income Tax Law & Practice*. New Delhi. Kalyani Publishers.

4. Reddy, T.S. & Reddy, Y.H. *Income Tax Theory, Law & Practice*, Chennai. Margham Publications.

Course Title: CORE XVI: CUSTOMS AND GOODS & SERVICE TAX

Course Code : 45518	Credits : 4
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able to acquire knowledge on the concept of goods and service tax, its implementation and applications in the current business environment and its registration and payment procedures through the electronic ledger.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the concept of Indirect Tax and Custom Laws and exemption of duties
CO2	Build knowledge on concepts of GST and the implementation of GST in India
CO3	Classify the Goods and services exempted from tax and understand the procedures of registration and collection of tax
CO4	Develop knowledge about Input Tax credit, tax credit in special circumstances and Reverse Charge Mechanism
CO5	Understand the taxability procedures on goods and services, advanced ruling and e-invoice

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	3	2	2	3	1	2	3	2	2	2	3	1
CO2	3	3	2	3	2	2	3	3	2	3	3	2
CO3	3	3	2	3	2	2	3	3	2	3	3	3
CO4	3	3	2	3	2	2	3	3	2	2	3	3
CO5	3	2	2	3	2	2	3	3	2	2	3	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to indirect tax and customs Introduction, Features of indirect tax , Role of indirect taxation, Merits and demerits of indirect tax – Customs law, Basic concepts, Territorial Waters, Types of custom duties, Levy and collection of custom duties, Exemptions from duty	15	CO1
II	Goods and Services Taxes (theory only) Genesis of GST in India, Concepts of GST, Need for GST, Benefits of GST, Framework of GST as introduced in India, Constitutional provisions, GST network. GST Council, GST Registration – Individuals Liable to get Registered – Compulsory Registration – Registration Procedure – GSTN.	15	CO2
III	Place, Time, Value of supply (theory only) Concepts of supply, Classification, Goods and services, Place of supply: within state, interstate, import and export – Time of supply – Valuation, Registration GSTN, Composite and mixed, Goods exempt from tax, List of services exempt from tax, HSN Code – SAC Code.	20	CO3
IV	Input tax credit and reverse charge mechanism Eligible and ineligible input tax credit, Doctrine of Unjust Enrichment, Apportionment of credit and blocked credit, Tax credit in respect of capital goods & special circumstances, Reversal, Reverse Charge Mechanism, Taxability of E-commerce – Taxability of OIDAR - E- way bills	15	CO4
V	Taxation under GST (Theory only) GST Returns – Types of GST Returns – GSTR1 (Outward Supply) – GSTR2 A&B (Inward Supply) – GSTR3B (Consolidated summary Return) – GSTR9 (Annual Return), Anti- profiteering, Payment of tax, Interest, Penalty, Interest on delayed payment of tax, Zero- rated supply	25	CO5

TEXT BOOK:

1. Reddy, T.S. & Murthy, A. (2019). *Business Taxation (Goods & Service Tax-GST)*. Chennai, India: Margham Publishers.
2. Datey V S. & Sachdeva, K. (2018), *Principles of GST and Customs Law*. Chennai, India: Taxmann Publications
3. Saha, R.G., Dr. Shah, D. & Dr. Usha Devi, N. (2020). *GST (Indirect Taxes)*. Mumbai, India: Himalaya Publishing House

REFERENCE BOOK:

1. Dr. Mehrotra, H.C. & Prof. Agarwal, V.P.(2018). *Goods & Service Tax (GST)*. Agra, India: Sahitya Bhavan Publication
2. Bansal, K. M. (2021). *GST & Customs Law*. Chennai, India: Taxmann Publication.
3. Dr. Varadharaj, S. (2019) *Indirect Taxation (GST and Customs)*. Chennai: India. Sri Rudhra Learning.

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. <https://icmai.in/upload/Students/Syllabus2016/Inter/Paper-11-Jan2021.pdf>
2. <https://www.icsi.edu/media/webmodules/Reading%20Material%20Indirect%20Tax.pdf>
3. https://www.researchgate.net/publication/333448381_indirect_tax_GST_book/link/5cee5bb2a6fdcc18c8e9b70f/download

Course Title: ELECTIVE I: (B) CORPORATE DECISION MAKING

Course Code : 45519 (B)	Credits : 5
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able to gain insight into the key aspects of corporate finance, corporate governance, ethics and corporate social responsibility, restructuring methods and ways of raising finance in the international markets

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the various sources & underlying principles of corporate finance and its importance in the corporate world, determine the main constituents and the benefits of corporate governance and the ethical issues in finance and summarize and elaborate the importance of Corporate Social Responsibility in business
CO2	Explain the need and importance of corporate financial planning and determine the factors affecting financial plans
CO3	Outline the various methods of corporate restructuring and financial restructuring and point out their benefits and drawbacks
CO4	Explain the functioning of International Financial Market and gain knowledge about the various financial instruments traded in International Financial Market
CO5	Explain the need and importance of corporate financial planning and determine the factors affecting financial plans

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	-	2	3	3	2	2	1	1	-	2	1	3
CO2	-	3	3	2	2	2	1	2	2	2	1	3
CO3	-	3	2	3	2	2	1	2	3	2	2	3
CO4	-	2	3	3	2	2	1	2	1	2	2	3
CO5	-	3	3	3	2	2	1	3	2	3	3	3

MODULE	CONTENTS OF MODULE	Hours	COs
I	Corporate Finance – Nature, Importance, Objectives of Corporate Finance - Functions of Finance Manager - Shareholder Wealth Maximization - Agency Problems - Corporate Governance: Meaning, Origin, Objectives and Benefits of Corporate governance, Fundamental Pillars of Corporate Governance - Business Ethics, Ethical issues in Finance - Corporate Social Responsibility: Concept, Significance, CSR provisions under the Companies Act 2013 - Social Audit - Ethical Investing	20	CO1
II	Corporate Financial Planning - Meaning, Definition, Objectives, Characteristics, Scope, Factors affecting financial planning, Essentials of a sound financial plan, Importance, Need, Problems in Corporate Financial Planning - Overtrading and Undertrading: Meaning, Causes, Symptoms, Consequences and remedies - Over and Under Capitalization: Meaning, Causes, Consequences & Remedies, Comparison of over and under capitalization.	20	CO2
III	Corporate Restructuring – Meaning, Reasons for corporate restructuring, Types of corporate restructuring: Stock swaps, Merger & its types, Shell company, Acquisitions including Cross-border Acquisitions, Joint venture, Strategic Alliance, Disinvestment, Spin-off, Demerger, Slump sale, Franchising, Takeovers, Divestiture - Anti-takeover strategies: Greenmail, Golden Parachute, White Knight, Poison Pills, Macaroni Defense, Shark repellents, People Poison Pill – Corporate failures	20	CO3
IV	Financial Restructuring - Meaning, Reasons, Components - Stock Split: Meaning, Objectives, Advantages and Disadvantages - Debt Consolidation and Corporate Debt Restructuring (CDR): Meaning, Differences and Similarities - Cancellation of Paid-up Capital - Leveraged Buyouts: Meaning, Characteristics, Types, Advantages and Disadvantages	10	CO4
V	International Finance - Basic concepts of International Money Market – International Currency Markets - International Credit Markets – Foreign Bonds & Eurobonds – Features - FCCBs, FRNs issued by Indian Companies, International Equities: FIIs, FDIs, ADR, GDR	20	CO5

REFERENCE BOOKS:

1. Angelo Corelli. (2018). *Analytical Corporate Finance*. Berlin, Germany: Springer International Publishing
2. Richard, A. B., Stewart, C. M., Franklin, A. & Pitabas, M. (2018). *Principles of Corporate Finance*. New Delhi, India: McGraw-Hill Education.
3. Pilbeam, Keith. (2013). *International Finance*. London, UK: Palgrave Macmillan
4. Shapiro, A.C & Hanouna, P. (2019). *Multinational Financial Management*. New Delhi, India: Wiley India Private Limited
5. Apte, P.G. (2006). *International Financial Management*, New Delhi, India: McGraw Hill (India) Pvt. Ltd.
6. Berk, J. & DeMarzo, P. (2019). *Corporate Finance*. London, UK: Pearson Education
7. Ross, S. A. (2018). *Fundamentals of Corporate Finance*. New York, USA: McGraw-Hill Education
8. Apte, P.G. (2020). *International Financial Management*. New Delhi, India: McGraw Hill (India) Pvt. Ltd

Note: Latest Edition of the Reading to be used.

WEB RESOURCES

1. <https://www.pdfdrive.com/corporate-finance-corporate-finance-theory-and-practice-e158788603.html>
2. <https://www.pdfdrive.com/corporate-finance-principles-practice-e16763353.html>

Course Title: CORE XVIII: COSTING METHODS AND TECHNIQUES

Course Code : 45621	Credits : 4
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to understand the costing procedures in various industries like job, process, contract and service and gain knowledge on the emerging trends in cost management and its applications.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the job costing procedures and determine the economic batch quantity
CO2	Identify the operating costing procedures in various service industries and Apply the operating cost techniques
CO3	Analyze the various industries using a process costing and prepare process accounts
CO4	Understand the contract costing system and ascertain notional profits for various contracts
CO5	Build knowledge regarding new costing techniques and apply those techniques for effective cost management

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	1	2	2	3	-	2	1	2	2	3	2	2
CO2	2	3	3	3	1	2	1	3	2	3	3	2
CO3	1	2	2	3	1	3	2	2	1	2	1	2

CO4	2	2	3	3	1	2	1	3	2	2	1	1
CO5	2	2	1	1	2	1	1	3	2	3	2	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	Job & Batch Costing Job Costing: Meaning, Definition of job, Features, Objectives, Merits & demerits – Job Costing Procedures - Batch Costing: Meaning, Determination of Economic Batch Quantity (EBQ)	15	CO1
II	Operating Costing: Meaning, Application of operating costing method, Operating cost units – Operating costing in Transport, Power Supply, Cinema Theatre, Hospital and Lodging house.	15	CO2
III	Process Costing: Meaning of Process costing, Characteristic features, Types of industries using process costing, Advantages of process costing, Disadvantages of process costing–Difference between process costing & job costing - Important aspects of process costing – Process Losses-Normal, Abnormal loss & gain - Process a/c's involving two or three accounts - Scrap value (Excluding inter-process profits and equivalent production)	20	CO3
IV	Contract costing: Characteristic features of contracts and contract costing, System of contract costing - Recording of costs of a contract – Recording of value and profit on contracts – Profit/loss on contracts - Meaning of Notional profit, Computing notional profit based on different phases of completion-Meaning of escalation clause - Need and Importance	25	CO4
V	Emerging trends in cost accounting (Theory only): Target costing: Features, Advantages, Methodology, Methods of establishment of target costs – Activity Based Costing–Problems with traditional costing, concept and usefulness of activity based, cost allocation and stages under ABC - Life cycle: Meaning of life cycle, Characteristics of life cycle, Importance and benefits, Product life cycle costing concept	15	CO5

PROPORTION OF THEORY WILL BE 20% AND PRACTICAL 80%

TEXT BOOK:

1. Khan, M.Y. & Jain, P.K. (2017). *Cost Accounting*. New Delhi, India: McGraw Hill (India) Pvt. Ltd.
2. Maheswari, S.N. & Mittal, S.N (2021). *Cost Accounting Principles and Practice*. New Delhi, India: Shree Mahavir Book Depot
3. Lal, J. & Srivastava, S. (2020). *Cost Accounting*. New Delhi, India: McGraw Hill (India) Pvt. Ltd.

REFERENCE BOOKS:

1. Reddy, T.S. & Hariprasad Reddy, Y.T. (2020). *Cost Accounting*, Chennai, India: Margham Publications
2. Jain, S.P & Narang, K. L. (2019). *Cost Accounting*. New Delhi, India: Kalyani Publications
3. Singh, M. & Chauhan, M. (2020). *Cost Accounting*. Mumbai, India: Himalaya Publishing House.
4. Dr. Gupta, S., Dr. Reeta & Dr. Rao, R.P. (2020). *Cost Accounting*. New Delhi: India: Sultan Chand & Sons

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. www.cost-accounting-info.com
2. www.introtocost.info
3. <https://fasab.gov/resources/managerial-cost-accounting-resources>

Course Title: CORE XIX: INCOME TAX LAW AND PRACTICE - II

Course Code : 45622	Credits : 4
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to gain competence in computing total income and tax liability and to train them to file IT returns online.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Identify short term and long term capital gains and their related deductions
CO2	Explain the concept of income from other sources and their computation
CO3	List the procedures for set off and carry forward of losses
CO4	Apply and practice the permissible deductions from gross total income as per 80 C to 80 U and computation of tax liability
CO5	Define Tax deducted at Source and understand the assessment procedures of filing IT returns

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	1	1	3	3	1	1	2	2	1	3	2	2
CO2	2	1	2	3	1	1	2	1	1	1	2	2
CO3	1	2	2	3	2	1	1	3	2	2	3	3
CO4	3	3	3	3	3	2	2	1	2	2	2	2
CO5	3	2	3	3	3	1	3	1	1	1	2	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	Capital Gains - Meaning of terms Capital Assets & Transfer - Transaction not regarded as transfer – Short-term and Long term Capital Gains - Cost of acquisition - Fair market value - Cost of Improvement - Indexing - Exempted Capital Gains - 54, 54B, 54D, 54EC,54F - Computation Capital Gains	25	CO1

II	Income from other sources - General income - Specific income - Computation of income from other sources - Grossing up – Deductions u/s 57 in computation of income from other sources	20	CO2
III	Set off - Carry forward of losses – inter source adjustment and inter head adjustment - Clubbing of Income	20	CO3
IV	Deductions from Gross Total Income u/s 80C to 80U (chapter VI A) - Assessment of individuals - Tax rates and E-Filing with practical assessment of individuals - Assessment of Partnership Firms	20	CO4
V	Assessment procedure Provision for Filing returns and Self-assessment - Practical session to register PAN and perform Self-assessment of Individuals - Advance Payment of taxes - TDS - Deductions of filing IT returns - PAN - Meaning and its uses	5	CO5

PROPORTION OF THEORY WILL BE 20% AND PRACTICAL 80%

TEXT BOOK:

1. Singhania, M. & Singhania, V.K. (2020). *Students' Guide to Income Tax*. New Delhi, India: Taxman Publications
2. Gaur, V.P. & Narang, D.B. (2020). *Income Tax Law & Practice*. New Delhi, India: Kalyani Publishers.
3. Reddy, T.S. & Reddy, Y.H. (2020). *Income Tax Theory, Law & Practice*, Chennai, India: Margham Publications.

REFERENCE BOOK:

1. Mehrotra, H.C. & Goyal, S.P. (2020). *Income Tax Law & Accounts*. Agra, India: Sahitya Bhavan Publications.

Note: Latest Edition of the reading to be used

Course Title: ELECTIVE II: (A) INVESTMENT MANAGEMENT

Course Code : 45623 (A)	Credits : 5
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able to gain knowledge about the key investment concepts, various investment alternatives, capital markets and SEBI and kindle their interest to trade in stock market securities

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the differences between Investment and Speculation, list out the essentials of a good investment programme, analyze the relationship between risk & return and determine the methods for minimizing risk
CO2	Identify the various investment alternatives available and understand the advantages and disadvantages of these investment alternatives
CO3	Improve their knowledge relating capital markets and the role of regulatory authorities in capital market
CO4	Analyze the factors determining the suitability of an investment.
CO5	Understand the concept of mutual fund and insurance, various mutual funds and insurance schemes and its advantages and disadvantages

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	-	2	3	3	2	2	2	1	3	3	2	3
CO2	-	3	2	3	3	2	2	3	3	3	2	1
CO3	-	2	3	3	2	3	2	3	2	1	2	1
CO4	-	3	3	2	2	2	2	3	1	2	1	1
CO5	-	2	3	3	2	3	2	3	1	3	1	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to Investments: Investments: Introduction, Objectives – Savings, Investments and Speculation, Gambling & investment - Features of a Good Investment Programme – Investment Process - Attributes for evaluating Investment – Risk and Return – Concept, Trade-off between Return and Risk – Relationship between Risk & Return – Risk & Return of Various Securities - Systematic & Unsystematic Risks	20	CO1
II	Investment Environment: Types of Investments - Commodities, Real Estate and Financial Assets – Equity, Fixed Income Securities, Deposits, Mutual funds, Equity oriented mutual funds, Bonds, Insurance Investments, Derivatives, Bank deposits, Post office deposits, PPF, Tax Saving Instruments	10	CO2
III	The Stock Markets in India: Nature and Functions of the Stock Market, OTCEI & BSE, NSE, MCX & Role of Depositories, Security Market Indices – Differences - Trading system – Dematerialization-Role of Primary Market - New Issues Market - IPO - FPO - Rights issue - Bonus Issue - Procedures for Buying and Selling Shares – Tax consideration in Investment Management - Listing of securities – Merits, Qualification, Procedure – Secondary Market-Meaning, Nature and Functions – Role of SEBI and stock exchanges in Investor protection - Investor grievances and their Redressal System - Insider Trading – Recent trends in Stock Markets	20	CO3
IV	Investment Analysis: Fundamental Security Analysis – Economic analysis, Industry Analysis, Company Analysis - Technical Security Analysis – Dow Theory - Random Walk Theory – Markowitz Theory - Efficient Market Theory – Capital Asset Pricing Theory – Portfolio management – Process –Planning - Evaluation Analysis.	20	CO4

V	<p>Investments in Mutual Funds: Meaning, Need and advantages of investing in Mutual Funds - Concept of Net Asset Value (NAV), Types of Mutual funds: Open ended, closed ended, equity, debt, hybrid, Growth Funds, Income Funds, Balanced Funds, money market funds, Load vs non- load funds, Large-cap, Mid-cap, Small-cap funds, Index Funds, Exchange Traded Funds, Gilt Funds - Factors affecting choice of mutual funds - CRISIL Mutual Fund Ranking and its Usage</p> <p>Investments in Insurance</p> <p>Meaning – Nature, Need, Principles, Types, Benefits of insurance – Role of insurance in economic development – Insurance sector in India - Indian insurance market - Insurance Regulatory and Development Authority of India (IRDAI)</p>	20	CO5
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TEXT BOOKS:

1. Natarajan, L. (2019). *Investment Management*. Chennai, India: Margham Publishers
2. ChandraP. (2017). *Investment Analysis and Portfolio Management*. New Delhi, India: McGraw- Hill (India) Pvt. Ltd.
3. Bhalla, V.K. (2008). *Investment Management*. New Delhi, Delhi : S Chand &Company

REFERENCE BOOKS:

1. Agarwal, O.P. (2019). *Security Analysis & Investment Management*. Mumbai, India: Himalaya Publishing House Pvt. Ltd.
2. Rustagi, R.P. (2013). *Investment Analysis & Portfolio Management*. New Delhi, India: Sultan Chand & Sons
3. Pandya, F.H. (2013). *Security Analysis & Portfolio Management*. Mumbai, India: Jaico Publishing House
4. Dr. Tripathi, V. (2020). *Fundamentals of Investments*. New Delhi, India: Taxmann Publications
5. Ranganatham, M &Madhumati, R. (2012). *Security Analysis & Portfolio Management*. Chennai, India: Pearson India Education Services
6. Bhalla, V.K. (2008). *Investment Management*. New Delhi, India: S Chand & Co.

Note: Latest Edition of the Reading to be used.

WEB RESOURCES

1. <https://www.pdfdrive.com/security-analysis-and-portfolio-management-e124443201.html>
2. <https://www.pdfdrive.com/investment-analysis-portfolio-management-e58032995.html>
3. <https://www.pdfdrive.com/security-analysis-and-portfolio-management-e33409517.html>
<https://www.pdfdrive.com/investment-analysis-and-portfolio-management-e158760799.html>

Course Title: ELECTIVE II: (B) COMPUTERIZED ACCOUNTING SYSTEM

Course Code : 45623 (B)	Credits : 5
L:T:P:S : 2:0:4:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able increase his employability skills in the area of accounting through the practical application of the concepts of financial accounting using Tally Prime.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the Basic Concepts of Tally
CO2	Apply the various concepts of Accounting in Tally.
CO3	Post the Order Processing activities using Tally.
CO4	Post GST entries and prepare the GST return using Tally.
CO5	Illustrate the payroll process in Tally.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	3	2	2	2	1	2	3	2	-	1	2	2
CO2	3	3	3	3	2	2	3	3	2	2	2	2
CO3	3	2	2	3	2	2	3	2	1	1	2	2
CO4	3	3	2	2	2	2	3	3	3	2	3	2
CO5	3	2	2	2	2	2	3	3	2	2	2	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to Basic Accounts – Introduction to Tally – Gateway of Tally - Company Creation - Accounts Info – Group – Ledger – Single ledger Creation – Multiple Ledger Creation – Inventory Info – Inventory Creation – Stock Group - Units of Measures – Accounting Voucher – Inventory Voucher	20	CO1
II	Cost Centre and Cost Category – Batch wise Details – Price List – Multiple Currency – Bill of Material – Budget and Control – Multiple Godown	20	CO2
III	Order Processing – Sales Order Processing – Purchase Order Processing – Receipt Note – Delivery Note – Order reference – Rejection In – Rejection Out.	20	CO3
IV	Enabling GST – Defining Details – Creation of GST Ledgers – Posting Entry using GST details – GST Reports – ITC Claim – GST Tax Payments – E-filing of GST returns – Vendor TDS.	10	CO4
V	Payroll Administration – Pay Heads – Pay Group – Payroll Voucher – Employee TDS.	20	CO5

REFERENCE BOOKS:

1. Ahamed, R.P. Tally. ERP 9. Chennai, India: Margham Publications.
2. Tally. ERP 9 Auditors' Edition Statutory Audit Reference Book. (2011). Tally Solutions Pvt Ltd.

Note: Latest Edition of the Reading to be used.

WEB RESOURCES

1. Tally. ERP 9 Auditors' Edition Statutory Audit Reference Book, Tally Solutions Pvt. Ltd.
Available at:
<http://mirror.tallysolutions.com/Downloads/Presentations/Chartered%20Accountants/Manuals/StatAuditReferenceBook.pdf>

ASSESSMENT

CIA – Attendance - 5 Marks, Practicals - 30 marks; Internal Test – 15 marks

ESE – Practical Examination for 100 marks (30 marks for VIVA, 20 marks for Record and 50 marks practicals in Lab)

Course Title: ELECTIVE II: (C) CORPORATE GOVERNANCE AND ETHICS

Course Code : 45623 (C)	Credits : 5
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be exposed to a theoretical perspective and framework of corporate governance, corporate social responsibility and the ethical, environmental and social dilemma, develop the good corporate governance skills to become a successful executive and a good leader in one's future business life, identify and manage corporate governance issues and implement and control corporate governance procedures within their organizations

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the concept of business ethics and its relevance in management and business
CO2	Understand the concept of corporate Governance, the disclosure practices and its connection with globalization
CO3	Develop knowledge about corporate governance reforms
CO4	Introduce and understand the concept of corporate social responsibility and managing ethical dilemma
CO5	Explain the contemporary practices in corporate governance

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	2	2	1	1	3	2	3	3	2	1	2	3
CO2	3	2	1	2	2	2	2	2	2	1	1	1
CO3	2	2	1	1	1	1	1	2	2	1	1	1
CO4	3	3	1	2	2	2	2	3	3	1	2	1
CO5	2	2	1	1	2	1	3	1	2	1	1	1

MODULE	CONTENTS OF MODULE	Hours	COs
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I	Governance And Business Ethics - Introduction – Definition - Nature of Business Ethics – Characteristics - Causes of Unethical Behaviour - Work Ethics - Code of Conduct - Ethics in Indian business - Major Ethical Issues in Business - Ethics of Market-and Price - Ethics of Environmental, Consumer and Employee Issues - Human Values & Management Education - Relevance of values for management and in management of business.	15	CO1
II	Corporate Governance - Concept - Structure and Principles - Corporate Governance in India - Initiatives and present position - Issues and Problems in Corporate Governance - Disclosure Practices - Globalization and Corporate Governance	12	CO2
III	Corporate Governance Reforms - Organizational Structure - Board of Directors - Composition and their Role - Powers and Responsibilities - Board Meetings - Board Committees and their functions - Independent Director.	15	CO3
IV	Corporate Social Responsibility (CSR) - Business Perspective on Social change and human values in the area of globalization – Concept - Need and importance of CSR - CSR Principles and Strategies for organization - Best practices in CSR. Managing Ethical dilemma - Holistic Approach for Managers in decision making.	16	CO4
V	Contemporary Practices and Emerging Perspective on Corporate Governance - Stakeholders management- Corporate management structure for corporate governance – Decision making by boards - Board Objectives and strategies - Responsibilities of board and their informational requirements – Building Responsive Boards - Issues and challenges.	17	CO5

TEXT BOOK:

1. Fernando, A.C. (2013). *Business Ethics – An Indian Perspective*. New Delhi, India: Pearson India Education Services
2. Saraf, C.U. (2018). *Corporate Social Responsibility (CSR), Corporate Governance, Sustainable Development and Corporate Ethics/Business Ethics*. Mumbai, India: Himalaya Publishing House
3. Sharma, J.P. (2016). *Corporate Governance, Business Ethics, and CSR*. New Delhi, India: Ane Books Pvt. Ltd.

4. Murthy, C.S.V. (2019). *Business Ethics & Corporate Governance*. Mumbai, India: Himalaya Publishing House

REFERENCE BOOKS:

1. Kumar, S. & Rajan, S. (2019). *Business Ethics & Values*. Mumbai, India: Himalaya Publishing House
2. Mallin, C. (2019). *Corporate Governance (Indian Edition)*, New Delhi, India: Oxford University Press.
3. Tricker, B. (2018). *Corporate Governance-Principles, Policies, and Practice*, New Delhi, India: Oxford University Press
4. Jyotsna, G.B. & Joshi, R.C. (2019). *Business Ethics & Corporate Governance*. New Delhi, India: McGraw Hill India Pvt. Ltd.

Course Title: ELECTIVE III: (A) ENTREPRENEURIAL DEVELOPMENT AND START UP

Course Code : 45624 (A)	Credits : 5
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able to understand the concept of entrepreneurship, identify significant changes and trends which create business opportunities, analyze the environment for potential business opportunities and provide conceptual exposure on converting idea to an entrepreneurial firm

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the basic concepts of entrepreneurship
CO2	Develop a B-Plan by the evaluation of business ideas and conduct of feasibility study
CO3	Understand the various institutions providing support to entrepreneurial ventures
CO4	Analyze the favorable environment required to run the venture successfully and the role of the government
CO5	Criticize the challenges faced by women and rural entrepreneurs

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	2	2	3	3	3	2	1	1	1	2	1	3
CO2	2	2	3	3	3	2	2	1	-	1	2	3
CO3	1	2	1	1	2	2	1	1	1	-	2	3
CO4	1	2	3	2	3	3	1	1	3	2	1	3
CO5	1	2	3	2	3	2	1	1	1	1	-	3

MODULE	CONTENTS OF MODULE	Hours	COs
I	Concept of Entrepreneurship: Entrepreneur - Meaning - Evolution - Functions of an entrepreneur - Traits of an Entrepreneur - Classification of Entrepreneurs – Myths on entrepreneurs – Concept of Intrapreneur – Entrepreneur Vs Intrapreneur - Concept of entrepreneurship – Factors promoting Entrepreneurship – Factors affecting entrepreneurial growth - Reasons for promoting Entrepreneurship - Barriers to entrepreneurship - Reasons of failure	15	CO1
II	Start Up - An Overview: Business Model - Generation of Ideas - Sources of New Ideas - Methods of Generating Ideas, Opportunity Recognition – Feasibility Study: Market, Technical/Operational, Financial, Legal & Social - Opportunity Assessment–Developing an effective Business Plan-Execution of Business Plan - Student Start-up Policy – Government Schemes to support start-ups – Coworking Spaces – Business Accelerators	20	CO2
III	Resource Mobilization & Institutional Support: Angel investors – Crowd-funding - Venture Capital Funds – Stock Market – Supply Chain Finance - Institutional support to entrepreneurs – Need - DIC, TANSIM, NSIC, MSMEDI, SSIC, SIDCO, SIPCOT, IIC, KVIC - Entrepreneurial Development Programs (EDP)– Objective, Need and Relevance of EDPs – Problems of EDPs	15	CO3
IV	Managing Environments: Economic, Technological and Social Environment – Business Cycles – Industry Cycles - Role of Government in promoting entrepreneurship – Policies and Schemes for promotion of MSME in India – Incentives, subsidies & tax concessions – Supporting institutions -Failure, Causes and Preventive Measures – Turnaround Strategies.	20	CO4

V	Development of Women Entrepreneurship & Rural Entrepreneurship: Women Entrepreneurs – Concept –Growth – Challenges in the path of women entrepreneurship – Development of women entrepreneurship – Opportunities to Women Entrepreneurs – Initiatives, policies & schemes for women entrepreneurs – Grassroot entrepreneurship through Self- Help Groups (SHGs) - Rural entrepreneurship – Need, Importance, Types – Rural Industrialization: Advantages & types – Opportunities for rural entrepreneurs – Risks and problems faced by rural entrepreneurs	20	CO5
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TEXT BOOK:

1. Charantimath, P.M. (2019). *Entrepreneurship Development and Small Business Enterprises*. New Delhi: India. Pearson India Education Services
2. Desai, V. (2019). *Dynamics of Entrepreneurial Development and Management*, Mumbai: India. Himalaya Publishing House.
3. Gordon, E & Natarajan, K. (2020). *Entrepreneurship Development*. Mumbai, India: Himalaya Publishing House Pvt. Ltd.

REFERENCE BOOKS:

1. Fisher, S. & Duane, J. (2016). *The Startup Equation: A Visual Guidebook To Building Your Startup*. New Delhi, India: McGraw Hill (India) Pvt. Ltd.
2. Barringer, B.R. & Ireland, D.R. (2020). *Entrepreneurship: Successfully Launching Ventures*. New Delhi, India: Pearson Education
3. Holt, D.H. (2016). *Entrepreneurship*. New Delhi, India. Pearson Education

Note: Latest Edition of the reading to be used

WEB RESOURCES

1. <https://openstax.org/details/books/entrepreneurship>
2. <https://www.entrepreneur.com/>
3. <https://openpress.usask.ca/entrepreneurshipandinnovationtoolkit/chapter/chapter-1-introduction-to-entrepreneurship/>
4. <https://vtechworks.lib.vt.edu/bitstream/handle/10919/70961/Chapter%206%20Entrepreneurship%20-%20Starting%20a%20Business.pdf?sequence=11&isAllowed=y>

ELECTIVE III: (B) MARKETING MANAGEMENT

Course Code : 45624 (B)	Credits : 5
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able to understand the concepts of marketing and consumer behaviour and gain knowledge on the currently prevalent marketing environment.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the concepts and approaches in marketing and analyze the role of marketing in economic development
CO2	Identify the various factors influence consumer behaviour and locate Market Information system
CO3	Determine the elements of marketing mix and develop a new product plan
CO4	Apply different methods of pricing and create a channel of distribution
CO5	Recognize the E-marketing tools and evaluate the impact of social media marketing

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	3	3	2	2	3	2	2	2	3	-	1	3
CO2	3	3	3	2	3	1	1	3	2	3	-	3
CO3	3	2	3	3	2	2	2	2	1	2	1	3
CO4	2	2	3	2	1	3	1	3	2	1	2	2
CO5	3	2	3	2	3	1	2	3	2	1	2	3

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to Marketing : Marketing: Definition, Nature, Scope and Features of Marketing, Importance of Marketing - Concepts and Approaches to Marketing - Product vs. Service Marketing – Market: Classification of market - Role of Marketing in Economic Development - Innovations in Marketing - Meta marketing.	15	CO1
II	Consumer Behaviour: Definition of Consumer behavior, An overview of consumer behavior, Significance - Buying motives - Determinants of consumer behavior – Decision-making process - Market Segmentation, Bases of segmentation - Marketing Research, Process – MIS, Need for Marketing Information System.	20	CO2
III	Product & Marketing Mix strategies: Product, Features of a product – Classification of goods – Service product - Elements of marketing mix (7P's) - Product Line – Product positioning - Product differentiation - New product Development – Product Life cycle stages and strategies – Product Portfolio Management Framework – BCG Matrix, Ansoff Matrix - Branding - Packaging and labeling.	20	CO3
IV	Value design - Pricing, Place & Promotional strategies: Pricing: Objectives, Factors influencing pricing decisions, Kinds of pricing, Methods of pricing - New product pricing strategy- Channels of Distribution, Importance, Levels, Channel Members –Promotion – Communication Mix – Basics of Advertising, Sales Promotion and Personal Selling.	20	CO4
V	Development & Issues in Marketing: E-commerce: Significance of E-Commerce – e-Marketing, Tools of e- marketing, e-Tailing, Types of E-Tailers, Advantages of e-tailing - Shopping malls – Social Media Marketing, Importance of Social Media, Advantages and Disadvantages - Services Marketing – Intrusive Marketing - Green Marketing - Rural marketing – Direct Marketing – B2B & D2C marketing - Consumer Protection – Consumerism in India.	15	CO5

TEXT BOOK:

1. Kotler, P (2016). *Marketing Management*. New Delhi, India: Pearson Education
2. Pillai, R.S.N. & Bagavathi. (2018). *Modern Marketing Principles*. New Delhi, India: S.Chand & Co.

REFERENCE BOOKS:

1. Sontakki, C.N. (2018). *Marketing Management*. New Delhi, India: Kalyani Publishers
2. Dr. Jayasankar, J. (2013). *Marketing*. Chennai, India: Margham Publications
3. Karunakaran. K. (2017). *Marketing Management Text and cases in Indian context*. India: Himalaya Publishing House.
4. Sherlekar, S.A & Krishnamoorthy, R. (2018). *Marketing Management Concepts and Cases*. Mumbai, India: Himalaya Publishing House.

Note: Latest edition of the reading to be used

Mumbai WEB RESOURCES

1. www.learnmarketing.net
2. www.marketingprofs.com
3. www.marketmotive.com
4. www.marketing91.com

Course Title: ELECTIVE III: (C) HUMAN RESOURCE MANAGEMENT

Course Code : 45624 (C)	Credits : 5
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

This course will facilitate the student to gain knowledge on the concept of human resources and methods to make optimum use of human capital and also explore the knowledge of recent trends such as E HRM, Human Resource Audit and their contemporary issues.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the basic concept of human resource management and its evolution and challenges
CO2	Articulate human resource planning using quantitative and qualitative dimensions
CO3	List the methods of training and explain its role towards human resource development
CO4	Explain performance appraisal methods and their link with compensation.
CO5	Understand the concept of employee health, safety, digital HRM and the welfare measures of the employees.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	1	1	1	1	1	1	1	2	3	-	1	3
CO2	3	1	1	1	1	3	1	3	2	3	-	3
CO3	3	1	1	1	2	3	3	2	1	2	1	3
CO4	3	1	1	1	2	3	3	3	2	1	2	2
CO5	3	2	2	2	2	3	3	3	2	3	3	3

MODULE	CONTENTS OF MODULE	Hours	COs
I	Human Resource Management - Concept and functions, Role, Status and competencies of HR manager, HR policies, Evolution of HRM, Emerging challenges of Human Resource Management - Workforce diversity, Empowerment, Downsizing, VRS, Work Life Balance	15	CO1
II	Human Resource Planning - Quantitative and qualitative dimensions, Job analysis – Job description & job specification – Recruitment, concept & sources – Selection, concept & process - Test & interview – Placement - Induction & socialization, Retention - Artificial Intelligence in Talent Acquisition: Meaning, Role, Benefits, Application and Challenges of AI based Recruitment.	15	CO2
III	Training and Development - Concept and importance, Role specific and competency-based training, Training and development methods: Apprenticeship, Understudy, Job Rotation, Vestibule Training, Case Study, Role Playing, Sensitivity Training, In-basket, Management Games, Conferences and Seminars, Coaching and Mentoring, Management Development Programs, Training Process Outsourcing	20	CO3
IV	Performance appraisal & Employee Engagement Performance appraisal: Nature, objectives and process, Performance management, Methods of Performance Appraisal, Potential appraisal, Employee counseling, Job changes - Transfers and promotions - Human Resource Audit – Compensation, Concept and policies, Base & supplementary compensation, Individual, group & organization incentive plans, Fringe benefits, Performance linked compensation, Employee Stock Option, Pay Band Compensation System, Job Evaluation Employee Engagement: Meaning, Definition, Types, Importance, Factors; Benefits, Impact on performance, Methods to promote employee engagement.	20	CO4
V	Employee Health and Safety; - Employee welfare - Social Security (excluding legal provisions) - Employer-employee relations: An overview, Grievance handling & redressal - Industrial disputes, Causes & Settlement machinery - Digital HRM – Digital Workforce - Human Resource Information System & Digital HRM – Artificial Intelligence in Talent Acquisition - Impact of HRM practices on organizational performance - HR Audit, Contemporary issues in Human Resource Management	20	CO5

TEXT BOOK:

1. Khanka, S.S. (2019). *Human Resource Management – Text and Cases*. New Delhi, India: S. Chand Publishing.
2. Durai, P. (2020). *Human Resource Management* New Delhi, India: Pearson India Education Services.
3. Dr. Jayashankar, J. (2013). *Human Resource Management*, Chennai:India, Margham Publications.

REFERENCE BOOKS

1. Rao, V.S.P. (2020). *Human Resource Management*. Chennai, India: Taxmann Publications
2. Aswathappa, K. (2017). *Human Resource Management Text and Case*. New Delhi, India: McGraw Hill (India) Pvt. Ltd
3. Gupta, S.K. & Joshi, R. (2020). *Fundamentals of Human Resource Management*. Chennai, India: Kalyani Publishers.

Note: Latest Edition of the reading to be

used WEB RESOURCES

1. https://www.researchgate.net/publication/305954894_Human_Resource_Management_Theory_and_Practice/link/57a740ce08aee07544c130bd/download
2. http://www.opentextbooks.org.hk/system/files/export/32/32088/pdf/Human_Resource_Management_32088.pdf
3. <https://brauss.in/hrm-basic-notes.pdf>



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PG DEPARTMENT OF JOURNALISM AND COMMUNICATION

1.1 CURRICULUM DESIGN & DEVELOPMENT

Curricula developed and implemented have relevance to the NATIONAL developmental needs

Programme Name & Code – BA Journalism 61

Academic Year 2022-2023

	Course Title	COs of all courses
1.	Reporting for Media – I	CO1: Evaluate newsworthiness of information and understanding the structure of news flow. CO2: Demonstrate an understanding of story idea creation and alternative story forms in journalism CO3: Comprehend the basic structure and format of a hard/soft news story (lead, body, and conclusion). CO4: Produce Content for Print, Broadcast and blogs and websites CO5: Demonstrate an understanding of journalism ethics.
2.	History of Media in India	CO1: Students would be able to acquaint themselves with the glorious journey of journalism. CO2: Students would be able to enhance understanding of the origin and of the print, electronic and web media. Electronic and web media CO3: Students would be able to inculcate the knowledge of growth of print, electronic and web media 3.CO4: Students would be able to acquaint themselves with technological advancements in print, electronic and web media. CO5: Students would be able to throw light on the present status of various mass media.
3.	Designing: Photoshop, Illustrator and In Design	CO1: Gain knowledge about Visual Communication and its concepts. CO2: Acquire an insight of Communication Elements and its Process. CO3: Obtain familiar with Design Concept, Color Theory and the fundamentals of Graphic Design. CO4: Apply acquired communication skills effectively.



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		CO5: Apply the Models, Design, Color Concept and the Graphic Design in the media industry.
4.	Digital Storytelling	CO1: To understand various techniques behind history, culture, traditions, and craft of digital storytelling. CO2: To understand digital media and its effective use as a form of communication. CO3: To communicate ideas effectively in written, oral, and visual form to a range of audiences. CO4: To demonstrate mastery of the concepts, techniques, and tools in one or more digital media specialties. CO5: To develop professional quality digital media productions by promptly applying knowledge and skills including best practices and standards.
	Writing for Media – II	CO1: Understand the copy flow in a newspaper industry. CO2: Analyse the concepts and techniques behind newspaper writing. CO3: Comprehend the need for public relations. CO4: Understanding of different types of web writing. CO5: Understanding of news blogging and microblogging.
5.	Social, Economic and Political Issues in India	CO1: Assess social issues in India. Evaluate on various causes for social problems. CO2: Review on various social problems and its implications. CO3: Explain various forms in which Economic problems occur. CO4: Create news reports on political issues. CO5: Discuss environmental problem and its complexities while writing news stories.
6.	Broadcast Journalism	CO1: Explain the unique features of broad cast media and create particular content. CO2: Create news suitable for broadcast media CO3: Assess the writing trends based on genres of broadcast journalism. CO4: Apply ethical values and legal procedures while creating live reporting from the field. CO5: Engage in team work to produce appropriate content for media.



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7.	Copywriting and Editing	<p>CO1: Understand the essential communication tool for print and broadcast journalists, public relation professionals.</p> <p>CO2: Understand the nuances of writing for media</p> <p>CO3: Comprehend and create Feature Stories, Obituaries, Rewrites and Roundups.</p> <p>CO4: Write effective articles for newsletters, prepare fliers and brochures and news releases.</p> <p>CO5: Analyse the role of translation in writing for the digital media</p>
8.	Broadcast Journalism	<p>CO1: Explain the unique features of broad cast media.</p> <p>CO2: Create news suitable for broadcast media.</p> <p>CO3: Assess the future trends in broadcast journalism</p> <p>CO4: Apply ethical values and legal procedures while creating live reporting from the field</p> <p>CO5: Make use of editing skills in constructing news for Television and Radio</p>
9.	Political issues in India	<p>CO1: Outline the evolution of political thoughts in India</p> <p>CO2: Analyse the democratic process and organization of political system in India</p> <p>CO3: Interpret the issues of governance and governability</p> <p>CO4: Evaluate marketing politics, themes and issues</p> <p>CO5: Relate media and politics</p>
10.	Photo journalism	<p>CO1: Make use of the knowledge of lighting while shooting indoor and outdoor photography.</p> <p>CO2: Create photo essay and photo feature for specific themes.</p> <p>CO3: Apply the technical knowledge while operating camera for the desired result.</p> <p>CO4: Construct a suitable composition in photograph to convey the intended message.</p> <p>CO5: Apply the principles of photography to create appealing photographs.</p>
11.	Economic issues in India	<p>CO1: Sketch the development of Indian Economy.</p> <p>CO2: Evaluate on various economic issues and its implications.</p> <p>CO3: Elaborate on various causes for economic problems.</p>



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		CO4: Analyse liberlisation, globalisation and its consequences on Indian CO5: Create news stories on economic issues. society.
12.	Indian Constitution and Legal System	CO1: Outline the historical evolution of Indian Constitution. CO2: Appraise the special provision of Indian constitution relating to mass media. CO3: Analyse various constitutional amendments. CO4: Explain the judicial process, procedure and structure. CO5: Identify the need for reforming constitution.
13.	Film Appreciation	CO1: Appraise the technical, creative and aesthetic aspects of film Production CO2: Recognise the film language CO3: Appraise films in terms of style and mise-en-scene. CO4: Evaluate films in their historical context. CO5: Examine motion pictures as a technology, business, cultural, product, entertainment medium and industrial art form.
14.	Human Rights Reporting	CO1: Inculcate human rights approach in their Journalistic pursuits. CO2: Relate provisions in Indian Constitution for human rights issues. CO3: Evaluate the role of Human rights activist. CO4: Recognise various forms of Human rights issues. CO5: Aware of Civil, Political, Economic and social rights of the citizen.
15.	Press Laws and Ethics	CO1: Outline historical evolution of laws relating to press in India. CO2: Remember the important acts relating to mass media. CO3: Analyse the ethical issues in media. CO4: Explain the laws and constitutional provisions pertaining to human rights in India. CO5: Agree on the need for ethical practices while carrying out Journalistic duties.
16.	Online Journalism	CO1: Recognize the distinct characters of online Journalism. CO2: Familiarize with MOJO and Data Journalism. CO3: Trace the development of internet and online Journalism. Identify writing styles suitable for online Journalism.



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		CO4: Distinguish different tools to interact with audience. Use multimodality and interactivity while creating content for online Journalism. CO5: Recognize the distinct characters of online Journalism.
17.	Internship	CO1: Evaluate news sources for their credibility. CO2: Select and organise the news according to news values. CO3: Meet the deadline pressures. CO4: Adopt reporting, writing and editing skills for news creation. CO5: Acquire technical skills in producing the news.
18.	Writing for Media (Interdisciplinary Elective)	CO1: Analyse the structure of news reports. CO2: Make use of language proficiency in writing reports. CO3: Adopt good writing skills and create news reports. CO4: Acquaint with different writing styles for different formats of news. CO5: Familiarise different writing styles and applying creativity in writing for the media.
19.	Documentary	CO1: Acquire technical skills to produce a documentary. CO2: Employ creativity in producing a documentary. CO3: Realise the importance of team work. Choose topic which is relevant and select an inspiring angle. CO4: Adopt good writing skills in narrating the story. CO5: Conceptualise the topic to suit the target audience.
20.	News Production	CO1: Acquire the technical skills to produce news for broadcast media CO2: Organize the news according to news values for broadcasting CO3: Realise the need for accuracy. CO4: Acquire good writing skills while writing for news bulletins CO5: Employ ethical values in fact checking to produce the content of the news story
21.	Mass Communication Theories	CO1: Analyse the determinants of news content. CO2: Create news stories knowing the power and reach of media. CO3: Relate media society relationship.



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		CO4: Illustrate the evolution of mass media theories. CO5: Categorize and relate various events in the society to mass communication theories.
22.	Media Organization	CO1: Assess the conceptual issues in media organization. CO2: Interpret media as business and social institution. CO3: Examine the behaviour in media organization and organizational behaviour. CO4: Discuss organizational structures and functions of different departments in printing and publishing industry. CO5: Discuss the economics of media.
23.	Web Magazine	CO1: Acquire technical skills to produce Tabloid.
24.	Tabloid	CO2: Employ creativity in producing the Tabloid. CO3: Create contents suitable for different formats. CO4: Adopt ethical values in selecting and disseminating news. CO5: Discuss various perspectives of the news story before writing for publication.
25.	Environmental Journalism	CO1: Aware of the laws related to Environment. CO2: Realise the need to disseminate information about the current state of environment in order to protect it. CO3: Create contents suitable for different formats. CO4: Employ language proficiency in writing articles to create awareness about conservation. CO5: Follow ethical guidelines in reporting human-environment interactions.
26.	Advocacy Journalism	CO1: Distinguish Advocacy Journalism from Opinionated Journalism CO2: Follow Journalistic Standards and ethics while reporting CO3: Analyse the effectiveness and reach of Government policies. CO4: Relate to historical context while addressing an issue. CO5: Aware of contemporary issues in the society.
27.	Development Journalism	CO1: Aware of the problems related to the concept of Development. CO2: Critically evaluate government policies related to Development and its impact.



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		CO3: Analyse the role of International Agencies towards Development. CO4: Create content and approach the issue in various angles. CO5: Examine the reach of Development policies.
28.	Cultural Journalism	CO1: Analyse the impact of technology on Culture and relate culture as a social institution CO2: Examine the relationship between culture and politics. CO3: Study the relationship between culture and Economics. CO4: Recount the significance of culture in freedom of expression. CO5: Analyse the role of culture in solving social problem and transmitting values.



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PG DEPARTMENT OF JOURNALISM AND COMMUNICATION

1.1 CURRICULUM DESIGN & DEVELOPMENT

Curricula developed and implemented have relevance to the NATIONAL developmental needs

Programme Name & Code – MA Journalism and Communication 48

Academic Year 2022-2023

	Course Title	COs of all Courses
1.	Human Communication	CO1: Understand the definition, need and importance of communication as expression and skill. CO2: Trace the importance of communication in human development. CO3: Learning communication patterns and its need in an organization. CO4: Gain adequate knowledge on public communication system. CO5: Apply knowledge of the theories of communication to practice.
2.	Reporting and Writing Skills	CO1: Evaluate newsworthiness of information and understanding the structure of news flow. CO2: Demonstrate an understanding of story idea creation and alternative story forms in journalism CO3: Comprehend the basic structure and format of a hard/soft news story (lead, body, and conclusion). CO4: Produce Content for Print, Broadcast and blogs and websites CO5: Demonstrate an understanding of journalism ethics.
3.	Editing Skills	CO1: Understand the Duties and Responsibilities of an Editor in a newspaper industry. CO2: Analyse the concepts and techniques behind news editing. CO3: Comprehend the basics of editing.



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		CO4: Understanding of different types of fonts and type. CO5: Demonstrate an understanding of news editorials.
4.	Information and Communication Technology	CO1: Understand the Components of information & Communication CO2: Enable students to understand the basics of broadcasting and broadcasting agencies. CO3: Gain Knowledge of accountability in news production in digital scenario. CO4: Study the impact of Communication in Development CO5: Grasp elements of Communication in Development
5.	Travel Photography	CO1: Learn how to use the fundamental elements of photography in ways that convey a sense of place CO2: Deepen your understanding of the fundamental tools of travel photography CO3: Create expressive photographs that reveal your unique impression of a destination CO4: Reinforce the ongoing creation of travel photography both around the corner and around the world CO5: Develop the concept of digital output and producing the final product
6.	Photo journalism	CO1: Learn how to use the fundamental elements of photography in ways that convey a sense of place CO2: Deepen your understanding on analyzing and creating effective photographs CO3: Create expressive photographs that reveal your unique impression of a destination CO4: Understand and write text to accompany photography CO5: Develop the concept using photo editing and build visual sequences.
7.	Media Skills	CO1: Learn the elements and principles of composition CO2: Deepen understanding to use different coloring technique and its practical applications in design.



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		<p>CO3: Understand multiple image types and to select best application of each for graphic design, print and the photography</p> <p>CO4: Utilize effectively multiple methods of manipulating the existing artwork and workspace</p> <p>CO5: Develop the concept of digital output and producing the final product</p>
8.	Online Journalism and Web Management	<p>CO1: Enable the students to understand the distinct characteristics of online journalism</p> <p>CO2: To develop skills to encourage the production of media messages using variety of digital tools.</p> <p>CO3: To encourage students to appreciate and participate in Digital Media content writing</p> <p>CO4: To help students to generate contents for each social media platforms and acquire the skills</p> <p>CO5: To help students create content with credibility and authenticity</p>
9.	Mass Communication Theories	<p>CO1: Analyse the determinants of communication theories</p> <p>CO2: Discuss the importance of studying theory</p> <p>CO3: Illustrate the evolution of mass media theories.</p> <p>CO4: Relate media society relationship from a political perspective.</p> <p>CO5: Categorize and relate various events in the society to mass communication theories.</p>
10.	Media, Culture and Society	<p>CO1: Understand the relationship between the state, media and the public.</p> <p>CO2: Critique the media content from the audience perspective</p> <p>CO3: Acquire deep knowledge on the functions and influence of Media in Culture and Society</p> <p>CO4: Analyze media performance and content from a gender perspective</p> <p>CO5: Evaluate the popular culture and its characteristics from a culture perspective.</p>



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11.	Communication Research Methods	<p>CO1: Understand the basics of communication research</p> <p>CO2: Outline the basic framework of research process</p> <p>CO3: Explore several different kinds of samples and sampling techniques used in mass communication research.</p> <p>CO4: Understanding the basic conceptualisation behind perfect data collection</p> <p>CO5: Critically analyse research methods and develop the skills for writing a thesis.</p>
12.	Digital Marketing	<p>CO1: To understand the basic Concepts of Digital marketing and the road map for successful Digital marketing strategies.</p> <p>CO2: Creating market Positioning with respect to the Digital marketing</p> <p>CO3: Understanding the importance of Social media Platforms importance in Digital Marketing</p> <p>CO4: Collecting, analyzing, enabling and optimizing organization's digital ecosystem in the making of data-informed decisions.</p> <p>CO5: To understand the technological importance of digital marketing</p>
13.	Human Interest Stories	<p>CO1: To develop the ability to frame Human Interest stories which relates to current events and help people to evaluate the impact of such events</p> <p>CO2: To be able to write Human Interest stories to evoke the emotion of reader/viewer and raise awareness of worthy causes</p> <p>CO3: To create stories without losing the value of Human Interest Journalism</p> <p>CO4: Reinforce the ongoing creation of travel photography both around the corner and around the world</p> <p>CO5: Develop the concept of digital output and producing the final product</p>
14.	Cultural Journalism	<p>CO1: To write stories on arts and creative work, and on the individuals, institutions and policies that make or enable the creative work.</p>



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		<p>CO2: To develop the aesthetic sense in the art and cultural coverage.</p> <p>CO3: To distinguish culturally valuable works from their lesser counterparts.</p> <p>CO4: To deduce the increased interconnectedness of economic and cultural processes.</p> <p>CO5: Develop the concept of digital output and producing the final product</p>
15.	Mobile Journalism	<p>CO1: To study the Socio-cultural implications of mobile phone communication and its contribution to information explosion.</p> <p>CO2: To understand the need, benefits and significance of mobile journalism.</p> <p>CO3: To learn the origins and characteristics of mobile journalism, differences and similarities with conventional journalism, and the applications of mobile journalism.</p> <p>CO4: To practically understand the usage of mobile phones as a reporting tool.</p> <p>CO5: To apply Mobile journalism techniques for different modes of news gathering and news processing, using open source voice, text and video.</p>
16.	News Production	<p>CO1: To understand the basic concepts of Broadcast Journalism</p> <p>CO2: To acquaint students with different modes of writings based on the technology and transmission.</p> <p>CO3: To identify and write record, produce and edit several formats of radio programmes including news stories, and features.</p> <p>CO4: To illustrate the basics of broadcast genres and essentials of journalism.</p> <p>CO5: To put theory to practice and produce digital outputs</p>
17.	Media Management	<p>CO1: To familiarize students to Indian media organization and their management practices.</p> <p>CO2: To introduce students to principles of Media business management</p> <p>CO3: Understand Commercials and sponsorship in electronic media</p>



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		CO4: Evaluate the different Organizations roles and perform a career-oriented approach CO5: To create programs with credibility and accountability according to the uprising trending technologies
18.	Advertising	CO1: Analyse the different types of advertising& advertising agencies CO2: Understand the components of a brand image CO3: Learn the Elements of ad copy in advertisement CO4: To understand the Elements of media budgeting, planning and buying. CO5: Acquire knowledge on campaigning advertisement
19.	Public Relation & Corporate Communication	CO1: To learn the basic concepts of Public relation and its tools. CO2: Explore the role and importance of corporate communications CO3: Learn to conduct public relation campaigns CO4: To understand the techniques involved in maintaining the brand and organisational image CO5: To enhance their skills for organizing public relation campaigns and press releases
20.	Dissertation	CO1: To display the knowledge and capability required for independent work. CO2: To create, analyze and critically evaluate different technical/research solutions CO3: To clearly present and discuss the conclusions as well as the knowledge and arguments that form the basis for these findings CO4: To identify the issues that must be addressed within the framework of the specific dissertation in order to take into consideration CO5: To facilitate student to carry out extensive research and development project or technical project at place of work through problem and gap identification, development



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		of methodology for problem solving, interpretation of findings, presentation of results and discussion of findings in context of national and international research.
21.	Documentary Production	CO1: To identify content from real life, books and print materials. CO2: To improve the data collection and research skills for documentary. CO3: To strengthen the script writing ability of the student. CO4: To draft a formal documentary proposal. CO5: To make a socially responsible documentary.
22.	Deprivation Coverage	CO1: To understand the concept of deprivation and its effect in society CO2: To explore and identify areas of deprivation. CO3: To improve the communication, questioning, listening, writing and news gathering skills. CO4: To incorporate human interest angle in the news stories. CO5: To write a factual news story on the deprivation.
22.	Event Management	CO1: To enables students to plan, execute and comprehend various events with relevant skills for each event. CO2: Acquire and apply the skills required to plan an event CO3: Enhance their innovativeness in managing the media CO4: Plan an event with the knack of organizational skill CO5: Demonstrate a planned event displaying promotional skills
23.	Developmental Communication	CO1: Aware of the problems related to the concept of Development CO2: Critically evaluate government policies related to Development and its impact CO3: Analyse the role of International Agencies towards Development



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		<p>CO4: Create content suitable for different formats</p> <p>CO5: Approach the issue in various angles. Examine the reach of Development policies</p>
24.	Health Communication	<p>CO1: Understand the role of communication and its affect in promoting and maintaining health and wellness for all individuals</p> <p>CO2: Develop effective health messages for individuals and publics by understanding how the media, literacy and policy affect the perceptions of health.</p> <p>CO3: Create a content in social media- based on agriculture, health, education, population planning, sanitation, environment protection and socio-economic development.</p> <p>CO4: Create photo stories which assess the factors that affect health literacy.</p> <p>CO5: Writing essay for health stories in effective manner</p>
25.	Media Laws and Ethics	<p>CO1: To learn the basic structure of Indian Constitution.</p> <p>CO2: Examines the various media laws, policy and regulatory frameworks in India</p> <p>CO3: Explore the legalistic perspective of IPR in media laws</p> <p>CO4: Apply knowledge of self-regulation and other ethical practices in profession</p> <p>CO5: Comprehend media constitutional laws and ways to solve simple media law cases.</p>
26.	Film Studies and Appreciation	<p>CO1: To understand various theoretical, historical, and critical approaches to films.</p> <p>CO2: Acquire knowledge on history of Cinema, cinema movements</p> <p>CO3: To facilitate exploration of the history of cinema and also critically analyze movies that are being screened.</p> <p>CO4: To understand how film reflects societal concerns.</p> <p>CO5: Analyse structures of power, economics, and ideology and Film Genres</p>



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27.	Digital Story Telling	CO1: To understand various techniques behind history, culture, traditions, and craft of digital storytelling. CO2: To understand digital media and its effective use as a form of communication. CO3: To communicate ideas effectively in written, oral, and visual form to a range of audiences. CO4: To demonstrate mastery of the concepts, techniques, and tools in one or more digital media specialties. CO5: To develop professional quality digital media productions by promptly applying knowledge and skills including best practices and standards.
28.	Internship	CO1: To extend the skills and knowledge they acquired from relevant theory components CO2: To create, analyze and critically evaluate experiential learning. CO3: To engage in continuous learning and development of new skills appropriate for their field CO4: To build professional portfolio. CO5: To facilitate students' opportunity to work and experience actual operations in the real business world


Signature of the HOD

Signature of the Principal



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**DEPARTMENT
OF
B.COM(FINANCE AND TAXATION)**

National Subjects

**SYLLABUS
2022-2023**

REVISED SYLLABUS 2022-2023

Semester	I
Subject	CORE PAPER I BUSINESS ACCOUNTING
Course Code	23/62101
Maximum Marks	CIA – 50 Marks ESE – 100 Marks
Credits/Instructional Hours	4 Credits / 5 Hours
Exam Duration	3 Hours
L:P:T:S	5:0:0:0

Mapping Course Outcomes with Program Outcomes

CO	PROGRAM OUTCOME						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	3	3	3	2	3	3
CO2	2	3	3	3	3	3	3
CO3	3	3	3	2	3	3	3
CO4	3	3	3	3	3	3	3
CO5	3	3	3	3	3	2	3

COURSE OUTCOME

S.no	Objectives	K Level
1.	To understand the meaning and scope of accounting, how to prepare financial statement, conceptual framework and qualitative characteristics.	K2
2.	To know about various source documents used in accounting, different type of transactions and accounting process.	K4
3.	To understand the preparation of financial accounts and adjustments involved.	K4
4.	To calculate the true profit and provide funds for replacement of fixed assets by using Depreciation methods.	K3
5.	To make financial statement analysis and interpreting it.	K2

CO	PROGRAM OUTCOME									
	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
CO1	3	3	3	3	3	3	3	2	3	3

CO2	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	2	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	2	3	3	3	3	3	3	3	3

Unit-I

Accounting-Meaning and scope of accounting -Financial Statements, meaning - purposes of financial statements for the users - main elements of financial reports - *conceptual framework - definitions of asset, liability, equity, income & expenses.

Qualitative characteristics of financial statements - Concepts of relevance, faithful presentation, materiality, substance over form, going concern, business entity, accruals, consistency, comparability, verifiability, understandability and timeliness.

Unit-II

Main data sources for accounting - different business documents such as sales order, purchase order, goods received note, quotation, goods dispatched note, invoice, credit & debit notes, receipt, remittance advice, cash vouchers - understand the double entry accounting & duality concept - types of transactions such as sales, purchases, payments & receipts.

Accounting Process-Recording into journals - ledger accounts - balancing of ledger accounts - *accounting for discounts, sales tax - recording cash transactions - errors & rectification - bank reconciliation statements.

Unit-III

Preparations of Final Accounts - Statements of profit or loss and other comprehensive income - balance sheet - events after reporting period. [Adjustments -

Closing Stock (accounting & valuation of inventories), Outstanding and Prepaid items (accruals & prepayments, receivables & payables), Depreciation, Provision for Bad Debts, Discount on Debtors (provisions & contingencies), Interest on Capital and Drawings, Loss of Stock by Fire].

Unit-IV

Tangible & Non-Tangible Assets - depreciation & amortization accounting - Meaning, Causes, Types - Straight-Line Method (SLM) - Written down Value method (WDV) - Sinking Fund Method.

Unit-V

Financial Statement Analysis - *uses of Interpretation of financial statements - Common size financial statements - Common base year financial statements - Financial Ratios - Liquidity, Leverage, Activity & Resource, Profitability, Market ratios.

*Self Study Portion

Pattern for End Semester Examination

End Semester Questions Pattern	Theory	Practical Problems	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section-A	6	6	12	10	2	20
Section-B	2	5	7	5	7	35
Section-C	1	4	5	3	15	45
Total Marks						100

Reference Books:

1. P.C.Tulsian - Financial Accounting - TATA McGraw Hill Publishers
2. Jain & Narang, Advanced Accounting, Kalyani Publishers
3. Paul D. Kimmel, Jerry J. Weygant, Donald E. Kieso, Financial Accounting: Tools for Business Decision Making, Wiley
4. Frank Wood, Business Accounting, Pearson Edition
5. Jill Collis, Andrew Holt, Business Accounting, TATA McGraw Hill
6. Manikandan S, Rakesh Shankar R, Financial Accounting, Sci Tech Publications

Note: Latest Edition of the book to be referred.

CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	2	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	2	3	3	3

UnitI:

Accounting for Issue of Shares & Debentures, Employee Stock Option Plan –
***Meaning, importance, Accounting for employee stock option plan.**

UnitII:

Redemption of preference shares and Debentures – Underwriting of shares and Debentures.

UnitIII:

Corporate Financial Reporting – Concepts - Final Accounts as per new guidelines – ***divisible profits**, managerial remuneration, profits prior to incorporation.

IFRS in India – the application of IFRS in India through the use of Ind AS – the applicability of Ind AS – the mapping of Ind AS to IFRS – differences between IFRS & Ind AS – the list of IFRS (Ind AS) – Process of transition to IFRS.

UnitIV:

Valuation – Concepts – Valuation of Intangible Assets – Goodwill, Patents, trademarks, IPR's – ***Characteristics** – Valuation methods.

Asset based standards such as PPE, Intangible assets, borrowing costs, impairment of assets, inventory & biological assets, provisions & contingencies, events after reporting period, accounting policies, estimates & errors.

UnitV:

Corporate Restructuring - Concepts and accounting treatment as per Accounting Standard: 14 (ICAI)
 Advanced problems for Mergers and Amalgamations, (excluding inter-company holdings)

**Self Study Portion*

Pattern for End Semester Examination

End Semester Questions Pattern	Theory	Practical Problems	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section–A	6	6	12	10	2	20
Section–B	2	5	7	5	7	35
Section–C	1	4	5	3	15	45
Total Marks						100

Reference Books

1. P. Jain and K.L. Narang, Corporate Accounting, Kalyani Publishers, New Delhi
2. R.L. Gupta and M. Radhaswamy, Advanced Accounting, Sultan Chand & Sons, New Delhi
3. S.N. Maheswari, Advanced Accounting, Sultan Chand & Sons, New Delhi
4. M.C. Shukla & T.S. Grewal, Advanced Accounting, S. Chand & Co. Ltd. New Delhi
5. Hanif & Mukherjee, Advanced Accounting, TATA McGraw Hill Publications

Note: Latest edition of the books to be referred.

CORE PAPER VII – CORPORATE & BUSINESS LAWS

Semester	III
Subject	CORE PAPER VII – CORPORATE & BUSINESS LAWS
Course Code	23/62311
Maximum Marks	CIA – 50 Marks ESE – 100 Marks
Credits / Instructional Hours	4 Credits / 5 Hours
Exam Duration	3 Hours
L:P:T:S	5:0:0:0

COURSE OUTCOME

S.no	Objectives	K Level
1.	To learn about companies Act 2013, types of company and registration.	K2
2.	To understand the process in issue of shares and administration of company.	K2
3.	To give introduction about mercantile law and special contracts.	K3
4.	To make students understand about contract of agency and sale of goods act, 1930.	K4
5.	To be aware of Digital Signature concept and offences and penalties as per Information Technology Act	K4

Mapping Course Outcomes with Program Outcomes

CO	PROGRAM OUTCOME						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	3	3	3	3	3	3
CO2	2	3	3	3	2	3	3
CO3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	2	3	3	3	3	3	3

Mapping Course Outcomes with Program Specific Outcomes

CO	PROGRAM OUTCOME									
	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	2	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	2	3	3	3

Unit – I:

Companies Act, 2013 - Introduction - Definition of Company - Characteristics - Types of Company - One Person Company (OPC) - Dormant Company - Small Company - Lifting of the Corporate Veil - Formation of Company - Incorporation Procedures - *Documents/E-forms to be filed with Registrar for registration of Companies - Certificate of Incorporation - Preliminary Contracts - Incorporation Documents - Memorandum of Association - Articles of Association - Contents - Alterations.

Unit – II:

Share Capital - Issue Procedures - Rights Issue - Private Placement - Bonus Shares - alteration of share capital - Transfer of shares - *Dematerialization of shares - transmission of shares - Registration of Charge. **Members and shareholders** - Mode of acquiring membership - Rights and privileges of Members, Register of Members - Voting Rights. **Company Meetings** - Annual General Meeting - Extraordinary General Meeting - Class Meeting - Special and Ordinary business - convening and conduct of meetings. **Administration** - Key Managerial Personnel - Women Directors - Independent Directors - Roles and Responsibilities. **Unit – III :**

C01	3	3	3	3	2	3	3
C02	3	3	3	3	2	3	3
C03	3	3	3	3	2	3	3
C04	3	3	3	3	2	3	3
C05	3	3	3	3	2	3	3

Mapping Course Outcomes with Program Specific Outcomes

CO	PROGRAM SPECIFIC OUTCOMES									
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1	3	3	3	3	2	3	3	3	2	3
CO2	3	3	3	3	2	3	3	3	2	3
CO3	3	3	3	3	2	3	3	3	2	3
CO4	3	3	3	3	2	3	3	3	2	3
CO5	3	3	3	3	2	3	3	3	2	3

Unit-I:

Meaning of Income – Important definitions under the Income Tax Act – scope of total income – Residential Status and Incidence of tax of an individual - Incomes Exempt from tax.

Unit-II:

Income from Salaries – scope of salary income – Allowances, Perquisites and its valuation – Deduction from salary income.
Income from House Property – Computation of Annual value – Deductions from annual Value.

Unit-III:

Income from Business or Profession – Basic Principles of arriving at business income – Losses incidental to trade – specific deductions in computing income from business – General deductions – Deemed business profits chargeable to tax – compulsory maintenance of account – Audit of accounts of certain persons – specific provisions for computing incomes on estimated basis under sec 44AD, AE, AF (An Overview).

Unit-IV:

Capital Gains – Short term and Long Term gains – Transfer of Capital asset – Certain transactions that do not constitute transfer – Computation of capital gains – exempted capital gains.
Income from other sources – Deductions in computation of Income from Other Sources.

Unit-V:

Clubbing of income – Set off and carry forward of losses – Permissible deductions from Gross Total Income with reference to an individual - **Assessment of individual's total income & Tax Liability** - Filing of Returns – Types – Due Dates.

Pattern for End Semester Examination

End Semester Questions Pattern	Theory	Practical Problems	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section-A	6	6	12	10	2	20
Section-B	2	5	7	5	7	35
Section-C	1	4	5	3	15	45
Total Marks						100

Reference Books:

1. Dr. Vinod K. Singhania, Students Guide to Income Tax. Taxmann publications Pvt. Ltd, New Delhi
2. P. Gaur, D.B. Narang, Income Tax Law and Practice, Kalyani Publications.
3. TN Manoharan, Income Tax – Law & Practice, Snow White Publishers.
4. Study Material on Income Tax – The Institute of Chartered Accountants of India / The Institute of Cost Accountants of India.

Note: Latest edition of the books to be referred.

CORE PAPER XVIII – BANKING LAW AND OPERATIONS

Semester	VI
Subject	CORE PAPER XVIII – BANKING LAW AND OPERATIONS
CourseCode	23/62625
MaximumMarks	CIA – 40 Marks ESE – 100Marks
Credits / InstructionalHours	4Credits /90Hours
ExamDuration	3Hours
L:P:T:S	5:0:0:0

COURSE OUTCOME

S.no	Objectives	KLevel
1.	LearnaboutcommercialbanksandfunctionsofRBI.	K2
2.	Knowhowtoopenbankaccountandcreditworthiness ofloan.	K2
3.	Understandthevariousnegotiableinstruments.	K3
4.	Learnaboutpayingandcollectingbankandcustomergrievance.	K4
5.	Becomefamiliarwiththe-bankingandtransactionnetworksystems.	K4

MappingCourseOutcomeswithProgramOutcomes

CO	PROGRAMOUTCOME						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	3	3	3	3	3	3
CO2	2	3	3	3	2	3	3
CO3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	2	3	3	3	3	3	3

MappingCourseOutcomeswithProgramSpecificOutcomes

CO	PROGRAMOUTCOME									
	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	2	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	2	3	3	3

Unit-I:

Commercial bank – definition – classification of banking system– universal banking – functions – **role of commercial banks in economic development* – central banking – definition – need – principles – **central banking Vs commercial banking* – functions and role – RBI-functions and working – objectives – legal frame work.

Unit-II:

Opening bank accounts – type of bank accounts – KYC Norms – **FDR-Pay-in-slipbook, Withdrawal forms* – special type of customers – bank lending – sources and factors of lending – Assessment and evaluation of customer profile and creditworthiness of the applicant for loan – Credit information Bureaus – CIBIL, Experian, Equifax, CRIF HighMark, Credit Records and Reference – disclosure to customers

Unit-III:

Negotiable instruments – meaning – definition – types – distinction between cheque, promissory note and bills of exchange – **Cheque Truncation System [CTS] Cheques – meaning – advantages*. Endorsement – meaning – types – Crossing – definition – need – types – consequences – opening of crossing – marking of cheques – dishonouring of a cheque – payment in a crossed cheque – material alteration – statutory protection.

Unit-IV:

Paying Banker – meaning – duties and liabilities of paying banker – **Collecting banker** – meaning – collecting banker's role – collecting banker's duty – collection of bills of exchange – Agent for collection – paying banker Vs collecting banker.

Customer grievances – grievances redressal mechanism structure in banks – Banking Ombudsman.

Unit-V:

E-banking – meaning – services – Internet banking – Internet banking Vs. traditional banking –

Limitations of internet banking – Mobile banking – Automatic Teller Machine (ATM) –

Cash Deposit Machine (CDM) & Recycler Machine

- Electronic Funds Transfers – National Electronic Fund Transfer [NEFT] - Real Time Gross Settlement [RTGS] –

Intra – bank mobile payments system [IMPS] - Society for Worldwide Interbank

Financial Telecommunication [SWIFT] – Indian Financial Network [INFINET]

** Self Study Portion*

Pattern for End Semester Examination

End Semester Questions Pattern	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section – A	12	10	2	20
Section – B	7	5	7	35
Section – C	5	3	15	45
Total Marks				100

Reference Books:

1. Dr. S. Gurusamy, Banking, Theory Law & Practice Tata McGraw Hill, New Delhi
2. K. P. M. Sundharam, P. N. Varshney, Banking Theory Law & Practice – Sultan Chand & Sons
3. Khan, M. Y. Indian Financial System – Theory and Practice. Vikas Publishing House
4. B. Santhanam – Banking – Theory, Law & Practice, Margham Publications
5. K. C. Shekhar & Lekshmy Shekhar, Banking Theory and Practice, Kindle Store

Note: Latest Edition of the book to be referred.

GOODS AND SERVICES TAX & CUSTOMS LAW

Semester	VI	
Subject	CORE PAPER XIX GOODS AND SERVICES TAX & CUSTOMS LAW	
Course Code	23/62626	
Maximum Marks	CIA-40 Marks	ESE-100 Marks
Credits/Instructional Hours	4 Credits/90 Hours	
Exam Duration	3 Hours	
L:P:T:S	5:0:0:0	

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	Learn the concept of GST-CGST & IGST and registrations under GST.	K1
CO2	Demonstrate the concept of ITC (Input Tax Credit)	K2
CO 3	Describe the different terminologies on Payment of Tax interest, furnishing of interest.	K2
CO 4	Learn Customs Act 1962 and demonstrate the basic concepts on collection of customs duty	K3
CO 5	Develop the concept of Customs Procedures, Import and Export Procedures	K3

Mapping Course Outcomes with Program Outcomes

CO	PROGRAM OUTCOME						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	3	3	3	2	3	3
CO2	3	3	3	3	2	3	3
CO3	3	3	3	3	2	3	3
CO4	3	3	3	3	2	3	3
CO5	3	3	3	3	2	3	3

Mapping of Course Outcomes to Program Outcomes:

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
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CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	2	3	3	3	2	3	3	3	3
CO3	3	2	3	3	3	2	3	3	3	3
CO4	3	2	3	3	3	3	3	3	3	3
CO5	3	2	3	3	3	2	3	3	3	3

UNIT I:

Indirect Taxes - Introduction – Origin of GST – One Nation, One Tax, One Market ideology – Structure and types of GST, GST Council – Composition, functions, powers GST Network, GST Practitioners – Qualifications and Enrollment Procedures.

Registration under GST – procedures and formalities – E-forms – GSTIN – Amendment and Cancellation of Registration.

UNIT II:

Taxable Event – Supply of goods and Services – Classification of goods and services – Composite and Mixed Supplies – Place of Supply – Point of Taxation – Levy of GST – Regular and Composition Scheme – Documents and Registers to be maintained by Assessee.

UNIT III:

Valuation in GST – Transaction Value, Valuation Rules – Periodicity of GST – Payment – Mode of Payment – Reverse Charge Mechanism – Due dates of Filing Return – Types of Returns and Forms. Simple problems in calculation of GST Payable and Set off Input Tax Credit.

UNIT IV:

Customs Act, 1962 – objectives – Basic concepts of customs law, Territorial waters, high seas – levy and collection – classification of goods – procedure for assessment & payment of customs duty – types of customs duty – valuation of goods – clearance of goods.

Unit-V:

Customs Procedures, Import and Export Procedures, Baggage, Exemptions – Simple problems in computation of assessable value and Customs Duty. (FOB, CIF Values, Insurance Charges, Landing Charges etc.,)

* Self Study Portion

Pattern for End Semester Examination

End Semester Questions Pattern	Theory	Practical Problems	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section-A	8	4	12	10	2	20
Section-B	4	3	7	5	7	35
Section-C	3	2	5	3	15	45
Total Marks						100

Reference Books

1. Rajat Mohan, Goods & Services Tax, Bharat Law Publications House,
2. Nitya Tax Associates, Basics of GST, Taxmann
3. Study Material on GST – The Institute of Chartered Accountants of India / The Institute of Cost Accountants of India.
4. Guidance material on GST issued by CBIC, Government of India
5. V S Datey, GST & Customs Law, Taxmann Publishers.

Note: Latest Edition of the book to be referred.

CO5	3	3	3	3	3	3	3	3	3	3
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UnitI:

IntroductiontoIndAS-
IndAS101–FirsttimeadoptionofIndAS.Ind AS
103 – Business Combinations

UnitII:

IndAS104– InsuranceContracts
IndAS105–Non CurrentAssetsheldforsale&discontinuedoperations.

UnitIII:

IndAS107–FinancialInstruments:DisclosureInd
AS 108 – Operating Segments

UnitIV:

IndAS109 –FinancialInstruments
IndAS110–ConsolidatedFinancialStatements

UnitV:

IndAS114–RegulatoryDeferralAccounts
IndAS115–Revenuefromcontractswithcustomers.

* *SelfStudyPortion*

PatternforEndSemesterExamination

EndSemesterQuestions Pattern	TotalQuestions	ToAnswerQuestions	MarksPer Question	TotalMarks
Section–A	12	10	2	20
Section–B	7	5	7	35
Section–C	5	3	15	45
TotalMarks				100

ReferenceBooks:

1. BDChatterjee,GuidetoIndianAccounting Standards,Taxmann
2. CAPraveenSharma,HandbookonIndAS,Pooja LawPublishing House
3. DolpoyDSauza & VishalBansal,IndianAccountingStandards,SnowWhite
4. CAKamalGarg,PracticalGuidetoIndAS,BhaaratLawPublishingHouse

Note:Latesteditionofthebookstobereferred.

UNIVERSITY OF MADRAS
BACHELOR OF COMMERCE DEGREE COURSE IN MARKETING MANAGEMENT
Faculty of Commerce
 Choice Based Credit System (W.E.F.2022-2023)
DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE (AUTONOMOUS)
SHIFT-II Regulations
 (As per Common Regulations framed by University of Madras)

Semester	I
Subject	CORE I - FINANCIAL ACCOUNTING – I
Maximum Marks	CIA- 40 Marks ESE-60 Marks
Credits/ Instruction Hours	4 Credits / 6 Hours(per week)
Exam Duration	3 Hours

Objectives

1. To enable the students to know the Principles of Accounting in General.
2. To Understand the System of Keeping Financial Accounting Records.

Unit-I

Accounting - Meaning and scope of accounting - **Basic Accounting Concepts and Conventions- Objectives of Accounting – Accounting Transactions* – Double Entry Book Keeping – Journal, Ledger, Trial Balance - Rectification of errors – Preparation of Suspense Account – Effect of Rectification on Profits, Bank Reconciliation Statement.

Unit-II

Preparations of Final Accounts of a Sole Trading Concern – Adjustments – Closing Stock, Outstanding and Prepaid items, Depreciation, Provision for Bad Debts, Discount on Debtors, Interest on Capital and Drawings, Loss of Stock by Fire.

Unit-III

Depreciation – Meaning, Causes, Types – Straight-Line Method (SLM) – Written down Value method (WDV) – Sinking Fund Method.

Insurance claims – Average Clause (Loss of stock only)

Unit-IV

Accounting from Incomplete Records– Meaning, Features, Defects, Differences between Single Entry and Double Entry System – Statement of Affairs Method – Conversion Method.

Unit-V

Preparations of Receipt and Payments Accounts – Distinction between Revenue and Capital items - Income and Expenditure Account and Balance Sheet of Non-Trading Organizations. **Partnership Accounts** – Admission of a partner.

** Self Study Portion*
Pattern for End Semester Examination

End Semester Questions Pattern	Theory	Practical Problems	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section – A	6	6	12	10	2	20
Section – B	2	5	7	5	7	35
Section – C	1	4	5	3	15	45
Total Marks						100

Reference Books:

1. R.L.Gupta & V.K.Gupta – Financial Accounting – Sultan Chand Publishers, New Delhi
2. Jain & Narang - Financial Accounting – Kalyani Publishers
3. P.C. Tulsian – Financial Accounting – TATA Mc Graw Hill Publishers
4. Shukla & Grewal – Advanced Accountancy -Vol .I– S. Chand & Co.
5. Manikandan S, Rakesh Shankar R, Financial Accounting, Scitech Publications
6. T. S. Reddy & A. Murthy - Financial Accounting – Margham Publications

Semester	II
Subject	ALLIED II – BUSINESS REGULATORY FRAMEWORK
Maximum Marks	CIA- 40 Marks ESE-60 Marks
Credits/ Instruction Hours	4 Credits / 5 Hours(per week)
Exam Duration	3 Hours

Objectives

1. To expose the students to the legal framework related to the business
2. To make the students understand the relevance of legal aspects in business and marketing.
3. To enable the students to understand the Legal Remedies available Law to the Business and other People.

Unit-I:

Introduction to Mercantile Law - Law of Contract and basic definitions -Kinds of Contracts, Essentials of a Valid Contract -offer and Acceptance and Communication, Consideration, Capacity to Contract, Free Consent, Legality of Object and Consideration, Performance of Contract, Discharge of Contract, Breach of Contract – Remedies.

Unit-II:

Special Contracts

Bailment- Definition and Essential elements, Rights and duties of bailor and bailee, Finder of lost goods. Pledge- Essentials, Rights and duties of Pawnor and Pawnee, Indemnity- Definition, nature of liability of surety, rights of surety, Discharge of surety, Guarantee- Meaning and definition, types, revocation of guarantee

Unit-III:

The Sale of Goods Act, 1930 –Introduction – definition - goods and their classification; sale and a agreement to sell

- essential elements of contract of sale - **sale distinguished from hire purchase and instalment sale* - **Conditions and Warranties** - distinction between condition and warranty - implied conditions and warranties- **Doctrine** of Caveat Emptor and its exceptions - Transfer of Ownership - passing of property from the seller to the buyer - unpaid seller and his rights.

Unit IV:

Contract of Agency – Creation – classification of Agents – Principal Agent relationships – **Delegation of authority* – Personal liability of agent – Termination of agency, Sub agents and substituted agents.

Unit V:

Information Technology Act – Scope, Objectives, Electronic Contracting, electronic records and digital signatures, **cyber offences*, legality of e-marketing.

Overview of The Competition Act- 2002, Consumer Protection Act- 1986, Food Safety and Standards Act- 2006

** Self Study Portion*

Pattern for End Semester Examination

End Semester Questions Pattern	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section – A	12	10	2	20
Section – B	7	5	7	35
Section – C	5	3	15	45
Total Marks				100

Reference Books:

1. N.D.KAPOOR, Elements of mercantile law, Sultan Chand & co
2. N.D.KAPOOR, Business Laws, Sulthan Chand & co
3. DR.M.R.Sreenivasan, Business Law 2nd Ed Margham Publication, Chennai
4. P.C.Tulsian Business Laws, 2nd ed, Tata Mcgraw Hill, New Delhi
5. R.S.N.Pillai and Bhagavathi, 2004, Business Law, 3rd Ed., S.Chand & Co., New Delhi

Semester	III
Subject	CORE V - CORPORATE ACCOUNTING
Maximum Marks	CIA- 40 Marks ESE-60 Marks
Credits/ Instruction Hours	4 Credits / 6 Hours(per week)
Exam Duration	3 Hours

Objectives

1. To enable the students about the Preparation of the Company accounts.
2. To motivate the students to understand the various Provisions of the Company Law & Accounting Standards.

Unit I:

Accounting for Issue of Shares & Debentures, Employee Stock Option Plan –
***Meaning, importance**, Accounting for employee stock option plan.

Unit II:

Redemption of preference shares and Debentures – Underwriting of shares and Debentures.

Unit III:

Corporate Financial Reporting – Concepts - Final Accounts as per new guidelines –
***divisible profits**, managerial remuneration.

Unit IV:

Valuation – Concepts – Valuation of Intangible Assets – Goodwill, Patents, trademarks, IPR's – ***Characteristics**
– Valuation methods. **Profits prior to incorporation of a company.**

Unit V:

Corporate Restructuring - Concepts and accounting treatment as per Accounting Standard: 14 (ICAI) Advanced problems for Mergers and Amalgamations, (excluding inter-company holdings)

**Self Study Portion*

Pattern for End Semester Examination

End Semester Questions Pattern	Theory	Practical Problems	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section – A	6	6	12	10	2	20
Section – B	2	5	7	5	7	35
Section – C	1	4	5	3	15	45
Total Marks						100

Reference Books

1. P.Jain and K.L.Narang, Corporate Accounting, Kalyani Publishers, New Delhi
2. R.L.Gupta and M.Radhaswamy, Advanced Accounting, Sultan Chand & Sons, New Delhi
3. S.N.Maheswari Advanced Accounting, Sultan Chand & Sons, New Delhi
4. M.C.shukla & T.S.Grewal, Advanced Accounting, S.Chand & Co.Ltd. New Delhi
5. Hanif & Mukherjee, Advanced Accounting, TATA Mc Graw Hill Publications

Course Structure: Paper IV

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	CORE PAPER-IV Indian Writing in English and in Translation		
Category of the Course C	Year & Semester First Year & First Semester	Credits 4	Subject Code 2265104
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Course Outcomes	CO1: Understand the evolution of Indian Writing in English (k2) CO2: Delineate the texts in their respective social, cultural and political contexts (k4) CO3: Deconstruct socio-cultural issues such as gender, caste and region (k4) CO4: Appraise the multiple linguistic and literary traditions (k4) CO5: Assess the varied relationships between literatures produced in different regional languages (k5) CO6: Appreciate the social, cultural and linguistic diversity of India (k5)		
Course Outline	UNIT I Indian Classical literary Tradition; impact of English Studies on India; Colonialism; Nationalism; Nativism and Expatriatism; Socio-Cultural issues such as gender, caste and region		
	UNIT 2 Poetry The following Selections from A.K. Ramanujan’s “Love and War” (The Oxford Indian Ramanujan , ed., Molly Daniels, OUP, 2004). Kapilar, Akananooru pg. 82 Purananooru pg. 356 Rabindranath Tagore Gitanjali: 12,36,63, 12) The Time my journey takes is long 36) This is my prayer to Thee 63) Thou hast made me known to friends Nissim Ezekiel “Background Casually” (Indian Writing in English ed. Makarand Paranjape,		

	K.K Daruwalla Mehrotra (OUP, 1992) ArunKolatkar Kamala Das	Macmillan 1993, p.112) “Hawk” from The Anthology of Twelve Modern Indian Poets Ed. A.K. <i>From Jejuri</i> The Bus A Scratch An Introduction, Dance of the Eunuchs
	UNIT 3 Drama Girish Karnad	Hayavadana
	UNIT 4 Prose M.K. Gandhi B.R. Ambedkar	Prose and Fiction Chapters 4,7,8,9&13 from Hind Swaraj Extracts 4, 5 and 6 <i>from</i> Annihilation of Caste ed. Mulk Raj Anand (Delhi: Arnold Publishers, 1990, pp. 47-54)
	UNIT 5 Shashi Deshpande Short Story The following selections from Routes: Representations of the West in Short Fiction from South India in Translation eds. Vanamala Viswanatha, V.C. Harris, C. Vijayashree and C.T. Indra (Macmillan 2000). Kannada Masti Venkatesa Iyengar Malayalam P. Surendran Tamil PudumaiPithan	Fiction <i>That Long Silence</i> The Sorley Episode Synonyms of the Ocean Teaching

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PSO/PO	PSO							PO					
	1	2	3	4	5	6	7	1	2	3	4	5	6
CO1	H	H	H	L	L	H	L	H	M	H	L	M	M
CO2	H	H	H	L	L	M	L	H	M	H	L	H	H
CO3	M	M	H	L	L	M	L	H	H	H	L	H	H
CO4	H	H	H	L	L	H	L	H	H	H	L	H	H

CO5	H	H	H	L	L	H	L	H	H	H	L	H	H
CO6	M	H	H	L	L	M	L	H	H	H	L	H	H

Recommended Texts: Standard editions of texts

Reference Books:

1. K.R. Srinivasalyengar, 1962, **–History of Indian Writing in English**, Sterling Publishers, New Delhi.
2. Herbert H. Gowen, 1975, **A History of Indian Literature**, Seema Publications, Delhi.
3. William Walsh, 1990, **Indian Literature in English**, Longman, London.
4. Subhash Chandra Sarker, 1991, **Indian Literature, and Culture**, B.R. Publishing Corporation, Delhi.
5. M.K. Naik&Shyamala A Narayan, 2001, **Indian English Literature 1980-2000: A Critical Survey** ,D.K. Fine Art Press (P) Ltd., New Delhi.
6. TabishKhair, 2001, **Babu Fictions: Alienation in Contemporary Indian English Novels.**, OUP.
7. RajulBharagava Ed., 2002, **Indian Writing in English: The Last Decade**,Rawat Publications, New Delhi.
8. K. Satchidanandan, 2003, **Authors, Texts, Issues: Essays on Indian literature**, Pencraft International, New Delhi.
9. P.K. Rajan ed., 2004, **Indian Literary Criticism in English: Critics, Texts, Issues**,Rawat Publications, New Delhi.
10. Bruce King, 2001, **Modern Indian Poetry in English**, OUP, New Delhi.
11. Amit Chaudri, 2001, **The Picador Book of Modern Indian Literature**, Macmillan, London.
12. A.K. Mehrotra, 2003, **An Illustrated History of Indian Literature in English.** Permanent Black, New Delhi.

Website, e-learning resources

http://en.wikipedia.org/wik/indian_wring_in_english

Course Structure: ELECTIVE PAPER IV

Course Code :	Credits : 03
L:T:P:S : 3:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Subject: INTRODUCTION TO TRANSLATION STUDIES Subject Code: 2265316

COURSE OUTCOMES

- CO1: Identify the role of translation in society (K2)
- CO2: Illustrate basic concepts of translation (K3)
- CO3: Demonstrate fundamental skills in translation (K3)
- CO4: Examine translation in the Indian context (K4)
- CO5: Perform practical tasks in translation (K6)

Unit 1 Basic concepts of Translation (10 Hrs)

- 1.1 **Kinds of Translation**
 - 1.1.1. Interlingual
 - 1.1.2. Intralingual
 - 1.1.3. Intersemiotic
- 1.2 Concepts to be derived from practice
 - 1.2.1 Source Language and Target Language
 - 1.2.2 Equivalence
 - 1.2.3 Word for word, Sense for Sense

Unit 2 Translation in the Indian context (15 Hrs)

- 1.3 Introduction to Short Fiction from South India by Mini Krishnan
- 1.4 **Translating Culture Codes**

Unit 3 Literary Texts in translation (10 Hrs)

- 3.1 VM Basheer - Nose
- 3.2 Cho Dharman - Dry Leaves
- 3.3 C.S. Chellappa - Vaadivasal (OUP)
- 3.4 Rajam Krishnan - Lamps in the Whirlpool (OUP)

Unit 4 Application of Translation (10 Hrs)

- 4 **Dubbing and Subtitling**
 - 4.1 Film Harry Potter and the Order of the Phoenix
 - 4.2 Advertisements

Suggested Reading

Munda, Jeremy. 'New Directions From the New Media'. Introducing Translation Studies. Routledge, New York. 2008.

Unit 5 Practical Application Tasks (7 Hrs)

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PSO/PO	PSO							PO					
	1	2	3	4	5	6	7	1	2	3	4	5	6
CO1	L	M	H	M	L	M	L	L	M	H	L	L	M
CO2	M	M	M	L	L	M	L	L	M	M	L	L	L
CO3	L	L	M	M	L	L	L	L	L	L	L	M	L
CO4	H	M	H	L	L	M	L	M	H	H	H	L	L
CO5	L	M	L	H	M	L	M	L	L	L	L	M	M

Recommended Reading

Baker, Mona, In Other Words: A Course Book on Translation. London: Routledge
 Bassnet, Susan. Translation Studies. London & New York : Routledge, 1991.
 Catford, J.C. A Linguistic Thoery of Translation: An Essay in Applied Linguistics
 Duff, Alan, Translations. Oxford: OUP, 1989.
 London: OUP, 1965.
 Newmark, Peter. A Textbook of Translation. London: Prentice Hall, 1988.
 Savory, Theodore. The Art of V. London: Cape, 1957.
 Steiner George. After Babel: Aspects of Language and Translation. V. London:

Course Structure: Paper XIII

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	CORE PAPER XIII- Writings by and on Women		
Category of the Course C	Year & Semester 2nd year & Fourth Semester	Credits 4	Subject Code 2265418
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Objectives of the Course	CO1: Demonstrate an understanding of the politics of gender and authorship (k3) CO2: Examine patriarchy and its influence on women's lives and creative processes (k4) CO3: Identify and critique gendered oppression (k2&k4) CO4: Examine how women writers have challenged gender-based oppression (k4) CO5: Understand the intersectionality of gender, class, caste, race, etc. (k2) CO6: Read texts within the theoretical framework of feminism (k5)		
Course Outline	UNIT 1: Varieties of Feminism – concept of gender – androgyny- Language of women – environment and women- double marginalisation.		
	UNIT 2: Poetry: Anne Bradstreet Prologue Marianne Moore Poetry Sylvia Plath Lady Lazarus. Maya Angelou Still I Rise Charmaine D'Souza When God made me a Whore (Rajani P, V. Rajagopalan, Nirmal Selvamony, eds., Living & Feeling , Dept. of English., M.C.C.)		
	UNIT 3: Prose: John Stuart Mill On subjection of women Chapter 1 (V.S. Seturaman & C.T. Indraed.,		

	1994, Victorian Prose, Macmillan India, Chennai. pp-318)
Virginia Woolf	A Room of One's Own (chapters 3 & 4) (Jennifer Smith ed., 1998, A Room of One's Own Cambridge UP, New Delhi.)
Vandana Shiva	"Women in Nature" (from <i>Staying Alive</i>)
Alice Walker	In Search of Our Mother's Garden
UNIT 4: Fiction	
Arundathi Roy	The God of Small Things
Jean Rhys	Wide Sargasso Sea
Kate Chopin	The Awakening
UNIT 5: Drama	
Lorraine Hansberry	Raisin in the Sun
Jane Harrison	Stolen

C – Core; E – Elective; ED – Extra disciplinary

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/PSO	PSO							PO					
	1	2	3	4	5	6	7	1	2	3	4	5	6
CO1	H	H	H	L	L	M	L	H	H	H	L	L	M
CO2	H	H	H	L	L	L	L	M	H	H	L	L	H
CO3	H	H	H	L	L	L	L	M	H	H	L	L	H
CO4	H	H	H	L	L	M	L	M	H	H	L	L	H
CO5	H	H	H	L	M	L	L	M	H	H	L	L	H
CO6	H	H	H	L	L	M	L	H	H	H	L	L	M

Recommended Texts:

1. Sandra M. Gilbert and Susan Gubar, ed., 1985, **The Norton Anthology of Literature by Women**, New York.
2. Rajani P. , V. Rajagopalan, and NirmalSelvamony, **Who says my hand a needle better fits: An Anthology of American Women Writing**, Dept. of English, Madras Christian College, Tambaram.
3. Standard editions of texts.

Reference Books :

1. Lisa Tuttle, 1986, **Encyclopedia of Feminism**, Facts on File Publications, New York.
2. Catherine Belsey & Jane Moore, eds., 1977, **The Feminist Reader**, II ed., Macmillan, London.
3. Kathy J. Wilson, 2004, **Encyclopedia of Feminist Literature**, Greenwood Press, Westport.

Core Structure: Paper XIV

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	CORE PAPER XIV - Postcolonial Literature		
Category of the Course C	Year & Semester 2nd year & Fourth Semester	Credits 4	Subject Code 2265419
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Objectives of the Course	CO1: Demonstrate an understanding of the concepts related to the study of postcolonialisms (k3) CO2: Examine imperialism and its impact on the history, culture and language of various once colonised nations (k4) CO3: Identify and critique racism as a colonial construct (k2&k4) CO4: Examine how writers from former colonies question the hegemony of the colonial histories (k4) CO5: Understand the importance of multiplicity of stories (k2) CO6: Read texts within the theoretical framework of postcolonial studies (k5)		
Course Outline	UNIT 1: Key Concepts in Post-coloniality (14 concepts) Abrogation, appropriation, binarism, cartography, centre/margin, dependency theory, ethnicity, ecological imperialism, hegemony, hybridity, orality, other, post-colonialism/postcolonialism, subaltern		
	UNIT 2: India, Pakistan and Srilanka Agha Shahid Ali Dacca Gauzes (India- poem) Nissim Ezekiel A Very Indian Poem in Indian English (India-poem) Alagu Subramaniam Solomon's Justice (Sri Lanka- short story) Sa'adat Hasan Manto Khol do! (Pakistan short story) Edward Said "Crisis" in <i>Orientalism</i> from David Lodge's <i>Modern Criticism and Theory</i>		
	UNIT 3: Australia, New Zealand and Canada <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">Henry Lawson</div> <div style="width: 50%;">The Drover's Wife (Australia- short story)</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;">Witi Ihimera</div> <div style="width: 50%;">The Whale (New Zealand- short story)</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;">A.D. Hope</div> <div style="width: 50%;">Australia (Australia- poem)</div> </div>		

	Jack Davis	Kullark (Australia- drama)
	UNIT 4: African Subcontinent and West Indies Kofi Awoonor The Weaver Bird (Ghana poem) Chinua Achebe Things Fall Apart (Nigeria- novel) Chinmamanda Adichie The Danger of a Single Story (prose) Benjamin Zephaniah - Dis Poetry (West Indies- poem) Bob Marley – Buffalo Soldier (West Indies- song)	
	UNIT 5: Canada Margaret Atwood Surfacing (Canada- novel) George Ryga Ecstasy of Rita Joe (Canada - drama)	

C – Core; E – Elective; ED – Extra disciplinary

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PO/ PSO	PSO							PO					
	1	2	3	4	5	6	7	1	2	3	4	5	6
CO1	M	H	M	L	L	M	L	H	H	M	L	L	M
CO2	H	H	H	L	L	M	L	H	H	M	L	L	H
CO3	L	L	H	L	M	M	L	M	H	M	L	L	M
CO4	H	M	H	L	L	M	L	H	H	H	L	L	M
CO5	M	H	H	L	L	M	L	M	H	M	L	L	M
CO6	H	H	H	L	L	M	L	H	H	M	L	L	L

Recommended Texts:

1. Bill Ashcroft, Gareth Griffiths and Helen Tiffin, 1998, **Key Concepts in Post-Colonial Studies**, London
2. Ken Goodwin and Alan Lawson, 1990, The Macmillan Anthology of Australian Literature, Melbourne.
3. Alagu Subramaniam, 1964, The Big Girl, Ceylon.
4. Ashcroft, Griffith & Tiffin, eds., 1995, Post-Colonial Studies Reader, Routledge, London.
5. Standard editions of texts.

Reference Books/Websites:

1. King, Bruce, ed. *The New National and Postcolonial Literatures: An Introduction*, Oxford: Clarendon, 1996.
2. Killam, G. D. *The Novels of Chinua Achebe*. *Studies in African Literature Series*, London: Heinemann, 1978. P 7
3. Sarkar Parama, *Postcolonial Literatures*, Orient Black Swan, 2016
4. NPTEL course on Postcolonial Literature
<https://nptel.ac.in/noc/courses/noc17/SEM1/noc17-hs12/>
5. Chimamanda Ngozi Adichie: The danger of a single story
https://www.ted.com/talks/chimamanda_ngozi_adichie_the_danger_of_a_single_story/transcript?language=en

Course Structure: Elective

Course Code :	Credits : 03
L:T:P:S : 3:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	ELECTIVE PAPER V- Film Studies		
Category of the Course E (Elective within the department) /ED	Year & Semester Second Year & Fourth Semester	Credits 3	Subject Code 2265420
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Course Outcomes	CO1: Identify different kinds of films (k1) CO2: Identify various technical aspects of cinema (k1) CO3: Sketch the evolution of cinema in India (k3) CO4: Critically analyse cinema from various perspectives (k4) CO5: Appreciate and review films (k6)		
Course Outline	UNIT I History of Cinema in India; Major landmarks in India Cinema Satyajit Ray- “What is Wrong with Indian Films?”		
	UNIT 2 Kinds of Films Historical Patriotic Documentary Thrillers etc.		
	UNIT 3 Art of Film Making: Some Important Techniques Acting/ Photography/Direction/Script Writing etc		
	UNIT 4 Films and Entertainment Films and Social Responsibility		
	UNIT 5 Review of Films The Godfather Shutter Island		

C – Core; E – Elective; ED – Extra disciplinary

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES:

CO/PSO/PO	PSO							PO					
	1	2	3	4	5	6	7	1	2	3	4	5	6
CO1	L	H	H	L	L	L	H	L	L	H	H	L	L
CO2	L	L	L	L	L	L	M	L	L	H	H	H	L
CO3	M	M	H	L	L	L	M	H	L	H	H	M	H
CO4	M	M	M	L	L	L	M	L	L	H	H	L	L
CO5	L	M	M	L	L	L	L	L	H	H	H	H	L

1.Recommended Texts:

1. Ed. Bill Nichols, 1993 ,**Movies and Methods** Vol. I, Edition ,Seagull Books, Calcutta.
2. Ed. Bill Nichols, 1993, **Movies and Methods** Vol. II, Edition Seagull Books, Calcutta.
3. Susan Hayward, 2004, **Key Concepts in Cinema** Studies, Routledge, London.
4. Rajadhyaksha, Ashish. *Indian Cinema: A Very Short Introduction*. OUP, 2016.

Reference Books :

1. Louis Giannetti, 1972, **Understanding Movies**, Prentice Hall, New Jersey.
2. Ed. S. Vasudevan, 2000, **Making Meaning in Indian Cinema**, OUP, New Delhi.

Website: www.academicinfo.net/film.html.

Course Structure: Value Added Course

Course Code :	Credits : 01
L:T:P:S ::	CIA Marks :
Exam Hours :	ESE Marks :

Title of the Course / Paper	Value Added Course: Theatre Art		
Category of the Course VAC(Value Added Course)	Year & Semester Second Year & Fourth Semester	Credits 1	
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Course Outline	<ol style="list-style-type: none"> 1. Approach to characterization 2. Director's concept 3. Basic Acting and Different Approach 4. Improvisation 5. Navarasa Trainig 6. Speech Training 7. Text and Acting 8. Scene Work 9. Play Production 		

Optional
English Literature for UGC NET/SET Examinations

Year and Semester: Second Year and Fourth Semester

The Elizabethan Age / Chaucer to Shakespeare: Historical Perspective and Background; Origins of Drama; Elizabethan Plays, Prose and Sonnets.

Geoffrey Chaucer, William Gower, Edmund Spenser, University Wits. Philip Sydney, Shakespeare, Ben Jonson, Christopher Marlowe and Thomas Kyd.

- **The Jacobean Age:** Historical Perspective and Background; the Revenge Tragedies; the Metaphysical Poets; the Cavalier Poets.

John Webster, Thomas Middleton, Thomas Heywood, Francis Bacon and John Bunyan .

- **The Restoration Period:** Historical Perspective and Background; Restoration Satire; Comedy of Manners.

John Dryden, John Milton, John Bunyan, William Congreve, Samuel Butler and William Wycherley.

- **The Augustan Age:** Historical Perspective and Background; Satire and Sentimental Comedy.

Alexander Pope, Jonathan Swift, Daniel Defoe, Joseph Addison, Richard Steele, Samuel Johnson, Samuel Richardson, Henry Fielding, Oliver Goldsmith, George Smollett, Laurence Sterne and Richard Sheridan .

- **The Romantic Age:** Precursors ; Transitionists; Romantic Poets and Essayists.

Robert Burns, William Blake, Thomas Gray, William Collins, William Wordsworth, S.T. Coleridge, P.B.Shelley, John Keats, Charles Lamb, Leigh Hunt, William Hazlitt, Thomas De Quincey, Ann Radcliffe and Jane Austen.

- **The Victorian Age:** Historical Perspective and Background; Victorian Poets, Pre-Raphaelites, Essayists, Novelists.

John Stuart Mill, Thomas Carlyle, John Ruskin, Thomas Hardy, Charles Dickens, Thackeray, The Bronte Sisters, Mathew Arnold, Alfred Tennyson, Robert Browning, D.G. Rossetti, Charles Swinburne and William Morris.

- **The Twentieth Century (Modernism & Postmodernism) / Contemporary Period:** Historical Perspective and Background; Edwardian and Georgian Poets; Imagists; Symbolists; War Poets; Movements; Impact of World Wars I & II on Literature; Modern & Postmodern writers. Walter Pater, Oscar Wilde, Ezra Pound, T.S.Eliot, Bernard Shaw, Rudyard Kipling, Joseph Conrad, George Orwell, Henry James, E. M. Foster, Aldous Huxley,

D.H. Lawrence, James Joyce, Virginia Woolf and Somerset Maugham.

Samuel Beckett, Harold Pinter, Ted Hughes, Salman Rushdie, Kurt Vonnegut, Thomas Pynchon, John Barth, William S. Burroughs, Vladimir Nabokov and Italo Calvino.

- **American and Non British Literatures:** Historical Perspective and Background; Colonization, Colonizers and the Colonized; Commonwealth Literature; Subaltern Literature; Third World Literature.

American Writers: Walt Whitman, Ralph Waldo Emerson, H.D. Thoreau, Emily Dickinson, Edgar Allan Poe, Robert Frost, Mark Twain, Ernest Hemingway, Wallace Stevens, William Faulkner, Herman Melville, Robert Frost, E.E. Cummings, John Steinbeck, William Faulkner, Eugene O’Neil, Tennessee Williams, Arthur Miller and Nathaniel Hawthorne.

Non - British Literatures: Chinua Achebe, Ngugi Wa Thiong’o, Nadine Gordimer, V.S. Naipaul, Taslima Nasrin, Patrick White, Judith Wright, Margaret Laurence, Margaret Atwood, Rudy Wiebe, Rohinton Mistry, M.G. Vassanji, Michael Ondaatje, Alice Walker, Toni Morrison, Maya Angelou, Jean Rhys, R.K. Narayan, Mulk Raj Anand, Kamala Das, Kamala Markandaya, Girish Karnad, Toru Dutt, Sri Aurobindo, Sarojini Naidu, Eunice De Souza, Nissim Ezekiel, A.K. Ramanujan, Chetan Bhagat, Vikram Chandra, Vikram Seth, Amitav Ghosh, Anitha Desai, Jhumpa Lahiri, Arundhati Roy and Kiran Desai.

All Nobel Prize and Pulitzer Prize Winners

- **Literary Theory and Criticism:** Plato, Aristotle, Horace, Longinus, Philip Sidney, John Dryden, Alexander Pope, Samuel Johnson, Thomas Carlyle, John Stuart Mill, Karl Marx, Friedrich Nietzsche, Matthew Arnold, T.S. Eliot, Northrop Frye, F.R. Leavis, I.A. Richards, Jacques Lacan, Carl Gustav Jung, Simone de Beauvoir, Noam Chomsky, Jacques Derrida, Ferdinand de Saussure, Irving Babbitt, Cleanth Brooks, Mikhail Bakhtin, Roland Barthes, Michel Foucault, Julia Kristeva, Edward Said, Hayden White and Linda Hutcheon.
- **Rhetoric and Prosody:** Figures of Speech: Alliteration, Antithesis, Apostrophe, Assonance, Metaphor, Simile, Paradox, Pun, Synecdoche, Metonymy, Hyperbole and Oxymoron.
- Rhyme and Metre, Rhythmic Patterns and Literary Term

Recommended Texts:

Andrew Sanders – An Oxford History of English Literature.

Patricia Waugh - Contemporary Critical Theory.

Peter Barry- Beginning Theory.

M.H. Abrams – A Glossary of Literary Terms.

An Outline History of English Literature by W.H. Hudson.

A Critical Handbook of Literature in English by Shubhamoy Das.

History of English Literature by W.J. Long.

History of English Literature by Edward Albert.

History of English Literature by T. Singh.

An Introduction to Literary and Cultural Theory by Peter Barry.

Contemporary Literary and Cultural Theory by P.K. Nayar.

An Introduction to English Criticism by B. Prasad.

English Literary Objective Questions by Amita Rowley Thaman.

A Textbook for Objective Questions in English Literature by Manoj Kumar.

Lodge, David. Modern Criticism and Theory

Semester	I
Subject	CORE I – INTRODUCTION TO PYTHON PROGRAMMING
Maximum Marks	CIA- 25 Marks ESE-75 Marks
Credits/ Instruction Hours	4 Credits / 75 Hours
Exam Duration	3 Hours

Objectives

1. To understand the basic concepts of Data Science
2. To understand the principles of algorithms, flowchart and source code
3. To acquire a solid foundation in Python.

To visualize data using plots in python

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	<ul style="list-style-type: none"> • To explain the basic concepts of data science and its applications 	K1,K2,K3,K4,K5
CO2	<ul style="list-style-type: none"> • To explain the Features of Python • To demonstrate Control Statements and Looping Statements 	K1,K2,K3,K4,K5
CO3	<ul style="list-style-type: none"> • To understand Python Functions • To create and illustrate Numpy Libraries • To perform Data Manipulation using Pandas. 	K1,K2,K3&K4,
CO4	<ul style="list-style-type: none"> • To understand the File Concepts • Apply Exception Handling Techniques 	K1,K2,K3,K4,K5

CO5	<ul style="list-style-type: none"> To Create and manipulate Database To create Data Visualization using Matplotlib 	K1,K2,K3,K4,K5
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Mapping of Course Outcomes to Program Outcome:

PO/ PSO	P O 1	P O 2	P O 3	P O 4	P O 5	P O 6	P O 7	PS O1	PS O2	PS O3	PS O4
CO1	3	3	3	3	3	3	3	3	3	3	3
CO2	2	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	3	2	2	2	2	3	3	3
CO4	3	3	3	3	2	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3
Average	2.8	3.0	3.0	3.00	2.4	2.8	2.8	2.8	3.0	3.0	3.0
Criteria for Mapping	3= Strong 2= Medium 1= Low										

UNIT-1

Introduction to Data Science

Introduction: Data Science - Big Data and Data Science hype – getting past the hype - Datafication - Current landscape of perspectives - Skill sets needed - Statistical Inference - Exploratory Data Analysis and the Data Science Process - Basic tools (plots, graphs and summary statistics) of EDA – Applications of Data Science - Data Science in Business - Business Intelligence vs Data Science – Data Analytics Life Cycle - Machine Learning

UNIT II

Introduction to Python

Features of Python - How to Run Python – Identifiers- Reserved Keywords- Variables - Comments in Python - Indentation in Python - Multi-Line Statements- Input, Output and Import Functions- Operators. Data Types and Operations: Numbers -Strings -List -Tuple - Set -Dictionary - Mutable and Immutable Objects - Data Type Conversion. Flow Control: Decision Making-Loops-Nested Loops-Control Statements- Types of Loops-List Comprehensions-Set Comprehensions-Dictionary Comprehensions-Nested Dictionaries.

UNIT III

Functions

Function Definition - Function Calling - Function Arguments - Anonymous Functions (Lambda Functions) - Recursive Functions - Modules and Packages: Built-in Modules - Creating Modules - import Statement- Namespaces and Scope - The dir() function - The reload() function -Packages in Python - Date and Time Modules – Numpy Libraries and Data Manipulation Using Pandas.

UNIT IV

File Handling and Object Oriented Programming

Opening a File-Closing a File - Writing to a File - Reading from a File - File Methods - Renaming a File - Deleting a File - Directories in Python. Regular Expressions. Class Definition - Creating Objects - Built-in Attribute Methods - Built-in Class Attributes -

Destructors in Python - Encapsulation - Data Hiding – Inheritance-Method Overriding – Polymorphism - Exception Handling.

UNIT V

Database Programming and Visualizations

Connecting to a Database - Creating Tables - INSERT Operation - UPDATE Operation - DELETE Operation - READ Operation - Transaction Control -Disconnecting from a Database - Exception Handling in Databases - GUI Programming - CGI Programming- Data Visualizations using Matplotlib – histograms, bar charts, pie charts.

TEXT BOOKS

1. Doing Data Science, Straight Talk From The Frontline, Cathy O'Neil and Rachel Schutt, O'Reilly (2014).
2. Big Data Analytics, paperback 2nd ed., Seema Acharya, SubhasiniChellappan, Wiley (2019).
3. Dr. Jeeva Jose (2018) ,Taming Python By Programming, Khanna Publishers
4. Jake Vanderplas. Python Data Science Handbook: Essential Tools for Working with Data 1st Edition.

REFERENCES

1. LjubomirPerkovic(2012),Introduction to Computing Using Python: An Application DevelopmentFocus, John Wiley & Sons
2. John V Guttag(2013), Introduction to Computation and Programming Using Python“, Revised and expanded Edition, MIT Press.
3. Kenneth A. Lambert(2012), Fundamentals of Python: First Programs, Cengage Learning.

Semester	I	
Subject	CORE PRACTICAL I – PYTHON	
Maximum Marks	CIA- 40 Marks	ESE-60 Marks
Credits/ Instruction Hours	4 Credits / 75 Hours	
Exam Duration	3 Hours	

OBJECTIVES:

- To build websites and software, automate tasks, and conduct data analysis.
- Open Source and Community Development.

LIST OF PROGRAMS

1. Demonstrate the working of “id” and “type” functions.
2. Find all prime numbers within a given range.
3. Print n terms of Fibonacci series using iteration.
4. Demonstrate use of slicing in string.
5. Compute the frequency of the words from the input. The output should output after sorting the key alphanumerically.
6. Write a program that accepts a comma separated sequence of words as input and prints the words in a comma-separated sequence after sorting them alphabetically.
7. Demonstrate use of list & related functions.

8. Demonstrate use of Dictionary & related functions.
9. Demonstrate use of tuple & related functions.
10. Implement stack using list.
11. Implement queue using list.
12. Read and write from a file.
13. Copy a file.
14. Demonstrate working of classes and objects.
15. Demonstrate class method & static method.
16. Demonstrate constructors.
17. Demonstrate inheritance.
18. Demonstrate aggregation/composition.
19. Create a small GUI application for insert, update and delete in a table.
20. Bar charts, histograms and pie charts.

Semester	II	
Subject	CORE II - OBJECT ORIENTED PROGRAMMING WITH JAVA	
Maximum Marks	CIA- 25 Marks Marks	ESE-75
Credits/ Instruction Hours	4 Credits / 75 Hours	
Exam Duration	3 Hours	

Objectives

1. Understand the concepts of Object Oriented Programming
2. Become proficient programmers through the java programming language
3. Give insight into real world applications.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	<ul style="list-style-type: none"> • Use the syntax and semantics of java programming language and basic concepts of OOP. 	K1,K2,K3,K4,K5
CO2	<ul style="list-style-type: none"> • Develop reusable programs using the concepts of inheritance, polymorphism, interfaces and packages 	K1,K2,K3,K4,K5

CO3	<ul style="list-style-type: none"> Apply the concepts of Multithreading and Exception handling to develop efficient and error free codes. 	K1,K2,K3&K4
CO4	<ul style="list-style-type: none"> Design event driven GUI and web related applications which mimic the real word scenarios 	K1,K2,K3&K4
CO5	<ul style="list-style-type: none"> Build the internet-based dynamic applications using the concept of applets 	K1,K2,K3,K4,K5

Mapping of Course Outcomes to Program Outcomes:

PO/ PSO	P O1	P O2	P O3	PO 4	PO 5	P O6	PO 7	PS O1	PS O2	PS O3	PS O4
CO 1	3	3	3	3	3	3	2	3	2	2	3
CO 2	3	3	3	3	3	3	3	3	3	3	3
CO 3	3	3	3	3	3	3	3	3	2	3	3
CO 4	3	3	3	3	3	3	3	3	3	3	3
CO 5	3	3	3	3	3	2	2	3	2	3	3
Avera ge	3.0 0	3.0 0	3.0 0	3.0 0	3.0 0	2.8	2.6 0	3.00	2.40	2.80	3.00
Criteria for Mapping	3= Strong 2= Medium 1= Low										

UNIT I

Introduction

Introduction to Java-Features of Java-Object Oriented Concepts-Data Types – Variables – Arrays – Operators - Control Statements – Classes – Objects –Constructors - Overloading method - Access control - static and fixed methods - Inner classes -Inheritance-Overriding Methods-Using super-Abstract class.

UNIT II

Packages & Threads

Packages-Access Protection-Importing Packages-Interfaces-Exception Handling-Throw and Throws- Thread-Synchronization-Messaging- Runnable Interface-Inter thread communication -Deadlock-suspending, resuming and stopping threads-Multithreading.

UNIT III

Input/Output & Collection API

I/O Streams-File Streams-String Objects-String Buffer-Char Array - Java Utilities-Collections interface - Collection classes-Enumeration – Vector -Stack –Hash tables - String class.

UNIT IV

Networking

Networking –Networking basics – java and the Net – InetAddress- TCP/IP Client Sockets – URL- URLConnection – TCP/IP Server Sockets – Datagrams.

UNIT V

Graphical User Interface in Java

Working with windows using AWT Classes - Class Hierarchy of Window and Panel -AWT controls - Layout Managers – Menus- Menu bars - Dialog Boxes- File Dialog- Applets-Life cycle of Applet-Types of Applets-Event handling-Applet tags - JDBC and connecting to Databases – CRUD operations.

TEXT BOOKS

1. P.Naughton and H.Schildt(1999), Java 2 (The Complete Reference), Third Edition, Tata MCGraw Hill Edition
2. K.K. Aggarwal &Yogesh Sing (2008), Software Engineering, Revised Third Edition, New Age International Publishers

REFERENCE BOOKS

1. Cay S. Horstmann, Gary Cornell(2012), Core Java 2 Volume I, Fundamentals- Ninth Edition Addison Wesley
2. K.Arnold and J.Gosling, The Java Programming Language- Second Edition, ACM Press/Addison- Wesley Publishing Co. New York

Semester	II	
Subject	CORE PRACTICAL II OBJECT ORIENTED PROGRAMMING WITH JAVA	
Maximum Marks	CIA- 40 Marks Marks	ESE-60
Credits/ Instruction Hours	4 Credits / 75 Hours	
Exam Duration	3 Hours	

OBJECTIVES:

- Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs.
- Read and make elementary modifications to Java programs that solve real-world problems.

LIST OF PROGRAMS

Application

1. Program to illustrate i) constructors ii) inheritance iii) overloading and overriding
2. Implementation of Packages, interfaces, Exception handling
3. Implementation of concurrent and synchronized threads.
4. Implementation of string and string buffer classes and methods.
5. Implementation of stack and vector.
6. Implementation of file read and writes operation.

Applet programs

1. Working with Frames and various controls
2. Working with Dialogs and Menus
3. Working Panel and Layout
4. Incorporating Graphics
5. Working with applets
6. Working with Images
7. Network Programming

Semester	III
Subject	CORE III - DATA STRUCTURES AND ANALYSIS OF ALGORITHMS USING PYTHON
Maximum Marks	CIA- 25 Marks ESE- 75 Marks
Credits/ Instruction Hours	4 Credits / 75 Hours
Exam Duration	3 Hours

Objectives

1. Understand the meaning asymptotic time complexity analysis and various data structures
2. To enhancing the problem solving skills and thinking skills
3. To write efficient algorithms and Programs

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	<ul style="list-style-type: none"> To understand the asymptotic notations and analysis of time and space complexity To understand the concepts of Linked List, Stack and Queue. 	K1,K2,K3,K4,K5
CO2	<ul style="list-style-type: none"> To understand the Concepts of Trees and Graphs Perform traversal operations on Trees and Graphs. To enable the applications of Trees and Graphs. 	K1,K2,K3,K4,K5
CO3	<ul style="list-style-type: none"> To apply searching and sorting techniques. 	K1,K2,K3&K4
CO4	<ul style="list-style-type: none"> To understand the concepts of Greedy Method To apply searching techniques. 	K1,K2,K3&K4
CO5	<ul style="list-style-type: none"> To understand the concepts of Backtracking Method To enable the applications. 	K1,K2,K3,K4,K5

Mapping of Course Outcomes to Program Outcomes:

PO/ PSO	P O1	P O2	P O3	PO 4	PO 5	P O6	PO 7	PS O1	PS O2	PS O3	PS O4
CO 1	3	3	3	3	3	3	2	3	2	2	3
CO 2	3	3	3	3	3	3	3	3	3	3	3
CO 3	3	3	3	3	3	3	3	3	2	3	3
CO 4	3	3	3	3	3	3	3	3	3	3	3
CO 5	3	3	3	3	3	2	2	3	2	3	3
Average	3.0 0	3.0 0	3.0 0	3.0 0	3.0 0	2.8	2.6 0	3.00	2.40	2.80	3.00
Criteria for Mapping	3= Strong 2= Medium 1= Low										

UNIT I

Arrays and ordered Lists

Abstract data types – asymptotic notations – complexity analysis- Linked lists: Singly linked list – doubly linked lists - Circular linked list, General lists- stacks – Queues – Circular Queues – Evaluation of expressions

UNIT – II

Trees and Graphs

Trees – Binary Trees – Binary Tree Traversal – Binary Tree Representations – Binary Search Trees - threaded Binary Trees - Application of trees (Sets). Representation of Graphs – Graph implementation – graph Traversals - Minimum Cost Spanning Trees – Shortest Path Problems-Application of graphs

UNIT-III

Searching and Sorting

Sorting – Bubble Sort, Insertion Sort, Quick Sort , Merge Sort, Selection Sort. Searching – Linear search, Binary search

UNIT IV

Greedy Method and Dynamic programming

Greedy Method : Knapsack problem– Job Sequencing with deadlines – Optimal storage on tapes.General method – Multistage Graph Forward Method– All pairs shortest path – Single source shortest path – Search Techniques for Graphs – DFS – Connected Components – Bi-Connected Components

UNIT V

Backtracking

General Method – 8-Queen’s – Sum Of Subsets – Graph Colouring – Hamiltonian Cycles – Branch And Bound: General Method – Travelling Sales Person Problem

TEXT BOOK

1. Seymour Lipshutz(2011), Schaum’s Outlines - Data Structures with C, Tata McGraw Hill publications
2. Ellis Horowitz and SartajSahni (2010), Fundamentals of Computer Algorithms, Galgotia Publications Pvt., Ltd.
3. Dr. K. Nagesware Rao, Dr. Shaik Akbar, ImmadiMurali Krishna, Problem Solving and Python Programming(2018)

REFERENCE BOOKS

1. Gregory L.Heileman(1996), Data Structures, Algorithms and Object-Oriented Programming, McGraw Hill International Edition, Singapore.
2. A.V.Aho, J.D. Ullman, J.E.Hopcraft(2000). Data Structures and Algorithms, Addison Wesley Publication.
3. Ellis Horowitz and SartajSahni, Sanguthevar Raja sekaran (2010) ,Fundamentals of Computer Algorithms, Galgotia Publications Pvt.Ltd.

Semester	III	
Subject	CORE PRACTICAL III - DATA STRUCTURES AND ANALYSIS OF ALGORITHMS USING PYTHON	
Maximum Marks	CIA- 40 Marks Marks	ESE-60
Credits/ Instruction Hours	4 Credits / 75 Hours	

Exam Duration	3 Hours
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Objectives

- To predict the performance of different algorithms in order to guide design decisions.
- To provide theoretical estimation for the required resources of an algorithm to solve a specific computational problem

LIST OF PROGRAMS

1. Perform stack operations
2. Perform queue operations
3. Perform tree traversal operations
4. Search an element in an array using linear search.
5. Search an element in an array using binary search
6. Sort the given set of elements using Merge Sort.
7. Sort the given set of elements using Quick sort.
8. Search the Kth smallest element using Selection Sort
9. Find the Optimal solution for the given Knapsack Problem using Greedy Method.
10. Find All pairs shortest path for the given Graph using Dynamic Programming method
11. Find the Single source shortest path for the given Travelling Salesman problem using Dynamic Programming method
12. Find all possible solution for an N Queen problem using backtracking method
13. Find all possible Hamiltonian Cycle for the given graph using backtracking method

Semester	IV	
Subject	CORE IV ARTIFICIAL INTELLIGENCE	
Maximum Marks	CIA- 25 Marks	ESE- 75 Marks
Credits/ Instruction Hours	4 Credits / 75 Hours	
Exam Duration	3 Hours	

Objectives

1. Describe the concepts of Artificial Intelligence
2. Understand the method of solving problems using Artificial Intelligence
3. Understand natural language processing
4. Introduce the concept of Expert system, Fuzzy logic

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	<ul style="list-style-type: none"> • Design user interfaces to improve human–AI interaction and real-time decision-making. • Evaluate the advantages, disadvantages, challenges, and ramifications of human–AI augmentation. 	K1,K2,K3,K4,K5
CO2	<ul style="list-style-type: none"> • Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning. 	K1,K2,K3,K4,K5
CO3	<ul style="list-style-type: none"> • Demonstrate awareness and a fundamental understanding of various applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models. 	K1,K2,K3&K4,
CO4	<ul style="list-style-type: none"> • Extract information from text automatically using concepts and methods from natural language processing (NLP), including stemming, n-grams, POS tagging, and parsing 	K1,K2,K3,K4,K5
CO5	<ul style="list-style-type: none"> • Develop robotic process automation to manage business processes and to increase and monitor their efficiency and effectiveness. • Determine the framework in which artificial intelligence and the Internet of things may function, including interactions with people, enterprise functions, and environments. 	K1,K2,K3,K4,K5

Mapping of Course Outcomes to Program Outcomes:

PO/ PSO	P O1	P O2	P O3	PO 4	PO 5	P O6	PO 7	PS O1	PS O2	PS O3	PS O4
CO 1	3	3	3	3	3	3	2	3	2	2	3
CO 2	3	3	3	3	3	3	3	3	3	3	3
CO 3	3	3	3	3	3	3	3	3	2	3	3
CO 4	3	3	3	3	3	3	3	3	3	3	3
CO 5	3	3	3	3	3	2	2	3	2	3	3
Avera ge	3.0 0	3.0 0	3.0 0	3.0 0	3.0 0	2.8	2.6 0	3.00	2.40	2.80	3.00
Criteria for Mapping		3= Strong 2= Medium 1= Low									

UNIT I

Introduction to Artificial Intelligence

What is Artificial Intelligence? AI Technique, Representation of a problem as State space search, production systems, Problem characteristics, Production System characteristics – Issues in the design of search programs, Heuristic Search Techniques - Generate & Test Hill Climbing, Best First search, Problem reduction, Constraint satisfaction, Means-End Analysis

UNIT II

Knowledge Representation

Approaches and issues in knowledge representation –Using Predicate Logic – Representing simple facts in logic – Representing Instance and ISA relationship – Computable functions and predicates – resolution – Natural deduction - Representing knowledge using rules –Procedural versus declarative knowledge – Logic programming - Forward versus backward reasoning – Matching – Control Knowledge - Symbolic reasoning under uncertainty - Logics for Non-monotonic reasoning – Implementation Issues – Augmenting a problem solver – Implementation: Depth first search, Breadth first search

UNIT III

Statistical Reasoning

Probability and Bayes' Theorem - Certainty factors and rule-based systems- Bayesian networks – Dempster - Shafer Theory - Weak slot-filler structure - Semantic nets – frames. Strong slot-filler structure- Conceptual dependency – Scripts – CYC – Syntactic – Semantic spectrum of Representation – Logic and slot-and-filler structure – Other representational Techniques

UNIT IV

Game Playing, Planning & NLP

Minimax search procedure-Adding alpha-beta cutoffs- Additional Refinements – Iterative Deepening – Reference on specific games Planning - Components of a Planning system – Goal stack planning – Nonlinear planning using constraint posting- Hierarchical planning – Reactive systems.Natural Language Processing - Syntactic Analysis, Semantic Analysis, Discuses and Pragmatic Processing – Statistical Natural Language processing.

UNIT V

Learning & Advanced Topics in AI

What is learning? – Rote learning – Learning by taking advice – Learning in problem solving – Learning from examples: Induction – Explanation based learning – Discovery – Analogy – Formal learning theory - Neural Net learning and Genetic learning - Expert System: Representation-Expert System shells-Knowledge Acquisition. Fuzzy logic system – Crisp sets – Fuzzy sets – Fuzzy terminology – Fuzzy logic control – Sugeno style of Fuzzy inference processing – Fuzzy Hedges – Neuro Fuzzy systems.

TEXT BOOKS

1. Elaine Rich, Kevin Knight (2008), Shivsankar B Nair, Artificial Intelligence, Third Edition, Tata McGraw Hill Publication,

REFERENCE BOOKS

1. Russel S, Norvig P (2010), Artificial Intelligence : A Modern approach, Third Edition, Pearson Education
2. Dan W Patterson (2007), Introduction to Artificial Intelligence and Expert System, Second Edition, Pearson Education Inc.

3. Jones M(2006), Artificial Intelligence application Programming, Second Edition, Dreamtech Press
4. Nilsson (2000), Artificial Intelligence : A new synthesis, Nils J Harcourt Asia PTE Ltd.

Semester	IV	
Subject	CORE PRACTICAL IV MATLAB	
Maximum Marks	CIA- 40 Marks	ESE- 60 Marks
Credits/ Instruction Hours	4 Credits / 75 Hours	
Exam Duration	3 Hours	

Objectives

- Use of MATLAB and MathWorks Statistics and Machine Learning Toolbox.
- Create and troubleshoot basic m scripts.
- Import datasets for analysis.
- Plot datasets.
- Create publishable, reproducible analysis reports.

LIST OF PROGRAMS

1. Introduction to MATLAB, MATLAB Elements & Simple Programs and debugging concepts.
2. Write a MATLAB Program for functions.
3. Write a MATLAB Programs by using IF Then Else, Case, Statement, for Loop, While loop.
4. Write a MATLAB Program for 2-D graph.
5. Write a MATLAB Program for 3-D graph.
6. Write a MATLAB Program for various Image operations.
7. Write a MATLAB Program for Animations.
8. Study of MATLAB debugging commands.
9. Write a MATLAB Program to create GUI.
10. Write a MATLAB Program to simulate a simple circuit.
11. Write a MATLAB Program to create Movie.
12. Write MATLAB Program to read sound file and adjust its parameters.
13. Write MATLAB Program to read .avi file.
14. Implement Non-AI and AI Techniques
15. Implement any two Player game

Semester	V	
Subject	CORE V – MACHINE LEARNING	
Maximum Marks	CIA- 25 Marks	ESE-75 Marks
Credits/ Instruction Hours	4 Credits / 75 Hours	
Exam Duration	3 Hours	

Objectives

1. To Learn about Machine Intelligence and Machine Learning applications
2. To implement and apply machine learning algorithms to real-world applications.
3. To identify and apply the appropriate machine learning technique to classification, pattern recognition, optimization and decision problems.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	<ul style="list-style-type: none"> • Appreciate the importance of visualization in the data analytics solution 	K1,K2,K3,K4,K5
CO2	<ul style="list-style-type: none"> • Apply structured thinking to unstructured problems 	K1,K2,K3,K4,K5
CO3	<ul style="list-style-type: none"> • Understand a very broad collection of machine learning algorithms and problems 	K1,K2,K3&K4,
CO4	<ul style="list-style-type: none"> • Learn algorithmic topics of machine learning and mathematically deep enough to introduce the required theory 	K1,K2,K3,K4,K5
CO5	<ul style="list-style-type: none"> • Develop an appreciation for what is involved in learning from data. 	K1,K2,K3,K4,K5

Mapping of Course Outcomes to Program Outcomes:

PO/ PSO	P O1	P O2	P O3	PO 4	PO 5	P O6	PO 7	PS O1	PS O2	PS O3	PS O4
CO 1	3	3	3	3	3	3	2	3	2	2	3
CO 2	3	3	3	3	3	3	3	3	3	3	3
CO 3	3	3	3	3	3	3	3	3	2	3	3
CO 4	3	3	3	3	3	3	3	3	3	3	3
CO 5	3	3	3	3	3	2	2	3	2	3	3
Avera ge	3.0 0	3.0 0	3.0 0	3.0 0	3.0 0	2.8	2.6 0	3.00	2.40	2.80	3.00
Criteria for Mapping	3= Strong 2= Medium 1= Low										

UNIT I

Introduction

Machine Learning - Difference between AI, Machine Learning and Big data. Supervised and unsupervised learning, parametric vs non-parametric models, parametric models for classification and regression- Linear Regression, Logistic Regression, Naïve Bayes classifier, simple non-parametric classifier-K-nearest neighbour, support vector machines.

UNIT II

Neural networks and genetic algorithms

Neural Network Representation – Problems – Perceptrons – Multilayer Networks and Back Propagation Algorithms – Advanced Topics – Genetic Algorithms – Hypothesis Space Search – Genetic Programming – Models of Evaluation and Learning.

UNIT III

Bayesian and computational learning

Bayes Theorem – Concept Learning – Maximum Likelihood – Minimum Description Length Principle – Bayes Optimal Classifier – Gibbs Algorithm – Naïve Bayes Classifier – Bayesian Belief Network – EM Algorithm – Probability Learning – Sample Complexity – Finite and Infinite Hypothesis Spaces – Mistake Bound Model.

UNIT IV

Instant based learning

K- Nearest Neighbour Learning – Locally weighted Regression – Radial Basis Functions – Case Based Learning.

UNIT V

Advanced learning

Recommendation systems – opinion mining, sentiment analysis. Learning Sets of Rules – Sequential Covering Algorithm – Learning Rule Set – First Order Rules – Sets of First Order Rules – Induction on Inverted Deduction – Inverting Resolution – Analytical Learning – Perfect Domain Theories – Explanation Base Learning – FOCL Algorithm – Reinforcement Learning – Task – Q-Learning – Temporal Difference Learning.

TEXT BOOKS

1. Tom M. Mitchell, —Machine Learning, McGraw-Hill Education (India) Private Limited, 2013.
2. Bengio, Yoshua, Ian J. Goodfellow, and Aaron Courville. "Deep learning" 2015, MIT Press.

REFERENCE BOOK

1. EthemAlpaydin, —Introduction to Machine Learning (Adaptive Computation and Machine Learning), The MIT Press 2004.
2. Stephen Marsland, —Machine Learning: An Algorithmic Perspective, CRC Press, 2009.

Semester	V
Subject	CORE PRACTICAL V- MACHINE LEARNING
Maximum Marks	CIA- 40 Marks ESE-60 Marks
Credits/ Instruction Hours	4 Credits / 75 Hours
Exam Duration	3 Hours

Objectives

- To discover patterns in the user data and then make predictions based on these and intricate patterns for answering business questions and solving business problems.

LIST OF PROGRAMS

Write a Python Implementation:

1. Reading and writing into.csv files
2. Implement the Find –S algorithm.
3. Implement the Candidate-Elimination algorithm.
4. Classify a sample using ID3 algorithm.
5. Build an artificial neural network by implementing back propagation algorithm.
6. Construct the naïve Bayesian classifier for classification.
7. Construct a naive Bayesian classifier and evaluate the classifier with accuracy, precision, and recall metrics
8. Applying EM algorithm for clustering using K-means algorithm.
9. Implement the k-Nearest Neighbour algorithm to classify the data set.
10. Implement the non-parametric Locally Weighted Regression algorithm.

CO 5	3	3	3	3	3	2	2	3	2	3	3
Average	3.00	3.00	3.00	3.00	3.00	2.80	2.60	3.00	2.40	2.80	3.00
Criteria for Mapping	3= Strong 2= Medium 1= Low										

UNIT I

Big data Introduction

Big Data introduction - definition and taxonomy - Big data value for the enterprise - The Hadoop ecosystem - Introduction to Distributed computing- Hadoop ecosystem – Hadoop Distributed File System (HDFS) Architecture - HDFS commands for loading/getting data - Accessing HDFS through Java program.

UNIT II

Map reduce

Introduction to Map Reduce frame work - Basic Map Reduce Programming: - Advanced Map Reduce programming: Basic template of the Map Reduce program, Word count problem- Streaming in Hadoop- Improving the performance using combiners- Chaining Map Reduce jobs- Joining data from different sources.

UNIT III

Pig and Hive

Applications on Big Data Using Pig and Hive – Data processing operators in Pig – Hive services – HiveQL – Querying Data in Hive - fundamentals of HBase and ZooKeeper.

UNIT IV

Mongo DB

No SQL databases: Mongo DB: Introduction – Features - Data types - Mongo DB Query language - CRUD operations – Arrays - Functions: Count – Sort – Limit – Skip – Aggregate - Map Reduce. Cursors – Indexes - Mongo Import – Mongo Export.

UNIT V

Cassandra

Introduction – Features - Data types – CQLSH - Key spaces - CRUD operations – Collections – Counter – TTL - Alter commands - Import and Export - Querying System tables.

TEXT BOOKS

1. JSeema Acharya, SubhashiniChellappan, “Big Data and Analytics”, Wiley Publication, 2015.
2. Ramesh Sharda, DursunDelen, Efraim Turban (2018), Business Intelligence, Pearson Education Services Pvt Ltd.

REFERENCE BOOK

1. Judith Hurwitz, Alan Nugent, Dr. Fern Halper, Marcia Kaufman, “Big Data for Dummies”, John Wiley & Sons, Inc., 2013.
2. Tom White, “Hadoop: The Definitive Guide”, O’Reilly Publications, 2011.
3. Kyle Banker, “Mongo DB in Action”, Manning Publications Company, 2012.

4. Russell Bradberry, Eric Blow, “Practical Cassandra A developers Approach“, Pearson Education, 2014.

Semester	V	
Subject	CORE PRACTICAL VI - DATA ANALYTICS USING RAPID MINER	
Maximum Marks	CIA- 40 Marks Marks	ESE- 60
Credits/ Instruction Hours	4 Credits / 75 Hours	
Exam Duration	3 Hours	

Objectives

- To enable everything from data mining to model deployment, and model operations.
- To offer all of the data preparation and machine learning capabilities needed to drive an organization.

LIST OF PROGRAMS

1. Data cleaning and pre-processing
2. Hadoop Programming: Word Count MapReduce Program Using Eclipse
3. Implementing Matrix Multiplication Using One Map-Reduce Step.
4. Implementing Relational Algorithm on Pig.
5. Implementing database operations on Hive.
6. Implementing Bloom Filter using Map-Reduce
7. Implementing Frequent Item set algorithm using Map-Reduce.
8. Implementing Clustering algorithm using Map-Reduce
9. Implementing Page Rank algorithm using Map-Reduce
10. Sentiment Analysis
11. Opinion mining
12. Predictive modeling

Semester	VI	
Subject	CORE VII IOT AND CLOUD TECHNOLOGIES	
Maximum Marks	CIA- 25 Marks	ESE- 75 Marks
Credits/ Instruction Hours	4 Credits / 75 Hours	
Exam Duration	3 Hours	

Objectives

1. Learn basic concepts of Cloud Computing.
2. To get an overview of MapReduce Concepts.
3. To learn about infrastructure security, Data Security and Privacy.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	<ul style="list-style-type: none"> • Design an IoT system with cloud infrastructure. 	K1,K2,K3,K4,K5
CO2	<ul style="list-style-type: none"> • . Implement the M2M Communication protocols in a prototype 	K1,K2,K3,K4,K5
CO3	<ul style="list-style-type: none"> • Understand the basic concepts of the main sensors used in electromechanical systems 	K1,K2,K3&K4,
CO4	<ul style="list-style-type: none"> • Understand/implement computer models of common engineering information types. 	K1,K2,K3,K4,K5
CO5	<ul style="list-style-type: none"> • Understand storage mechanisms / analysis algorithms for data management in distributed & data intensive applications 	K1,K2,K3,K4,K5

Mapping of Course Outcomes to Program Outcomes:

PO/ PSO	P O1	P O2	P O3	PO 4	PO 5	P O6	PO 7	PS O1	PS O2	PS O3	PS O4
CO 1	3	3	3	3	3	3	2	3	2	2	3

CO 2	3	3	3	3	3	3	3	3	3	3	3
CO 3	3	3	3	3	3	3	3	3	2	3	3
CO 4	3	3	3	3	3	3	3	3	3	3	3
CO 5	3	3	3	3	3	2	2	3	2	3	3
Average	3.00	3.00	3.00	3.00	3.00	2.80	2.60	3.00	2.40	2.80	3.00
Criteria for Mapping	3= Strong 2= Medium 1= Low										

UNIT I

IoT Introduction

Introduction to IoT – IoT definition – Characteristics – IoT Complete Architectural Stack – IoT enabling Technologies – IoT Challenges. Sensors and Hardware for IoT – Hardware Platforms – Arduino, Raspberry Pi, Node MCU - Protocols for IoT.

UNIT II

Introduction to Cloud Computing

Cloud Computing – Definition – SPI Framework – Software Model – Cloud Services Delivery Model – Deployment Models – Key drivers – Impact on Users – Governance in the cloud – Barriers to Cloud Computing Adoption in the enterprise. Examples of Cloud Service Providers: Amazon Web services – Google – Microsoft Azure Services Platform – Sun Open Cloud Platform.

UNIT III

Virtual Machines Provisioning and Migration Services

Introduction and Inspiration -Background and Related Work- Virtual Machines Provisioning and Manageability-Virtual Machine Migration Services- VM Provisioning and Migration in Action -Provisioning in the Cloud Context - Future Research Directions- The Anatomy of Cloud Infrastructures -Distributed Management of Virtual Infrastructures- Scheduling Techniques for Advance Reservation of Capacity- Capacity Management to meet SLA Commitments.

UNIT IV

Data Security, Identity and Access Management

Data security and storage: Aspects of Data Security -Data Security Mitigation -Provider Data and Its Security. Identity and Access Management: Trust Boundaries and IAM -Why IAM? - IAM Challenges- IAM Definitions- IAM Architecture and Practice-Getting Ready for the Cloud - Relevant IAM Standards and Protocols for Cloud Services - IAM Practices in the Cloud-Cloud Authorization Management- Cloud Service Provider IAM Practice.

UNIT V

Security and Privacy

Security Management: Standards – Security Management in the Cloud – Availability Management – Access Control. Privacy: What is Privacy – Data Life Cycle – Key Privacy

Concerns – Who is responsible for protecting Privacy – Privacy Risk Management – Legal and Regulatory Implications. IoT and Cloud Integration: IoT applications in home, infrastructures, buildings, security, Industries, Home appliances, other IoT electronic equipment.

TEXT BOOKS

1. "The Internet of Things: Enabling Technologies, Platforms, and Use Cases", by Pethuru Raj and Anupama C. Raman ,CRC Press.
2. Adrian McEwen, Designing the Internet of Things, Wiley,2013.
3. Tim Mather, Subra Kumaraswamy, ShahedLatif (2010), Cloud Security and Privacy, OREILLY Media.
4. RajkumarBuyya, James Broberg, AndrzejGoscinski(2011),CLOUD COMPUTING Principles and Paradigms, John Wiley & Sons, Inc., Hoboken, New Jersey.

REFERENCE BOOK

1. Ronald L. Krutz and Russell Dean Vines(2010), Cloud Security, Wiley – India.

Semester	VI	
Subject	CORE PRACTICAL VII - IOT AND CLOUD TECHNOLOGIES	
Maximum Marks	CIA- 40 Marks Marks	ESE- 60
Credits/ Instruction Hours	4 Credits / 75 Hours	
Exam Duration	3 Hours	

Objectives

- To improve efficiency and bringing important information to the surface more quickly than a system depending on human intervention.
- To provide easy, scalable access to computing resources and IT services.

LIST OF PROGRAMS

1. Familiarization with Arduino/Raspberry Pi and perform necessary software installation.
2. To interface LED/Buzzer with Arduino/Raspberry Pi and write a program to turn ON LED for 1 sec after every 2 seconds.
3. To interface Push button/Digital sensor (IR/LDR) with Arduino/Raspberry Pi and write a program to turn ON LED when push button is pressed or at sensor detection.
4. To interface DHT11 sensor with Arduino/Raspberry Pi and write a program to print temperature and humidity readings.
5. To interface motor using relay with Arduino/Raspberry Pi and write a program to turn ON motor when push button is pressed.
6. To interface OLED with Arduino/Raspberry Pi and write a program to print temperature and humidity readings on it.
7. To interface Bluetooth with Arduino/Raspberry Pi and write a program to send sensor data to smartphone using Bluetooth.

8. To interface Bluetooth with Arduino/Raspberry Pi and write a program to turn LED ON/OFF when “1”/”0” is received from smartphone using Bluetooth.
9. Write a program on Arduino/Raspberry Pi to upload temperature and humidity data to thing speak cloud.
10. Write a program on Arduino/Raspberry Pi to retrieve temperature and humidity data from thing speak cloud.
11. To install MySQL database on Raspberry Pi and perform basic SQL queries.
12. Write a program on Arduino/Raspberry Pi to publish temperature data to MQTT broker.
13. Write a program on Arduino/Raspberry Pi to subscribe to MQTT broker for temperature data and print it.
14. Write a program to create TCP server on Arduino/Raspberry Pi and respond with humidity data to TCP client when requested.
15. Write a program to create UDP server on Arduino/Raspberry Pi and respond with humidity data to UDP client when requested.

Semester	VI	
Subject	CORE VIII DEEP LEARNING	
Maximum Marks	CIA- 25 Marks	ESE- 75 Marks
Credits/ Instruction Hours	4 Credits / 75 Hours	
Exam Duration	3 Hours	

Objectives

1. Identify the deep learning algorithms which are more appropriate for various types of learning tasks in various domains.
2. To understand the theory behind deep learning methods such as Convolutional Neural Networks, Auto encoders and Boltzmann Machines
3. To have a grasp of the open issues and trends in deep learning research.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	<ul style="list-style-type: none"> • Design user interfaces to improve human–AI interaction and real-time decision-making. • Evaluate the advantages, disadvantages, challenges, and ramifications of human–AI augmentation. 	K1,K2,K3,K4,K5
CO2	<ul style="list-style-type: none"> • Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning. 	K1,K2,K3,K4,K5
CO3	<ul style="list-style-type: none"> • Demonstrate awareness and a fundamental understanding of various applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models. 	K1,K2,K3&K4,
CO4	<ul style="list-style-type: none"> • Extract information from text automatically using concepts and methods from natural language processing (NLP), including stemming, n-grams, POS tagging, and parsing 	K1,K2,K3,K4,K5
CO5	<ul style="list-style-type: none"> • Develop robotic process automation to manage business processes and to increase and monitor their efficiency and effectiveness. 	K1,K2,K3,K4,K5

	<ul style="list-style-type: none"> Determine the framework in which artificial intelligence and the Internet of things may function, including interactions with people, enterprise functions, and environments. 	
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Mapping of Course Outcomes to Program Outcomes:

PO/ PSO	P O1	P O2	P O3	PO 4	PO 5	P O6	PO 7	PS O1	PS O2	PS O3	PS O4
CO 1	3	3	3	3	3	3	2	3	2	2	3
CO 2	3	3	3	3	3	3	3	3	3	3	3
CO 3	3	3	3	3	3	3	3	3	2	3	3
CO 4	3	3	3	3	3	3	3	3	3	3	3
CO 5	3	3	3	3	3	2	2	3	2	3	3
Average	3.0 0	3.0 0	3.0 0	3.0 0	3.0 0	2.8	2.6 0	3.00	2.40	2.80	3.00
Criteria for Mapping			3= Strong 2= Medium 1= Low								

UNIT I

Introduction

Overview of machine learning, linear classifiers, loss functions What Are Neural Networks: History, Artificial and biological neural networks, Artificial intelligence and neural networks Neurons and Neural Networks: Biological neurons, Models of single neurons, Different neural network models Single Layer Perceptron: Least mean square algorithm, Learning curves, Learning rates.

UNIT II

Multilayer perceptron

The XOR problem, Back-propagation algorithm, Heuristic for improving the back-propagation algorithm, Some examples- Radial-Basis Function Networks: Interpolation, Regularization, Learning strategies- Kohonen Self-Organizing Maps: Self-organizing map, The SOM algorithm, Learning vector quantization

UNIT III

Introduction to TensorFlow

Computational Graph, Key highlights, Creating a Graph, Regression example, Gradient Descent, Tensor Board, Modularity, Sharing Variables, Keras- Convolutional Neural Networks: Introduction to CNNs, Kernel filter, Principles behind CNNs, Multiple Filters, problem and solution of under fitting and overfitting

UNIT IV

Recurrent Neural Networks

Introduction to RNNs, Unfolded RNNs, Seq2Seq RNNs, LSTM, GRU, Encoder Decoder architectures.

UNIT V

Deep Learning applications

Image segmentation, Object detection, Attention model for computer vision tasks, Natural Language Processing, Speech Recognition, Video Analytics. Tools :TensorFlow, Keras, PyTorch, Caffe, Theano, MXNet. Applications: Object detection with RCNN - YOLO, SSD. Speech recognition with RNN.

TEXT BOOKS

1. Goodfellow, I., Bengio, Y., and Courville, A., Deep Learning, MIT Press, 2016.
2. Josh Patterson, Adam Gibson, Deep Learning: A Practitioner's Approach, O'Reilly, 2017.

REFERENCE BOOK

1. Bishop, C.M., Pattern Recognition and Machine Learning, Springer, 2006.
2. Yegnanarayana, B., Artificial Neural Networks PHI Learning Pvt. Ltd, 2009.
3. Golub, G., H., and Van Loan, C., F., Matrix Computations, JHU Press, 2013.
4. Satish Kumar, Neural Networks: A Classroom Approach, Tata McGraw-Hill Education, 2004.

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Shift – II

FACULTY OF COMMERCE

BACHELOR OF COMMERCE IN COMPUTER APPLICATIONS

CHOICE BASED CREDIT SYSTEM (CBCS) WITH GRADING SEMESTER SYSTEM WITH CREDITS

**B.Com[Computer Applications]
(Effective from the Academic year 2022-23)**

Semester	I
Subject	CORE I – FINANCIAL ACCOUNTING
Maximum Marks	CIA- 25 Marks ESE- 75 Marks
Credits/ Instruction Hours	4 Credits / 75 Hours
Exam Duration	3 Hours

OBJECTIVES:

- To enable the students to understand the system of preparing financial statements for various types of organisation
- To familiarize the students with knowledge about financial reporting standards

OUTCOMES:

- The students will be able to analyse and prepare financial statement of different types of organisation
- The students will be aware of the various amendments in financial reporting

UNIT I: Preparation of Financial Statement

Final accounts of sole trading concern-Adjustments-Receipts and Payments-Income and expenditure-Balance sheet of non trading organisation

UNIT II: Depreciation and Insurance Claims

Depreciation Accounting: Depreciation- Meaning –Causes-Types-Straight Line Method-Written down value method- Concept of useful life under Companies Act 2013
Insurance Accounting: Insurance claims –Calculation of Claim amount-Average clause (Loss of stock only)

UNIT III: Single entry system

Meaning and Features of Single entry-Defects-Difference between single entry and double entry system-Methods of calculation of Profit-Statement of Affairs Method-Conversion Method

UNIT IV: Rectification of Errors and Bank Reconciliation Statement

Classification of Errors – Rectification of Errors – Preparation of Suspense a/c
Bank Reconciliation Statement – Need and preparation.

UNIT V: Hire Purchase and Installment System

Hire Purchase System- Default and repossession-Hire purchase trading account Installment System-Calculation of Profit.

Note: Questions in Sec. A, B & C shall be in the proportion of 20:80 between Theory and Problems.

TEXT BOOK:

1. Lt Bhupinder – principles of Financial Accounting – CENGAGE, New Delhi
2. Raj Kumar Sah – Concepts Building Approach to Financial Accounting – CENGAGE, New Delhi
3. Gupta, R.L & Gupta, V.K, Advanced Accounting, Sulthan Chand & Sons, New Delhi

REFERENCE BOOKS:

1. Jain & Narang, Financial Accounting, Kalyani Publishers, New Delhi
2. Reddy, T.S & Murthy, A. Financial Accounting, Margham Publications, Chennai
3. Shukla & Grewal, Advanced Accounting, S.Chand & Co. New Delhi
4. Parthasarathy, S.& Jaffarulla, A. Financial Accounting, Kalyani Publishers, New Delhi

Semester	II
Subject	CORE I – ADVANCED FINANCIAL ACCOUNTING
Maximum Marks	CIA- 25 Marks ESE- 75 Marks
Credits/ Instruction Hours	4 Credits / 75 Hours
Exam Duration	3 Hours

OBJECTIVES

- To enable the students to understand the system of preparing financial statements for various types of organization
- To familiarize the students with knowledge about financial reporting standards

OUTCOME:

- The students will be able to understand the preparation of financial statements for business units other than corporate undertaking and their utility.

Unit I: Branch Accounts

Dependent Branches - Stock and Debtors system – Distinction between Wholesale Profit and Retail Profit – Independent Branches (Foreign Branches excluded)

Unit II: Departmental Accounts

Basis of Allocation of Expenses – Calculation of Profit - **Inter-departmental Transfer** at cost or Selling Price.

Unit III: Partnership Accounts

Admission of a Partner – Retirement of a Partner – Death of a Partner.

Unit IV: Partnership Accounts

Dissolution of a Partnership Firm – Insolvency of a Partner – Insolvency of all Partners- Piecemeal Distribution of cash in case of Liquidation of Partnership Firm.

Unit V: Accounting Standards for financial reporting

Objectives and uses of financial statements for users-Role of accounting standards- Development of accounting standards in India- Requirements of international accounting standards - Role of developing IFRS- IFRS adoption or convergence in India- Implementation plan in India- Ind AS- Difference between Ind AS and IFRS.

Note: Questions in Sec. A, B & C shall be in the proportion of 20:80 between Theory and

Problems.

TEXT BOOK:

1. Lt Bhupinder – principles of Financial Accounting – CENGAGE, New Delhi
2. Raj Kumar Sah –Concepts Building Approach to Financial Accounting - CENGAGE, New Delhi
3. Gupta, R. L & Gupta, V. K, Advanced Accounting, Sulthan Chand & Sons, New Delhi.
4. Jain & Narang, Financial Accounting, Kalyani Publishers, New Delhi.

SUGGESTED READINGS:

1. Reddy, T. S & Murthy, A. Financial Accounting, Margham Publications, Chennai.
2. Shukla & Grewal, Advanced Accounting, S. Chand & Co., New Delhi.
3. Tulsian P.C.-Financial Accounting.
4. Parthasarathy, S .& Jaffarulla, A. Financial Accounting, Kalyani Publishers, NewDelhi

Semester	I	
Subject	ALLIED I – BUSINESS ECONOMICS	
Maximum Marks	CIA- 25 Marks	ESE- 75Marks
Credits/ Instruction Hours	5 Credits / 90 Hours	
Exam Duration	3 Hours	

OBJECTIVES:

- To facilitate the students to understand the concept of Communication.
- To Know the basic techniques of the modern forms of communication

OUTCOME:

- Students understand the concept of communication and familiarise with modern form of communication.

UNIT-I

Introduction to Economics – Wealth, Welfare and Scarcity Views on Economics - Positive and Normative Economics - Definition – Scope and Importance of Business Economics - Concepts: Production Possibility frontiers – Opportunity Cost – Accounting Profit and Economic Profit – Incremental and Marginal Concepts – Time and Discounting Principles – Concept of Efficiency- Business Cycle:- Inflation, Depression, Recession, Recovery, Reflation and Deflation.

UNIT-II

Demand and Supply Functions: - Meaning of Demand – Determinants and Distinctions of demand – Law of Demand – Elasticity of Demand – Demand Forecasting – Supply concept and Equilibrium

UNIT-III

Consumer Behaviour : Law of Diminishing Marginal utility – Equimarginal Utility – Indifference Curve – Definition, Properties and equilibrium.

UNIT-IV

Production: Law of Variable Proportion – Laws of Returns to Scale – Producer’s equilibrium – Economies of Scale - **Cost Classification – Break Even Analysis**

UNIT-V

Product Pricing: Price and Output Determination under Perfect Competition, Monopoly – Discriminating monopoly – Monopolistic Competition – Oligopoly – Pricing objectives and

Methods

RECOMMENDED TEXTS

1. S.Shankaran, Business Economics - Margham Publications - Ch -17
2. P.L. Mehta, Managerial Economics – Analysis, Problems & Cases - Sultan Chand & Sons - New Delhi – 02.
3. Francis Cherunilam, Business Environment-Himalaya Publishing House -Mumbai–4.
4. Peter Mitchelson and Andrew Mann, Economics for Business - Thomas Nelson Australia
5. C.M.Chaudhary, Business Economics - RBSA Publishers - Jaipur - 03.
6. H.L.Ahuja, Business Economics–Micro & Macro-Sultan Chand & Sons-New Delhi.
7. T. Aryamala – Business Economics- Vijay Nicole Imprints Private Ltd.,

Semester	II	
Subject	ALLIED II – INDIAN ECONOMY	
Maximum Marks	CIA- 25 Marks	ESE- 75Marks
Credits/ Instruction Hours	5 Credits / 90 Hours	
Exam Duration	3 Hours	

Objectives:

- To have the fundamental knowledge of Economic Developments.
- To teach the Economic problems and five year Plans.

Outcomes:

- After completion of the syllabus students well versed with the features of Indian economy and known the five year plan

UNIT I: Economic Growth and Economic Development- Transition on Indian Economy-- Indian Economy from 1950 .- Indicators of economic development- National Income Basic Concepts and computation of national income.

UNIT II: Major problems of Indian Economy- Human Development Index. Present Scenarios of population, unemployment, Poverty and inequality. Demographic trends in Population. Measures to control the population-Foreign trade

UNIT III: Agriculture: Contribution to economic development- Green Revolution- Organic farming- Food policy and Public distribution system.

UNIT IV: Industry- Role of industries in economic development-Large scale industries and small scale industries- New Economic Policy 1991- Industrial development before and after globalization in India

UNIT V: Five year plans in India- Achievement and strategy and failures- Nidhi Aayog.

RECOMMENDED TEXTS

1. I.C. Dingra, Indian Economy
2. Ruddar Datt & K.P.M. Sundharam, Indian Economy - S.Chand & Sons - New Delhi.
3. K.N. Agarwal, Indian Economy – Problem of Development of Planning – Wishwa Prakasan - New Age of International Ltd.
4. S.K.Misra & V.K.Puri, Indian Economy – Its Development - Himalaya Publishing House Mumbai.
5. T Aryamala, Indian Economy – Vijay Nicole Imprints Private Ltd

Reference Books:

1. Guide to ISO 9001-2000. A.K.Chakraborty P.K.Basu S.C.Chakravarthy, Asian Books Pvt.

Ltd.

Note: Latest Editions of the books to be referred.

Unit – IV:

Positive Traits-Humor and Happiness- Empathetic ability-**Sensitivity profile*-Empowered personality, Self-Empowerment

Unit – V:

Self-analysis: Psychological growth and adjustment- **Personal Development plan*-Successful negotiator Personal SWOT Analysis, Celebrating Life

** Self Study Portion*

Reference Books:

1. Dr.Aparna Chattopadhyaym What's Your Emotional IQ, PustakMahal,May 2004.
2. Jill Dann,Hodder & Stoughton , Emotional Intelligence In A Week, ,10 Edition,2007.
3. Daniel Goleman, Emotional Intelligence: Why It Can Matter More Than IQ

Note: Latest Editions of the books to be referred.



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ALLIED IV – FORENSIC PSYCHOLOGY

COURSE OUTCOMES

- CO1 –To demonstrate understanding of the major concepts, theoretical perspectives, and empirical findings historical and current trends in forensic psychology.
- CO2 –To summarize the techniques of criminal investigation.
- CO3 –To critically analyse the development of habitual criminal behaviour.
- CO4 –To understand the treatment and management of sexual offenders.

CORE PAPER – VI SOCIAL PSYCHOLOGY I

COURSE OUTCOMES

- CO1 - To Outline the nature, history, principles and scope of social psychology and methods used in social psychology research
- CO2 – To understand social cognition and its potential sources of error
- CO3 – To describe the strategies used to form and maintain positive impression.
- CO4 – To elucidate the ways to resist persuasion
- CO5 – To analyze the causes of marital happiness and relationship failure.

ALLIED II – CROSS CULTURAL PSYCHOLOGY

COURSE OUTCOMES

- CO1 - To describe and discuss the various theoretical orientations/paradigms that describe cultural differences
- CO2 - To analyse and discuss the ways in which different cultures influence human responses
- CO3 - To discuss and evaluate the differing methods used to ensure culture free evaluations of human beings
- CO4 - To identify and evaluate the different methods and issues involved with studying humans across culture.

ALLIED III - STATISTICS IN PSYCHOLOGY

COURSE OUTCOMES

- CO1 –To interpret and classify a great deal of information.
- CO2 – To describe the information in the form of visual representation
- CO3 --To infer different elements of a sample or population.
- CO4 -- To summarize what already exists in a given population
- CO5 -- To compute, predict and prepare the results of a study



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GLOBAL NEEDS



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COURSE OUTCOMES

PROGRAM CODE – 01 – BA ECONOMICS

TOURISM AND ECONOMIC DEVELOPMENT

Course Outcomes

CO1	Paraphrase concepts related to tourism in general
CO2	Enumerate various types of tourism with special reference to medical tourism
CO3	To appraise the various policies and principles adopted with respect to tourism
CO4	Analyze the role of tourism with respect to economic growth and development of our country
CO5	Elaborate the importance and significance of various tourists spots in Tamil Nadu

ELEMENTS OF INSURANCE

Course Outcomes

CO1	Demonstrate comprehensive knowledge and understanding of elements of Types, Principles in Insurance. Basic
CO2	Analyze, interpret and evaluate Administration and salient features of IRDA and its regulatory functions.
CO3	To critically evaluate and analyse Life Insurance and its various Products, Term, Whole life, Endowment. And understand its long term benefits to individuals in the economy.
CO4	To understand the benefits, and impact of General Insurance, Fire, Marine, and Motor insurance, on reducing risk and providing cover.
CO5	To evaluate government insurance companies,,LIC, and Private Players, in Insurance industry.

MARKETING

Course Outcomes

CO1	To explain the marketing concepts
CO2	To outline the stages involved in a product life cycle.
CO3	To illustrate the objectives of pricing, classify and analyse the pricing strategies.
CO4	To summarise the marketing structure and its functions

CO5	To explain the promotional programmes and examine its effects.
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ENTREPRENEURIAL DEVELOPMENT

Course Outcomes

CO1	To explain the meaning,functionsof entrepreneurs and classify their types..
CO2	To demonstrate the evolution of entrepreneurs and explain their role in economic development..
CO3	To evaluate the policies and programmes of government and non- government organizations in entrepreneurial development.
CO4	To examine the role,of small scale enterprises in economic development in the light of incentives given by the government.
CO5	To be able to conceive a business idea and prepare a project report.

INDIAN ECONOMIC DEVELOPMENT AND POLICY

Course Outcomes

CO1	Understand the basics of economic growth and development
CO2	Evaluate the importance of Capital Formation and Human Resource development
CO3	Analyse the population growth and employability status in India
CO4	Understand the relevance of agricultural Research and development in India
CO5	Evaluate the importance of the transport sector in development

INTERNATIONAL ECONOMICS

Course Outcomes

CO1	To understand the need for international trade through different theories.
CO2	To explain the different concepts of terms of trade
CO3	To explain the different concepts of gains from trade.
CO4	To understand the meaning, types and effects of tariffs and quotas.
CO5	To understand the concept, meaning, structure and equilibrium in the Balance of payments.

ENVIRONMENTAL ECONOMICS

Course Outcomes

CO1	Demonstrate comprehensive knowledge and understanding of environmental economics
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CO2	Apply the principles, and identify environmental resources that are vital for economic development.
CO3	Ability to Analyze, interpret, and draw conclusions of environmental policy in India.
CO4	Capability to set up vision and mapping of tasks for pollution control, to prevent environmental degradation.
CO5	To understand the impact of economic policies in society and international environment in context to sustainable development,

HUMAN RESOURCE MANAGEMENT

Course Outcomes

CO1	To understand the evaluation & function of human resource management
CO2	They can aware about job analysis, job description, job design, job speciation & job evaluation
CO3	They can have clear idea about recruitment, selection, training & development process
CO4	They can able to gain ample of skills such has career planning & criteria of promotion
CO5	They can equip them self through motivation

FISCAL ECONOMICS

Course Outcomes

CO1	Understand and analyse the concept of public finance
CO2	Understand the concept of public expenditure
CO3	Evaluate public revenue and taxation
CO4	Understand the theories of taxation
CO5	Analyse the concept of taxable capacity and its applicability

MARKETING

SUBJECT CODE-01207

Total hours- 90 hrs

Credits- 5

Course Description-The student would be able to understand and comprehend the marketing eco system.

UNIT – I

Nature, scope and significance of marketing – Basic concepts of marketing – Different types of markets – consumer and market, consumer co -operatives and consumer councils, modern marketing – Marketing environment.

UNIT – II

Product – New product – Product planning and development, product life cycle – marketing of manufactured goods - consumer goods - industrial goods – classification – characteristics and channels of distribution.

UNIT – III

Price- pricing objectives and price determination – Basic methods of setting prices – pricing strategies and policies - pricing strategy of new products.

UNIT – IV

Marketing structure – wholesale and retail – basic whole sale distribution structure - function and services of wholesale – Retail distribution – Basic retail structure - large, Medium and small scale retail institutions – super markets, departmental and chain store.

UNIT – V

Promotional programme - advertising and sales promotion efforts – social economic effects of advertising personal selling – salesmanship – Nature and function of salesman – Recruitment – sales organization and selling methods.

Recommended Texts:

1. Kotlar, Philip, Marketing Management, Prentice Hall, New Delhi.
2. Stanton, Etzel, Walker, Fundamentals of Marketing, Tata-McGraw Hill, New Delhi.
3. Marketing - J.Jaishanker.
4. Rajan and Ranjan Marketing
5. Marketing Management by C.P. Gupta

Reference Books:

1. Saxena, Rajan, Marketing Management, Tata-McGraw Hill, New Delhi.
2. McCarthy, E.J., Basic Marketing: A managerial approach, Irwin, New York.
3. Kootz,O'Donnell , Weighrich : Essentials of Management.
4. Marketing Management by Dr. A. Murthy

Course Outcomes

CO1	To explain the marketing concepts
CO2	To outline the stages involved in a product life cycle.
CO3	To illustrate the objectives of pricing,classify and analyse the pricing strategies.
CO4	To summarise the marketing structure and its functions
CO5	To explain the promotional programmes and examine its effects.

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	3	2	3	2	2	3	3
CO2	3	2	3	2	2	3	3
CO3	3	3	3	3	3	3	3
CO4	3	2	3	2	2	3	3
CO5	3	3	3	2	2	3	3

Correlation levels: 1- Weak 2-Medium 3-High



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Arumbakkam, Chennai – 600 106

PG DEPARTMENT OF BIOTECHNOLOGY

Core Paper: 10: Bioinformatics

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

The course is designed to provide basic knowledge about Bioinformatics and biological information on the web. Major research efforts in the field include sequence alignment, gene finding, genome assembly, drug design, drug discovery, protein structure alignment, protein structure prediction, prediction of gene expression. Common activities in bioinformatics include mapping and analyzing DNA and protein sequences, aligning DNA and protein sequences to compare them, and creating and viewing 3-D models of protein structures. Students will understand the algorithms and programs that are used for designing tools to analyze macromolecules to unravel their significant importance. It also gives them ideas on designing drugs by in silico studies.

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	Discuss about various types of biological databases and its importance
CO 2	Explain various sequence alignment programs
CO 3	Exhibit knowledge in evolutionary analysis and interpret in meaning manner
CO 4	Enumerate genome structure and functions using gene sequencing technologies
CO 5	Predict protein structure and to validate novel lead compounds using drug design approach

Mapping of Course Outcomes to POs/PSOs:

CO/PO/PSO	PO						PSO				
	1	2	3	4	5	6	1	2	3	4	5
CO 1	2	1	2	2	1	1	1	2	3	2	1



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CO 2	2	1	2	3	1	1	1	2	2	2	1
CO 3	3	1	2	2	2	1	1	3	2	3	2
CO 4	2	1	3	2	2	2	1	2	2	2	2
CO 5	2	1	2	3	2	1	1	3	3	2	2

Core Paper: 10 Bioinformatics

SI NO	CONTENTS OF MODULE	Hrs	Cos
1	Introduction to Bioinformatics Introduction to Bioinformatics, Classification of biological databases –Protein and Nucleotide Sequence Database; Sequence motifs Databases: - Prosite, ProDom, Pfam, InterPro. Application of Bioinformatics in Various Fields; Introduction to Single Letter Code of Amino acids, Symbols Used in Nucleotides; Data Retrieval Systems- Entrez and SRS; Literature database – Pubmed, PMC, OMIM	10	CO 1
2	Sequence Alignment and Homology search Introduction to Sequence Alignment: Substitution Matrices, Scoring Matrices – PAM and BLOSUM; Local and Global Alignment Concepts, Dot Plot. Dynamic Programming Methodology: Needleman and Wunsch Algorithm. Smith–Waterman Algorithm; Multiple sequence Alignment- Progressive Alignment. Homology search Using FASTA and BLAST Programs, Specialized BLAST programs	13	CO 2
3	Phylogenetic analysis Evolutionary Analysis– Introduction, Phylogenetics - Tree construction methods – Distance based methods and character-based Methods; Cladistic and Phenetic Methods; Special tree types; Rooted and Unrooted Tree Representation; Bootstrapping Strategies, Use of Clustal, T-Coffee and PHYLIP	12	CO 3
4	Genome analysis tools and Next Generation Sequencing Gene Finding Methods: Gene Prediction: Analysis and Prediction of Regulatory Regions, Promoter Prediction, Restriction Mapping, Repeat Sequence finder, ORF prediction; Fragment Assembly, Genome Sequence Assembly; Next Generation Sequencing: Sanger DNA Sequencing, Pyrosequencing, Illumina Genome Analyzer, Applied Biosystems SOLiD™; Concept of Gene Expression, Microarrays; GEO Database. Application of Microarrays	13	CO 4
5	Protein structure prediction and Drug designing Protein structure prediction methods-secondary and tertiary structure prediction; Protein domains and motifs; Drug discovery and Identification, Steps in Ligand based and structure based Drug Design.	12	CO 5
Text Books:			
1.	Baxevanis, Andreas D. and Francis B.F. Ouellette. (2005). <i>Bioinformatics- A Practical Guide to the Analysis of Genes and Proteins</i> , (3rd ed.), USA: John Wiley., ISBN: 978-0-471-46101-2.		



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2.	S. C. Rastogi, Namita Mendiratta, Parag Rastogi. (2013). <i>Bioinformatics: Methods and Applications: Genomics, Proteomics and Drug Discovery</i> , PHI Learning Pvt. Ltd., ISBN: 9788120347854.
3.	R C Dubey (2014). <i>Advanced Biotechnology</i> , (1st Edition), S. Chand Publishing, ISBN: 9788121942904.

REFERENCE BOOKS:

1.	S. C. Rastogi, M. Namita, P. Rastogi (2013). <i>Bioinformatics: Methods and Applications: Genomics, Proteomics and Drug Discovery</i> , PHI Learning Pvt. Ltd., ISBN: 9788120347854.
2.	Lesk Arthur (2019). <i>Introduction to Bioinformatics</i> , (5 th Ed.), UK: Oxford University Press, ISBN: 9780198794141.

MARKETING

COURSE DESCRIPTION- *Marketing* is the business process of identifying, anticipating and satisfying customers' needs and wants. It is used to attract customers, it is one of the primary components of business management and commerce.

UNIT – I

Nature, Scope and Significance of marketing – Basic concepts of marketing – Different types of markets – Consumer and market, Consumer co-operatives and Consumer councils, Modern marketing – Marketing environment.

UNIT – II

Product – New product – Product planning and development, Product life cycle – Marketing of manufactured goods - Consumer goods - Industrial goods – Classification – Characteristics and Channels of distribution.

UNIT – III

Price- Pricing objectives and price determination – Basic methods of setting prices – Pricing strategies and policies - Pricing strategy of new products.

UNIT – IV

Marketing structure – Wholesalers and retailers – Basic wholesaler distribution structure - Function and services of wholesaler – Retail distribution – Basic retail structure - Large, Medium and Small scale retail institutions – Super markets, Departmental and Chain store.

UNIT – V

Promotional Programme - Advertising and sales promotion efforts – Social economic effects of advertising- Personal selling – Salesmanship – Nature and Functions of salesman – Recruitment – Sales organization and selling methods.

Recommended Texts:

1. Kotlar, Philip, Marketing Management, Prentice Hall, New Delhi.
2. Stanton, Etzel, Walker, Fundamentals of Marketing, Tata-McGraw Hill, New Delhi.
3. Marketing - J.Jaishanker.
4. Rajan and Ranjan Marketing
5. Marketing Management by C.B. Gupta

Reference Books:

1. Saxena, Rajan, Marketing Management, Tata-McGraw Hill, New Delhi.
2. McCarthy, E.J., Basic Marketing: A managerial approach, Irwin, New York.
3. Kootz,O'Donnell , Weighrich : Essentials of Management.
4. Marketing Management by Dr. A. Murthy

COURSE OUTCOMES:

CO1	To understand the basic concepts of marketing and various types of markets
CO2	To analyze the product life cycle
CO3	To explain the strategy of pricing the product
CO4	Gain knowledge about the services offered by wholesalers and retailers
CO5	To analyze the social economic effects of advertising

Mapping of CO v/s PO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	2	2	3	2	3	3	2	3	2	3	2
CO2	3	2	2	3	2	2	3	2	3	2	3
CO3	2	2	2	2	3	2	3	2	3	2	3
CO4	2	3	2	2	2	3	2	2	3	2	2
CO5	3	2	2	3	2	3	2	2	3	2	2

Correlation levels: 1- Weak 2-Medium 3-High

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	2	3	3
CO2	3	2	3	3	2
CO3	3	2	3	2	3
CO4	2	2	3	2	2
CO5	3	3	2	3	2

Correlation levels: 1- Weak 2-Medium 3-High

MONETARY ECONOMICS – I

Course Description- The course provides an understanding of the monetary system prevalent in an economy

UNIT – I

Money – Definition, Functions and Classification- Role of money – With reference to Capitalist, Socialist and Mixed Economics - Circular flow of money - Household , Business Sector, Government Sector and Foreign Sector.

UNIT – II

The Value of Money - Index Numbers- Fisher's Equation- Cambridge Equations- Keynesian Reformulated Quantity Theory of Money.

UNIT – III

Monetary Standards –Gold Standard – Bimetallism – Gresham's Law - Paper Currency Standard - Systems of Note Issue

UNIT – IV

Money supply – Factors influencing money supply- Neutrality and Non- Neutrality of money – Classical Dichotomy –Patinkin's Real Balance Effect .

UNIT – V

Inflation – Causes, Types and Remedies – Effects on different sections of society – Tradeoff between inflation and Unemployment.

Recommended Texts:

1. M.L. Jhingankar, Monetary Economics, Vrinda publications
2. Pierce, David G and Shaw, David M, Monetary Economics: Theories Evidence and Policy, Butterworths, London.

Reference Books:

1. Goodhart, C.A.E Money. Information and Uncertainty. , The Macmillan Press.
2. Gupta, Suraj B, Monetary Planning for India, Oxford University Press, Delhi
3. Narendra Jadhav Monetary Economics for India, Macmillan India Ltd.,Chennai.
4. Venugopal Reddy, Y Monetary and Financial Sector Reforms in India, Chennai.

Course Outcomes

CO1	To define money and understand its classifications, functions and role.
CO2	To compare and contrast the determination of the value of money under different schools of thought.
CO3	To identify and evaluate the various monetary standards and systems of note issue prevalent.
CO4	To assess the role of money supply in the economy.
CO5	To understand the concepts of inflation, identify its causes, evaluate its effects and suggest solutions.

Mapping of CO v/s PO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	2	3	3	1	3	2	3	3	3
CO2	3	3	3	3	2	1	3	1	3	3	3
CO3	3	2	3	3	2	2	3	1	3	3	3
CO4	3	3	2	2	1	3	3	1	3	3	3
CO5	3	3	3	2	2	3	3	3	3	3	3

Correlation levels: 1- Weak 2-Medium 3-High

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	2	3
CO2	3	3	2	3	2
CO3	3	3	3	2	2
CO4	3	3	3	3	2
CO5	3	3	3	2	3

Correlation levels: 1- Weak 2-Medium 3-High

MONETARY ECONOMICS – II

Course description- The course deals with the working of the financial sector and its regulations.

UNIT – I

Commercial Banking – Meanings, Types- Unit Banking and Branch banking- Functions of Commercial Banks – The process of Credit creation by commercial banks – Essentials of a Sound Banking system.

UNIT – II

Nationalization of Banks –Justification - Objectives- A Critical Appraisal of the progress of commercial banking after Nationalization.

UNIT – III

Central Banking –Meaning – Constitution of Reserve Bank of India as Central Bank – Functions of RBI- Organizational structure and management of RBI – Role of RBI in Agricultural and Industrial Development

UNIT – IV

Indian money Market – Nature, Functions, Constituents – Indian capital Market- Nature, Functions, constituents-IMF, World Bank – with reference to India.

UNIT – V

Monetary Policy- Objectives- Instruments – Expansionary and Restrictive Monetary Policy – Recent Financial Reforms in India with respect to Banking sector, Money market and Capital market.

Recommended Texts:

1. M.L. Jhingan, Monetary Economics, Vrinda publications
2. Pierce, David G and Shaw, David M, Monetary Economics: Theories, Evidence and Policy, Butterworths, London.

Reference Books:

1. Goodhart, C.A.E Money. Information and Uncertainty. , The Macmillan Press.
2. Gupta, Suraj B, Monetary Planning for India, Oxford University Press, Delhi
3. Narendra Jadhav Monetary Economics for India, Macmillan India Ltd., Chennai.
4. Venugopal Reddy, Y Monetary and Financial Sector Reforms in India. Chennai.

Course Outcomes

CO1	To explain the functions and role of commercial banks and central banks.
CO2	To evaluate the progress made by commercial banks in India since nationalization.
CO3	To compare the functioning of money markets and capital markets.
CO4	To apprise the role of international financial institutions in the Indian context.
CO5	To explain the functioning of monetary policy and evaluate its potential and burden.

Mapping of CO v/s PO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	1	1	2	1	1	2	2	3	3	3
CO2	1	3	3	1	3	2	3	3	3	3	3
CO3	2	2	3	3	2	2	2	3	3	3	3
CO4	2	3	3	1	3	1	2	2	3	3	3
CO5	3	3	3	3	3	2	3	3	3	3	3

Correlation levels: 1- Weak 2-Medium 3-High

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	3	1	3
CO2	3	3	1	1	2
CO3	3	2	3	2	2
CO4	3	2	3	1	1
CO5	3	3	3	3	3

Correlation levels: 1- Weak 2-Medium 3-High

INTERNATIONAL ECONOMICS - I

Course Description: International economics refers to a study of international forces that influence the domestic conditions of an economy and shape the economic relationship between countries. In other words, it studies the economic interdependence between countries and its effects on economy.

UNIT - I:

Foreign Trade – Need, Inter Regional and International Trade, Theories of International Trade – Adam Smith – Ricardo, Haberler and Heckscher – Ohlin Theory.

UNIT - II :

Terms of Trade – Different concepts of Terms of Trade – Determinants of Terms of Trade – Static and Dynamic gains from Trade – Capital Saving and Labour Saving technologies and its impact on terms of trade.

UNIT - III :

Gains from Trade – Trade Policy – Free Trade: Meaning – Case for and against Free Trade – Protection: Meaning – Arguments For and Against Protection.

UNIT - IV :

Tariff: Meaning and Types – Effects of Tariff. Quotas: Meaning and Types – Effects of Quotas on imports.

UNIT - V :

Balance of Payment - Meaning - Structure - Balance of Payment and Balance of Trade - Disequilibrium in BOP & BOT - Causes for disequilibrium in BOP - Measures for correcting disequilibrium.

BIBLIOGRAPHY

Recommended Text

1. M.C. Vaish and Sudama : International Economics, Oxford and IBS
2. K.C. Rana and K.N. Verma (2004-2005): International Economics, Jalandhar.

Books for Reference

1. B.O. Sodersten (1980) : International Economics
2. Kindleberger. C.P : International Economics
3. Paul. R.Krugman and Maurice Obstfeld (2005): International Economics Theory and Policy, Pearson Education.
4. Dr.Radha (2007): International Economics, Prasanna Publications, 1st Edition.
5. K.R. Gupta : International Economics
6. J.Bhagavathi : International Economics
7. Domnick Salvatori : International Economics, Wiley Student edition.
8. Mundell, Rober. A : International Economics
9. Mithani, D.M. (2003): International Economics, Himalaya Publishing Co, 4th Edition.
10. Jhinghan. M.L (2009): International Economics, Vrindha Publications, 2nd Edition.
11. Dr.S.Sankaran: International Economics, Margham Publications.
12. Vaish.M.C: International Economics.

Course Outcomes

CO1	Gaining the knowledge about foreign trade.
CO2	Explaining the terms of trade and its importance
CO3	Explaining the significant of gains from trade
CO4	Understanding the meaning of tariff
CO5	Explaining the Balance of payment and Balance of trade

Mapping of CO v/s PO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	1	2	3	2	2	3	3	3	3	3	3
CO2	2	3	3	2	2	2	2	2	3	2	3
CO3	3	3	3	2	2	3	3	3	3	2	2
CO4	3	3	3	2	2	3	3	3	3	1	2
CO5	2	2	3	2	2	3	3	3	3	1	2

Correlation levels: 1- Weak 2-Medium 3-High

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	3	2	3
CO2	2	3	3	2	3
CO3	2	3	3	2	3
CO4	2	3	3	2	3
CO5	2	3	3	2	3

Correlation levels: 1- Weak 2-Medium 3-High

INTERNATIONAL ECONOMICS - II

Course Description: International Economics helps in assessing economic and political effects and the implication to the international trade for goods and services, finance and foreign investment.

UNIT – I:

Exchange Rate: Meaning – Determination of Equilibrium of exchange rate – Fixed and Flexible Exchange Rate.

UNIT – II :

Foreign Exchange Market: Functions – Transfer Function – Credit Function – Hedging Function – Theories of Exchange Rate: Mint Theory – Purchasing Power Parity Theory – Balance of Payment Theory.

UNIT – III :

Role of foreign capital in economic development – Issues in foreign capital in economic development – Theory of direct investment – Issues in foreign direct investment – Multinational Corporations – Foreign aid.

UNIT – IV :

International Monetary System – IMF – SDR – International Liquidity.

UNIT – V :

Trade and Development – Economic Integration, Meaning, Types – World Bank, GATT, WTO – Structure, Objectives, Functions and Working – TRIPS – TRIMS.

BIBLIOGRAPHY

Recommended Text

1. M.C. Vaish and Sudama : International Economics, Oxford and IBS
2. K.C. Rana and K.N. Verma (2004-2005): International Economics, Jalandhar.

Books for Reference

1. B.O. Sodersten (1980) : International Economics
2. Kindleberger. C.P : International Economics
3. Paul. R.Krugman and Maurice Obstfeld (2005): International Economics Theory and Policy, Pearson Education.
4. Dr. Radha (2007): International Economics, Prasanna Publications, 1st Edition.
5. K.R. Gupta : International Economics
6. J.Bhagavathi : International Economics
7. Domnick Salvatori : International Economics, Wiley Student edition.
8. Mundell, Rober. A : International Economics
9. Mithani, D.M. (2003): International Economics, Himalaya Publishing Co, 4th Edition.
10. Jhinghan. M.L (2009): International Economics, Vrindha Publications, 2nd Edition.
11. Dr.S.Sankaran: International Economics, Margham Publications.
12. Vaish.M.C: International Economics.

Course Outcomes

CO1	To understand the concept of fixed and flexible exchange rate
CO2	To explain the various theories of exchange rate
CO3	To identify the role of foreign capital in economic development
CO4	To analyze SDR and international liquidity
CO5	To evaluate the working of GATT, WTO ,and World Bank

Mapping of CO v/s PO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	2	2	1	3	3	3	2	3	3	3	2
CO2	3	2	2	3	2	3	1	2	3	2	3
CO3	2	1	3	2	3	2	2	3	3	3	3
CO4	1	2	3	3	1	3	2	3	2	2	3
CO5	2	1	3	3	2	3	2	3	3	3	1

Correlation levels: 1- Weak 2-Medium 3-High

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	3	3	3
CO2	2	3	3	3	3
CO3	3	3	1	2	2
CO4	3	3	2	3	1
CO5	3	1	3	2	3

Correlation levels: 1- Weak 2-Medium 3-High

ECONOMICS OF TOURISM

Course Description: Tourism brings with it tremendous **economic value for a country**. It touches and impacts several industries directly and many more indirectly through tourism spend. Tourism is one of the important sources of employment generation and foreign exchange earnings for a country.

UNIT - I

INTRODUCTION: History of Tourism - The Introduction of Annual Holidays - Paid Holidays and Mass Tourism - Basic Travel Motivators - Factors influencing Growth of Tourism
- Different Types of Tourism.

UNIT - II

ECONOMIC SIGNIFICANCE OF TOURISM: Tourism and Foreign Exchange Earnings - Tourism and Employment - Tourism and Labour - Capital Ratio - Tourism and Regional Development - Tourism and National Income - Tourism and Tax Revenues.

UNIT - III

TOURISM PROMOTION: Origin of Advertising - Selection of Advertising Agency - Public Relation Techniques - Tourism Publicity - Modern Information Techniques in Tourism.

UNIT - IV

SUSTAINABLE TOURISM: Sustainable Tourism Development - Indicator of Sustainability - The concept of rural Tourism - Rural Tourism and Sustainability - Medical Tourism - Local Participation and Tourism Development.

UNIT - V

TOURISM AND THE STATE: Tourism Promotion and the Role of State - MANILA Declaration on Domestic Tourism - World Tourism Organization (WTO) - India Tourism Development Corporation (ITDC) - Tamil Nadu Tourism Development Corporation (TTDC) - ITDC and TTDC role in promoting tourism.

Books for Reference

1. A.K. Bhatia : Tourism Development - Principles & Practices
2. A.K. Bhatia : International Tourism
3. Pushpinder S. Gill: Dynamics of Tourism
4. Bezbaruah, M.P : Frontiers of New Tourism
5. Ghosh, B : Tourism and Travel Management
6. Malhotra : Growth and Development of Tourism

Course Outcomes

CO1	To understand the history of tourism and factors influencing the growth of tourism
CO2	To explain the economic significance of tourism
CO3	To identify the modern information techniques used in tourism
CO4	To analyze the local participation in tourism development
CO5	To understand the role of WTO,ITDC,TTDC in promoting tourism

Mapping of CO v/s PO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	2	3	3	1	3	2	3	3	3
CO2	3	3	3	1	2	1	3	1	3	2	3
CO3	2	2	3	3	2	2	3	1	2	3	2
CO4	3	3	2	2	1	3	3	1	3	3	3
CO5	3	3	3	2	2	3	3	3	3	2	1

Correlation levels: 1- Weak 2-Medium 3-High

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	2	3
CO2	2	3	2	3	2
CO3	3	1	3	2	2
CO4	2	3	3	3	2
CO5	3	2	2	2	3

Correlation levels: 1- Weak 2-Medium

DEPARTMENT OF BUSINESS ADMINISTRATION (BBA)



OUTCOME BASED EDUCATION SYLLABUS

Effective from Batch 2022



DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE (AUTONOMOUS)

College with Potential for Excellence

Linguistic Minority Institution Affiliated to University of Madras

E.V.R. Periyar High Road, Arumbakkam, Chennai – 600106, Tamilnadu.

CORPORATE COMMUNICATION

Course Code : 03206	Credits : 04
L:T:P:S : 6 :0:0:0	CIA/ESE Marks: 50/50
Exam Hours : 03	Teaching hours: 90

Learning Objectives:

1. To educate students role & importance of communication skills.
2. To build their listening, reading, writing & speaking communication skills.
3. To gain a knowledge about corporate communication, corporate reputation and identity.

Unit -I:

INTRODUCTION TO MANAGERIAL COMMUNICATION

Meaning, importance, objectives – Principles of communication- Forms of communication – Communication process –Barriers to communication- Techniques of effective communication. (20 hours)

Unit – II:

INTERVIEW TECHNIQUES

Mastering the art of conducting interviews, placement interviews – Exit interviews, Group discussions- Meetings – Group discussions, video conferencing- Appointment. Developing oral communication skills, SQ3R reading technique. (20 hours)

Unit– III:

INTRODUCTION TO MANAGERIAL WRITING

Business letters: Enquiries, circulars, orders, acknowledgement, sales, circulars, complaints, correspondence with shareholders, Agenda – Minutes of meeting – Memorandum – Notes.

MODERN COMMUNICATION FOR MANAGERS

Facebook, Whats APP, LinkedIn, Twitter, Internet, E-mail, YouTube and their uses in business.

E- communication etiquettes (20 hours)

Unit – IV:

CORPORATE COMMUNICATION

Introduction-Meaning –Types of corporate Communication-Importance of corporate communication.

Unit – V:

CORPORATE REPUTATIONS AND IDENTITY

Meaning - The value of good Reputation - Linking corporate communication to Reputation - Defining Corporate Identity - The Identity Mix – Employer Branding

RECOMMENDED TEXT BOOKS:

1. N.S. Raghunathan and B.Sumathi; Business Communication, Margham Publications, Reprint 2019.
2. Herta A Murthy, Herbert W.Hildebrand and Jana R. Thomas; Effective Business Communication, 7th Edition, Mc Graw Hill Education.
3. Cees B.M. Van Riel, Charles J .Fombrun ; Essentials of corporate communication ,Taylor and Francis Group,2007.
4. Sandra M. Oliver; Handbook of Corporate Communication and Public Relation; Routledge ,Taylor and Francis Group,2004.

REFERENCE BOOKS:

1. Hory Sankar Mukerjee; Business Communication: Connecting at Work; 2nd Edition, Oxford University Press, 2016.
2. Payal R. Mehra; Business Communication for Managers, 2nd Edition, Pearson Education India, 2016.
3. Raymond V. Lesikar; Business Communication (SIE): Connecting in a Digital World; 13th Edition, McGraw Hill Publication, 2017.
4. Urmilarai; Business Communication, Himalaya Publication, 2015.

ONLINE REFERENCES:

1. <http://www.edukart.com/blog/importance-of-effective-communication-in-an-organization/>
2. <https://www.educationobserver.com/forum/showthread.php?tid=14538>
3. <http://www.careerlauncher.com/banking/correspondence/>
4. <https://thebusinesscommunication.com/what-is-circular-letter-importance-or-advantages- of-circular-letter/>
5. <https://study.com/academy/lesson/internal-communication-in-an-organization-definition- strategies-examples.html>
6. <https://asue.am/upload/files/asue/Essentials-of-Corporate-Communication-PDFDrive.com-.pdf>

COURSE OUTCOME:

On completion of the course, student will be able to:

CO1	Understand communication process and its barriers
CO2	Develop oral communication skills & conducting interviews
CO3	Use managerial writing for business communication
CO4	Aware about corporate communication and its importance
CO5	Know about corporate reputation and identity

Mapping of CO v/s PO:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1							1
CO2	3						
CO3	3				3		
CO4	3		1				
CO5	3		2				

Correlation levels: 1- Weak 2-Medium 3-High

Mapping of CO v/s PSO:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2				
CO2	3	2			2	
CO3	2	2			2	3
CO4	3	2				2
CO5	3			1	3	

Correlation levels: 1- Weak 2-Medium 3-High

SI NO	CONTENTS OF MODULE/UNITS	Hrs	Cos
1	<p>INTRODUCTION TO MANAGERIAL COMMUNICATION</p> <p>Meaning, importance, objectives – Principles of communication- Forms of communication – Communication process – Barriers to communication- Techniques of effective communication.</p>	20	CO1
2	<p>INTERVIEW TECHNIQUES</p> <p>Mastering the art of conducting interviews, placement interviews – Exit interviews, Group discussions- Meetings – Group discussions, video conferencing- Appointment. Developing oral communication skills, SQ3R reading technique.</p>	20	CO2
3	<p>INTRODUCTION TO MANAGERIAL WRITING</p> <p>Business letters: Enquiries, circulars, orders, acknowledgement, sales, circulars, complaints, correspondence with shareholders, Agenda – Minutes of meeting – Memorandum – Notes.</p> <p>MODERN COMMUNICATION FOR MANAGERS</p> <p>Facebook, Whats APP, LinkedIn, Twitter, Internet, E-mail, YouTube and their uses in business. E-communication etiquettes</p>	20	CO3
4	<p>CORORATE COMMUNICATION</p> <p>Introduction-Meaning –Types of corporate Communication-Importance of corporate communication.</p>	18	CO4
5	<p>CORPORATE REPUTATIONS AND IDENTITY</p> <p>Meaning-The value of good Reputation-Linking corporate communication to Reputation-Defining Corporate Identity-The Identity Mix - Employer Branding</p>	12	CO5

INTERNATIONAL TRADE

Course Code: 03416	Credits : 04
L:T:P:S : 6 :0:0:0	CIA /ESE Marks: 50/50
Exam Hours : 03	Teaching hours: 90

Learning Objectives:

1. To familiarize students on basics & theories of International Trade.
2. To impart knowledge about international financial institutions, structure and functions.
3. To provide awareness about recent trends in International Trade and its implications.

Unit I:

Features of International trade, Difference between Internal and International Trade- Importance of International Trade. (15 Hours)

Unit II:

Theories of Foreign Trade – Absolute, Comparative, Equal Cost Differences (Adam Smiths, Ricardo, Haberler, Hecksher- Ohlin Theories Only).(20 Hours)

Unit III:

Balance of Trade, Balance of Payment-Concepts, Causes of Disequilibrium-Methods to Correct Disequilibrium -Fixed and Floating Exchange Rates.(20 Hours)

Unit IV:

Institutional Environment : IMF, IBRD, WTO, ADB, UNCTAD. Trading blocks – ASEAN, SAFTA, SAARC, NAFTA, EU – Types & Importance. (15 Hours)

Unit V:

Globalization of Business, Levels of Globalization, Causes of Globalization, Issues and Concerns in Globalization.

MNC – Meaning, Characteristics, Benefits.

FDI – Meaning, Importance, Forms of International Investments. (20 Hours)

RECOMMENDED TEXT BOOKS:

1. Dr. S.Sankaran; International Trade, Margham publication, 2019.
2. Amrita Narlikar; International Trade and Developing Countries: Bargaining Coalitions in the GATT & WTO, Routledge, 2016.

REFERENCE BOOKS:

1. Francis Cherunilam; International Trade & Export Management, Himalaya Publications, 20th edition, 2017.
2. V.K. Bhalla, International Business, SCHAND publications, First edition, 2013.
3. Avinash Dexit; Theory of International Trade, Cambridge University Press, 2016.

ONLINE REFERENCES:

1. https://www.researchgate.net/publication/312212506_International_trade_theories_and_its_trends
2. <https://www.investopedia.com/terms/i/imf.asp>
3. <https://www.investopedia.com/insights/what-is-international-trade/>

COURSE OUTCOME:

On completion of the course, student will be able to:

CO1	Discuss the difference between internal and international trade and its significance
CO2	Explain international trade theories
CO3	Outline the balance of trade, balance of payment, exchange rate concepts
CO4	Identify the relevance of international institutions and trading blocs.
CO5	Understand globalization and its impact on Indian business scenario

Mapping of CO v/s PO:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	3	2	2	3	2	3
CO2	2	1	3	3	1	3	3
CO3	3	3	3	2	2	3	3
CO4	3	3	3	3	2	3	3
CO5	3	3	3	2	2	3	3

Correlation levels: 1- Weak 2-Medium 3-High

Mapping of CO v/s PSO:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	3	3	3	3
CO2	1	2	2	2	3	2
CO3	2	3	3	3	3	3
CO4	3	3	2	3	3	3
CO5	3	3	3	3	3	3

Correlation levels: 1- Weak 2-Medium 3-High

Sl No	CONTENTS OF MODULE/UNITS	Hrs	Cos
1	Features of International trade, Difference between Internal and International Trade- Importance of International Trade.	16	CO1
2	Theories of Foreign Trade – Absolute, Comparative, Equal Cost Differences (Adam Smiths, Ricardo, Haberler, Hecksher- Ohlin Theories Only).	28	CO2
3	Balance of Trade, Balance of Payment-Concepts, Causes of Disequilibrium-Methods to Correct Disequilibrium -Fixed and Floating Exchange Rates.	36	CO1,CO3
4	Institutional Environment: IMF, IBRD, WTO, ADB, UNCTAD. Trading blocks – ASEAN, SAFTA, SAARC, NAFTA, EU – Types & Importance.	20	CO1,CO4,
5	Globalization of Business, Levels of Globalization, Causes of Globalization, Issues and Concerns in Globalization,MNC – Meaning, Characteristics, Benefits,FDI – Meaning, Importance, Forms of International Investments.	20	CO1, CO5

INFORMATION MANAGEMENT

Course Code : 03625	Credits : 05
L:T:P:S : 6 :0:0:0	CIA /ESE Marks: 50/50
Exam Hours : 03	Teaching hours: 90

Learning Objectives:

1. To educate basic idea of information systems and its impacts in business.
2. To provide insight about system concepts and development.
3. To provide exposure of new IT initiatives and their applications in business.

Unit-I

Introduction : Data, Information, Information Technology, Information Systems, Information for decision making, Ethical issues. (14 hours)

Unit-II

Definition of Management Information System – MIS support for planning, organizing and controlling – Structure of MIS. (12 hours)

Unit-III

Concept of system- Characteristics of system – System classification- categories of information systems – Strategic information system and competitive advantage. Database management system (14 hours)

Unit-IV

System Analysis and design – SDLC – Role of system analyst- Functional information system – Personnel, production, material, marketing. Decision support system and Group decision support system. (25 hours)

Unit-V

Introduction to Data Mining-functionalities; Business process outsourcing – Process; Overview – Definition, Applications - **Virtual reality based information system & Pervasive computing.** **Cyber security** – Definition, Benefits and Challenges (25 hours).

RECOMMENDED TEXT BOOKS:

1. S.P Rajagopalan, Management Information System, Margham Publications, 2019
2. Robert Schultheis and Mary Summer; Management Information Systems – The Managers View, Tata McGraw Hill, 2008

REFERENCE BOOKS:

1. C.S.V. Murthy, Management Information Systems, Himalaya Publishing House, 2009.
2. James A O' Brain, Management Information Systems, Tata McGraw Hill, 2006
3. Kenneth C Laudon, Jane P. Laudon, Management Information system, Pearson Education Ltd, 2014.
4. Sadagopan S, Management Information Systems, Prentice Hall India, 2014.

ONLINE REFERENCES:

- <https://www.managementstudyguide.com/management-information-system-articles.htm>
1. <https://erwin.com/news/trend-setting-products-in-data-and-information-management-for-2019/>

COURSE OUTCOME:

On completion of the course, student will be able to:

CO1	Explain information system concepts and its role in decision making
CO2	Explain MIS, its structure and role in management functions
CO3	Classify & discuss information system categories, Database Management systems
CO4	Discuss SDLC and functional information system categories
CO5	Outline functions of BPO, Data mining and the recent trends in information management

Mapping of CO v/s PO:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	2	2	1	2	1	2
CO2	3	2	2	1	1	1	2
CO3	3	3	2	2	2	2	2
CO4	3	3	2	3	1	2	2
CO5	3	1	2	2	3	2	3

Correlation levels: 1- Weak 2-Medium 3-High

Mapping of CO v/s PSO:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	1	1	2	2
CO2	3	2	1	1	2	2
CO3	3	2	1	1	2	1
CO4	3	2	1	1	2	1
CO5	3	2	1	1	2	3

Correlation levels: 1- Weak 2-Medium 3-High

Sl NO	CONTENTS OF MODULE/UNITS	Hrs	Cos
1	Introduction: Data, Information, Information Technology, Information Systems, Information for decision making.	14	CO1
2	Definition of Management Information System – MIS support for planning, organizing and controlling – Structure of MIS.	12	CO2
3	Concept of system- Characteristics of system – System classification- categories of information systems – Strategic information system and competitive advantage. Database management system	12	CO3
4	System Analysis and design – SDLC – Role of system analyst- Functional information system – Personnel, production, material, marketing. Decision support system and Group decision support system	25	CO4
5	Introduction to Data Mining-functionalities; Business process outsourcing – Process; Overview – Definition, Applications - Virtual reality based information system & Pervasive computing. Cyber security – Definition, Benefits and Challenges.	25	CO5

Core Paper II – Principles of Management [Global level]

Course Code : 2106102	
Credits : 4	
L:P:T:S : 5:0:0:0	CIA
Marks : 40	
Exam Hours : 03	ESE
Marks : 60	

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define Management and its process, Discuss the functions of a Manager, Scientific Management, Management and Indian literature.
CO2	Explain the different types and steps in Planning and Decision-making and to discuss the Policies, Procedures, Process and Methods in Decision-making
CO3	Compare the different types of Organizations and to explain the Organization Structure, Span of Control, Committees, Departmentalization and Informal Organization; Analyse causes of Line & Staff conflict and suggest measures to resolve it.
CO4	Describe authority, responsibility and accountability, factors determining Delegation, Decentralization, elements of direction and Leadership Styles.
CO5	Explain the need, types and techniques for Co-ordination
CO6	Describe the control process and techniques adopted in business.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	2	1	2	1	2	1	1
CO2	2	-	1	1	2	3	1
CO3	2	-	3	2	2	1	1
CO4	1	-	2	1	2	3	3
CO5	1	-	2	1	2	3	1
CO6	1	-	2	2	2	3	2

S.No.	CONTENTS OF MODULE	Hrs	Cos
1	UNIT- I Management: Definition – Nature & Scope – Role, Skills and Functions of a Manager – Levels of management- Distinction between management & administration- Management as an Art, Science or Profession Development of Scientific Management, Contribution to management- Henry Fayol, Elton Mayo and Peter F. Drucker, Management in Indian literature [Arthashastram, Mahabharatham, Thirukkural]	15	1
2	UNIT- II Planning: Definition, Nature & Characteristics – Types of plans – Objectives, Policies, Procedures, Rules, Strategies, Projects, Programmes, Budgets & Methods- Process of Planning – Merits & Demerits- Steps for effective planning Management by Objectives- Definition, Features, Process, Merits & Demerits, Measures to make MBO effective.	15	2

	Decision-making: Definition- Process and Significance –Types, Factors, Problems/ Constraints in decision making, Guidelines to make decisions effective		
3	UNIT- III Organisation: Definition- Features, Steps in organizing, Principles of organization, Types of Organizations – Formal & Informal Organization- Line , Line & Staff, Functional, Project, Matrix, Virtual, Network, Committee- Purpose, Types, Merits & Demerits, Measures to make it effective Line & Staff conflict- Arguments for & against Line & Staff- Measures to resolve conflicts Organization Structure – Factors influencing organization structure Span of Control– Factors influencing Span of management Departmentation- Meaning- Factors- Bases of departmentation – Advantages & Disadvantages of different types of departmentation	15	3
4	UNIT- IV Authority – Sources of authority- Responsibility- Accountability, Power- Influence Delegation – Definition- Elements- Types- Need- Principles- Barriers – Measures to make delegation effective Centralisation-Decentralization-Merits & Demerits- Factors determining decentralization of authority-Distinction between delegation & decentralization Direction– Definition, Nature, Purpose- Elements-Principles Leadership-Functions of Leader- Qualities for a Leader-Theories and Styles of Leadership.	15	4
5	UNIT- V Co-ordination – Need, Types, Techniques and Requisites for Co-ordination Controlling – Definition, Importance, Objectives, Control Process- Requirements for an effective control system- Techniques of control	15	5,6

TEXT BOOKS:

1. Gupta C. B. (2018). Business Management. 15th Ed. Sultan Chand & Sons, New Delhi. (ISBN: 978-93-5161-131-8)
2. Prasad L. M. (2019). Principles and Practice of Management. Sultan Chand & Sons, New Delhi, India. (ISBN: 978-93-5161-050-2)
3. Tripathi, P. C., & Reddy P. N. (2017). Principles of Management. 6th Ed. MCGraw Hill Education, New Delhi, India. (ISBN: 978-93-5260-535-4)
4. Jayasankar, J. (2015). Principles of Management. Margham Publication, Chennai, Tamil Nadu, India.
5. Koontz, Harold., & Weihrich, Heinz. (2020) Essentials of Management An International Perspective, 7th Ed. Tata McGraw-Hill Publishing, New Delhi, India. (ISBN: 978-00-7062-030-8)

REFERENCE BOOKS:

1. Sharma. R. K., Gupta, Shashi. K., & Sharma, Rahul. (2019). Principles of Management. Kalyani Publishers, New Delhi, India. (ISBN: 978-93-5359-796-2)
2. Robbins, Stephen P., Coulter Mary A., & DeCenzo David A. (2021) Fundamentals of Management, 11th Ed. Pearson Education, Inc. US. (ISBN: 978-01-3489-880-3)

Note: Latest edition of the books to be referred

Course Title: ALGEBRA AND TRIGONOMETRY

Course	B.Sc., Mathematics (MPC & MAP)
Exam Hours	03

Credits	04
CIA Marks	50
ESE Marks	50

Course objectives

- **To know about various methods to find the roots of the polynomial equations.**
- **To develop the ability to use binomial, exponential and logarithmic series.**
- **To develop the skills of the students in the area of matrices.**
- **To acquire the basic knowledge of circular and hyperbolic trigonometric functions,**
- **To understand how to separate a complex function into its real and imaginary parts and also various methods for the summation of series**

Course outcomes: At the end of the course, students will be able to

CO1	Evaluate summation of series using binomial, exponential and logarithmic series
CO2	Evaluate the sum of the powers of the given equation and also the relation between the roots and coefficients of an equation
CO3	Solve polynomial equations using Newton's Method and Horner's Method, Compute inverse of the matrix using Cayley Hamilton theorem and also obtain eigen values and eigen vectors of different types of matrices
CO4	Expand $\sin\theta$, $\cos\theta$ and $\tan\theta$ in terms of θ , $\sin n\theta$, $\cos n\theta$ in multiples of θ
CO5	Classify relation between circular and hyperbolic functions and solve problems using hyperbolic & inverse – hyperbolic functions

CONTENTS OF MODULE

Unit 1

Theory of Equations :Polynomial equations with Imaginary and irrational roots- Relation between roots and coefficients- Symmetric functions of roots in terms of coefficients. Reciprocal equations - Standard form-Increase or Decrease the roots of the given equation -Removal of terms Approximate solutions of roots of polynomials by Newton's method, Horner's method.

Unit 2

Summation of Series : Binomial- Exponential -Logarithmic series (Theorems without proof):

Unit 3

Symmetric- Skew Symmetric- Hermitian- Skew Hermitian- Orthogonal Matrices- Eigen values & Eigen Vectors- Similar matrices- Cayley - Hamilton Theorem, Diagonalization.

Unit 4

Expansions of powers of $\sin \theta$, $\cos \theta$ - Expansions of $\cos^n \theta$, $\sin^n \theta$, $\cos^m \theta \sin^n \theta$. Expansions of $\sin n\theta$, $\cos n\theta$, $\tan n\theta$ - Expansions of $\tan (\theta_1 + \theta_2 + \dots + \theta_n)$ - Expansions of $\sin x$, $\cos x$, $\tan x$ in terms of x - Sum of roots of trigonometric equations – Formation of equation with trigonometric roots.

Unit 5

Hyperbolic functions-Relation between circular and hyperbolic functions- Formulas in hyperbolic functions – Inverse hyperbolic functions. Inverse function of exponential functions – Values of $\log(u+iv)$ - Complex index. Sums of Trigonometric series – Applications of binomial, exponential, logarithmic and Gregory's series - Difference method.

Recommended Text :

1. T.Natarajan, K.S.Ganapathy, Viswanathan Publication 2007. Unit – 1 and 2.
2. Algebra, Volume II by T. K. Manicavachagom Pillay, T.Natarajan, K.S.Ganapathy, Viswanathan Publication 2008. Unit – 3, 4 and 5.
3. Trigonometry by P. Duraipandian and Kayalal Pachaiyappa, Muhil Publishers.

Reference Books:

1. Algebra by S. Arumugam (New Gama publishing house, Palayamkottai).
2. Algebra and Trigonometry, Volume I and II by P.R.Vittal, V.Malini (Margham Publishers).
3. Trigonometry, Calculus, Dr. P.R. Vittal, Margham Publications, Chennai.
4. Trigonometry by T.K. Manickavachagam Pillay, S.Viswanathan (Printers and Publishers) Pvt. Ltd.

Mapping of Course Outcomes to Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	3	2	3	2	2	1	3	3	3
CO2	3	3	3	2	3	2	1	3	2	3
CO3	3	3	2	2	3	3	1	2	3	1
CO4	3	3	1	3	2	3	1	3	3	2
CO5	3	3	3	2	2	3	1	3	2	3

3 – High

2 – Medium

1 - Low

Course Title: Differential Calculus

Course	B Sc(Maths)
Exam Hours	03

Credits	04
CIA Marks	50
ESE Marks	50

Course Objectives

- **To develop the ability to use Leibnitz Rule**
- **To know about the method to find the maxima and minima**
- **To develop the skills of the students in the area of Curvature**
- **To learn methods and techniques of finding asymptotes.**

Course Outcomes: At the end of the course, the Student will be able to

CO1	Evaluate the nth derivative Using Leibnitz Rule
CO2	Finding the maxima and minima for the functions of two variables
CO3	Calculate the Envelope, Evolute, radius of curvature and circle of curvature
CO4	Finding the angle between radius vector and tangent.
CO5	Calculate the asymptotes of the curve

CONTENTS OF MODULE

UNIT – I : Successive differentiation - n^{th} derivative- standard results – Trigonometrical transformation – formation of equations using derivatives - Leibnitz's theorem and its applications

Chapter 3 section 1.1 to 1.6, 2.1 and 2.2

UNIT-II : Total differential of a function – special cases – implicit functions - partial derivatives of a function of two functions - Maxima and Minima of functions of two variables- Lagrange's method of undetermined multipliers.

Chapter 8 : Section 1.3 to 1.5 and 1.7, Section 4, 4.1 and 5.

UNIT– III: Envelopes – method of finding envelopes – Curvature- circle, radius and centre of curvature- Cartesian formula for radius of curvature – coordinates of the centre of curvature – evolute-and involute - radius of curvature and centre of curvature in polar coordinates – p-r equation

Chapter 10 Section 1.1 to 1.4 and Section 2.1 to 2.7

UNIT-IV: Polar coordinates - angle between the radius vector and the tangent – slope of the tangent in the polar coordinates – the angle of intersection of two curves in polar coordinates- polar sub tangent and polar sub normal – the length of arc in polar coordinates.

Chapter 9 Section 4.1 to 4.6

UNIT-V: Definition-Asymptotes parallel to the axes – special cases – another method for finding asymptotes -asymptotes by inspection – intersection of a curve with an asymptote.

Chapter 11 - Section 1 to 7.

Recommended Text Book :

1. “Calculus”, Volume - 1 by S. Narayanan and T.K. Manicavachagompillay -S.Viswanathan publishers – 2006.

Reference Books:

1. Calculus , Dr. P.R. Vittal&Dr. V. Malini, Margham Publications, Chennai.
2. Calculus by Thomas and Fenny, Pearson Publication. Calculus by Stewart

Mapping of Course Outcomes to Program Outcomes and Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	2	3	1	2	2	2	3	2	1
CO2	3	3	2	2	1	2	2	2	3	2
CO3	2	2	3	2	3	2	2	1	2	2
CO4	3	2	1	2	2	2	1	3	2	2
CO5	3	2	3	2	2	2	1	3	2	2

1 - Low

2 – Medium

3 – High

Course Title: ANALYTICAL GEOMETRY

Course	B.Sc., Mathematics (MPC & MAP)
Exam Hours	03

Credits	04
CIA Marks	50
ESE Marks	50

Course objectives

- To gain knowledge in evaluating chord of contact, polar equation .
- To develop the concept of system of planes, angle between the line and plane .
- To develop the idea of the equation of sphere and cone.

Course outcomes: At the end of the course, students will be able to

CO1	Understand the concept of equation of straight line, circle , conic, chord and tangent , normal equations of hyperbola
CO2	Solve the problems in System of Planes - Length of the perpendicular – Orthogonal projection
CO3	Estimate the angle between the line and plane, coplanar lines and shortest distance to skewness.
CO4	Understand the concept of equation of sphere and its applications
CO5	Understand the concept of equation of cone and its types

CONTENTS OF MODULE	
Unit 1	Chord of contact – polar and pole,- conjugate points and conjugate lines. Polar coordinates: General polar equation of straight line – Polar equation of a circle on A_1A_2 as diameter, Equation of a straight line, circle, conic – Equation of chord, tangent, normal. Equations of the asymptotes of a hyperbola.
Unit 2	Introduction – System of Planes - Length of the perpendicular – Orthogonal projection.
Unit 3	Representation of line – angle between a line and a plane- co-planar lines- shortest distance to skewlines- Length of the perpendicular- intersection of three planes
Unit 4	

Equation of a sphere - general equation - section of a sphere by a plane - equation of the circle -tangent plane - angle of intersection of two spheres- condition for the orthogonality - radical plane.

Unit -5

Equation of a cone with vertex as origin, Equation of a quadric cone given the vertex and the guiding curve, Condition for a general equation of second degree to represent a cone, equation of right circular cone given the vertex, axis and semi vertical angle, equation of the enveloping cone of a sphere with centre at origin.

Recommended Text :

1. Analytical Geometry of 2D by P.Durai Pandian- Muhil publishers for Unit – 1
2. Analytical Solid Geometry of 3D by Shanthi Narayan and Dr.P.K. Mittal-S.Chand& Co.Pvt.Ltd.- for Unit – 2 to 5

Reference Books:

1. Analytical Geometry of Two Dimension by T.K.Manikavachakam Pillai and S. Narayanan. S.Viswanathan (Printers and Publishers) Pvt. Ltd.
2. Analytical Geometry of Three Dimension by T.K.Manikavachakam Pillai and S. Narayanan

Mapping of Course Outcomes to Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	2	2	3	2	2	3	3	2	2
CO2	3	3	3	1	3	3	3	1	3	3
CO3	3	3	2	3	3	3	1	3	2	1
CO4	3	2	3	3	3	1	3	3	3	2
CO5	3	3	1	3	2	3	3	3	1	3

3 – High

2 – Medium

1 - Low

Course Title: Integral Calculus and Vector Analysis

Course	B Sc(Maths)
Exam Hours	03

Credits	04
CIA Marks	50
ESE Marks	50

Course Objectives

- To develop the ability to use Reduction formula
- To know about the method to find the Volume
- To develop the skills of the students in the Indefinite Integral.
- To learn methods and techniques of solving line and surface Integral.

Course Outcomes: At the end of the course, the Student will be able to

CO1	Evaluate the Integral using Reduction formula
CO2	Calculate Area and Volume using double and triple Integral
CO3	Evaluate the Indefinite Integral using the properties of Beta and Gamma function.
CO4	Calculate directional derivatives, Curl, divergence.
CO5	Solve Line and Surface Integral using Greens, stokes and Gauss theorem

Program Outcome (PO)

At the end of the program, the student will be able to:

PO	Program Outcome
PO1	Knowledge: Apply the knowledge of Mathematics to develop logical thinking.
PO2	Problem Analysis: Identify the problems in real life situations and develop Mathematical models which paves the way to obtain solutions.
PO3	Modern tool usage: Select and apply appropriate techniques, resources, computer programming and statistical tools to cope up with recent trends.
PO4	Individual and team work: Function effectively as an individual and as a member or leader in team.
PO5	Communication: Communicate with society at large, being able to comprehend and write affective reports and design documentation, make effective presentations.

PO6	Project Management: Acquire Mathematical and Statistical knowledge necessary to formulate, analyze, design and apply in multidisciplinary environments.
PO7	Life-long learning: Recognize the need for preparation and the ability to engage in life-long learning in the context of technological change.

Program Specific Outcomes (PSO)

At the end of the program, the student will be able to:

PSO	Program Specific Outcomes (PSO)
PSO1	Mathematical Thinking: Acquire abstract mathematical thinking and the capability of developing ideas based on them.
PSO2	Career: Practice mathematical tasks, tools, representation and methods for industry and entrepreneurial pursuit.
PSO3	Creativity: Develop quest for mathematics and prepare for higher learning.

CONTENTS OF MODULE	
UNIT – I:	Reduction formulae– Types, $\int x^n e^{ax} dx$, $\int x^n \cos ax dx$, $\int x^n \sin ax dx$, $\int \cos^n x dx$, $\int \sin^n x dx$, $\int \sin^m x \cos^n x dx$, $\int \tan^n x dx$, $\int \cot^n x dx$, $\int \sec^n x dx$, $\int \operatorname{cosec}^n x dx$, $\int x^n (\log x)^m dx$ -Bernoulli's formula. Chapter 1 Section 13, 13.1 to 13.10,14,15.1.
UNIT-II:	Multiple Integrals- definition of the double integrals- evaluation of the double integrals- double integrals in polar coordinates – triple integrals – applications of multiple integrals – volumes of solids of revolution – areas of curved surfaces – change of variables – Jacobians. Chapter 5 Section 1, 2.1, 2.2, 3.1, 4, 6.1, 6.2, 6.3, 7 Chapter 6 Section 1.1, 1.2, 2.1 to 2.4
UNIT– III:	Beta and Gamma functions - infinite integral – definitions – recurrence formula of Gamma functions -properties of Gamma-functions - relation between Beta and Gamma functions. Evaluation of double and triple integrals using Beta gamma functions.
UNIT-IV:	Introduction - directional derivative- Gradient- divergence- curl- Laplacian Differential Operator. Chapter 2 Sections 2.1 - 2.13.
UNIT-V:	Line, surface and volume integrals - Integral Theorems - Gauss, Greens and Stokes (Without proof) –Problems. Chapter 3 Sections 3.1 to 3.6 and Chapter 4 Sections 4.1 to 4.5.

Recommended Text Book :

1. “Calculus”, Vol-II by S.Narayanan and T.K.Manicavachagampillay
S. Viswanathanpublishers– 2007 for Unit 1 , Unit 2 , Unit 3.
2. “Vector Analysis” by P.Duraipandian and KayalalPachaiyappa, S.ChandFor Unit 4,Unit 5.

Reference Books:

- 1.Integral Calculus and differential equations : Dipak Chatterjee (TATA McGrawHill Publishing companyLtd.).
- 2.Vector Algebra and Analysis by Narayanan and T.K.Manickvachagam PillayS .Viswanathan Publishers.
Vector Analysis: Murray Spiegel (Schaum Publishing Company, NewYork).

Mapping of Course Outcomes to Program Outcomes and Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	2	3	2	2	2	2	3	2	1
CO2	3	3	2	2	1	2	2	2	3	2
CO3	2	2	3	2	1	2	2	2	2	2
CO4	3	2	2	2	2	2	1	3	2	2
CO5	3	2	3	2	1	2	2	2	2	2

1 - Low**2 – Medium****3 – High**

Differential Equations

Course	B.Sc. Maths
Exam Hours	03

Credits	04
CIA Marks	50
ESE Marks	50

Course objectives

- To solve first order Ordinary differential equations
- To evaluate particular integrals of special forms
- To solve non homogeneous simultaneous linear differential equations
- To compute complete, singular and general integrals of partial differential equations
- To apply Charpits method

Course Outcomes: At the end of the course, students will be able to

CO1	Solve linear differential equation and Demonstrate Bernoulli's equation and exactness of first order differential equations
CO2	Exhibit Clairauts form and solve linear differential equations with constant coefficients
CO3	Apply variation of parameter method to solve second order differential equations
CO4	Demonstrate Partial differential equations and its solutions
CO5	Implement Charpit's method

Course Outline	<p>Unit I: Ordinary Differential Equations: Concept of existence and uniqueness . Variable separable-Homogeneous Equation-Non-Homogeneous Equations of first degree in x and y-Linear Equation-Bernoulli's Equation-Exact differential equations. Chapter 2: Section 1 to 6.</p> <p>Unit II: Equation of first order but not of higher degree: Equation solvable for dy/dx- Equation solvable for y- Equation solvable for x- Clairauts form- Linear Equations with constant coefficients-Particular integrals $e^{ax}, \sin ax, \cos ax, x^m, Ve^{ax}$ where V is $\sin ax$ or $\cos ax$ or x^m .</p> <p>Chapter 4: Section 1, 2.1, 2.2, 3.1, Chapter 5: Section 4.</p> <p>Unit III: Simultaneous linear differential equations- Linear Equations of the Second Order -Complete solution in terms of a known integrals- Reduction to the Normal form- Change of the Independent Variable - Method of Variation of Parameters.</p> <p>Chapter 6: Section- 6 ,Chapter 8:Section- 1,2,3,4.</p> <p>Unit IV: Partial differential equation: Formation of PDE by Eliminating arbitrary constants and arbitrary functions-complete integral-singular integral-General integral-Lagrange's Linear Equations $Pp+Qq=R$.</p> <p>Chapter 12: Section- 1, 2, 3.1, 3.2, 4.</p> <p>Unit V: Special methods - Standard forms - Charpit's Methods - Related</p>
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	problems Chapter 12: Section-5.1, 5.2, 5.3, 5.4, 6.
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Text Book:

1. "Differential Equations and its applications", by S.Narayanan, T.K.Manikavachagam Pillay -- S.Viswanathan (Printers and Publishers) Pvt. Ltd(2006).

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	2	2	2			2	2	2	2	2
CO2	2	3	2			1	2	1	2	2
CO3	2	2	1			2	2	2	3	2
CO4	1	2	2			2	3	3	2	3
CO5	3	2	3			2	2	2	2	2

Course Title: : Elementary Number Theory

Course	B.Sc Maths
Exam Hours	03

Credits	04
CIA Marks	50
ESE Marks	50

Course objectives

- To explain the application of divisibility, congruences and its applications in number theory from an algebraic view point.
- To demonstrate quadratic residues, describe mobius inversion formula and solving simultaneous linear equations.

Course outcomes: At the end of the course, students will be able to

CO1	Illustrate divisibility, primes and the binomial theorem
CO2	Judge the solution of congruences using Chinese remainder theorem and explain primitive roots and residues.
CO3	Develop the importance of quadratic residues and reciprocity to apply in quadratic residues and reciprocity.
CO4	Compare greatest integer function and arithmetic function and develop it to mobius inversion formula.
CO5	Examine simultaneous linear equations and formulate it to pythagorean triangles.

CONTENTS OF MODULE
Unit I : Introduction-Divisibility-Primes-The Binomial theorem
Unit II: Congruences, Solution of Congruences,Chinese Remainder Theorem-Primitive roots and Power residue-Number Theory from an Algebric view point-Groups,Rings and Fields
Unit III: Quadratic Residue,Quadratic reciprocity,The Jacobi Symbol
Unit IV: Greatest Integer Function,Arithmetic function,The Mobius Inversion formula Combinational Number Theory
Unit V: The equation $ax+by=c$,Simultaneous Linear Equation,Pythagorean Triangle,Assorted examples

Contents and treatment as in : “An Introduction to the Theory of Numbers (Vth edition)”,by Ivan Niven, Herbert S.Zuckarman and Hugh L.Montgomery John Wiley&Sons , Inc.2001.

Chapter 1	Sections 1.1 to 1.4
Chapter 2	Sections 2.1-2.3,2.8(cor 2.42,th 2.43 and cor 2.44 are omitted)-2.10-2.11
Chapter 3	Sections 3.1 to 3.3
Chapter 4	Sections 4.1, 4.3 and 4.5
Chapter 5	Sections 5.1 to 5.4

Reference Books:

- 1.Elementary theory of numbers,cy.Hsiung, Allied publishers,1995
- 2.Elementary Number Theory,Allyn and Bacon Inc.,Boston,1980
- 3.Intoduction to Analytic Number Theory, Tom.M.Apostol,Narosa Publishing Houses, New Delhi,1989

e-Resources:

- 1.<https://nptel.ac.in>
- 2.<https://mathonline.wikidot.com>

Mapping of Course Outcomes to Program Outcomes and Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	2	3	3	2	2	3	3	3	2	3
CO2	3	3	3	2	1	2	3	2	2	3
CO3	3	3	2	1	2	3	3	1	3	3
CO4	3	2	3	1	2	3	3	3	2	3
CO5	2	2	3	3	2	3	3	2	3	3

Correlation level : 3 – High 2 – Medium 1 - Low

Integral Transforms

Course	B.Sc Maths
Exam Hours	03

Credits	04
CIA Marks	50
ESE Marks	50

Course objectives

- To understand Laplace Transform
- To apply Laplace transform to solve differential equations
- To analyse Fourier series and its applicability
- To compute Fourier Transform
- To apply Z Transforms to difference equations

Course Outcomes: At the end of the course, students will be able to

CO1	Analyse Laplace transform and the conditions of existence of Laplace transform
CO2	Implement the Laplace transform technique to solve differential equations
CO3	Study the expansion of periodic functions using Fourier Series
CO4	Demonstrate the Fourier transform and its properties
CO5	Apply Z transform for difference equations

Course Outline	<p>Unit I: The Laplace Transforms-Definitions-Sufficient conditions for the existence of the Laplace transform(without proof)-Laplace transform of periodic functions-some general theorems-evaluation of integrals using Laplace transform-Problems.</p> <p>Chapter 5: Section-1 to 5.</p>
	<p>Unit II: The inverse Laplace Transforms- Applications of Laplace Transforms to ordinary differential equations with constant co-efficients and variable co-efficients, simultaneous equations and equations involving integrals-Problems.</p> <p>Chapter 5: Section-6 to 12.</p>
	<p>Unit III: Fourier series- Expansion of periodic functions of period 2π- Expansion of even and odd functions, Half range Fourier series- Change of intervals –Problems.</p> <p>Chapter 6: Section-1 to 6</p>
	<p>Unit IV: Fourier Transform- Infinite Fourier Transform(Complex form) – Properties of Fourier Transform – Fourier cosine and Fourier sine Transform – Properties – Parseval’s identity – Convolution theorem - Problems.</p> <p>Chapter 6: Section-8 to 15.</p>

	Unit V: Z Transforms: Definition of Z-Transform and its properties - Z-Transforms of some basic functions- Formation of difference equations – Solution of difference equations using Z – transform- Examples and simple problems
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Text Book:

1. “Calculus-Volume III” – S.Narayanan and T.K.ManicavachagamPillai. (Ananda Book Depot)
2. “Engineering Mathematics for Semester III- Third Edition – T.Veerarajan (Tata McGraw-Hill Publishing Company Ltd, New Delhi) (for Unit-V)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	2	2			2	2	2	2	2
CO2	2	3	1			1	2	1	2	2
CO3	2	2	2			2	2	2	3	2
CO4	2	3	2			2	3	2	2	2
CO5	3	2	2			2	2	2	2	2

Title of the Course		DISCRETE MATHEMATICS				
Paper Number		VIII				
Category	Core	Year	II	Credits	4	Course Code
		Semester	IV			

Course	B.Sc. Maths
Exam Hours	03

Credits	04
CIA Marks	50
ESE Marks	50

Learning outcomes:

Students will acquire knowledge

- To apply tools and ideas in Mathematics for solving Applied Problems.
- To Evaluate Boolean functions and to express a logic sentence in terms of predicates, quantifiers, and logical connectives.

Course Outcomes: At the end of the Course, the Student will be able to

CO1	Analyse the divisibility of integer and also representation of
CO2	Apply Boolean algebra concepts in disjunctive and conjunctive normal form
CO3	Identifying, designing and analyzing circuits, logical gates and combinatorial circuits
CO4	Demonstrate recursive function and classify homogeneous and non-homogeneous linear recurrence relations
CO5	Demonstrate Proportional logic and Predicate logic

COs	CONTENTS OF MODULE
CO1	UNIT-I: Integers: Set, some basic properties of integers, Mathematical induction, divisibility of integers, representation of positive integers Chapter 1 - Sections 1.1 to 1.5
CO2	UNIT- II: Boolean algebra & Applications: Boolean algebra, two element Boolean algebra, Disjunctive normal form, Conjunctive normal form Chapter 5 - Sections 5.1 to 5.4
CO3	UNIT-III: Application, Simplification of circuits, Designing of switching circuits, Logical Gates and Combinatorial circuits. Chapter 5 - Section 5.5, 5.6
CO4	UNIT-IV: Recurrence relations and Generating functions: Sequence and recurrence relation, Solving recurrence relations by iteration method, Modeling of counting problems by recurrence relations, Linear (difference equations) recurrence relations with constant coefficients, Generating functions, Sum and product of two generating functions, Useful generating functions, Combinatorial

	problems. Chapter 6 - Section 6.1 to 6.6
CO5	UNIT-V: Proportional logic and Predicate logic: Proportional logic, Adequate system of connectives, Translation of sentences in a Natural Language into Statement Formula, Logical validity of arguments, Predicate Logic, Negation of a statement obtained by qualification of a predicate, Logical operations on predicates or quantified predicates, Symbolization of sentences by using predicates, Quantifiers and connectives, Logical validity of arguments. Chapter 8 - Sections 8.1, 8.5 to 8.8 (Omit Section 8.2 to 8.4)

Contents and treatment as in	“Introduction to Discrete Mathematics”, 2 nd edition, 2002 by M. K. Sen and B. C.Chakraborty, Books and Allied Private Ltd., Kolkata.
Reference Books	<ol style="list-style-type: none"> 1. Discrete mathematics for computer scientists and mathematicians by J. L.Mertt,AbrahamKendel and T. P. Baker prentice-hall, India. 2. Discrete mathematics for computer scientists by John Truss- Addison Wesley. 3. Elements of Discrete Mathematics, C. L. Liu, New York Mcgraw-Hill, 1977.
e-Resources:	<ol style="list-style-type: none"> 1. https://brilliant.org/wiki/discrete-mathematics/. 2. https://www.tutorialspoint.com/discrete_mathematics/.

Mapping of Course Outcomes to Program Outcome & Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	2	1	1	1	1	1	1	2	2
CO2	3	2	1	1	1	2	1	2	2	2
CO3	2	3	2	1	1	1	1	1	2	2
CO4	2	2	1	1	1	2	1	1	2	2
CO5	2	3	2	1	1	1	1	1	3	3

3-High

2-Medium

1-Low

Title Of The Course		PROBABILITY AND STATISTICS – II			
Paper Number		IV			
Category	Allied	Year	II	Credits	5
		Semester	IV		

Course	B.Sc. Maths
Exam Hours	03

Credits	05
CIA Marks	50
ESE Marks	50

Learning outcomes: Students will acquire knowledge

- To provide the foundation of statistical analysis used in varied application
- Of Sampling methods, Tests of significance and testing of hypothesis.

Course Outcomes: At the end of the Course, the Student will be able to

CO1	Identify a statistic and point out its importance in application and summarize the theoretical aspect of normal and non-normal populations.
CO2	Explain the bound for defining most efficient estimates derived from Rao Cramer inequality and compare the process of finding interval estimation with the process of finding point estimation.
CO3	Fit best approximation for a given set of data and also compare and analyze whether two sets of data are coming from same population or different population
CO4	Analyze the variability of samples under the given distributions and also obtain its confidence intervals
CO5	Point out the existence of most powerful test by summarizing the theoretical aspects of Neymann Pearson result.

COs	CONTENTS OF MODULE
CO1	UNIT-I: Sampling Distributions – Concept of Standard error – Sampling distribution based on normal distribution- t, z, Chi Square and F distributions.
CO2	UNIT- II Point estimation – Concepts of unbiasedness – consistency – efficiency and sufficiency- Cramer Rao inequality – Methods of estimation- Maximum likelihood- moments - minimum square and their properties (Statement only).
CO3	UNIT-III: Test of significance – Standard error- Large sample test, Exact test based on normal, t, chi-square and F idistribution with respect to population mean/means, proportion/proportions, variance and correlation coefficient. Test of independence of attributes based on contingency tables- Goodness of fit based on chi-square.
CO4	UNIT-IV: Analysis of Variance: One way, two way classification concepts & Problems. Interval estimation – Confidence intervals for population mean/means- Proportion/proportions and variances based on t, Chi-Square and F.

CO5	UNIT-V: Test of hypothesis- Type I and II errors- Power of test – Neymann Pearson lemma- Likelihood ratio test-concepts of most powerful test- statements and results only-simple problems, Concept of p-value, Power of test.
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Contents and treatment as in	Elements of Mathematical Statistics, by S.C.Gupta &V.K.Kapoor, Sultan Chand & Sons,New Delhi.
Reference Books	<ol style="list-style-type: none"> 1. Hogg R.V. & Craig A.T. (1988): Introduction to Mathematical Statistics, McMillan. 2. Mood A.M. &Graybill F.A. &Boes D.G. (1974): Introduction to theory of Statistics,McGraw Hill. 3. Snedecor G.W. & Cochran W.G(1967) : Statistical Methods, Oxford and IBH. 4. Hoel P.G. (1971) : Introduction to Mathematical Statistics, Wiley. 5. Wilks S.S. Elementary Statistical Analysis, Oxford and IBH.
e-Resources:	<ol style="list-style-type: none"> 1. https://nptel.ac.in 2. https://www.wikipedia.org. 3. http://ebooks.lpude.in/statistics.

Mapping of Course Outcomes to Program Outcome & Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	2	2	1	1	2	2	3	3	2
CO2	3	3	2	1	1	1	3	3	2	2
CO3	2	3	3	1	1	2	1	2	2	2
CO4	3	3	2	1	1	2	2	3	3	2
CO5	3	3	2	1	1	2	1	2	2	2

3-High

2-Medium

1-Low

Course Title: PROGRAMMING IN PYTHON WITH PRACTICALS (THEORY)

Course	B. Sc Maths
Exam Hours	03

Credits	05
CIA Marks	50
ESE Marks	50

Course objectives

- To learn and understand Python programming basics and paradigm.
- To learn and understand control statements, Looping, functions and string manipulations.
- To learn and know the concepts of file handling and exception handling.

Course outcomes: At the end of the course, students will be able to

CO1	Understand the concept of operators, data types in python programming.
CO2	Understand control statements and Looping
CO3	Apply the concept of functions in python programming.
CO4	Understand the concept of formatting operator and strings
CO5	Analyze the structures of list, tuples and maintaining dictionaries

CONTENTS OF MODULE
UNIT-I : Basics of Python Programming: Features – History – Future – Python Interpreter and Interactive Mode – Writing and Executing First Python Programme – Values and Types – Data Types – Operators and Expressions – Operations on Strings – Type Conversion – Comments – Functions and Modules. Chapter 2: Section 2.1 – 2.22
UNIT-II: Control Flow Statements: Introduction to Decision Control Statements –Conditional Branching –Loops Structures – Nested Loops – Break – Continue – Pass – Else Statement Used with Loops. Chapter 3: Section 3.1 – 3.8
UNIT-III: Functions: Introduction – Defining a function– Function Call – Variable Scope and Lifetime – Fruitful Function –Lambda – Function Composition – Documentation Strings – Recursive Functions Chapter 4: Section 4.1 – 4.8, 4.10 (Omit 4.9)
UNIT-IV: Strings: Concatenating, Appending, and Multiplying Strings – Immutable – Formatting Operator – Built-in String Methods and Functions – Slice Operation – Comparing Strings – Iterating String. Lists, Tuples and Dictionaries: Sequence – Lists. Chapter 5: Section 5.1 – 5.5, 5.8, 5.9 (Omit 5.6, 5.7) Chapter 6: Section 6.1 to 6.2
UNIT-V: Lists, Tuples and Dictionaries: Tuple – Dictionaries File Handling: Opening and Closing Files – Reading and Writing Files. Error and Exception Handling: Introduction – Handling Exceptions. Chapter 6: Section 6.4 to 6.5 (Omit 6.3) Chapter 7: Section 7.4, 7.5 Chapter 8: Section 8.1, 8.2

Recommended Text:

“Problem Solving and Programming with Python”, by ReemaThareja (Second Edition, 2019,OXFORD University Press)

Reference Books:

1. “Problem Solving and Python Programming” by Mr. Ashok NamdevKamthane and Mr.Amit Ashok Kamthane (McGraw Hill Education (India) Private Limited).
2. “Python Programming” by Ch.Sathyanarayana, M.Radhika

e-Resources:

<https://www.pythonforbeginners.com/>

<https://www.w3schools.com/>

Mapping of Course Outcomes to Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	2	1	-	-	3	2	3	1	2
CO2	1	2	2	-	-	2	1	2	3	3
CO3	3	1	2	-	-	1	2	3	2	2
CO4	2	3	1	-	-	2	2	1	2	1
CO5	3	2	2	-	-	1	1	2	1	3

3 – High

2 – Medium

1- Low

Course Title: ALGEBRAIC STRUCTURES

Course	B Sc (Maths)
Exam Hours	03

Credits	04
CIA Marks	50
ESE Marks	50

Course Objectives:

Students will acquire knowledge about the concepts of Sets, Groups and Rings.

Course Outcomes: At the end of the Course, the Student will be able to

CO1	Summarize the structure of Group, Subgroups and Demonstrate operations satisfying various properties in group structure.
CO2	Explain normal subgroups, quotient groups, homomorphism, automorphism and demonstrate with an example.
CO3	Explain Cayley's theorem, the permutations groups with an example.
CO4	Define Rings, some special classes of rings with an example and Explain ideals and quotient Rings
CO5	Illustrate Imbedding of Integral domain over Field and demonstrate the Euclidean Rings.

COs	CONTENTS OF MODULE
CO1	Unit 1: Introduction to groups- Subgroups- cyclic groups and properties of cyclic groups- Lagrange's Theorem- A counting principle. Chapter 2 Section 2.4 and 2.5.
CO2	Unit 2: Normal subgroups and Quotient group- Homomorphism- Automorphism. Chapter 2 Section 2.6 to 2.8.
CO3	Unit 3: Cayley's Theorem- Permutation groups. Chapter 2 Section 2.9 and 2.10.
CO4	Unit 4: Definition and examples of ring- Some special classes of rings- homomorphism of rings- Ideals and quotient rings- More ideals and quotient rings. Chapter 3 Section 3.1 to 3.5.
CO5	Unit 5: The field of quotients of an integral domain- Euclidean Rings- The particular Euclidean ring. Section 3.6 to 3.8.

Contents and treatment as in

“Topics in Algebra” – I. N. Herstein, Wiley Eastern Ltd.

Reference Books

1. Modern Algebra by M.L.Santiago, McGraw Hill Education India pvt Ltd.
2. Modern Algebra by S. Arumugam and others, New Gamma publishing House, Palayamkottai.
3. Modern Algebra by Visvanathan Nayak, Emerald Publishers, Reprint 1992.

1. <https://nptel.ac.in>
2. <http://garsia.math.yorku.ca/~sdenton/algstruct>.

Mapping of Course Outcomes to Program Outcomes & Program Specific Outcomes:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PSO 1	PSO 2	PSO 3
CO1	3	3	2	2	1	2	2	3	3	2
CO2	3	3	2	2	1	2	2	3	2	3
CO3	3	3	1	1	1	2	1	3	1	2
CO4	3	3	1	1	1	2	1	2	2	2
CO5	3	2	1	2	1	2	2	3	2	2

Correlation levels: 1- Weak 2-Medium 3-High

Course Title: Real Analysis-I

Course	B.Sc. Maths
Exam Hours	03

Credits	04
CIA Marks	50
ESE Marks	50

Course objectives

- To make the students capable of analysing any given sequence and series
- To calculate limit superior, limit inferior and the limit of a sequence
- To learn certain proof techniques and write precise proof of theorems
- To recognize alternating, conditionally convergent and absolutely convergent series

Course outcomes: At the end of the course, students will be able to

CO1	Describe the fundamental properties of the real numbers that lead to the formal development of real analysis and recognize the basic properties of the field of real numbers, cardinality of a sets.
CO2	Demonstrate the concepts of limits in sequences and examine the basic principles of convergence and conditions of the convergent, divergent of a sequence.
CO3	Estimate the limit superior, limit inferior, limit of a sequence and explain Cauchy sequence.
CO4	Construct mathematical proofs of convergence test of a sequence and distinguish between conditional convergence and absolute convergence. Explain and demonstrate the basic concepts of absolute convergence of a sequence and derive the 'test for convergence' using summation by parts.
CO5	Explain the Euclidian distance function and the geometric meaning of each of the metric space properties and point out whether a given distance function is a metric.

CONTENTS OF MODULE

Unit I:

Sets and Functions: Sets and elements- Operations on sets- functions- real valued functions- equivalence- countability - real numbers- least upper bounds.

Unit II:

Sequences of Real Numbers: Definition of a sequence and subsequence- limit of a sequence- convergent sequences- divergent sequences- bounded sequences- monotone sequences

Unit III:

Operations on convergent sequences- operations on divergent sequences- limit superior and limit inferior- Cauchy sequences.

Unit IV:

Series of Real Numbers: Convergence and divergence- series with non-negative terms- alternating series- conditional convergence and absolute convergence- tests for absolute convergence- series whose terms form a non-increasing sequence- the class l^2 .

Unit V:

Limits and Metric Spaces: Limit of a function on a real line-. Metric spaces - Limits in metric spaces. Continuous Functions on Metric Spaces: Function continuous at a point on the real line- Reformulation- Function continuous on a metric space.

Recommended Text: Contents and treatment as in

Richard R. Goldberg, Methods of Real Analysis, Oxford and IBH Publishing Co.

Reference Books:

1. Principles of Mathematical Analysis by Walter Rudin, TataMcGrawHill.
2. Mathematical Analysis Tom M Apostol, Narosa Publishing House

Mapping of Course Outcomes to Program Outcomes and Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	2	3	2	1	2	2	2	2	2	2
CO2	3	2	2	1	2	2	2	3	2	2
CO3	2	2	2	1	1	3	2	2	2	2
CO4	3	2	1	1	1	3	1	3	2	3
CO5	3	2	2	1	2	2	2	3	2	3

3 – High

2 – Medium

1 - Low

Course Title: Mechanics

Course	B Sc (Maths)
Exam Hours	03

Credits	04
CIA Marks	50
ESE Marks	50

Course objectives

Students will acquire knowledge about

Particles or body in rest under the given forces. Forces, equilibrium of a particle and centre of mass of various bodies.

The motion of bodies under the influence of forces. Rectilinear motion of particles, Projectiles, Impact and Moment of Inertia of Particles.

Course outcomes: At the end of the course, the student will be able to

CO1	Recall the basic definitions of forces, Newtons laws of motion, Distinguish problems under moments, parallel forces and couples.
CO2	Explain Equilibrium of a rigid body under three coplanar forces, Centre of mass, hanging body in equilibrium and demonstrate problems under hanging strings.
CO3	Recall the basic definitions of work, conservative field of force, power, simple harmonic motion and demonstrate problems under work, Simple harmonic motion
CO4	Recall concepts of projectiles, differentiate time of flight, horizontal range in an inclined plane and evaluate problems under Impact.
CO5	Define circular motion, central orbits, Explain moment of Inertia of simple bodies and theorems of parallel and perpendicular axes and evaluate various problems under moments of Inertia

COs	CONTENTS OF MODULE
CO1	<p>Unit 1 Force- Newtons laws of motion - resultant of two forces on a particle- Equilibrium of a particle. Forces on a rigid body – moment of a force – general motion of a rigid body- equivalent systems of forces – parallel forces – forces along the sides of a triangle – couples. Chapter 2 - Section 2 .1 , 2.2 , Chapter 3 - Section 3.1. Chapter 4 - Section 4 .1 to 4.6.</p>
CO2	<p>Unit 2 Resultant of several coplanar forces- equation of the line of action of the resultant- Equilibrium of a rigid body under three coplanar forces . Centre of mass – finding mass centre – a hanging body in equilibrium, Hanging strings- equilibrium of a uniform homogeneous string – suspension bridge Chapter 4 - Section 4.7 to 4.9 Chapter 6 - Section 6.1 to 6.3. Chapter 9 - Section 9.1, 9.2.</p>
CO3	<p>Unit 3 Kinematics -Basic units – velocity – acceleration- coplanar motion . Work, Energy and power – work – conservative field of force – power – Rectilinear motion under varying Force: Simple harmonic motion (S.H.M.) – S.H.M. along a horizontal line- S.H.M. along a vertical line Chapter 1 - Section 1.1 to 1.4 Chapter 11 - Section 11.1 to 11.3 , Chapter 12 - Section 12.1 to 12.3</p>
CO4	<p>Unit 4 Projectiles -Forces on a projectile- projectile projected on an inclined plane. Impact: Impulsive force - impact of sphere - impact of two smooth spheres – impact of a smooth sphere on a plane – oblique impact of two smooth spheres Chapter 13 - Section 13.1, 13.2 Chapter 14 - Section 14.1, 14.5</p>
CO5	<p>Unit 5 Circular motion – Conical pendulum – simple pendulum – central orbits -general orbits - central orbits-conic as centered orbit. Moment of inertia, Perpendicular and parallel axes theorem Chapter 15 - Section 15.1, 15.2, 15.6 Chapter 16 - Section 16.1 to 16.3 Chapter 17 -Section 17.1, 17.1.1</p>

Contents and treatment as in

“Mechanics” by P. Duraipandian , Laxmi Duraipandian ,
Muthamizh Jayapragasham, S. Chand and Co limited 2008 .

Reference Books

1. Dynamics – K. Viswanatha Naik and M. S. Kasi, Emerald Publishers.
2. Dynamics – A. V. Dharmapadam, S. Viswanathan Publishers.
3. Mechanics – Walter Grenier.

e-Resources:

1. <https://www.wikipedia.org/>
2. <https://physics.info>

3. Mapping of Course Outcomes to Program Outcomes & Program Specific Outcomes:

	P01	P02	P03	P04	P05	P06	P07	PS01	PS02	PS03
C01	3	3	2	1	1	2	2	3	3	2
C02	3	3	2	1	1	2	2	3	2	3
C03	3	3	1	1	1	2	1	3	1	2
C04	3	3	1	1	1	2	1	2	2	2
C05	3	2	1	2	1	2	2	3	2	2

Correlation levels: 1- Weak 2-Medium 3-High

Course Title: Operations Research

Course	B Sc (Maths) MPC & MAN
Exam Hours	03

Credits	05
CIA Marks	50
ESE Marks	50

Course objectives

- **To formulate and analyzing the Linear Programming Problem from the real-world problems.**
- **Develop mathematical skills to analyze and solve network models arising from a wide range of applications.**
- **The student get knowledge about the scope and application of operations research in business and industry.**

Course outcomes: At the end of the course, students will be able to

CO1	Able to formulate linear programming problems and solve using Graphical, Simplex method.
CO2	Able to analyze and solve Transportation using appropriate method.
CO3	Able to analyze and solve Assignment problems and Game theory.
CO4	Able to design and solve Networks Models using CPM, PERT.
CO5	Estimate optimum solution for sequencing problems.

CONTENTS OF MODULE

Unit -1: Linear programming – Formulation – Graphical solution – Simplex method – Simple applications. Big-M method.

Unit -2: Linear programming - Principle of Duality – Primal – Dual relation -Dual simplex method – Simple applications. **Transportation Problem:** Finding initial solution by North West Corner Rule – Vogel’s Approximation method and Matrix minimum method – Procedure for finding optimal solution – Both minimisation and maximisation cases – Unbalanced and degenerate transportation problems.

Unit -3: Assignment Problem: Formulation – Minimisation cases – procedure for getting optimum solution – Unbalanced problem – Maximisation problem – Problems with restrictions. **Game Theory:** Two Person Zero-Sum game with saddle point – without saddle point –dominance rule – Solving 2 x n or m x 2 game by graphical method.

Unit -4: Networks: Rules for network construction – Critical Path Method - Time calculation sin PERT – PERT algorithm (Crashing excluded) – Related problems.

Unit -5: Sequencing Problem – n jobs through 2 machines – n jobs through 3 machines – n jobs through m machines. Graphical method.

Recommended Text :

P.K. Gupta and D. S. Hira, Operations Research, S. Chand & Co.

Reference Books:

1. *KanthiSwaroop, P.K. Gupta, Manmohan*, Operations Research –Sultan Chand & sons.
2. *H.A. Taha*, Operations Research Prentice Hall of India, New Delhi
3. *Sundaresan, Ganapathy Subramanian, Ganesan.*, Resource Management Technique – Meenakshi Agency.

Mapping of Course Outcomes to Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	3	2	1	2	3	2	2	2	3
CO2	2	3	2	1	2	3	3	3	3	2
CO3	3	3	1	2	1	3	2	3	2	3
CO4	3	3	3	3	2	3	3	3	3	3
CO5	3	2	3	2	3	3	2	3	3	2

3 – High

2 – Medium

1 - Low

Course Title: TROPICAL LINEAR ALGEBRA

Course	B Sc (MATHEMATICS)
Exam Hours	03

Credits	05
CIA Marks	50
ESE Marks	50

Course Objectives

Tropical linear algebra enables students to efficiently describe and deal with complex sets reveal combinatorial aspects of problems and view a class of problems in a new, unconventional way.

Course Outcomes: At the end of the Course, the Student will be able to

CO1	Analyze the properties of curve counting compactifications.
CO2	Abel to find formulations of the local rigidity theorems for curves and hypersurfaces that are amenable to direct application to problems in control theory
CO3	Investigate eigenvalues and eigenvectors in tropical linear algebra. Able to explain the varieties that are parameterized by monomials in linear forms.
CO4	Understand the concepts of generators, basis, column spaces. Differentiate between solvable systems and unsolvable systems.
CO5	Apply the concepts of principle eigen value and eigen spaces.

CONTENTS OF MODULE
Unit – I: Tropical islands Planes, amoebas and their tentacles, Implicitization, curve counting compactifications
Unit – II: Tropical varieties: Hypersurfaces- the fundamental theorem, the structure theorem.
Unit - III: Tropical varieties: Multiplicities and balancing, connectivity and fans, stable intersection.
Unit -IV: Max – linear systems: Bounded mixed integer solution to dual inequalities, the combinatorial method, the algebraic method, subspaces, generators, external and bases, column spaces, unsolvable systems.
Unit- V: Eigen Values and Eigen Vectors: The eigen problem: basic properties, maximum cycle mean is the principle eigen value, principle eigen space, finite eigen vectors, commuting matrices have a common eigen vector.

Contents and treatment as in

1. Introduction to Tropical Geometry by Diane Maclagan, Bernd Sturmfels.
2. Peter Butkovic – Max – linear Systems: Theory and Algorithms, Springer Monographs in Mathematics

Reference Books

Tropical Algebraic Geometry by Itenberg, Ilia, Mikhalkin, Grigory, Shustin, Eugenio Springer.

Mapping of Course Outcomes to Program Outcomes & Program Specific Outcomes:

	P01	P02	P03	P04	P05	P06	P07	PS01	PS02	PS03
C01	3	2	2			2	2	3	3	3
C02	3	3	2			2	3	3	2	2
C03	2	3	1			2	1	3	1	2
C04	3	3	2			2	2	2	1	2
C05	3	2	1			2	2	3	2	2

Correlation levels: 1- Weak 2-Medium 3-High

Course Title: Linear Algebra

Course	B Sc (Maths)
Exam Hours	03

Credits	04
CIA Marks	50
ESE Marks	50

Course Objectives

Students will acquire knowledge about the Vector Spaces, Dual spaces, Inner product spaces and linear transformations.

Course Outcomes: At the end of the Course, the Student will be able to

CO1	Define vector space, Linear span, linearly independent and dependent with illustrations, explain the existence theorem for basis of finitely generated vector space and evaluate dimension of vector space.
CO2	Explain linear transformation, dual spaces, demonstrate Rank – Nullity theorem with an illustration.
CO3	Demonstrate and evaluate minimal polynomial, matrix of a linear transformation, Eigen values and Eigen vectors of linear transformation.
CO4	Define Norm, Inner Product Space, Discuss orthogonal and orthonormal basis, Explain the Gram-Schmidt Orthogonalizations process, and construct orthogonal and orthonormal basis for a given basis.
CO5	Discuss adjoint operators and their properties with an illustration.

COs	CONTENTS OF MODULE
CO1	Unit – I: Vector spaces Vector spaces, subspaces, Linear span, Linearly Independent and dependent subsets of a vector space. Finitely generated vector space, Existence theorem for basis of a finitely generated vector space, Dimensions, Quotient space and its dimension.
CO2	Unit- II: Homomorphism and Isomorphism of Vector Spaces Homomorphism and isomorphism of vector spaces, Linear transformations and linear forms on vector spaces, Dual Spaces, Null Space, Range space of a linear transformation, Rank - Nullity Theorem.
CO3	Unit-III: Algebra of Linear Transformation Minimal Polynomial of a linear transformation, Singular and non-singular linear transformations, Matrix of a linear Transformation, Change of basis, Eigen values and Eigen vectors of linear transformations.
CO4	Unit – IV: Inner Product Spaces Inner product spaces and norms, Cauchy-Schwarz inequality, Orthogonal sets and Basis, Orthonormal basis, Gram-Schmidt orthogonalization process, Orthogonal complements, Bessel's inequality.
CO5	Unit – V: Adjoint Operators and their Properties The adjoint of a linear operator, Least squares approximation, Minimal solutions to systems of linear equations, Normal, Self - adjoint, Unitary and orthogonal operators and their properties.

Contents and treatment as in

Friedberg, Stephen H., Insel, Arnold J., & Spence, Lawrence E. (2003). Linear Algebra (4th ed.). Prentice-Hall of India Pvt. Ltd. New Delhi.

Reference Books

1. D. Poole, Linear Algebra: A Modern Introduction, 2nd Edition, Brooks/Cole, 2005.
2. V. Krishnamurthy, V.P. Mainra and J.L. Arora, An introduction to Linear Algebra, Affiliated East–West press, Reprint 2005.
3. Andrilli, S., & Hecker, D. (2016). Elementary Linear Algebra (5th ed.). Academic Press, Elsevier India Private Limited.
4. Kolman, Bernard, & Hill, David R. (2001). Introductory Linear Algebra with Applications (7th ed.). Pearson Education, Delhi. First Indian Reprint 2003.
5. Lay, David C., Lay, Steven R., & McDonald, Judi J. (2016). Linear Algebra and its Applications (5th ed.). Pearson Education.

Mapping of Course Outcomes to Program Outcomes & Program Specific Outcomes:

	P01	P02	P03	P04	P05	P06	P07	PS01	PS02	PS03
C01	3	3	2	1	1	2	2	3	3	2
C02	3	3	2	1	1	2	2	3	2	3
C03	3	3	1	1	1	2	1	3	1	2
C04	3	3	1	1	1	2	1	2	2	2
C05	3	2	1	2	1	2	2	3	2	2

Correlation levels: 1- Weak 2-Medium 3-High

Course Title: Real Analysis II

Course	B.Sc Maths
Exam Hours	03

Credits	04
CIA Marks	50
ESE Marks	50

Course objectives

- To write clear and precise proof of theorems.
- Introduce the concepts of Riemann integrable and properties of Riemann integrable.
- To identify the correct theorems to deal with unknown problems.

Course outcomes: At the end of the course, students will be able to

CO1	Examine the continuity of a functions via open and closed sets and give the definition of concepts related to metric spaces, such as continuity, compactness, completeness and connectedness
CO2	Describe about bounded, unbounded sets and distinguish between compact and complete metric spaces.
CO3	Determine the Riemann integrability of a bounded function, identify the size of a sets by outer measure and choose the Riemann integral properties to find the value of the integrals.
CO4	Demonstrate the usage of the Mean Value Theorem, Fundamental theorem of Calculus to problems in the context of real analysis and Roll's theorem, Mean value theorem for differentiable functions.
CO5	Distinguish between point wise and uniform convergence of a sequence of functions and illustrate the effect of uniform convergence on the limit function with respect to continuity, differentiability, and integrability.

CONTENTS OF MODULE

Unit I: Continuous Functions on Metric Spaces: Open sets- closed sets- Discontinuous function on \mathbb{R}^1 . Connectedness, Completeness and Compactness: More about open sets- Connected sets.

Unit II: Bounded sets and totally bounded sets -Complete metric spaces- compact metric spaces, continuous functions on a compact metric space, continuity of inverse functions, uniform continuity.

Unit III: Calculus: Sets of measure zero, definition of the Riemann integral, - properties of Riemann integral.

Unit IV: Derivatives- Rolle's theorem, Law of mean, Fundamental theorems of calculus.

Unit V: Taylor's theorem- Pointwise convergence of sequences of functions, uniform convergence of sequences of functions.

Recommended Text Book:

Richard R. Goldberg. Methods of Real Analysis. Oxford and IBH Publishing Co)

Reference Books:

1. Principles of Mathematical Analysis by Walter Rudin, TataMcGrawHill.
2. Mathematical Analysis Tom M Apostol, Narosa Publishing House.

Mapping of Course Outcomes to Program Outcomes and Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	2	2	1	2	3	1	3	2	2
CO2	3	2	2	1	1	2	1	3	2	3
CO3	2	3	3	1	2	2	2	3	2	2
CO4	3	2	2	1	1	2	2	3	2	3
CO5	3	2	2	1	2	2	2	3	2	2

3 – High

2 – Medium

1 - Low

Course Title: FUNCTIONS OF A COMPLEX VARIABLE

Course	B.Sc Maths
Exam Hours	03

Credits	04
CIA Marks	50
ESE Marks	50

Course objectives

- Explain the fundamental concepts of the functions of a complex variable and their role in modern mathematics and applied contexts.
- Demonstrate understanding by analysing, proving and explaining concepts from complex analysis.
- Relate the algebraic and geometric properties of conformal mappings, and apply these to determine the properties of analytic functions.
- Calculate series expansions for analytical complex-valued functions, evaluate contour integrals and definite integrals.

Course Outcomes: At the end of the Course, the Student will be able to

CO1	Derive Cauchy Riemann equation and identify analytic functions.
CO2	Discuss Bilinear transformation and various standard transformations.
CO3	Evaluate value of the function using Cauchy's integral theorem.
CO4	Represent the given function in a series form valid in a domain.
CO5	Evaluate Improper real integrals using residues.

COs	CONTENTS OF MODULE
CO1	<p>Unit 1</p> <p>Analytic Functions: Functions of a Complex Variable – Limit- Theorems on Limits – Continuous functions- Differentiability – Cauchy – Riemann equations – Analytic functions- Harmonic functions – Conformal mapping. Chapter 1 – sec 2.1 to 2.9.</p>
CO2	<p>Unit 2</p> <p>Bilinear Transformations: Elementary transformations – Bilinear transformations – Cross ratio- Fixed Points of Bilinear Transformations – Mapping by Elementary Functions - The Mapping $w = z^2$, z^n, n is a positive integer, $w = e^z$, $\sin z$, $\cos z$. Chapter 3 – sec 3.1 to 3.4 , Chapter 5 – sec 5.1 to 5.5</p>
CO3	<p>Unit 3</p>

	Complex Integration – definite integral – Cauchy’s Theorem – Cauchy’s integral formula – Higher derivatives. Chapter 6 – sec 6.1 to 6.4
CO4	Unit 4 Series expansions – Taylor’s series – Laurent’s Series – Zeroes of analytic functions- Singularities. Chapter 7 – 7.1 to 7.4
CO5	Unit 5 Residues – Cauchy’s Residue Theorem – Evaluation of definite integrals. Chapter 8 – 8.1 to 8.3.
Contents and treatment as in “Complex Analysis” by S.Arumugam, Thangapandi Isaac, A.Somasundaram, SciTech publications (India) Pvt Ltd,2002.	
Reference Books: 1. Complex variables and Applications (Sixth Edition) by James Ward Brown and Ruel V.Churchill, Mc.Grawhill Inc. 2. Complex Analysis by P.Duraipandian, Kayalak Pachaiyappa, S.Chand & Co Pvt.Ltd. 3. Complex Analysis,T.K.Manickavachagom Pillay, S.Viswanathan Publishers Pvt. Ltd.	
e-Resources: 1. http://ebooks.lpude.in.complexanalysis . 2. https://nptel.ac.in .	

Mapping of Course Outcomes to Program Outcomes and Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	3	2	-	-	2	2	3	2	3
CO2	3	3	2	-	-	2	2	3	2	3
CO3	3	3	2	-	-	2	2	3	2	3
CO4	3	3	2	-	-	2	2	3	2	3
CO5	3	3	2	-	-	2	2	3	2	3

3 – High

2 – Medium

1 - Low

Course Title: MACHINE LEARNING USING R (THEORY)

Course	B. Sc Maths
Exam Hours	03

Credits	05
CIA Marks	50
ESE Marks	50

Course objectives

- To understand the need for machine learning for various problem solving
- To understand the latest trends in machine learning
To design appropriate machine learning algorithms for problem solving

Course outcomes: At the end of the course, students will be able to

CO1	Differentiate various learning approaches, and to interpret the concepts of supervised learning, unsupervised learning
CO2	Understand Bayesian Decision theory and Multivariate Method
CO3	Apply Clustering & Regression techniques
CO4	Understand Neural Networks and Multilayer Perceptrons
CO5	Understand local models, Assessing and Comparing Classification Algorithms

CONTENTS OF MODULE

UNIT 1: INTRODUCTION TO MACHINE LEARNING Machine learning – examples of machine learning applications – Learning associations – Classification – Regression Unsupervised learning – Supervised learning- Learning class from examples- PAC learning – Noise, model selection and generalization – Dimension of supervised machine learning algorithm.

UNIT-II: DECISION THEORY Bayesian Decision theory – Introduction – Classification – Discriminant function – Bayesian networks -Association rule - Parametric Methods – Introduction – Estimation -Classification - Regression – Multivariate Methods – Data Parameter estimation - Classification – Complexity – Features – Dimensionality Reduction – Analysis – Multidimensional scaling – Linear discriminant analysis.

UNIT-III: CLUSTERING & REGRESSION Clustering – Mixture densities – k- means clustering – Supervised Learning after clustering – Hierarchical clustering – Nonparametric Methods – Density estimation – Generalization of multivariate data – Classification – Regression – Smoothing models – Decision Trees – Univariate trees – Multivariate trees – Learning rules from data – Linear Discrimination.

UNIT-IV: MULTILAYER PERCEPTRONS Structure of brain – Neural networks as a parallel processing - Perceptron – Multilayer perceptron – Back propagation- Training procedures – Tuning the network size – Learning time.

UNIT-V: LOCAL MODELS Competitive learning -Adaptive resonance theory – Self organizing map – Basis functions – Learning vector quantization – Assessing and Comparing Classification Algorithms – Combining Multiple Learners – Reinforcement Learning.

Recommended Text:

1. Ethem alpaydin, “Introduction to Machine Learning”, MIT Press,2004.
2. Tom Mitchell, “Machine Learning”, McGraw Hill, 1997.

e-Resources:

<https://nptel.ac.in/>

<http://mitpress.mit.edu/catalog/item/default.asp?ttype=2&tid=10341&mode=toc>.

MACHINE LEARNING USING R (PRACTICALS)

LIST OF EXPERIEMNTS

1. Evaluating the results of machine learning algorithms.
2. Implement Regression and Correlation Techniques.
3. Implement Classification Algorithms.
4. Implement Logistic Regression
5. Implement Reinforcement learning model

Mapping of Course Outcomes to Program Specific Outcomes

	3 – High			2 – Medium			1- Low			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	1	2	1	-	-	3	2	1	1	2
CO2	1	2	2	-	-	2	1	2	3	3
CO3	3	1	2	-	-	1	2	3	1	2
CO4	2	1	1	-	-	2	3	1	2	1
CO5	2	3	2	-	-	1	1	2	1	1

Title Of The Course		PROBABILITY AND STATISTICS – I			
Paper Number		III			
Category	Allied	Year	II	Credits	5
		Semester	III		

Course	B.Sc. Maths
Exam Hours	03

Credits	05
CIA Marks	50
ESE Marks	50

Course Objectives

Students will acquire knowledge of

CO1	Illustrate and describe sample spaces and events for random experiments. and calculate probabilities of event in discrete sample spaces and conditional probabilities of events using Baye’s theorem.
CO2	Calculate the expected value of a probability distribution, obtain moments and its generating function and also obtain probability generating function
CO3	Apply the concepts of characteristic function and Chebychev’s Inequality and demonstrate the theorems related to convergence in probability
CO4	Study the relationship between two or more variables
CO5	Illustrate the concept of a probability distribution and sketch the same to real world problems involving various distributions like Binomial, Poisson and Normal distribution, Uniform distributions Geometric, Exponential, Gamma, Beta distributions and identify the Inter relationship between distributions.

- The laws of Probability and Baye’s theorem.
- Measures of Location, Dispersion, Correlation and Regression
- The Discrete and Continuous Probability Distribution

Course Outcomes: At the end of the Course, the Student will be able to

COs	CONTENTS OF MODULE
CO1	UNIT-I: Concept of sample space – Events – Definition of Probability (classical, Statistical & Axiomatic) – Addition and Multiplication laws of Probability for 2 events – Extension of Addition and Multiplication laws of events (Statement only) – Independence – Conditional Probability – Baye’s theorem - Simple Problems
CO2	UNIT- II: Random Variables (Discrete and Continuous) Distribution function- Expected values and Moments- Moment generating function – Probability generating function- Examples
CO3	UNIT–III: Characteristic function- Uniqueness and Inversion theorems (Statements and applications only)- Cumulants - Chebychev’s Inequality – Simple Problems. Convergence in probability, Weak Law of large numbers with numerical examples, Central Limit Theorem
CO4	UNIT-IV: Concepts of bivariate distributions- Correlation and Regression- Linear Prediction- Rank Correlation coefficient, Intra class correlation coefficient, Concepts of partial and multiple correlation coefficients- Simple problems.

CO5	UNIT-V: Standard Distributions – Bernoulli Distribution, Binomial- Poisson- Normal- Uniform distributions- Geometric- Exponential- Gamma -Beta distributions- Inter relationship between distributions.
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Contents and treatment as in	Elements of Mathematical Statistics, by S.C.Gupta & V.K.Kapoor, Sultan Chand & Sons, New Delhi.
Reference Books	<ol style="list-style-type: none"> 1. Hogg R.V. & Craig A.T. (1988) : Introduction to Mathematical Statistics, McMillan. 2. Mood A.M. & Graybill F.A. & Boes D.G. (1974): Introduction to theory of Statistics, McGraw Hill. 3. Snedecor G.W. & Cochran W.G(1967) : Statistical Methods, Oxford and IBH.
e-Resources:	<ol style="list-style-type: none"> 1. https://nptel.ac.in 2. https://www.wikipedia.org. 3. http://ebooks.lpude.in/statistics.

Mapping of Course Outcomes to Program Outcome & Program Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	3	2	1	2	2	2	3	3	2
CO2	3	2	2	1	2	2	2	2	2	3
CO3	3	3	2	1	1	1	2	3	2	2
CO4	3	2	1	2	2	2	2	2	2	2
CO5	3	2	1	1	2	2	2	2	3	3

3-High

2-Medium

1-Low



SEMESTER – I

WAVES, MECHANICS AND PROPERTIES OF MATTER

Course Code : 09101	Credits 5
L:T:P:S : 5:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives

- to make the students learn and understand Mechanics- a branch of Physics dealing with study of motion which is a fundamental idea in all of Science
- to get a better insight and understanding of the subject, properties of matter, which is of practical value to both the physicists and the engineers
- to extend one's knowledge in the study of wave motion

Course Outcomes: At the end of the Course, the Student will be able to:

Knowledge level - K1(Remembering), K2(Understanding), K3(Applying)
K4(Analyzing), K5(Evaluating), K6(Creating)

CO1	Appraise the concepts of mechanics and in-depth learning of rigid body	K3, K4
CO2	Develop the fundamental ideas about linear and rotational motion	K4, K5
CO3	Analyse the concepts of statics and hydrodynamics and their applications	K3, K4
CO4	Discover the elastic behaviour in terms of three moduli of elasticity Estimate Young's Modulus using the concept of bending of beams	K4, K5
CO5	Build concepts of surface tension and viscosity of fluid, Support the interesting phenomena associated with liquid surface Understand fluid dynamics that gives fundamental knowledge over many practical applications	K4, K5
CO6	Survey the phenomena of SHM and the properties of systems executing such motions	K4

Mapping of Course Outcomes to Program Outcomes:

Strongly correlated – 3
correlated –1

Moderately correlated – 2

Weakly

CO/PO/ PSO	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	2	3	3	3	3	3	3	3	2	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	2	3	3	3	3	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3
CO6	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

Dr. D. UTHRA
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SI NO	CONTENTS OF MODULE	Hrs	COs
1	Unit 1: Mechanics Impulse – impact – Laws of impact – direct impact and oblique impact between two smooth spheres – loss of kinetic energy – conservation of linear momentum – motion of two interacting bodies – reduced mass- reduction of two body problem into single body problem - Rigid Body – Dynamics of Rigid Body - Generalized co – ordinates of Rigid Body – Body & Space Reference System – Rigid Body – Fixed Axis rotation, rotation and translation - Moment of inertia – Parallel axes theorem - Compound pendulum – theory – equivalent simple pendulum – reversibility of centre of oscillation and suspension –determination of g and k – Newton’s law of gravitation(statement) – Motion under a central force, Kepler’s laws, derivation. Non inertial frames and fictitious forces – Introduction to Centrifugal and Coriolis force.	1	CO1 CO2
2	Unit 2: Statics and hydrodynamics Centre of parallel forces – Centre of mass – Centre of gravity – Centre of gravity of uniform triangular lamina – Centre of gravity of uniform parallelogram lamina, solid and hollow hemisphere - Kinematics of moving fluid –Hydrodynamics-streamline flow-turbulent flow- equation of continuity of flow –Euler’s equation of unidirectional flow – Torricelli’s theorem – Bernoulli’s theorem - applications – Venturimeter – Pitot’s tube – atomizer pump – Bunsen burner	1	CO3
3	Unit 3: Elasticity & Bending of beams Hooke’s law – stress – strain - modulus of elasticity - elastic constants – relation between elastic moduli - Poisson’s ratio - work done in stretching a wire - work done in twisting a wire – twisting couple on a cylinder– rigidity modulus - moment of inertia by static torsion method - by torsional pendulum method - Cantilever – expression for bending moment – expression for depression – cantilever oscillations – expression for time period – experiment to find Young’s modulus – Non uniform bending – experiment to determine Young’s modulus by Koenig’s method – Uniform bending – expression for elevation – experiment to determine Young’s modulus using pin and microscope by non - uniform method – experiment to determine Young’s modulus by optic lever method – I-form girder in construction of bridges.	1	CO4



4	Unit 4: Fluid dynamics Surface tension - definition – excess of pressure over curved surface – spherical drop – cylindrical drop – spherical bubble – cylindrical bubble - determination of surface tension by drop weight method – experiment to determine interfacial surface tension Physics behind covid transmission through saliva droplets – surfactants – variation of surface tension with temperature – Jaegar’s method. Viscosity - definition – Coefficient of viscosity of liquid – critical velocity – Rate of flow of liquid in a capillary tube – Poiseuille’s formula –experimental determination by capillary flow method – variation of viscosity of a liquid with temperature – Viscosity of gases – Rankines method	1	CO5
5	Unit 5: Waves & Oscillations Simple harmonic motion – combination of two SHMS in a straight line - at right angles – Lissajous’s figures – uses – free, damped, forced oscillations and resonance – examples and application of resonance – laws of transverse vibration – determination of frequency of a tuning fork using sonometer – determination of a.c. frequency using sonometer – steel wire – brass wire. Ultrasonics – production – piezo electric crystal method – diffraction of ultrasonics waves – ultrasonic interferometer – ultrasonic grating- Applications of ultrasonics.	1	CO6

TEXT BOOKS

1. Mechanics, D S Mathur & P S Hemne , S.Chand & Co., Revised Edition (2020).
2. Statics, Hydrostatics and Hydrodynamics, M.Narayanamoorthy & N.Nagarathinam, National Publishing Company, Chennai (2005).
3. Properties of Matter, Brij Lal and N.Subramaniam, S. Chand & Co., Revised Edition (2020).
4. Elements of Properties of Matter , D.S.Mathur, S. Chand & Co., New Delhi (Reprint 2016).
5. Clasical Mechanics , J.C.Upadhyaya, Himalaya Publishing house, Mumbai (2019).
6. Mechanics, P.Durai Pandian, Laxmi Durai Pandian, Muthamizh Jayapragasam, S.Chand & Co. Sixth revised edition (2005).
- 7.Waves and oscillation, N.subrahmanyam,Brij lal.,V ikas publishing house Pvt. Ltd. (2018).
8. Engineering Physics, K.Rajagopal ,PHI publishers Pvt. Ltd. (2008).
- 9.Engineering Physics, V.Rajendran, Tata McGraw Hill Education Pvt.Ltd., New Delhi (2012).



REFERENCE BOOKS

1. General Properties of Matter by C.J. Smith, Orient Longman Publishers Reprint (2016).
2. Fundamentals of Physics by D. Halliday, R. Rensick and J. Walker, 6th edition, Wiley, New York Reprint (2016).
3. Mechanics and General Properties of Matter by P.K. Chakrabarthy, Books and Allied (P) Ltd Reprint (2006).
4. Fundamentals of General Properties of Matter by H.R. Gulati, S. Chand & Co., New Delhi Reprint (2005).

WEB LINKS

<https://www.biolinscientific.com/blog/what-are-surfactants-and-how-do-they-work>
<http://hyperphysics.phy-astr.gsu.edu/hbase/permot2.html>
<https://www.youtube.com/watch?v=gT8Nth9NWPM>
<https://www.youtube.com/watch?v=9mXOMzUruMQ&t=1s>
<https://www.youtube.com/watch?v=m4u-SuaSu1s&t=3s>
<https://www.biolinscientific.com/blog/what-are-surfactants-and-how-do-they-work>
<https://learningtechnologyofficial.com/category/fluid-mechanics-lab/>

ASSESSMENT PATTERN

CIE- Continuous Internal Evaluation (50 Marks)

Bloom's Category	CIA Tests	Generic Skills		
		Assignments	Quizzes	Current Affairs quizzes/presentations
Marks(out of 45)	30	5	5	5
Remember			5	
Understand		5		
Apply	10			
Analyze	10			
Evaluate	5			
Create	5			5

Attendance - 5 marks

ESE- Semester End Examination (100 Marks; weightage 50%)

Bloom's Category	Weightage %
Remember	20
Understand	20
Apply	30
Analyse	15
Evaluate	10
Create	5



SEMESTER – II

THERMAL AND STATISTICAL PHYSICS

Course Code : 09206	Credits	5
L:T:P:S : 5:0:0:0	CIA Marks	: 50
Exam Hours : 03	ESE Marks	: 50

Learning Objectives:

- to make the students learn and understand Thermal Physics ,which forms one of the core foundations of Modern Physics and plays a significant role in understanding Condensed Matter Physics, Material Science, even to High Energy Physics and Astrophysics.
- To have an insight of the statistical concepts which helps the students to understand and correlate with various thermodynamical concepts

Course Outcomes: At the end of the Course, the Student will be able to:

Knowledge level-K1(Remembering), K2(Understanding),K3(Applying) ,K4(Analyzing), K5(Evaluating), K6(Creating)

CO1	Acquire knowledge on how to distinguish between temperature and heat. Introduce him/her to the field of thermometry and explain practical measurements of high temperature as well as low temperature physics. To identify the relationship between heat capacity, specific heat capacity. The study of Low temperature Physics sets the basis for the students to understand cryogenics, superconductivity, superfluidity and Condensed Matter Physics	K2,K3
CO2	Discover the significance of laws of thermodynamics, An Insight into thermodynamic properties like enthalpy, entropy and explain fundamental thermodynamic properties	K4
CO3	Study and appraise the process of thermal conductivity and apply it to good and bad conductors	K3, K4
CO4	Interpret classical statistics concepts such as phase space, ensemble, Maxwell-Boltzmann distribution law	K3,K4
CO5	Develop the statistical interpretation of Bose-Einstein and Fermi-Dirac Apply to quantum particles such as photon and electron	K3,K4



Mapping of Course Outcomes to Program Outcomes:

Strongly correlated - 3 **Moderately correlated - 2** **Weakly correlated - 1**

CO/PO/ PSO	PO										PSO				
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
CO1	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3
CO3	3	2	2	3	3	2	3	2	3	3	3	3	2	3	3
CO4	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3
CO5	3	2	3	3	3	3	3	2	2	3	3	3	3	3	3

Sl No.	CONTENTS OF MODULE	Hrs	COs
1	<p>Unit 1: Thermometry and Calorimetry</p> <p>Platinum resistance thermometer – Calendar and Griffith's bridge – thermistor – specific heat capacity – specific heat capacity of solids – Dulong and Petit's law – specific heat capacity of liquid – method of mixtures – half time correction – specific heat capacity of gases – Meyers relation.</p> <p>Low temperature physics</p> <p>Joule-Kelvin effect – porous plug experiment - significance of Boyle temperature - temperature of inversion – liquefaction of gases – Linde's method of liquefying air.</p>	1	CO1
2	<p>Unit 2: Thermodynamics</p> <p>Thermodynamic equilibrium – zeroth law of thermodynamics – first law of thermodynamics – Reversible and irreversible processes – second law of thermodynamics & third law of thermodynamics – Carnot's engine – Carnot's theorem – thermodynamic scale of temperature (No derivation) – Entropy – Temperature – entropy diagram for Carnot's cycle thermodynamic potential – derivation of maxwell's thermodynamic relations – TdS equations - Clayperon's latent heat equation Thermodynamic scale of temperature(No derivation)</p>	1	CO2
3	<p>Unit 3: Conduction and Radiation</p> <p>Prevost's theory of heat exchange – Kirchoff's Law - thermal conductivity – rectilinear flow of heat – thermal conductivity of a good conductor – Forbe's method – thermal conductivity of a bad conductor – Lee's disc method - Spatial distribution of Blackbody</p>	1	CO3



	radiation – Planck equation – postulates – Planck’s law of Blackbody radiation experimental verification, deduction of Wien’s distribution law –Rayleigh Jean’s Law -Stefan’s law -Planck’s law - Newton’s law of cooling from Stefan’s law – Solar constant		
4	Unit 4: Classical Statistics Introduction –Phase space – Volume in phase space – no. of phase cells in the given energy range for 3-d free particle-ensemble – Types of ensemble-Liouville’s Theorem – statement and explanation Macroscopic and microscopic description – Probability – Thermodynamic probability – Boltzmann’s theorem on entropy & probability – Fundamental postulates of statistical mechanics Statistical equilibrium Maxwell – Boltzmann distribution law – M-B distribution in terms of temperature – application of molecular energies in an ideal gas – M- B velocity distribution law.	1	CO4
5	Unit 5: Quantum Statistics Ideal quantum gas – indistinguishability of particles and its consequence of B-E statistics – B-E distribution law – most probable micro state - B-E energy distribution function – B-E energy distribution law for continuous variation of energy – photon gas – most probable micro state – F-D energy distribution law for continuous variation of energy – electron gas	1	CO5

TEXT BOOKS:

1. Heat and Thermodynamics, Brijlal and N. Subramanyam, P.S.Hemne S.Chand & Co, Revised edition (2017).
2. Heat and Thermodynamics and statistical Physics , S.L.Kakani, Sultan Chand, Revised edition (2009).
3. Thermal Physics and Statistical Mechanics, Dr.D.jayaraman, Dr.K.Ilangovan, S.Vishwanathan (printers and publishers) pvt.Ltd (2016)
4. Statistical Mechanics, Sathyaprakash, latest edition, Kedanath Ramnath, Meerut (2021).
5. Modern Physics, Murugesan and Krithika Sivaprasath, latest edition (2019).
6. Engineering Physics, K.Rajagopal, PHI publishers Pvt.Ltd. (2008)
7. Engineering Physics , V.Rajendran, Tata McGraw hill education Pvt. Ltd. (2012)

REFERENCE BOOKS:

1. Heat and Thermodynamics, Zemansky, McGraw – Hill Book Co. Inc., New York, Revised edition (2017).
2. Fundamentals of Physics, Resnick Halliday and Walker, 6th edition,, John Willey and Sons, Asia Pvt. Ltd., Singapore, Revised edition (2001).
3. Fundamentals of Thermodynamics, Carroll Leonard, Prentice-Hall of India (P) Ltd., New Delhi (1965).



4. Heat and Thermodynamics, J.B.Rajam and C.L.Arora, 8th edition, S.Chand & Co. Ltd., New Delhi (1976).
5. Principles of Thermodynamics, Jin Sheng Hieh, 1st edition, McGraw – Hill Kogakusha Ltd., Tokyo (1975).
6. Thermodynamics, Warren Giedt, 1st edition, Van Nostrand Reinhold Company, New York (1971).

WEB LINKS

https://youtu.be/M_5KYncYNyc

<https://youtu.be/ljJLJgIvaHY>

https://youtu.be/7mGqd9HQ_AU

<https://youtu.be/h5jOAw57OXM>

<https://youtu.be/SjTfNFso4mE>

<https://youtu.be/nzguGdF6z2I>

<https://youtu.be/TnDCxw0v6YM>

ASSESSMENT PATTERN

CIE- Continuous Internal Evaluation (50 Marks)

Bloom's Category	CIA Tests	Generic Skills		
		Assignments	Quizzes	Current Affairs quizzes/presentations
Marks(out of 45)	30	5	5	5
Remember			5	
Understand		5		
Apply	10			
Analyze	10			
Evaluate	5			
Create	5			5

Attendance - 5 marks

ESE- Semester End Examination (100 Marks; weightage 50%)

Bloom's Category	Weightage %
Remember	20
Understand	20
Apply	30
Analyse	15
Evaluate	10
Create	5



DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE

(Autonomous)

Reaccredited by NAAC with "A++" grade

College with Potential for Excellence, Linguistic Minority Institution

Affiliated to University of Madras

Arumbakkam, Chennai - 600 106

Department: Biochemistry		Academic Semester: (EVEN)	
Semester: IV	Section: A	Course Code: 2011623(B)	Course: Nutrigenomics
Course Incharge: Dr P.T.Srinivasan		No. of credits:03	

Content delivery	e.g. Chalk and Talk, PPT presentation, Quiz, Assignments
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COURSE OUTCOMES: At the end of the course, the student will be able to:

CO1	Understand and apply the knowledge of basics of genetics, epigenetics in the context of nutrigenomics
CO2	Understand and differentiate between genetics and genomics in the context of diseases with an idea on SNPs
CO3	Understand the concept of nutrigenomics and the genes associated with few biochemical disorders
CO4	Understand the relationship between various nutrients and their role in gene regulation- the core concept of nutrigenomics
CO5	Understand the relationship & interactions between food (diet) and genes in humans. Know the types of foods, biomarkers in identifying diseases and ethical issues associated with nutrigenomics field of study.

Mapping of CO / PO:

	PO1	PO2	PO3	PO4	PO5
CO1	3	1	1	1	3
CO2	3	2	1	2	3
CO3	3	3	1	2	3
CO4	3	3	1	3	3
CO5	3	3	1	2	3

Correlation levels:

1 - Weak

2 - Medium

3 - High





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 Arumbakkam, Chennai – 600 106

COURSE DELIVERY PLAN- Dec 22- Apr 23

Lecture	Module	Topics	Instructional Hours	Date of Completion	Faculty Sign
			1	20-12-22	<i>Dr.</i>
1	1	Basics of medical terminologies	1		<i>Dr.</i>
2		Branches of genetics- Scope and applications of genetics, Epigenetic	1	21-12-22	<i>Dr.</i>
3		Methylation of DNA, Epigenetics	1	22-01-23	<i>Dr.</i>
4		Mammalian DNA methyltransferases	1	03-01-23	<i>Dr.</i>
5		Chromatin remodeling and histone modifications	1	06-01-23	<i>Dr.</i>
6		Nutrients and DNA methylation	1	10-01-23	<i>Dr.</i>
7		Nutrients, histone modifications	1	11-01-23	<i>Dr.</i>
8		chromatin remodeling in chronic inflammation	1	12-01-23	<i>Dr.</i>
9		Nutrients, epigenetics, and embryonic development	1	18-01-23	<i>Dr.</i>
10		Nutrition, epigenetics, and aging	1	19-01-23	<i>Dr.</i>
11		Nutrition, epigenetics, and cancer	1	20-01-23	<i>Dr.</i>
12		Genetics History Of Dietetics And Genetics	1	20-01-23	<i>Dr.</i>
13		Nutrigenetics – Applications	1	24-01-23	<i>Dr.</i>
14		Nutrigenetics And Type 2 Diabetes Mellitus	1	27-01-23	<i>Dr.</i>
15		Nutrigenetics And Cardiovascular Diseases	1	28-01-23	<i>Dr.</i>
16		Nutrigenetics And Cancer	1	30-01-23	<i>Dr.</i>
17		What Are SNPs And How Are They Found?	1	30-01-23	<i>Dr.</i>
18		SNPs & Disease Diagnosis	1	01-02-23	<i>Dr.</i>
19		SNPs & Drug Development	1	03-02-23	<i>Dr.</i>
20		SNPs & NCBI	1	06-02-23	<i>Dr.</i>
21		SNP Analysis	1	07-02-23	<i>Dr.</i>
22		Genetics Vs. Genomics	1	07-02-23	<i>Dr.</i>
23	3	Nutrigenomics – Introduction -Rationale And Aims Of Nutrigenomics	1	09-02-23	<i>Dr.</i>
24		Genes Associated With Various Diseases	1	13-02-23	<i>Dr.</i>
25		Genes Associated With Lipid Metabolism	1	14-02-23	<i>Dr.</i>
26		Antioxidant Function And Detoxification	1	15-02-23	<i>Dr.</i>
27		Bone Structure, Inflammatory Response	1	15-02-23	<i>Dr.</i>
28		Glucose Balance	1	17-02-23	<i>Dr.</i>
29	4	Nutrition And Gene Regulation	1	20-02-23	<i>Dr.</i>
30		Effect Of Carbohydrate On Gene Expression	1	21-02-23	<i>Dr.</i>



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3. http://www.ncbi.nlm.nih.gov/projects/GeneTests/static/about/w_hatis/mission.shtml

WEB LINKS:

1. <https://ipindia.gov.in/>
2. <https://www.wipo.int/about-ip/en/>
3. https://www.wto.org/english/tratop_e/trips_e/intel1_e.htm
4. <https://supreme.justia.com/cases/federal/us/447/303/>

W. S. Govindarajan
Course Incharge

W. S. Govindarajan
Head of the Department

SEMESTER I

Course Code	Course Title	Category	L	T	P	S	Credits
	BIOTECHNIQUES, FUNGI & LICHENS	Core paper - I	6	0	0	0	4

Year	Semester	CIA	ESE	Exam Hours
First	First	50	50	03

LEARNING OBJECTIVES:

On taking this course the student will be able to understand the working principle and applications of light and electron microscopes. The student will also be able to understand the working mechanism and applications of rotary and sledge microtome. They also will be able to recognize Habit, life forms and reproductive structures of lower forms of plants. The student will be able to understand the classification of Fungi and Lichens. The subject also throws light on the economic importance of Fungi and Lichens.

COURSE OUTCOMES

At the end of the Course, the Student will be able to:

	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)
CO1	Understand the basic principles and scope of Biotechniques.	K1,K2, K3, K4, K5,K6
CO2	Acquire fundamental knowledge about Bio-instruments.	K1,K2, K3, K4, K5,K6
CO3	Assess knowledge of fungi with respect to classification and its importance to mankind.	K1,K2, K3, K4, K5,K6
CO4	Identify various life forms of Fungi.	K1,K2, K3, K4, K5,K6
CO5	Outline the salient features and importance of Lichens.	K1,K2, K3, K4, K5, K6

K1 - Remember

K4 - Analyze

K2 - Understand

K5 - Evaluate

K3 - Apply

K6 - Create

MAPPING OF COURSE OUTCOMES TO PO/PSO:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	3	2	1	2	2	1	1	2	3	2	1	1	2
CO2	3	3	3	2	3	2	1	1	3	2	3	3	2
CO3	3	3	3	2	3	1	1	2	3	3	3	3	2
CO4	3	3	3	3	3	3	1	2	3	2	3	1	1
CO5	3	3	3	3	2	1	1	2	3	3	3	2	1

STRONGLY CORRELATED -3; MODERATELY CORRELATED – 2; WEAKLY CORRELATED -1

S. NO	CONTENTS OF MODULE	Hrs.	COs
1	<p>MODULE – I BIOTECHNIQUES 1.1 Working principle, Construction and Applications of Light Microscopes: Compound and Phase contrast Microscope 1.2 Working Principle, Construction and Applications of Transmission Electron Microscope (TEM). 1.3 Microtomes – Rotary and Sledge (Wood Microtome) – Structure and Applications. 1.4 Sectioning - Free hand section and Serial section (Microtomy). 1.5 Stains – Types and Uses; Methods of Staining - Simple and Differential Staining; Positive and Negative staining; single and double staining. 1.6 Fixatives - Types (FAA and Carnoy’s fluid; Glutar-aldehyde and Osmium Tetroxide) and uses.</p>	18	CO1
2	<p>MODULE – II Principle, technique and applications of the following Bio-techniques: 2.1 pH meter: Basic principles of pH meter and its operation, types of Electrodes, Measurement of pH, and Applications. 2.2 Centrifugation: Principle, types of centrifuges (Bench & Ultra) and Applications. 2.3 Colorimeter: Principle, operations and uses; Beer – Lambert’s Law. 2.4 Whole mount preparations (Algae and Fungi); Special techniques: Smear, Squash, and Maceration.</p>	18	CO2
3	<p>MODULE – III FUNGI 3.1 Introduction and Evolution of Fungi. 3.2 General characteristics, Habit, Nutrition types, cell structure, mycelium – its modifications. 3.3 Reproduction: Vegetative, Asexual, Sexual, Para-sexual; Fruiting bodies, Life cycle patterns.</p>	18	CO3

	3.4 Classification of Fungi by G.C. Ainsworth (1971) - Order level 3.5 Economic importance of Fungi.		
4	MODULE – IV Structure and reproduction with reference to the following fungal forms: 4.1 <i>Albugo</i> 4.2 <i>Mucor</i> 4.3 <i>Peziza</i> 4.4 <i>Agaricus</i> 4.5 <i>Colletotrichum</i> 4.6 <i>Puccinia</i>	18	CO4
5	MODULE – V LICHENS 5.1 General features, Nature, Occurrence, distribution, thallus organization, types, Vegetative, Asexual and Sexual Reproduction. 5.2 Occurrence, Structure and life cycle of <i>Usnea</i> . 5.3 Economic importance of Lichens 5.4 Role in Succession and Monitoring Pollutants.	18	CO5

TEXT BOOKS:

1. Vashishta B.R, Sinha A.K & Anil Kumar (2016). *Botany for Degree Students – Fungi*, S. Chand & Company, ISBN:9789352533008
2. Annie Ragland, Arumugam. N (2016). *Fundamentals of Plant Anatomy and Microtechniques*, Saras Publication, ISBN :9788193307663
3. Awasthi D.D (2013). *A hand book of lichens* (1st Ed), M/s Bishen Singh Mahendra Pal Singh, ISBN: 9788121101813
4. Ponmurugan P & Gangathara Prabhu B (2013). *Biotechniques*, MJP Publishers, ISBN :9788180941191
5. S.V.S Rana (2012). *Biotechniques (Theory & Practice)*, Rastogi Publications (3rd Ed), ISBN:9788171339938
6. Sharma O.P (2008). *Fungi And Allied Microorganisms*, McGraw Hill India, ISBN:9780070700383
7. Prasad M.K & Krishna Prasad M (2000). *Outlines of Microtechnique*, Emkay Publications, ISBN: 9788185712291

REFERENCE BOOKS:

1. Gray P (2020). *Handbook of Basic Microtechniques-* Alpha Edition, ISBN: 9789354009150
2. Edward Chee Tak Yeung, Claudio Stasolla, Michael John Sumner (2015). *Plant Microtechniques and Protocols* (1st Ed), Springer Nature. ISBN:9783319199436
3. Alexopoulos C.J, Mims C.W, Blackwell M (2007). *Introductory Mycology* (4th Ed.), Wiley, ISBN: 9788126511082
4. Webster, J. (2007). *Introduction to Fungi*, Cambridge University Press (3rd Ed.), ISBN: 9780521727006

5. Vernon Ahmadjian & Mason E. Hale (1974). *The Lichens*, Academic Press Inc, ISBN: 978012044950

WEBSITES:

1. <https://microbiologyonline.org/about-microbiology/introducing-microbes/fungi>
2. <https://www.anbg.gov.au/lichen/what-is-lichen.html>

CORE PAPER: II PRACTICAL – I

BIOTECHNIQUES, FUNGI & LICHENS

L	T	P	Cr
0	0	3	2

LEARNING OUTCOMES:

At the end of the Course, the Student will be able to:

1. Understand the basic principles and uses of Microscopes.
2. To prepare and identify microslides of Fungi, Lichens.

BIOTECHNIQUES

1. Maceration technique
2. Freehand sectioning – Any plant material.
3. Identification of Stains and Fixatives
4. Photographs of Microscopes, pH meter, Centrifuge, Colorimeter.

FUNGI

1. Whole mount preparations of Fungi
2. Sectioning of Macroscopic fungi
3. Economic importance of fungi and Lichens (Photographs)
4. Preparation of agar media for fungal culture (Protocol).
5. Identification of Fungi included in Theory Syllabus.

LICHENS

1. Identification of Lichens included in Theory Syllabus.

Field visit / trip to collect the Fungi/Lichens in natural Habitat

SEMESTER II

Course Code	Course Title	Category	L	T	P	S	Credits
	ALGAE AND BRYOPHYTES	Core paper - 3	6	0	0	0	4

Year	Semester	CIA	ESE	Exam Hours
First	Second	50	50	03

LEARNING OBJECTIVES:

On taking this course the student will be able to recognize Habit, life forms and reproductive structures of lower forms of plants. The student will be able to understand the classification of Algae and Bryophytes. The subject also throws light on the economic importance of algae. It provides knowledge on structure and reproduction of certain selected Bryophytes forms.

COURSE OUTCOMES

At the end of the Course, the Student will be able to:

	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)
CO1	Classification of different forms of algae and its evolution	K1, K2, K3, K4, K5
CO2	Study about different forms of Algae.	K1, K2, K3, K4, K5
CO3	Acquire knowledge on the commercial importance of Algae.	K1, K2, K3, K4, K5, K6
CO4	Classification of different forms of Bryophytes and its evolution	K1, K2, K3, K4, K5
CO5	Acquire knowledge on the commercial importance of Bryophytes.	K1, K2, K3, K4, K5, K6

K1 - Remember

K2 - Understand

K3 - Apply

K4 - Analyze

K5 - Evaluate

K6 - Create

MAPPING OF COURSE OUTCOMES TO PO/PSO:

CO/PO/PS O	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	3	2	1	2	2	1	1	1	3	3	2	2	3
CO2	3	3	3	2	3	1	1	2	3	3	3	3	2
CO3	3	3	3	2	3	1	1	1	3	2	2	2	3
CO4	3	3	3	3	3	1	1	2	3	3	3	3	2
CO5	3	3	3	3	2	2	1	2	3	3	3	3	2

STRONGLY CORRELATED -3; MODERATELY CORRELATED – 2; WEAKLY CORRELATED -1

S. NO	CONTENTS OF MODULE	Hrs.	COs
1	<p>MODULE – I ALGAE 1.1 Introduction and Evolution of Algae. Classification of Algae F.E. Fritsch (1945) 1.2 Distribution - Range of thallus organization – Pigmentation- Flagellation- Reserve food – Reproduction (Vegetative/ Asexual/ Sexual) and Life cycle patterns. 1.3 General characteristics of major classes of Algae (Cyanophyceae, Chlorophyceae, Bacillariophyceae, Phaeophyceae, and Rhodophyceae).</p>	18	CO1
2	<p>MODULE – II Life history of the following representative genera of Algae: 2.1 <i>Nostoc</i> 2.2 <i>Ulva</i> 2.3 <i>Caulerpa</i> 2.4 <i>Navicula</i> (Diatom) 2.5 <i>Sargassum</i> 2.6 <i>Gracilaria</i></p>	18	CO2
3	<p>MODULE – III 3.1 Algal Biotechnology: Single Cell Proteins (SCP): <i>Spirulina</i> as single cell protein - production and harvesting of algal biomass – factors affecting biomass production. 3.2 Seaweed cultivation in India – Resources, methods, problems and uses of seaweeds. 3.3 Economic importance of Algae: Algae as food and fodder, use of algae in agriculture and space research, commercial products of algae: Agar - Agar,</p>	18	CO3

	Alginates, Carrageen in, Diatomite, Minerals and Elements - Algae in Cosmetics, Medicine, Bio-fuels and Bio-fertilizers. 3.4 Conservation of Algae: Threats to freshwater and marine algae, Threatened Algal species and its conservation.		
4	MODULE – IV BRYOPHYTES 4.1 Introduction and Evolution of Bryophytes. Classification (Proskauer (1957)). 4.2 General Characteristics of the Major Subdivision: Hepaticopsida, Anthocerotopsida and Bryopsida. 4.3 Fossil Bryophytes - Fossil Hepaticopsida, Fossil Bryopsida. 4.4 Economic Importance of Bryophytes.	18	CO4
5	MODULE – V A detailed study of Morphology, Anatomy and Reproduction of the following Genera: 5.1 <i>Marchantia</i> 5.2 <i>Anthoceros</i> 5.3 <i>Polytrichum</i>	18	CO5

TEXT BOOKS:

1. Sambamurty A.V.S.S (2020). *A Textbook of Bryophytes, Pteridophytes, Gymnosperms and Paleobotany*, Dreamtech Press, ISBN: 9789389447187
2. Vashishta B.R, Singh V.P & Sinha A.K (2012). *Botany for Degree Students – Algae*, S. Chand & Company, ISBN:9788121935210
3. Sharma O.P (2011). *Text book of Algae*, McGraw Hill Education, ISBN:9780070681941
4. Vashishta. B.R, Sinha A.K & Adarsh Kumar (2011). *Botany for Degree Students – Bryophytes*, S. Chand & Company, ISBN:9788121935692

REFERENCE BOOKS:

1. Watson E.V (2018). *The Structure and Life of Bryophytes*, Scientific publishers, ISBN: 9789388043533
2. Dinabandhu Sahoo (2013). *Common Seaweeds of India*, I K International Publishing House Pvt. Ltd, ISBN:9788190777063
3. Perumal, G M, Anand, N (2009). *Manual of Freshwater Algae of Tamil Nadu*, Bishen Singh Mahendra Pal Singh, ISBN:9788121106948
4. Smith G.M. (1994). *Manual of Phycology*, Scientific Publishers Journals, ISBN: 9788172330910
5. Fritsch F.E (1935). *Structure and Reproduction of Algae*, Cambridge University Press, ISBN: 9780521050418

Course Code	Course Title	Category	L	T	P	S	Credits
	ALLIED ZOOLOGY - II	Allied Paper - 2	6	0	0	0	4

Year	Semester	CIA	ESE	Exam Hours
First	Second	50	50	03

LEARNING OBJECTIVES:

On taking this course the student will list the distinctive features and importance of various cell organelles. The students will be able to know how sex determined in man and will know the genetic disorders caused by chromosomal mutations and students able to understand the physiological activities of various organ and organ systems. The students will able to know the treatment methods of sewage effluents and also develop a self-employability on Apiculture, Sericulture and Poultry farming.

COURSE OUTCOMES

At the end of the Course, the Student will be able to:

	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)
CO1	Understand and Discuss the animal cell structure, stem cell and its applications, cancer cell, and its properties. Acquire the knowledge on molecular structure of Gene, Inborn errors of metabolism and X and Y linked inheritance in man	K1,K2, K3,K5,K6
CO2	Discuss the gametogenesis process– Fertilization- Cleavage and Gastrulation in Frog and in Man.	K1,K2,K3, K4, & K5
CO3	Analyse various physiological activities of different organs and organ systems in Man. Apply the knowledge on functions of different hormones	K1, K2, K3, K4, K5, K6
CO4	Create a awareness, scope and importance of sericulture and apiculture	K1,K2, K3 K4,K5&K6
CO5	Create a awareness, scope and importance of poultry rearing techniques for commercial production Evaluate the quantity and quality of poultry and dairy production	K2, K3, K4, K5 &K6

K1 - Remember

K2 - Understand

K3 - Apply

K4 - Analyze

K5 - Evaluate

K6 – Create

MAPPING OF COURSE OUTCOMES TO PO/PSO:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	2	3	3	2	2	3	2	3	3	3	3	2	2
CO2	2	3	3	3	2	2	3	3	3	3	3	2	1
CO3	3	3	3	3	2	2	3	2	3	3	3	2	3
CO4	2	2	3	3	2	2	3	3	3	2	3	2	3
CO5	2	2	3	2	2	2	3	3	3	2	3	3	3

STRONGLY CORRELATED -3, MODERATELY CORRELATED – 2, WEAKLY CORRELATED -1

S. NO	CONTENTS OF MODULE	Hrs.	COs
1	<p>MODULE – I CELL BIOLOGY 1.1. Organization of eukaryotic cell (Animal cell) - Stem cell - types of stem cell, application of stem cells, stem cell therapy. Cancer cell- types and properties of cancer cells. GENETICS 1.2. Molecular structure of Gene-Gene concept- Gene function- Inborn errors of metabolism with reference Amino Acid metabolism (Albinism, Alkaptonuria and Phenylketonuria) Genetic Engineering and its applications- X and Y – linked inheritance.</p>	18	CO1
2	<p>MODULE – II DEVELOPMENTAL BIOLOGY 2.1 Gametogenesis – Spermatogenesis, Oogenesis, Fertilization- Cleavage and Gastrulation in Frog and in Mammals (Man).</p>	18	CO2
3	<p>MODULE – III HUMAN PHYSIOLOGY: 3.1. Digestion, Structure of Heart, Cardiac cycle, composition of blood, Heart diseases- Ischemia, Myocardial infarction, Rheumatic Heart disease, Stroke. 3.2. Excretion-Structure of Kidney, Nephron, Mechanism of Urine formation and Kidney failure. 3.3. Endocrine glands- Structure and functions of Pituitary, thyroid, Islets of Langerhans, Adrenal, Testis and Ovary.</p>	18	CO3
4	<p>MODULE – IV ECONOMIC ZOOLOGY SERICULTURE 4.1. Commercial variety of mulberry, Biology of Mulberry Silk worm – types of silkworm Rearing operation – CHAWAKI and late age rearing techniques – physical and commercial characters of cocoon. APICULTURE 4.2. Apiculture – Biology of Different Honey Bee Types, bee hives method of beekeeping application for modern methods of apiculture – Extraction of honey – Economic importance of honey.</p>	18	CO4

5	MODULE – V POULTRY REARING 5.1. Morphology of different breeds of Chicken, Poultry rearing - Brooding and rearing of chicks, by products of poultry - Nutritive value of Egg. DAIRY FARMING 5.2. Dairy Cattle Classification- Indigenous and exotic breeds - Morphology Description- Dairy cattle Management	18	CO5
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TEXT BOOKS:

1. Supriti Sarkar (2014). *Introduction to Economic Zoology*, New Central Book Agency, ISBN: 9788173818998
2. Shukla G.S (2014). *Economic Zoology*, Rastogi Publications, ISBN:9789350780350

REFERENCE BOOKS:

1. Ashok Kumar Rathoure (2015). *Applied and Economic Zoology*, Daya Publishing House, ISBN:9789351246466
2. Ram Prabhu Jayasurya R (2013). *Economic Zoology*, Saras Publication, ISBN:9789382459262

WEBSITES:

1. [https://www.sciencedaily.com/terms/cell_\(biology\).htm](https://www.sciencedaily.com/terms/cell_(biology).htm)
2. <https://plato.stanford.edu/entries/cell-biology/>
3. <https://bscb.org/learning-resources/softcell-e-learning/what-is-a-cell/>

SECOND SEMESTER

**Course Title: CORE THEORY T3- OBJECT ORIENTED PROGRAMMING USING C++
(For Students admitted from 2018 onwards)**

Course Code	: 18-20/15205	Credits	: 04
L:T:P:S	:3:1:0:0	CIA Marks	: 50
Exam Hours	: 03	ESE Marks	: 50

Course Objectives:

- *Discuss and elaborate the concept of OOPs.*
- *Analyze the problem and apply the retreated concept in Application areas.*
- *Usage of pointers and Outline of files.*

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Revise the basics of Building any programming language. Introduction of OOPs and its Concept.
CO2	Define functions and its important inbuildingthecodeAdvantageof using Inline function. Explanation about Arrays with illustration.
CO3	Definition of Classes and importance of Object. Benefits of using Friend Function. Define the concept of constructor, destructor and its usage and its implementations.
CO4	Develop programs for overloading Unary and Binary Operators. Enhance reusability features using the concept inheritance. Avoid the duplicate of multiple inheritance using virtual base class.
CO5	Access the memory Address of any variable using pointers. Create file and Apply File Modes based on its usage.
CO6	Revise the basics of Building any programming language. Introduction of OOPs and its Concept.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO 5	PSO 6
CO1	3	3	2	3	2	3
CO2	3	3	3	3	2	3
CO3	3	3	3	3	2	3
CO4	3	3	3	3	2	3
CO5	3	2	3	3	2	3

Sl No.	Contents of Module	Hrs	COs
1	Basic concepts of OOP- I/O statements - Data types – Operators - Control Structures: Decision making statements - Looping Statements.	10	CO1
2	Functions - Function declarations and definitions - Passing arguments - Inline functions –Function Overloading-Arrays –one dimensional and two dimensional arrays - Passing arrays to functions.	10	CO2
3	Classes& Objects: Class - Defining member functions , Static Data Members - Passing objects to function - Returning objects - Friend function - Default Arguments. Constructor - Types of Constructors - Destructors.	15	CO3

4.	Operator Overloading - Rules for overloading operators - Overloading of unary and binary operators. Inheritance - Types of inheritance - Virtual base classes	15	CO4
5.	Pointers- this pointer – Pointer to an Object - Virtual functions. Working with files - Classes for file stream operations - Opening and closing a file - Detecting EOF - File modes for opening	10	CO5

3-Strong 2-Medium 1-Low

Text Books:

1. E.Balaguruswamy, “Object Oriented Programming in C++”, Sixth Edition, 2012,TMH.

Reference Books:

1. H. Schildt, “The Complete Reference C++”, Fourth Edition, 2002,TMH
2. KanetkarY,”Let us C++”, Third Edition, 1999, BPBPublishers.
3. John R Hubbard, “Programming with C++”, Third Edition, 2009,TMH.

E-References:

<http://en.highscore.de/cpp/boost/>

<http://bookboon.com/en/structural-programming-with-c-plus-plus-ebook>

SECOND SEMESTER

Course Title: CORE PRACTICAL P2- OOPS AND DATA STRUCTURES LAB
(For Students admitted from 2018 onwards)

Course Code	: 18-20/15208	Credits	: 02
L:T:P:S	: 0:0:2:0	CIA Marks	: 50
Exam Hours	: 03	ESE Marks	: 50

Course Objectives:

To develop the programming skills in C++ and 8085 assembly language.

Lab Exercises:

C++

1. Program using classes and objects.
2. Program using Inline function.
3. Program using Static Members.
4. Program using constructor and destructor.
5. Program for various types of inheritance.
6. Program for Function Overloading.
7. Program using operator overloading.
8. Program using virtual functions.
9. Program using files.

DATA STRUCTURES

1. Program using arrays.
2. Program for searching techniques.
3. Program for sorting techniques.
4. Program using Stack.
5. Program using Queue.
6. Program using Linked List.
7. Program for tree traversals.
8. Program for graph traversals

THIRD SEMESTER

Course Title: CORE THEORY T5- JAVAPROGRAMMING (For Students admitted from 2018 onwards)

Course Code	: 1815309	Credits	: 04
L:T:P:S	: 3:1:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- *To get in-depth Knowledge about the evolution of java and its Features.*
- *Bring out the difference and similarities between C, C++ and java.*
- *Develop programmers in Java with its special Features.*
- *Implementing the code in internet using Applet with AWT controls.*
- *Course Outcomes: At the end of the Course, the Student will be able to:*

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Knows the reason about the evolution of Java its development. Study the basic of Java and to develop code. Importance of Java comparing the other language.
CO2	Develop program using constructors and its types. Definition of inheritance and Writing programmed related to it. Differentiate string class and string buffer.
CO3	Concept of packages, interface, threads. Implementing the concept Exception handling various application. Significance of exception handling. Life cycle of thread.
CO4	Explain I/O streams. Create file using Byte Stream and character Stream classes.
CO5	Usage of Java in internet Definition of Applet and Developing code to connect to internet. Life Build Applet code using AWT controls and Layout managers

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	2	2	3	3	3	3
CO2	3	2	3	3	3	2
CO3	3	3	3	3	3	3
CO4	3	3	3	3	3	2
CO5	3	3	3	3	3	3

3-Strong 2-Medium 1-Low

SI No.	Contents of Module	Hrs	COs
1	Introduction to Java - Features of Java –Java Tokens - Data Types - Variables -Arrays -Operators - Control Statements.	10	CO1
2	Classes - Objects - Constructors - Overloading method - Static and Final members - String Objects - String Class - String Buffer - Inheritance - Overriding methods -Using super-Abstract class.	15	CO2
3	Packages - Interfaces - Exception Handling –User-Defined Exception –Multithreading - Thread - Runnable Interface.	10	CO3
4	I/O Streams: Stream classes – Byte stream classes - Character stream classes -File Streams – Using File class – File exceptions – Creation of file – Reading or writing characters/bytes – Random access files.	10	CO4
5	Applets – Preparing to write applets – Building Applet code – Applet life cycle –Applet tag – Passing parameters to Applets - AWT Controls - Layout Managers.	15	CO5

Text

Books:

1. E.Balagurusamy, “Programming with Java”, Fourth Edition, 2010, Tata McGraw-Hill.
2. P Radha Krishna, “Object Oriented Programming through Java”, Second Edition, 2007, UniversitiesPress.

Reference Books:

1. K. Arnold and J. Gosling, “The Java Programming Language”, Second Edition, 1996, AddisonWesley.
2. P. Naughton and H. Schildt, “Java2 (The Complete Reference)”, Eight Edition, 2005, TataMcGraw-Hill.
3. Kathy Sierra and Bert Bates, “Head First Java”, Second Edition, 2003, Oreilly

THIRD SEMESTER

Course Title: CORE THEORY T6-WEB DESIGN
(For Students admitted from 2018 onwards)

Course Code	: 1815310	Credits	: 04
L:T:P:S	: 3:1:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- Explaining the concept of Web design and its applications.*
- Detailed description for Internet Domains and establishing Connectivity Internet.*
- Structuring the HTML tags, Lists, Tables, Frames, Forms and Forms elements.*
- Emphasizing the DHTML Style Sheets, Linking a Style Sheet and Web page designing.*
- Explaining the concepts of JavaScript, Functions and Looping constructs.*
- Elaborating the concept of JavaScript Document Object Model and Cookies.*

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	To Demonstrate Internet Basic concepts and Internet Domains To Study about Internet Server Identities To impart the concepts of Establishing Connectivity on the Internet
CO2	To classify the HTML Tags. To impart Lists, Frames and Tables to the Forms and Forms Elements.
CO3	To elaborate DHTML Style Sheets and Element of the Style. To impart Linking a style sheet to a html documents and Web page designing.
CO4	Representation of JavaScript Data types, Control and Looping and Functions. To point out the knowledge about the Dialog Boxes.
CO5	Representation of JavaScript Document Object Model and Event Handling. To point out Form object, User Defined Object and Cookies.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO 1	PSO2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	3	3	3	2	3
CO2	3	3	3	2	3	3
CO3	3	3	3	3	3	3
CO4	3	3	3	2	2	2
CO5	3	3	2	2	2	2

3-Strong 2-Medium 1-Low

Sl No	Contents of Module	Hrs	COs
1	Internet: Basic Concepts – Communicating on Internet – Internet Domains – Internet Server Identities – Establishing Connectivity on the Internet	10	CO1
2	Introduction to HTML -Anchor Tag – Hyperlink - Head and Body Section – Heading -Horizontal Ruler – Paragraphs – Tags - Images and Picture – Lists –Tables – Frames - Forms and forms elements.	10	CO2
3	DHTML and Style sheets - Defining styles - Elements of style - Linking a style sheet to a html documents - Inline style - External style sheets - Multiple styles-Web page designing.	15	CO3
4	Introduction to Java script - Advantage of JavaScript - Data type - Variable – Array -Operator and Expression - Control and looping Constructs - Functions - Dialog Boxes.	15	CO4
5	JavaScript Document Object Model - Event Handling - Form Object - Built in Object - User Defined Object-Cookies.	10	CO5

Text Books:

- Ivan Bayross, “Web Enabled Commercial Application Development using HTML, JavaScript, DHTML and PHP”, Fourth Edition, 2010, BPB Publications

References:

- Harvey M. Deitel, Paul J. Deitel, Tem R. Nieto, “Internet & World Wide Web – How to program”, Third Edition, 2002, Prentice Hall

E-References:

- http://books.google.co.in/books?id=BrASwbtAGGUC&pg=PA69&source=gbs_selected_pages&cad=2#v=onepage&q&f=false

THIRD SEMESTER

Course Title: **CORE PRACTICAL P3-JAVA AND WEB DESIGN LAB**

(For Students admitted from 2018 onwards)

Course Code	: 1815311	Credits	: 02
L:T:P:S	: 0:0:2:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- To apply the Java concepts through various applications and to develop a web page.

Lab Exercises:

1. Program using String Class.
2. Program using String Buffer.
3. Programming using Inheritance.
4. Program using interface.
5. Program using Exception Handling
6. Program using packages.
7. Program using Files.
8. Implementing Thread based applications
9. Working with Colors, Fonts and Shapes.
10. Usage of AWT components in suitable applications.

event.

5. Program to create a document which opens a new window without a toolbar, address bar or a status bar that unloads itself after one minute.
6. Program using CSS.
7. Program using arrays.
8. Program using Operators and expressions.
9. Program using Functions and dialog boxes.

WEB DESIGN

1. Program for HTML page to demonstrate the usage of List Tags.
2. Program for HTML page to demonstrate the usage of Table Tags.
3. Program for HTML page to demonstrate the usage of Frames.
4. Program to illustrate hyperlink using Mouse Over

FOURTH SEMESTER

Course Title: CORE THEORY T6-VISUALPROGRAMMING
(For Students admitted from 2018 onwards)

Course Code	:18-19XXXX	Credits	: 03
L:T:P:S	: 2:1:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- Demonstrate knowledge of programming terminology and how applied using Visual Basic (e.g., variables, selection statements, repetition statements.)*
- Develop a Graphical User Interface (GUI) based on problem description*
- Develop an Event Planning Chart based on problem description so as to define the processing that is to occur based on specific events*
- Develop an Algorithm to verify processing is accurate*
- Develop and debug applications using Visual Basic 2010 (or version required for the course) that runs under Windows operating system*
- Develop programs that retrieve input from a file as opposed to input only provided by user*

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Introduction to GUI. Common terms of Visual Programming. Concepts of Visual Programming. Program design tools with its properties.
CO2	Programming Paradigms. Development of program. Coding using control structures.
CO3	Demonstration of Form design. Create Menus. Explanation for passing parameters by val and byref. Importance of Function procedure.
CO4	Create Database file using MS-Access. Develop programs by taking Ms-Access as Backend. Usage of ActiveX data control.
CO5	Implementation of Error Handling. Usage of Dialog Boxes. Importance of OLE.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO 2	PSO3	PSO 4	PSO 5	PSO 6
CO 1	3	3	3	3	3	2
CO 2	3	3	2	3	3	2
CO 3	3	3	3	3	3	2
CO 4	3	3	3	3	2	3
CO 5	3	3	3	2	3	3

3-Strong 2-Medium 1-Low

Sl No	Contents of Module	Hrs	COs
1	Introduction to Visual Basic- introduction Graphical User Interface (GUI), Programming Language (Procedural, Object Oriented, Event Driven), The VisualBasicEnvironment-VB Controls Textboxes, Frames, Check Boxes , Option Buttons, List Boxes & Combo Boxes, Images, Setting a Border & Styles, The Shape Control, The line Control, Working with multiple controls and their properties, Coding for controls.	10	CO1
2	Variables, Constants, and Calculations-Variables, Variables Public, Private, Static, Constants, Data Types, Naming -rules/conventions, Constants, Named &intrinsic, Declaring variables, Scope of variables, Val Function, Arithmetic Operations, FormattingData- handling Strings - Decision & Conditions- If Statement, If then-else Statement, Nested If Statements, Do/Loops, For/Next Loops, Case Structure , Displaying Message in Message Box- Using Call Statement to call a procedure.	15	CO2
3	Menus, Sub-Procedures and functions , Using common dialog box, Creating a new sub- procedure, Passing Variables to Procedures, Passing Argument ByVal or ByRef, Writing a Function Procedure, Multiple Forms - Creating , adding, removing Forms in project - Arrays Single-Dimension Arrays, Initializing an Arrayusingfor Each, Two dimensional arrays.	10	CO3
4	Creating the database files for use by Visual Basic (Using MS-Access), Using the ActiveX Data Control (ADO), navigating the database in code using recordset object, using list boxes & combo boxes as data bound controls, updating a database file (adding, deleting records) - Displaying data in grids (grid control, properties of grid) , searching for a specific record (find first, find next, find last, find previous), seek method, workingwith database fields	15	CO4
5	Trapping Program Errors, The Err Object, Dialog Boxes- COM/OLE - automation - DLL Servers - OLE Drag and Drop.	10	CO5

Text Books:

1. Gary Cornell, “Visual Basic 6 from the Ground up”, First Edition, 1999, TataMcGraw-Hill.
2. Steven Holzner, “Visual Basic 6 Black Book”, Second Edition, 1999, Oreilly.

References:

- 1.Noel Jerke, “Visual Basic 6 (The Complete Reference)”, Second Edition, 1999, TataMcGraw-Hill.
- 2.Overland Brian, “Visual Basic 6 in Plain English”, Third Edition, 1999, JohnWiley.

E-References:

1. www.tutorialspoint.com/listtutorials/visual-basic/

FOURTH SEMESTER

Course Title: CORE THEORY T7-COMPUTER NETWORKS (For Students admitted from 2018 onwards)

Course Code	: 18-19XXXX	Credits	: 03
L:T:P:S	: 3:0:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- Study the basic taxonomy and terminology of the computer networking and enumerate the layers of OSI model.
- Overview of TCP/IP models and comparison with OSI models
- Acquire knowledge of Application, data link, network, transport layers.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Usage of computer networks. Describe the functions of each layer in OSI and TCP/IP model.
CO2	basics of Physical layer, and apply them in real time applications. Techniques in multiplexing and switching.
CO3	Design of Data link layer . Deduction of errors and correction. Flow control using protocols
CO4	Design of Network layers . Generate IP address to find out the route through Routing algorithms
CO5	Design of transport layer > Protocols needed for end –end delivery of packets Role of layer in real time applications

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	2	3	3
CO2	3	3	3	2	3	3
CO3	3	3	3	2	3	3
CO4	3	3	3	2	3	3
CO5	3	3	3	2	3	3

3-Strong 2-Medium 1-Low

Sl No	Contents of Module	Hrs	COs
1	Introduction – Uses of Computer Networks – Network Hardware- Network Software- OSI Reference Model – TCP/IP Reference Model.	10	CO1
2	Physical Layer – Guided Transmission media – Wireless Transmission – PublicswitchedTelephone Network –LocalLoop – Trunks – Multiplexing-Switching.	10	CO2
3	Data Link Layer – Design Issues- Error Detection and Correction- Simplex StopandWait Protocol- Sliding Window Protocol.	15	CO3
4	Network Layer – Design Issues – Routing Algorithm- IP Protocol – IPAddresses-Internet Control Protocols.	10	CO4
5	Transport Layer: Addressing- Connection Establishment-Connection Release. Internet Transport Protocol: UDP-TCP. Application Layer: DNS- Electronic Mail-World Wide Web.	15	CO5

Text Books:

1. Roger S. Pressman, “Software Engineering - A practitioner’s Approach”, 7th edition, 2001, TataMcGraw-Hill International Edition.References:

REFERENCE BOOKS:

1. Ian Sommerville, “Software Engineering”, 6th edition, 2000, Pearson education Asia,.
2. Richard E. Fairley, “Software Engineering Concepts”, 2002, Tata McGraw- Hill edition.

E-REFERENCE:

1. <http://ceit.aut.ac.ir/~91131079/SE2/SE2%20Website/Lecture%20Slides.html>

FOURTH SEMESTER

Course Title: CORE THEORY- ELECTIVE 1-CLIENT-SERVER TECHNOLOGY
(For Students admitted from 2020 onwards)

Course Code	: 18-19XXXX	Credits	: 4
L:T:P:S	: 3:1:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- *To understand the concepts of client-server computing and its technology.*
- *To apply the techniques and features of a client-server technology.*
- *To learn the advantages of client-server systems over monolithic systems.*

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	<ul style="list-style-type: none">• Comprehend the basic concepts of the client-server model.• Improve the performance and reliability of Client Server based systems.
CO2	<ul style="list-style-type: none">• Components of Client-Server Applications and Role.• Understand how Client-Server systems work.
CO3	<ul style="list-style-type: none">• Understand the Connectivity.• Comprehend the concept of different technologies.
CO4	<ul style="list-style-type: none">• Understand the software and hardware requirements of Client-Server based systems.• Improve the common interface across platform.
CO5	<ul style="list-style-type: none">• Understand the service and support of the system.• Identify security and ethical issues in Client Server Computing.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	3	2	3	3
CO2	3	3	3	2	3	3
CO3	2	3	3	2	2	3
CO4	3	3	3	2	2	3
CO5	3	2	3	2	3	3

3-Strong 2-Medium 1-Low

Sl No	Contents of Module	Hrs	COs
1	Client/Server Computing – Advantages of Client/Server Computing – Technology - Revolution - Connectivity – Ways to improve Performance – How to reduce network Traffic	10	CO1
2	Components of Client/Server Applications – The Client: Role of a Client – Client Services – Request for Service. Components of Client/Server Applications – The Server: The Role of a Server – Server Functionality in Detail – The Network Operating System – What are the Available Platforms – The Server Operating system	10	CO2
3	Components of Client/Server Applications – Connectivity: Open System Interconnect – Communications Interface Technology – Interprocess communication – WAN Technologies	15	CO3
4	Components of Client/Server Applications – Software: Factors Driving demand for application software development – Rising Technology Staff costs – Need to improve Technology – Need for Common Interface across Platforms – Client/Server System Development Methodology. Components of Client/Server Applications – Hardware: Hardware/Network Acquisition – PC-Level Processing Units – Machintosh, notebooks, Pen – UNIX Workstation – x-terminals – Disk, Tape, Optical Disks, NIC and UPS.	15	CO4
5	Components of Client/Server applications – Service and Support: System Administration. The Future of Client/Server Computing: Enabling Technologies – Transformational Systems.	10	CO5

TEXT BOOK:

1. Patric Smith, Steve Guenferich, “CLIENT/SERVER COMPUTING”, Second Edition, Prentice Hall of India Private Limited, New Delhi (Chapters 1-8 & 10)

E- REFERENCES:

1. <http://arts.nprcolleges.org/e%20content/commerce/Inroduction%20to%20Client%20Server%20computer-%20TCA8C23.pdf>

FOURTH SEMESTER

Course Title: CORE PRACTICAL P4-VISUAL PROGRAMMING LAB

(For Students admitted from 2018 onwards)

Course Code	: 18-19XXXX	Credits	: 02
L:T:P:S	: 0:0:2:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- *To improve the programming skills of the students with respect to advance concepts of Visual Basic.*

Lab exercise

1. Building simple applications with VB (Calculator and String Functions)
2. Working with intrinsic controls (Radio buttons, Check boxes, Picture boxes, Timer and Shape control)
3. Application using MDI form
4. Application using menus
5. Application using Dialog Boxes
6. Application using Functions (pass by value and Reference) and Procedures
7. Create database and performing the operations given below using a Menu
8. Driven program: (i) Insertion (ii) Deletion (iii) Modification (iv) Generating reports (Simple) for the following Systems using any RDBMS package:
 - a) payroll Processing
 - b) Mark sheet Processing
 - c) Library information system
 - d) Income tax processing system
 - e) Electricity bill preparation system
 - f) Telephone directory maintenance.

FIFTH SEMESTER

Course Title: CORE THEORY T9-OPERATING SYSTEM
(For Students admitted from 2018 onwards)

Course Code	: 18-19XXXX	Credits	: 04
L:T:P:S	: 4:0:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- *Stating the Services provided to the user and hardware by operating system.*
- *To communicate with the process through system calls.*
- *Define deadlocks and identify its presence in the system.*
- *Designing appropriate memory management scheme.*
- *To learn the mechanisms of OS to handle processes and threads and their communication.*

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define OS with its view and goals and services rendered by it Design of OS with its structure. Message through interposes communication
CO2	Allocation of process through scheduling algorithms. Define criticalsection problems and its usage . Prevention of multiple process executing through the concept ofsemaphores
CO3	Know the Mutual exclusion, Deadlock detection and agreement protocols for deadlockprevention and its avoidance
CO4	Strategies of memory management schemes and the usage of virtual memory. Apply prepare Replacement to algorithmsto avoid thrashing
CO5	Brief of storage management. Methods to allocate files for proper protection.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	3	3	2	2	2
CO2	3	3	2	3	3	2
CO3	3	3	3	3	2	2
CO4	3	3	3	3	3	2
CO5	3	2	3	3	3	2

3-Strong 2-Medium 1-Low

Sl No	Contents of Module	Hrs	COs
1	Introduction- views and goals - Operating-System Services - User and Operating- System interface - System Call- Types of System Calls – Operating System Design and Implementation - Operating- System Structure. Process Management: Process concept- Process Scheduling - Operations on Processes- InterprocessCommunication .Threads: Types of threads	10	CO1
2	Process Scheduling: Basic Concepts- Scheduling Criteria - Scheduling Algorithms Multiple-Processor Scheduling –CPU Scheduling .Synchronization: The Critical-Section Problem Synchronization Hardware – Semaphores- Classic Problem of Synchronization.	15	CO2
3	Deadlocks: Deadlock Characterization - Methods for Handling Deadlocks-DeadlockPrevention- Deadlock Avoidance - Deadlock Detection - Recovery from Deadlock.	10	CO3
4	Memory-Management Strategies: Swapping - Contiguous Memory Allocation –Segmentation- Paging - Structure of the Page Table .Virtual-Memory Management: Demand Paging - Page Replacement - Allocation of Frames -Thrashing .	15	CO4
5	Storage Management: File System- File Concept - Access Methods- Directory andDiskStructure -File Sharing - Protection .Allocation Methods - Free- Space Management - Efficiency and Performance – Recovery.	10	CO5

TEXT BOOKS:

1. A. SilberschatzP.B.Galvin, Gange. “Operating System Concepts”, Ninth Edition, 2013, Addison WesleyPublishingCo.

REFERENCE BOOKS:

1. H.M. Deitel, “An Introduction to Operating System”, Second Edition, Addison Wesley

E-REFERENCES:

1. <http://www.cs.kent.edu/~farrell/osf03/oldnotes/>
2. <https://it325blog.files.wordpress.com/2012/09/operating-system-concepts-7-th-edition.pdf>

FIFTH SEMESTER

**Course Title: CORE THEORY T10-DATABASE MANAGEMENT SYSTEMS
(For Students admitted from 2018 onwards)**

Course Code	: 18-19XXXX	Credits	: 04
L:T:P:S	: 4:0:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- Detailed description for the structure of Database, file and records.
- Structuring the models for Normalization of different Normal Forms.
- Emphasizing the types of statements for control languages.
- Demonstration of Subprograms, Functions and Procedures
- Elaborating the concepts of Triggers and Cursors

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	<ul style="list-style-type: none">• To demonstrate the characteristics of Database Management Systems.• To study about the concepts and models of database.• To impart the concepts of System Development Life Cycle and E-R Model.
CO2	<ul style="list-style-type: none">• To classify the keys and the concepts of Relational Algebra.• To impart the applications of various Normal Forms• Classification of Dependency.
CO3	<ul style="list-style-type: none">• To elaborate the different types of Functions and Joins and their applications.• Introduction of Views, Sequence, Index and Procedure.
CO4	<ul style="list-style-type: none">• Representation of PL-SQL Structure.• To impart the knowledge of Sub Programs, Functions and Procedures.
CO5	<ul style="list-style-type: none">• Representation of Exception and Pre-Defined Exception.• To Point out the Importance of Triggers, Implicit and Explicit Cursors.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	3	3	2	3
CO2	3	3	3	2	3	3
CO3	3	3	3	3	3	3
CO4	3	3	3	2	3	2
CO5	3	3	2	2	2	2

3-Strong 2-Medium 1-Low

Sl No	Contents of Module	Hrs	COs
1	Introduction - Database System - Characteristics of Database Management Systems - Architecture of Database Management Systems - Database Models - System Development Life Cycle - Entity Relationship Model	10	CO1
2	Introduction to Relational Database Model - Structure of Relational Model - Keys - Relational Algebra - Normalization: Functional Dependency - First Normal form - Second Normal Form-Third Normal form - Boyce-Code Normal Form - Fourth Normal Form.	15	CO2
3	SQL: Introduction-Data Retrieval - Single row function - Group function - Set Function - Sub query - Joins. Data Manipulation Language: Insert, Update and Delete Statements - Transaction Control Language – View – Sequence – Synonym – Index - Defining Constraints	15	CO3
4	PL/SQL: Introduction-PL/SQL Basic-Character Set- PL/SQL Structure-SQL Cursor-Subprograms-Functions-Procedures.	10	CO4
5	Exception Handler Introduction - Predefined Exception - User Defined Exception –Triggers - Implicit and Explicit Cursors - Loops in Explicit Cursor.	10	CO5

TEXT BOOK:

1. Pranab Kumar Das Gupta and P. Radha Krishnan, “Database Management System Oracle SQL andPL/SQL”,Second Edition, 2013, PHI Learning Private Limited.

REFERENCE BOOKS:

1. RamezElmasri and Shamkant B. Navathe, “Fundamentals of Database Systems”, Fifth Edition, 2007,PearsonPublications.
2. Abraham Silberschatz, Henry Korth, S. Sudarshan, “Database System Concepts”, Sixth Edition, 2010, Mc-1GrawHill Education.

E-REFERENCE:

1. http://www.amazon.in/DATABASE-MANAGEMENT-SYSTEM-ORACLE-SQL/dp/B00LPGBWZ0#reader_B00LPGBWZ0

FIFTH SEMESTER

Course Title: CORE THEORY T 11-COMPUTER GRAPHICS
(For Students admitted from 2018 onwards)

Course Code	: 18-19XXXX	Credits	: 04
L:T:P:S	: 4:0:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- *Explain the core concepts of computer graphics, including viewing, projection, perspective, modeling and transformation in two and three dimensions.*
- *Describe the fundamentals of animation, parametric curves and surfaces, and spotlighting.*
- *Identify a typical graphics pipeline and apply graphics programming techniques to design and create computer graphics*

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	<ul style="list-style-type: none">• Illustrate the concepts of various display devices and explain the types of input and output devices used in graphics systems.• Classify the various Line Drawing Algorithms with their characteristics.• Explain about graphic primitives and work with coordinate spaces, coordinate conversion.
CO2	<ul style="list-style-type: none">• Point out and classify the types of transformation and their representations in Matrix form.• Design and implement the model of mapping from a World coordinates to device coordinates.• Design to clip an image by using clipping techniques.
CO3	<ul style="list-style-type: none">• Demonstrate the concepts of representation of objects in 3D.• Design the structure needed to represent graphical objects using Bezier and Spline curves and surfaces.
CO4	<ul style="list-style-type: none">• Classify the various 3D geometric transformation and their composition.• Explore projections and visible surface detection methods techniques for display of 3D scene on 2D scene.• Extract the scene with different clipping methods and its transformation to graphics display device.
CO5	<ul style="list-style-type: none">• Subdivide the various color models that can be used in graphics system.• Apply the concepts of color models, lighting and shading models, textures, raytracing, hidden surface elimination, anti-aliasing, and rendering.

Mapping of Course Outcomes to Program Specific Outcomes:

	PS O 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	3	3	2	3	3
CO2	3	3	3	3	3	3
CO3	3	2	2	2	3	3
CO4	3	3	2	3	3	3
CO5	3	2	3	2	3	2

3-Strong 2-Medium 0-Low

Sl No	Contents of Module	Hrs	COs
1	Introduction - Overview of graphics systems : Video display devices, Refresh Cathode Ray Tube -Raster scan display - Random scan display - Interactive input devices. Output primitives: Points and Lines, Line drawing algorithms - (DDA) - Bresenham's Line Drawing. Filled Area Primitives: Scan Line Polygon Fill- Boundary fill – Flood Fill.	10	CO1
2	Two dimensional Geometric Transformations: Matrix representations and homogeneous coordinates, composite transformations. Two dimensional viewing: Window-to-viewport coordinate transformation- Twodimensional viewing functions- polygonclipping algorithms.	15	CO2
3	3D concepts: 3D object representations - Polygon surfaces - Curved Lines and surfaces- Spline representations - Bezier curves and surfaces - B-Spline curvesandsurfaces.	10	CO3
4	Three dimensional geometric and modeling transformations: Translation, Rotation, Scaling and Composite transformations. Three dimensional viewing: Viewing pipeline- Viewing coordinates- Projections- Clipping- Visible surface detection methods.	15	CO4
5	Intuitive color concepts - RGB color model - YIQ color model - CMY color model -HSVcolormodel - HLS color model- Colorselection.	10	CO5

TEXT BOOK:

1. Donald Hearn & M. Paulin Baker, "Computer Graphics", Second Edition, 2003, Pearson Education.

REFERENCE BOOKS:

1. W.M. Newman and R.F.Sproull, "Principles of Interactive Computer Graphics", Tata McGraw Hill International Edition.

2. James D. Foley, Andries Van Dam, Steven K. Feiner, John F. Hughes, “Computer Graphics-PrinciplesandPractice”, Second Edition, 2007, Pearson Education.

E-REFERENCES:

1. http://www.uptu.ac.in/pdf/sub_ecs_504_30sep14.pdf

FIFTH SEMESTER

Course Title: CORE THEORY ELECTIVE 2-ASP DOT NET PROGRAMMING
(For Students admitted from 2018 onwards)

Course Code	:18-19XXXX	Credits	: 04
L:T:P:S	: 3:1:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- *Set up a programming concept using the basic knowledge HTML.*
- *To learn the data types, different controls in VB.NET*
- *Creating ASP.Net applications using standard .net controls to develop a data driven web application for Connecting to data sources and managing them.*
- *To Maintain session and controls related information for user used in multi-user web applications.*
- *To Understand the fundamentals of developing modular application by using object oriented methodologies*

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	To understand the basic concept of HTML language with different types tags like formatting the text, inserting the tables.
CO2	To gain the basic knowledge in VB NET with the Frame work.
CO3	Enable to apply technical knowledge and perform specific technical skills
CO4	Understand to design web applications using ASP.NET 2. Successful students will be able to use ASP.NET controls in web applications
CO5	Apply the concept to create database driven ASP.NET web applications and web services

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	2	2	3	3	3	2
CO2	3	3	2	3	3	3
CO3	3	3	2	3	3	3
CO4	3	3	2	3	3	3
CO5	3	3	3	3	3	2

3-Strong 2-Medium 1-Low

SI NO	Content of module	Hrs	COs
1	HTML: Introduction– HTML Document Structure- Header Styles – Text Formatting –Types of List –HTML Table - Linking documents using Anchor tag -Forms– Basic controls in form – Image tag.	10	CO1
2	VB.Net Basics: Dot Net Framework Basics - Visual Studio Environment —DataTypes , Variables, constants ,Operators and Expressions – Decisions and Conditions - Loops - Arrays - Sub Procedures and Functions – Built-In functions.	10	CO2
3	VB.Net Advanced: Windows Forms and Basic Controls - Timer control - Graphics and Animation: The Graphics Environment – Simple Animation –ScrollBar Controls - Menus and Status Bars- Multi Form applications - Exception Handling.	15	CO3
4	ASP.NET Basics: ASP.NET Language Structure - Page Structure - Page event, Properties & Compiler Directives. Basic Web Server Controls: TextBox, Label, Button, CheckBox, RadioButton and LinkButton. Validation Controls: RequiredValidator, Compare Validator and RegularExpressionValidator. DataListWebserver Controls: ListBox, CheckBoxList,RadioButtonList, DropDownList and Data Grid control.	15	CO4
5	ASP.NET Advanced: Request and Response Objects, Cookies, Session Management, Working with Data: OLEDB Connection class, Command class, DataSet Class and DataAdapter class - Program using database connectivity	10	CO5

TEXT BOOKS:

1. Thomas A Powell, “The Complete Reference HTML”, Fifth Edition, 2017, TMH.
2. Julia Case Brandley, Anita C. Millspaugh, ”Programming in Visual Basic.Net”, 2003, TataMcGrawHill.
3. G. Buczek, “ASP.NET Developers Guide”, 2017, Tata McGrawHill.

REFERENCE BOOKS:

1. C. Xavier ,“World Wide Web Design with HTML”, First Edition, TMH.
2. Crouch, “ASP.NET and VB.NET Web Programming”, 2002, Addison- WesleyProfessional.

E-REFERENCES:

1. <http://www.w3schools.com/aspnet/default-asp>

2. <http://www.learnvisualstudio.net>

FIFTH SEMESTER

Course Title: CORE PRACTICAL P5- RDBMS LAB
(For Students admitted from 2018 onwards)

Course Code	:18-19XXXX	Credits	: 02
L:T:P:S	: 0:0:2:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- *To make the student aware of the Back-End tool.*

Lab Exercises:

1. DDL commands.
2. Specifying constraints-primary key, foreign key, unique, check, not null.
3. DML commands.
4. Joins.
5. Sub queries.
6. Creation of simple PL/SQL block using control constructs.
7. Creation of PL/SQL blocks using exceptional handlers.
8. PL/SQL program using implicit and explicit cursor.
9. PL/SQL program using procedures.
10. PL/SQL program using triggers.
11. Data Manipulation using PL/SQL.

FIFTH SEMESTER

Course Title: CORE PRACTICAL ELECTIVE IIP6- ASP DOT NET LAB
(For Students admitted from 2020 onwards)

Course Code	: 18-19XXXX	Credits	: 03
L:T:P:S	: 0:0:3:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- *To make students implement the concepts of ASP.Net.*

Lab Exercises:

1. Create a Website that contains various standard controls
2. Create a Website that demonstrates use of validator controls
3. Create a Website that contains adrotator and calendar controls.
4. Create a web application using web services.
5. Create a web application for storing and accessing database.
6. Create a web application for maintaining user states(Cookies etc.)

SIXTH SEMESTER

Course Title: CORE THEORY T13-PROGRAMMING IN PHP
(For Students admitted from 2018 onwards)

Course Code	: 18-19XXXX	Credits	: 04
L:T:P:S	: 3:1:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- *To make students understand the concepts of PHP Programming.*
- *To make the students learn best practices in programming approach*
- *Enable the students to create attractive web pages using hypertext*

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Learn the basics of PHP Dosimple programs Know How to utilize the predefined string and numeric functions
CO2	Work with arrays and functions Do programs on arrays and functions Work with Time and date functionalities
CO3	Learn advanced OOPs concept Do programs on UDF
CO4	Work with files and Learn file management concept Learn cookiesmanagement Learn session management
CO5	Work with MySql Synchronize various queries and process them on php. Work with character, numeric, date and time.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	3	2	2	2	3
CO2	3	3	3	3	3	3
CO3	3	3	3	2	3	3
CO4	3	3	3	3	3	2
CO5	3	3	3	2	3	2

3-Strong 2-Medium 1-Low

Sl No	Contents of Module	Hrs	COs
1	Checking variables Data types – Using Constants – Manipulating Variables with Operators. Controlling Program Flow: Writing Simple Conditional Statements - Writing More Complex Conditional Statements – Repeating Action with Loops – Working with String and Numeric Functions.	15	CO1
2	Working with Arrays: Storing Data in Arrays – Processing Arrays with Loops and Iterations – Using Arrays with Forms - Working with Array Functions – Working with Dates and Times.	10	CO2
3	Using Functions and Classes: Creating User-Defined Functions - Creating Classes – Using Advanced OOP Concepts.	10	CO3
4	Working with Files and Directories: Reading Files-Writing Files- Processing Directories – Cookies – Session Management.	10	CO4
5	Working MySQL with PHP-database connectivity- Usage of MYSQL commands in PHP - Processing result sets of queries- Validating user input through Database layer and Application layer- Formatting query output with Character, Numeric, Date and time.	15	CO5

TEXT BOOKS:

1. **Vikram Vaswani**, “PHP A Beginner’s Guide”, TataMcGraw-Hill
2. **Robin Nixon O'Reilly**, “PHP, MySQL, and JavaScript: A Step-By-Step Guide to Creating Dynamic Websites by Media”, First edition

REFERNCE BOOKS:

1. **Rasmus Lerdorf, Kevin Tatroe** “Programming PHP”, O'Reilly, ISBN 1565926102.
2. **Leon Atkinson** “Core PHP Programming”, Prentice Hall, ISBN 0130463469.
3. **W. Jason Gilmore**, “Beginning PHP5 and MySQL: From Novice to Professional”, 2004, Apress, ISBN: 1-893115-51-8
4. **Steven Holzner**, “The PHP Complete Reference”, Tata McGraw-Hill Edition.
5. **Steven Holzer**, “Spring into PHP5”, Tata McCraw Hill Edition

E-REFERENCES:

1. www.tutorialspoint.com/php/

2. <http://www.w3schools.com/php/>

SIXTH SEMESTER

Course Title: CORE THEORY T14-PYTHON PROGRAMMING
(For Students admitted from 2018 onwards)

Course Code	: 18-19XXXX	Credits	: 04
L:T:P:S	: 3:1:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- *To make students understand the concepts of PYTHON programming.*
- *To apply the OOPs concept in PYTHON programming.*
- *To make the students learn best practices in PYTHON programming.*

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	<ul style="list-style-type: none"> • Learn the basics of PYTHON • Do simple programs on python • Utilize the control statement and recursion
CO2	<ul style="list-style-type: none"> • Work with Looping statements • Do programs on Loops and String methods • Do programs on Various string operations
CO3	<ul style="list-style-type: none"> • Learn string, list slices and dictionaries • Do work with reverse lookup • Learn in depth about Global variable utilization
CO4	<ul style="list-style-type: none"> • Work with files and Learn file management concept • Learn Immutable • Learn Dictionary and tuple management
CO5	<ul style="list-style-type: none"> • Learn Classes and Objects. • Do programs on OOPs concept in Python

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	3	3	2	2	3
CO 2	3	3	2	3	3	3
CO 3	3	3	2	2	3	3
CO 4	3	2	2	3	3	3

CO 5	3	2	3	3	3	3
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3-Strong 2-Medium 1-Low

Sl No	Contents of Module	Hrs	COs
1	Setting and Checking variables Data types – Using Constants – Introduction to Python – Values and types – Variables – Variable names and keywords – Operators and Operands-Expressions and Statements-Order of Operations- Comments. Functions: Function calls- Type conversion functions-Math functions – Definitions and uses_ Parameters and arguments- Local variables and parameters- Fruitful functions. Conditionals and Recursion: Modulus operator – Boolean expressions – Logical operators- Conditional execution – Alternative execution- Chained conditionals-Nested Conditionals-Recursion.	15	CO1
2	Iteration-Multiple assignment-Updating variables-While statement- break- String – Len-FString slices- Looping and counting- String methods-in operator-String comparison.	10	CO2
3	Lists: List operations-list slices-list methods-Deleting elements-Lists and strings- Dictionaries: Dictionary as a set of counters-Looping and dictionaries- Reverse lookup-Global Variables.	10	CO3
4	Tuples: Immutable-Tuple assignment-Tuples as return values- Lists and tuples- Dictionaries and tuples. Files: Reading and writing- Format operator- Filenames and Paths- Catching exceptions.	10	CO4
5	Classes and Objects: User-defined types-Attributes- Instances as return values. Classes and functions: Time-Pure functions-Modifiers. Classes and methods: Object oriented features-init method-str method-Operator overloading- Polymorphism- Inheritance- Class diagrams- Data encapsulation.	15	CO5

TEXT BOOK :

1. **Allen B. Downey O'Reilly** “Think Python: How to Think Like a ComputerScientist”, Second Edition, 2015, O'Reilly Media, Inc.

REFERENCE BOOK :

1. Jeff McNeil , “Python 2.6 Text Processing: Beginners Guide “, PacktPub Publications .MarkPilgrim , “Dive Into Python” , Academic Press.

E- REFERENCES:

1. <http://www.greenteapress.com/thinkpython/thinkpython.pdf>

SIXTH SEMESTER

Course Title: CORE THEORY T15-SOFTWARE ENGINEERING
(For Students admitted from 2018 onwards)

Course Code	: 18-19XXXX	Credits	: 04
L:T:P:S	: 4:0:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- Knowledge of basic SW engineering methods and practices, and their appropriate application.
- Describe software engineering layered technology and Process framework.
- The role of project management including planning, scheduling, risk management.
- Strategies of software testing.
- Knowing quality control and how to ensure good quality software.
- Ability to analyze, design, verify, validate, implement, apply, and maintain software systems

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Fundamental knowledge of software engineering. Apply the software engineering lifecycle by demonstrating competence in communication, planning, analysis, design, construction, and deployment Know software process models such as the waterfall, incremental ,evolutionary models and concurrent models .
CO2	Acquire requirements and Analyze it to design software designing through UML language.
CO3	Design process ,design concept and design modelsBasic design principles and its components
CO4	Good quality of software achieved through SQA.Strategies of various software testing . Methods of software testing .
CO5	Role of software configuration management. SoftwareRiskand its solution through RMMM. Restructure of software by software reengineering and software reverse engineering

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	3	3	3	3
CO2	3	3	3	3	3	3
CO3	2	2	3	2	3	3

CO4	3	3	3	2	3	3
CO5	3	2	2	3	2	3

3-Strong 2-Medium 1-Low

Sl No	Contents of Module	Hrs	COs
1	The Nature of Software - Definition: Software, Software Engineering - Prescriptive Process Models - Prescriptive Process Models - The Waterfall Model - Incremental Process Model - Evolutionary Process Models - Concurrent Models	15	CO1
2	Requirements Analysis - Scenario-Based Modeling - UML Models That Supplement the Use Case - Data Modeling Concepts - Class-Based Modeling - Requirements Modeling Strategies - Flow-Oriented Modeling - Creating a Behavioral Model	15	CO2
3	The Design Process - Design Concepts - The Design Model - Designing Class-Based Components: Basic Design Principles - Component-Level Design Guidelines - Cohesion – Coupling - Designing Traditional Components - Graphical Design Notation - Tabular Design Notation - Program Design Language	15	CO3
4	Elements of Software Quality Assurance - SQA Tasks, goals, and metrics - Software Testing Strategies - Unit Testing - Integration Testing - Validation Testing - Alpha and Beta Testing - System Testing - The Debugging Process - White-Box Testing - Basis Path Testing - Control Structure Testing - Black-Box Testing	15	CO4
5	Software Configuration Management - The SCM Repository - The SCM Process - Risk Management - Software Risks - Risk Identification - Risk Projection - Risk Refinement - Risk Mitigation, Monitoring, and Management - The RMMM Plan - Software Maintenance - Software Supportability – Software Reengineering - Reverse Engineering	15	CO5

TEXT BOOKS:

1. Roger S. Pressman, “Software Engineering - A practitioner’s Approach”, 7th edition, 2001, TataMcGraw-Hill International Edition.

REFERENCE BOOKS:

1. Ian Sommerville, "Software Engineering", 6th edition, 2000, Pearson education Asia,.
2. Richard E. Fairley, "Software Engineering Concepts", 2002, Tata McGraw- Hill edition.

E-REFERENCE:

<http://ceit.aut.ac.ir/~91131079/SE2/SE2%20Website/Lecture%20Slides.html>

SIXTH SEMESTER

Course Title: CORE THEORY T15-DATA MINING
(For Students admitted from 2018 onwards)

Course Code	: 18-19XXXX	Credits	: 04
L:T:P:S	: 3:1:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- *To make students understand the concepts of DATAMINING*
- *To apply the DATA MINING concept in the real world scenario*
- *To encourage the students to do research in DATAMINING*

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	<ul style="list-style-type: none"> • Understand the basics ofDM • Learn about databases inDM • Learn about knowledge discovery inDM
CO2	<ul style="list-style-type: none"> • Work with DM techniques • Learn about Statistical Prospective on DM • Understand Decision Trees/Neural Networks/Genetic Algorithm
CO3	<ul style="list-style-type: none"> • Learn about different types of algorithm in DM • Work with Statistical Based alg/Distance based algorithm • Work with Decision trees/Neural Network/Rule based
CO4	<ul style="list-style-type: none"> • Apply Hierarchical and Partitional algorithm • Learn about Similarity and Distance Measures • Understand various algorithm technique
CO5	<ul style="list-style-type: none"> • Learn about large item sets in DM • Apply incremental rules and Measuring quality rules • Understand about applying various rules applying methods

Mapping of Course Outcomes to Program Specific Outcomes:

	PS O 1	PS O 2	PS O 3	PS O 4	PS O 5	PS O 6
CO 1	3	3	3	2	2	3
CO 2	3	3	3	3	3	3
CO 3	3	3	3	2	3	3

CO 4	3	3	3	3	3	3
CO 5	3	3	3	3	3	3

3-Strong 2-Medium 1-Low

Sl No	Contents of Module	Hrs	COs
1	Basic Data Mining Tasks – Data Mining Versus Knowledge Discovery in Data Bases – Data Mining Issues – Data Mining Matrices – Social Implications of Data Mining – Data Mining from Data Base Perspective.	15	CO1
2	Data Mining Techniques – a Statistical Perspective on data mining – Similarity Measures – Decision Trees – Neural Networks – Genetic Algorithms.	10	CO2
3	Classification: Introduction – Statistical – Based Algorithms – Distance Based Algorithms – Decision Tree – Based Algorithms – Neural Network Based Algorithms – Rule Based Algorithms – Combining Techniques.	10	CO3
4	Clustering: Introduction – Similarity and Distance Measures – Outliers – Hierarchical Algorithms, Partitional Algorithms.	10	CO4
5	Association Rules: Introduction - Large Item Sets – Basic Algorithms – Parallel & Distributed Algorithms – Comparing Approaches – Incremental Rules – Advanced Association Rules Techniques – Measuring the Quality of Rules.	15	CO5

TEXT BOOK :

1. Margaret H. Dunham, “Data Mining Introductory and Advanced Topics”, 2003, Pearson Education.

REFERENCE BOOK :

1. Jiawei Han & Micheline Kamber”, “Data Mining Concepts & Techniques”, 2001 Academic Press.

E- REFERENCES:

- 1.

http://books.google.co.in/books?id=O6F9iwsqZQwC&pg=PA13&source=gbs_selectedpages&cad=3#v=onepage&q&f=false <http://web.engr.illinois.edu/~hanj/bk2/>

SIXTH SEMESTER

Course Title: CORE THEORY Elective 3-DIGITAL IMAGE PROCESSING

(For Students admitted from 2018 onwards)

Course Code	:18-19XXXX	Credits	: 05
L:T:P:S	: 4:1:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- *To study the image fundamentals and mathematical transforms necessary for image processing.*
- *To study the image enhancement techniques*
- *To study image restoration procedures.*
- *To study the image compression procedures.*

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	<ul style="list-style-type: none"> • Review the fundamental concepts of a digital image processing system. • Understand the need for color models for images.
CO2	<ul style="list-style-type: none"> • Learn different techniques employed for the enhancement of images. • Understand the need for image compression and to learn the spatial domain.
CO3	<ul style="list-style-type: none"> • Evaluate the techniques for image enhancement. • Analyze images in the frequency domain using various transforms.
CO4	<ul style="list-style-type: none"> • Evaluate the techniques for image enhancement and image restoration. • Learn different causes for image degradation and overview of image restoration techniques.
CO5	<ul style="list-style-type: none"> • Interpret image compression standards. • Learn basics of predictive and transform coding.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	3	3	2	3	3
CO2	3	3	3	2	2	3
CO3	2	3	3	2	2	3
CO4	2	2	3	2	3	3

CO5	3	3	3	2	2	3
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3-Strong 2-Medium 1-Low

Sl No	Contents of Module	Hrs	COs
1	Introduction – steps in image processing, Image acquisition, representation, sampling and quantization, relationship between pixels. – color models – basics of color image processing	10	CO1
2	Image enhancement in spatial domain – some basic gray level transformations – histogram processing – enhancement using arithmetic, logic operations – basics of spatial filtering and smoothing.	15	CO2
3	Image enhancement in Frequency domain – Introduction to Fourier transform: 1-D, 2-D DFT and its inverse transform, smoothing and sharpening filters.	10	CO3
4	Image restoration: Model of degradation and restoration process – noise models – restoration in the presence of noise- periodic noise reduction. Image segmentation: Thresholding and region based segmentation.	15	CO4
5	Image compression: Fundamentals – models – information theory – error free compression – Lossy compression: predictive and transform coding. JPEG standard	10	CO5

TEXT BOOK:

1. R.C. Gonzalez, R.E.Woods, “Digital Image processing”, Second Edition, Pearson Education.2002.

REFERENCE BOOK:

1. Anil K. Jain, “Fundamentals of Digital Image Processing”, Second Edition, Prentice Hall of India, New Delhi. 1994.
2. Pratt. W.K., “Digital Image Processing, Third Edition”, John Wiley & Sons. 1978.
3. Rosenfeld A. & Kak, A.C, “Digital Picture Processing”, Vol I & II, Academic, 1982

E-REFERENCES:

1. http://web.ipac.caltech.edu/staff/fmasci/home/astro_refs/Digital_Image_Processing_2ndEd.pdf

**Course Title: CORE PRACTICAL P7- PHP AND
PYTHONPROGRAMMING LAB
(For Students admitted from 2018 onwards)**

Course Code	: 18-19XXXX	Credits	: 03
L:T:P:S	: 0:0:3:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- *To make students implement the basic concepts of PHP and PYTHON.*

Lab Exercises

PHP

1. Write a PHP script to implement String, Numeric, Date and Time functions.
2. Write a PHP script using Indexed, Associative and Multidimensional arrays.
3. Write a server side PHP script that displays marks, total, grade of a student in tabular format by accepting user inputs for name, number and marks from a HTML form [Do not use database].
4. Write a PHP script using two buttons to store Cookies and read Cookies' details.
5. Write a PHP script to demonstrate Session.
6. Write a PHP script to upload a file from client machine to the server machine.
7. Write a PHP script to create a directory, remove a directory and to read contents from the directory using choice menu.
8. Create a MySQL table and execute queries to read, add, remove and modify a record from that table.
9. Write a PHP script to access the employee data stored in a MySQL table. Use EmpNumber as input from a Form.

PYTHON

1. Program using Function .
2. Program using Recursive Function.
3. Program using Control Statements.
4. Program using Strings.
5. Program using Lists, Dictionaries and Tuples.
6. Program using Files.
7. Program using Classes and Objects.

CORE-IV
LOGISTICS AND SUPPLY CHAIN MANAGEMENT

Course Code:	Credits : 04
L:T:P:S:4:0:0:0	CIA Marks: 40
Exam Hours :03	ESE Marks : 60

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	<ul style="list-style-type: none"> Define various concepts in Logistics management; it gives the wider idea about the logistics. 	K1
CO2	<ul style="list-style-type: none"> Discuss the inventory control, demand forecasting, distribution management, and logistics in 21st century. 	K3
CO3	<ul style="list-style-type: none"> Analyse supply chain management and its global applications 	K4 & K5
CO4	<ul style="list-style-type: none"> Explain the role of manager, drivers, and key enablers in supply chain management. 	K2
CO5	<ul style="list-style-type: none"> Generate ideas about aligning the supply chain with business strategy and compare and contrast about SCOR Model, 3PLS, Fourth Party Logistics. 	K6
CO6	<ul style="list-style-type: none"> Develop and apply analytical techniques to design and operate integrated supply chains. Analyse and improve supply chain processers. 	K5

Mapping of Course Outcomes to Program Outcomes:

PO/ PSO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
CO1	3	3	3	2	1	3	3	3
CO2	3	3	3	2	2	3	3	3
CO3	3	3	3	3	2	3	3	3
CO4	3	3	3	3	1	3	3	3
CO5	3	3	3	3	1	3	3	3
CO6	3	3	3	3	3	3	3	3
Average	3.00	3.00	3.00	2.67	1.67	3.00	3.00	3.00
Correlation	3= Strong 2= Medium 1= Low							

S.NO	CONTENTS OF MODULE	Hrs	Cos
1	Logistics Management: Origin– Definition– Types of Logistics– Logistics Management– Warehouse Management– Automation and Outsourcing– Customer Service and Logistics Management– Perspective– Concepts in Logistics and Physical Distribution– Distribution and Inventory	12	CO1
2	Types of Inventory Control– Demand Forecasting– Warehousing and Stores Management– Routing– Transportation Management– Some Commercial Aspects in Distribution Management– Codification– Distribution Channel Management – Distribution Resource Planning (DRP) – Logistics in 21 st Century	12	CO2
3	Supply Chain Management – Introduction and Development – Nature and Concept– Importance of Supply Chain – Value Chain – Components of Supply Chain – The Need for Supply Chain – Understanding the Supply Chain – Management – Participants in Supply Chain – Global Applications	12	CO3
4	Role of a Manager in Supply Chain – Supply Chain Performance Drivers – Key Enablers in Supply Chain Improvement – Inter Relation between Enablers and Levels of Supply Chain Improvement – Systems and Values of Supply Chain	12	CO4
5	Aligning the Supply Chain with Business Strategy – SCOR Model – Outsourcing 3 PLs– Fourth Party Logistics – Bull Whip Effect and Supply Chain – Supply Chain Relationships – Conflict Resolution Strategies – Certifications	12	CO5 & CO6

TEXT BOOKS:

1. G. Raghuram & N Rangaraj : Logistics and Supply Chain Management – Cases and Concepts –Macmillan
2. Martin Christopher: Logistics of Supply Chain Management: Creating Value adding Networks – FTPress
3. D.K.Agrawal: Textbooks of LogisticsandSupplyChainManagement,MacMillan

REFERENCE BOOKS:

4. Waters Donald, Logistics: Introduction to Supply Chain Management, Palgrave Macmillan
5. Christopher Martin, Logistics and Supply Chain Management: Creating Value–Adding Networks,FT Prentice hall
6. Dalmina Sanjay, Financial Supply Chain Management, MC Graw Hill Publishing Co. Pvt., Ltd.,

FOURTH SEMESTER

Course Title: NUTRIGENOMICS (ADVANCED)

		Credits	: 03
L:T:P:S	: 3:1:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Outcomes: At the end of the Course, the Student will be able to:

CO NUMBER	CO Statement
CO1	Understand and apply the knowledge of basics of genetics, epigenetics in the context of nutrigenomics
CO2	Understand and differentiate between genetics and genomics in the context of diseases with an idea on SNPs
CO3	Understand the concept of nutrigenomics and the genes associated with few biochemical disorders
CO4	Understand the relationship between various nutrients and their role in gene regulation- the core concept of nutrigenomics
CO5	Understand the relationship & interactions between food (diet) and genes in humans.
CO6	Know the types of foods, biomarkers in identifying diseases and ethical issues associated with nutrigenomics field of study.

Mapping of Course Outcomes to Program Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	3	1	1	1	3	2	1
CO2	3	2	1	2	3	1	2
CO3	3	3	1	2	3	3	2
CO4	3	3	1	3	3	2	1
CO5	3	3	1	2	3	2	2
CO6	3	3	2	3	3	2	1

Correlations : 3 Strong 2 Medium 1 Low

Module No.	Module content	Hrs	CO
MO1	Basics Of Genetics - Branches of genetics -Epigenetics (http://learn.genetics.utah.edu/content/epigenetics/intro/) Methylation on the nucleosome -Mammalian DNA methyltransferases -Chromatin remodeling and histone modifications -Nutrients and DNA methylation Nutrients, histone modifications, & chromatin remodeling in chronic inflammation - Nutrients, epigenetics, and embryonic development - Nutrition, epigenetics, and aging Nutrition, epigenetics, and cancer -Genetics History Of Dietetics And Genetics	12	CO1
MO2	Nutrigenetics – Applications - Nutrigenetics And Type 2 Diabetes Mellitus - - Nutrigenetics And Cardiovascular Diseases - Nutrigenetics And Cancer What Are Snps And How Are They Found? Snps& Disease Diagnosis - Snps& Drug Development - - Snps&Ncbi -Snp Analysis Genetics Vs. Genomics	10	CO2
MO3	Nutrigenomics – Introduction -Rationale And Aims Of Nutrigenomics - Genes Associated With Various Diseases- Genes Associated With Lipid Metabolism, Antioxidant Function And Detoxification, Bone Structure, Inflammatory Response, Glucose Balance	10	CO3
MO4	Nutrition And Gene Regulation - Effect Of Carbohydrate On Gene Expression - Regulation Of Gene Expression By Dietary Fat - Effect Of Protein On Gene Expression - Influence of amino acids Effect Of Minerals On Gene Expression - Effect of Zinc on gene expression - Effect Of Vitamins On Gene Expression	16	CO4
MO5	Gene- Diet Interactions - Nutrient Intake Values (Nivs): A Recommended Terminology - Complexity Of Diet - Diet- Disease Relationships – Nutraceuticals - Functional Foods- Genetically Modified Foods – Gmos - Taster Strips PTC (Phenylthiourea-Phenylthiocarbamide): Sodium Benzoate - Personal Nutrition - Ectopic Fat “Dysfunctional” Fat vs. “Healthy” Fat - ectopic fat storage and lipotoxicity – Biomarkers - Genetic Tests - Ethical Issues	12	CO5

RECOMMENDED BOOKS:

1. Tsankova, N. R. (2007). *Epigenetic regulation in psychiatric disorders*. Nature Reviews Neuroscience, 8:355-367.
2. German JB, Y. C. (2004). *Personalizing foods - for health and preference*. Food technol 58:26-31
3. Raffaele De Caterina (Editor), J. A. (2019). *Principles of Nutrigenetics and Nutrigenomics: Fundamentals of Individualized Nutrition* (1st ed.). Academic Press.

REFERENCE BOOKS

1. Caterina, R. D. (2019). *Principles of Nutrigenetics and Nutrigenomics*. Elsevier Science and Technology - ISBN 10: 0128045728 / ISBN 13: 9780128045725
2. Lévesque L, O. V. (2008). *Integrating anticipated nutrigenomics bioscience applications with ethical aspects*. OMICS.
3. http://www.ncbi.nlm.nih.gov/projects/GeneTests/static/about/w_hatis/mission.shtml



DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE
(AUTONOMOUS)

College with Potential for Excellence

Linguistic Minority Institution. Affiliated to University of Madras

Department: MICROBIOLOGY		Academic Semester: 2022– 2023 (EVEN SEMESTER)	
Semester: II	Section: A	Course Code: 2026210	Course: Medical Microbiology - II
Course Instructor: Dr.B.Kirthiga , Dr.S.Jagadeeswari		Contact Hours /week:	No. of credits: 4
CIA:50		ESE : 50	Exam Hours: 03

Prerequisites if any:

Code No	Course Name	Description	Semester
2026210	Medical Microbiology - II		II

Sl. No.	CONTENTS OF MODULE	Hrs	Cos
1	Parasitology - Introduction and classification of parasites. Host parasite relationship. Laboratory techniques in parasitology. Lifecycle, pathogenicity lab diagnosis, treatment: <i>Entamoeba histolytica</i> , <i>Giardia</i> , <i>Trichomonas vaginalis</i> , <i>Trypanosoma</i> , <i>Plasmodium</i> .	9	CO1, CO2
2	Parasitology - Lifecycle, pathogenicity, lab diagnosis, treatment: <i>Taenia solium</i> , <i>Taenia saginata</i> , <i>Fasciola hepatica</i> , <i>Fasciola buski</i> , <i>Schistosoma mansoni</i> , <i>Ascaris lumbricoids</i> , <i>Enterobious</i> , <i>Wucheraria Bancrofti</i> , Drugs for parasitic infections.	9	CO2, CO3
3	Virology – General properties and classification of viruses, Viral diagnosis and serology – methods used for viral quantification and enumeration, Antiviral drugs.	9	CO4, CO6
4	Virology - Epidemiology, life cycle pathogenicity, diagnosis and treatment of RNA Viruses: Picorna viruses – Polio virus, Rhabdo viruses – Rabies virus, Retro viruses (Oncogenic RNA virus) - HIV, Orthomyxoviridae – Influenza virus, Paramyxo viridae – Rubula virus (Mumps), Morbilli viruses – Measles (Rubeola virus)	9	CO5, CO6
5	Virology - Epidemiology, life cycle, pathogenicity, diagnosis and treatment of DNA Viruses: Pox virus, Hepatitis virus - HBV, Herpes simplex virus, Oncogenic DNA viruses - Human papilloma virus, Epstein-Barr virus, Emerging viruses (Corona, Ebola, SARS, H1N1, Flavi virus – Dengue virus).	9	CO6, CO7

Content delivery:	Point Presentation, Quiz and Assignments
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COURSE OUTCOMES: At the end of the Course, the Student will be able to:

CO1	Gain knowledge about host parasite relationship and demonstrate the techniques, which are used to identify the parasites
CO2	Discuss about various parasitic infections, pathogenicity and diagnosis
CO3	Explain the mode of action of drugs used against parasitic infection
CO4	Revise the general properties and classification of viruses
CO5	Predict viral infections based on serological analysis
CO6	Assess the methods used for enumeration and quantification of virus from clinical specimens
CO7	Compare and distinguish the replication strategies of commonly occurring viruses

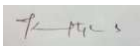
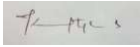
Mapping of CO v/s PO:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	3	3	2	2	1	2	3	2	3
CO2	3	3	2	3	3	3	2	3	3	3	2
CO3	2	1	3	3	2	2	3	2	2	1	2
CO4	2	2	2	3	3	3	2	1	2	2	3
CO5	2	3	2	2	1	3	1	3	3	3	3
CO6	3	1	3	3	2	2	2	2	1	3	3
CO7	2	2	2	2	3	2	2	2	2	2	2

Correlation levels: 1- Weak 2-Medium 3-High

COURSE DELIVERY PLAN – MEDICAL MICROBIOLOGY - II

Lecture #	Module #	Topics	Instructional Hours	Date of completion	RBTL Level	Faculty Sign	HOD Sign
1.		Introduction and classification of parasites		08/02/2023	K1		
2.		Host parasite relationship		08/02/2023	K2		
3.		Laboratory techniques in parasitology		10/02/2023	K3		
4.		Lifecycle, pathogenicity, lab		11/02/2023	K4		

		diagnosis & treatment: <i>Entamoeba histolytica</i>				
5.	1	Lifecycle, pathogenicity, lab diagnosis & treatment: <i>Giardia</i>	9	11/02/2023	K2	
6.		Lifecycle, pathogenicity, lab diagnosis & treatment: <i>Trichomonas vaginalis</i>		13/02/2023	K3	 <i>Jme.</i>
7.		Lifecycle, pathogenicity, lab diagnosis & treatment: <i>Trypanosoma</i>		13/02/2023	K4	
8.		Lifecycle, pathogenicity, lab diagnosis & treatment: <i>Plasmodium</i>		15/02/2023	K5	
9.		Lifecycle, pathogenicity, lab diagnosis & treatment: <i>Taenia solium</i>		17/02/2023	K2	
10.	2	Lifecycle, pathogenicity, lab diagnosis & treatment: <i>Taenia saginata</i>	9	17/02/2023	K1	
11.		Lifecycle, pathogenicity, lab diagnosis & treatment: <i>Fasciola hepatica</i>		23/02/2023	K2	
12.		Lifecycle, pathogenicity, lab diagnosis & treatment: <i>Fasciola buski</i>		23/02/2023	K3	
13.		Lifecycle, pathogenicity, lab diagnosis & treatment: <i>Schistosoma mansoni</i>		24/02/2023	K4	 <i>Jme.</i>

14.		Lifecycle, pathogenicity, lab diagnosis & treatment: <i>Ascaris lumbricoids</i>		24/02/2023	K2		
15.		Lifecycle, pathogenicity, lab diagnosis & treatment: <i>Wucheraria bancrofti</i>		27/02/2023	K3		
16.		Lifecycle, pathogenicity, lab diagnosis & treatment: <i>Enterobius vermicularis</i>		27/02/2023	K4		
17.		Drugs for parasitic infections		05/03/2023	K6		
18.	3	General properties of viruses	9	07/03/2023	K1	7-11-23	Jms.
19.		Classification of viruses		13/03/2023	K1		
20.		Laboratory diagnosis of viral infections		01/04/2023	K3		
21.		Viral diagnosis		05/04/2023	K5		
22.		Serological analyses of viral infections		06/04/2023	K4		
23.		Cultivation of viruses		07/04/2023	K5		
24.		Methods used for viral quantification		10/04/2023	K6		
25.		Methods used for viral enumeration		10/04/2023	K6		
26.		Antiviral drugs		13/04/2023	K6		
27.	4	Epidemiology, life cycle, pathogenicity, diagnosis and treatment of Picorna viruses - Polio	9	15/04/2023	K1	7-11-23	Jms.
28.		Epidemiology, life cycle, pathogenicity, diagnosis and treatment of Rhabdo viruses - Rabies		17/04/2023	K2		
29.		Epidemiology, life cycle, pathogenicity, diagnosis and treatment of Retro virus - HIV		17/04/2023	K1		

30.		Epidemiology, life cycle, pathogenicity, diagnosis and treatment of Orthomyxo viruses - Influenza		20/04/2023	K1		
31.		Epidemiology, life cycle, pathogenicity, diagnosis and treatment of Paramyxo viruses – Rubula (Mumps)		21/04/2023	K2		
32.		Epidemiology, life cycle, pathogenicity, diagnosis and treatment of Morbilli viruses – Measles		24/04/2023	K4		
33.		Epidemiology, life cycle, pathogenicity, diagnosis and treatment of Pox viruses		26/04/2023	K5		
34.		Epidemiology, life cycle, pathogenicity, diagnosis and treatment of Hepatitis viruses		27/04/2023	K2		
35.		Epidemiology, life cycle, pathogenicity, diagnosis and treatment of Herpes viruses		28/04/2023	K1		
36.		Epidemiology, life cycle, pathogenicity, diagnosis and treatment of Human papilloma viruses		02/05/2023	K2		
37.		Epidemiology, life cycle, pathogenicity, diagnosis and treatment of Epstein barr viruses		03/05/2023	K4		
38.	5	Epidemiology, life cycle, pathogenicity, diagnosis and treatment of Oncogenic viruses	9	03/05/2023	K5	7-11-23	8m2.
39.		Epidemiology, life cycle, pathogenicity, diagnosis and		04/05/2023	K1		

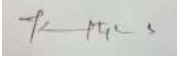
		treatment of Ebola virus				
40.		Epidemiology, life cycle, pathogenicity, diagnosis and treatment of SARS virus		04/05/2023	K2	
41.		Epidemiology, life cycle, pathogenicity, diagnosis and treatment of Corona virus		05/05/2023	K4	
42.		Epidemiology, life cycle, pathogenicity, diagnosis and treatment of H1N1 virus		05/05/2023	K5	
43.		Epidemiology, life cycle, pathogenicity, diagnosis and treatment of Flavi virus - Dengue		06/05/2023	K2	

TEXT BOOKS:

1. Arti Kapil (2013). Ananthnarayan&Paniker'sText book of Microbiology, 9th edition, Universities press (India) Private Limited, ISBN: 9788173718892
2. Apurba S. Sastry, Sandhya Bhat (2018).Essentials of Medical Microbiology,2nd edition, Jaypee Brothers Medical publishers, ISBN: 978935270479.
3. Subhash Chandra Parija (2013). Textbook of Medical Parasitology: Protozoology & Helminthology, 4th Edition, All India Publishers & Distributors, ISBN: 9788180040436

REFERENCE BOOKS:

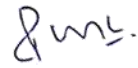
1. Collee, J.G., Duguid, J.P., Fraser, A.G. and Marimoin, B.P. (2011). Mackie and Mc CartneyPractcial Medical Microbiology, 13th Edition. Churchill Livingstone: London.ISBN: 9788131203934
2. Stefan Riedel, Jeffery A. Hobden, Steve Miller, Stephen A. Morse, Timothy A. Mietzner, Barbara Detrick, Thomas G. Mitchell, Judy A. Sakanari, Peter Hotez, Rojelio Mejia Jawetz, Melnick, &Adelberg's*Medical Microbiology*, (28th edition), Mc Graw Hill Lange, ISBN: 9781260012026



Course Instructor



Dept. IQAC Coordinator



HOD

Course Title: PYTHON FOR DATA ANALYTICS

Course Code:	Credits	04
L:T:P:S : 4:0:0:0	CIA Marks	: 50
Exam Hours : 03	ESE Marks	: 50

To introduce Python programming language through its core language basics and program design techniques suitable for modern applications. To understand the data structures available in python, to work with databases and data visualization and exploration. To utilize high-performance programming constructs available in Python to develop solutions in real life scenarios.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Examine Python syntax and semantics and be fluent in the use of Python input output functions.
CO2	Create, run and manipulate Python Programs using core data structures like Lists, Dictionaries and use Regular Expressions.
CO3	Interpret/Evaluate the concepts of Object-Oriented Programming using Python.
CO4	Demonstrate proficiency in handling Strings and File Systems.
CO5	Discover the capabilities of numpy, scipy and matplotlib for scientific programming.
CO6	Implement exemplary applications related to Pandas and DataFrames in Python.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	1	1	3	1	3	1	1	3	3	2	1	3
CO 2	3	2	2	2	2	1	1	1	3	3	2	2	3
CO 3	3	2	2	2	2	1	1	1	3	3	3	3	2
CO 4	3	2	2	2	1	1	1	2	3	3	3	2	3
CO 5	3	3	2	2	2	2	1	1	3	3	3	3	2
CO 6	3	3	2	2	2	2	2	1	3	3	3	3	1

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
1	UNIT I : Introduction to Python – Python Interpreter - Executing Python Programs - Basic Programming concepts - Variables, expressions and statements - Input/Output –Operators. – Conditional statements –Looping constructs.	9	CO1

2	UNIT II: Functions - Arguments - Return values – Keyword Argument function – Function with default values - Lambda function - Data Structures –Strings - Lists - Dictionaries - Tuples - Sets Sequences - Modules and Packages	9	CO2
3	UNIT III : File Handling - Regular Expressions - Text handling- Interacting with Databases - -Introduction to MySQL - Building an address book with add/edit/delete/search features.	9	CO3, CO4
4	UNIT IV: Scientific Programming using NumPy/SciPy and Matplotlib – Arrays – Type of Arrays – Array Operations - 2D Numpy Arrays, Basic Statistics, Scipy Linalg, Scipy Optimize. Matplotlib – Introduction, Simple plots, Figures and Subplots – Saving plots	9	CO5
5	UNIT V: Introduction to Pandas -Creation of Series- Operations- Creation of Data Frames-- Simple plot using pandas Operations- Import/Export of different types of Files -Slicing - Filtering- GroupBy- Aggregation- Outliers and Imbalance in dataset – case study :real time dataset analysis	9	CO6

TEXT BOOKS:

1. Allen B Downey (2012) *Think Python: How to Think Like a Computer Scientist* (1st Edition), O'Reilly.
2. Vamsi Kurama, *Python Programming: A Modern Approach*, Pearson Education.
3. R. Nageswara Rao, *Core Python Programming*, 2nd Edition, Dreamtech.

REFERENCE BOOKS:

1. Mark Lutz, *Learning Python*, O'reilly.
2. W.Chun, *Core Python Programming*, Pearson.
3. Kenneth A. Lambert, *Introduction to Python*, Cengage.
4. Pooja Sharma, (2017). *Programming in Python*, BPB Publications.
5. A. Martelli, A. Ravenscroft, S. Holden, *Python in a Nutshell*, OREILLY.

E- REFERENCES:

1. <https://nptel.ac.in/courses/106/106/106106182/>
2. <https://nptel.ac.in/courses/106/106/106106145/>
3. <https://nptel.ac.in/noc/courses/noc20/SEM1/noc20-cs36/>
4. <https://www.tutorialspoint.com/python/>
5. <https://www.udacity.com/course/introduction-to-python>

Course Title: COMPUTER NETWORKS

Course Code:	Credits	: 04
L:T:P:S : 4:0:0:0	CIA Marks	: 50
Exam Hours: 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking this course the student will be able to understand the concepts and fundamentals of data communication and computer networks, to familiarize with the basic taxonomy and terminology of the computer networking area and to experience the designing and managing of communication protocols while getting a good exposure to the TCP/IP protocol suite.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Have knowledge of the basic principles, concepts of computer networks and the design of OSI layers.
CO2	To get insights into the Data Link Layer protocols
CO3	To provide overview of the Protocols of Medium Access sub layer
CO4	To identify the design issues and solutions in the Network Layer
CO5	To have basic knowledge of TCP protocol
CO6	Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	3	3	3	2	2	3	3	3	2	2
CO 2	3	3	3	3	3	3	2	2	3	3	3	2	3
CO 3	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 4	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 5	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 6	3	3	3	3	3	3	2	2	3	3	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
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1	UNIT I: Introduction: Network Hardware – Software – Reference Models – OSI and TCP/IP models – Physical layer: Transmission media–Wireless Transmission–Narrowband ISDN.	9	CO1
2	UNIT II: Telephones structure –local loop– trunks and multiplexing, switching. Data link layer: Design issues – error detection and correction, Elementary data link protocols – Sliding window protocols.	9	CO2
3	UNIT III: Medium Access Sub Layer: Channel Allocation Problem – Multiple Access Protocols: ALOHA– Carrier Sense Multiple Access Protocols – Collision Free Protocols – Limited Contention Protocols Bridges – Transparent Bridges – Spanning Tree Bridges – Source Routing Bridges.	9	CO3
4	UNIT IV: Network layer – design issues – Routing Algorithms: Shortest Path Routing – Flooding – Distance Vector Routing – Link State Routing – Hierarchical Routing Congestion control algorithms: General Principles – Congestion Control in Virtual Circuit Subnets – Choke Packets – Load Shedding – Jitter Control– IP protocol – IP Address –Subnets – Internet Control Protocol.	9	CO4, CO6
5	UNIT V: Transport layer –Elements– Connection management – Addressing, Establishing & Releasing a connection – Transport Control Protocol: TCP Protocol – TCP segment Header– Connection Management –Application Layer - Network Security-Traditional Cryptography - DNS-DNS Name Space -Electronic Mail - Message Formats.	9	CO5, CO6

TEXT BOOKS:

1. A.S.Tanenbaum (2013). *Computer Networks* (5th Edition), Pearson Education, ISBN-13 : 978-8131770221

REFERENCE BOOKS:

1. B Forouzan (1998). *Introduction to Data Communications in Networking*, Tata McGraw Hill.
2. Halsall (1995). *Data Communications, Computer Networks and Open Systems* (20th edition), Addison Wesley.

E- REFERENCES:

1. www.technolamp.co.in/2010/08/computer-networks-tanenbaum-powerpoint.html
2. <https://www.ece.rutgers.edu/~marsic/books/CN/>

Course Title: JAVASCRIPT PROGRAMMING

Course Code:	Credits	: 04
L:T:P:S : 4:0:0:0	CIA Marks	: 50
Exam Hours: 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking this course the student will be able to develop a basic understanding of how JavaScript works and to learn basic syntax, variable types, Creating conditional structures, Looping Statements , storing data in arrays and learn how to design using JavaScript built-in functions and creating recursive functions. Understanding the concept of Form validation and JavaScript Events. To develop the skills of designing JavaScript redirect, ImageMap and cookies.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Develop the knowledge JavaScript Structure, Variables, data types, different types of operators and Control Structures in JavaScript.
CO2	Implementation of arrays, Looping Structures, Functions in JavaScript.
CO3	Learn the concepts of JavaScript Form Validation and JavaScript Events.
CO4	Gain the Knowledge of JavaScript Exception Handling-OOPS concept.
CO5	Implementation of JavaScript redirect, JavaScript ImageMap. Learning the concepts of DOM.
CO6	Implementation of JavaScript Dialog Boxes and Cookies.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 2	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 3	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 4	3	3	3	3	3	2	2	2	3	3	3	3	3
CO 5	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 6	3	3	3	3	3	3	2	2	3	3	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
1	UNIT-I: Introduction to Scripting: Introduction - Java Script Structure - Java Script Variables – Global variable - Data types - Java Script Operators – Java Script Control Statements – Java Script Looping statements - Java script Arrays - array literal – creating instance of Array directly- using an array constructor- JavaScript Array methods.	9	CO1
2	UNIT-II: JavaScript Functions- JavaScript Function Arguments – Function with Return Value – JavaScript Function Object – JavaScript Function methods – Passing arrays to functions – recursion – java script global functions - JavaScript String methods – JavaScript Number methods - Java Script Get date function- Java Script Set date function - JavaScript Regular Expression- Quantifiers – Literal Characters – Meta characters-Modifiers-Regular Expression Properties – Regular Expression methods.	9	CO2
3	UNIT-III: JavaScript Validation - JavaScript Form Validation- JavaScript Retype Password Validation - JavaScript Number Validation- JavaScript Validation with image - JavaScript email validation- JavaScript Events- JavaScript addEventListener() - JavaScript onclick event -, JavaScript dblclick event - JavaScript onload event - JavaScript onresize event. JavaScript Set Object- JavaScript Set Methods	9	CO3
4	UNIT-IV: JavaScript Exception Handling –OOPs-JaJavaScript try-catch- JavaScript vaScript Class –JavaScript Object- JavaScript prototype – JavaScript Constructor method- JavaScript static method – JavaScript Encapsulation – JavaScript Inheritance- JavaScript Polymorphism – JavaScript abstraction - JavaScript redirect - JavaScript Image Map.	9	CO4
5	UNIT-V: JavaScript DOM- Properties of document object- Methods of document object- Accessing field value by document object- JavaScript Dialog Boxes –Alert Dialog Box – Confirmation Dialog Box – Prompt Dialog Box. JavaScript Cookies- Cookie Attributes- Cookie with multiple name-deleting Cookies. Intro to JSON JSON syntax, Need of JSON in real web sites, JSON object, JSON array, Complex JSON objects, Reading JSON objects using jQuery.	9	CO5, CO6

TEXT BOOKS:

1. Mark Myers,(2014). A Smarter Way to learn JavaScript (1st edition), Lightning Source Inc Publishers,ISBN-10:1497408180
2. David Flanagan ,(2011). JavaScript : The Definitive Guide(7th edition), O’Reilly publishers,ISBN-10-05-0596805527
3. Marjin Haverbeke,(2018). Eloquent JavaScript A Modern Introduction to Programming (3rd edition), No Starch Press Publishers.

REFERENCE BOOKS:

1. Ivelin Demirov,(2014).Learn JavaScript with Interactive Exercises Visually, (3rd Edition), Sams publishers.

REFERENCES:

1. <https://www.tutorialspoint.com/javascript/index.htm>
2. <https://www.javatpoint.com/javascript-tutorial>
3. <https://www.guru99.com/interactive-javascript-tutorials.html>
4. <https://www.tutorialrepublic.com/javascript-tutorial/>
5. <https://www.javascript.com/try>

Course Title: OBJECT ORIENTED SOFTWARE ENGINEERING

Course Code:	Credits	: 03
L:T:P:S : 4:0:0:0	CIA Marks	: 50
Exam Hours: 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking the course, the students will be able to Develop the knowledge and practical skills needed to successfully participate in the analysis, design and development of large software systems, using object-oriented approaches, they can Apply team dynamics by working in teams, Focus on object-oriented approaches and project management techniques Communicate the science and Development of graphical user interfaces, and quality assurance.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Knows the reason about the basic Software life cycle models Importance of various kinds of Project Management methods, Tracking Software Quality, Quality Standards and Metrics.
CO2	Develop System Concepts for Object Modelling Design and implement a software design concepts to meet desired needs and Requirements. Design the UML concepts like sequential, Use cases and Activity diagram
CO3	Concepts of Use cases, actors, and common modelling techniques. Implement the concept use cases, business actors , Significance of identifying the subsystems and business requirements
CO4	Explain Design Workflow and System Design Concept Create Mapping Object Model to Database Schema Testing and verification process
CO5	Usage of Software Configuration Management Define maintenance and its types. Build Reverse and re-engineering process.
CO6	Build Reverse and re-engineering process.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	3	3	3	3	3	2	2	2	3	2
CO 2	3	3	2	3	3	3	3	3	2	3	3	3	3
CO 3	3	3	2	3	3	3	3	3	2	3	3	3	3
CO 4	3	3	2	3	3	3	3	3	2	3	3	3	3
CO 5	3	3	2	2	2	2	3	3	2	3	2	3	2
CO 6	3	3	2	3	3	2	3	3	2	3	2	3	2

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
1	Software life cycle models: Waterfall, RAD, and Spiral model Process metric – Product metrics – Estimation – LOC, FP, COCOMO models – Project Management – Planning, Scheduling and Tracking Software Quality – Quality Standards, Quality Metrics.	10	CO1
2	System Concepts for Object Modeling – Abstraction, Inheritance, Polymorphism, Encapsulation, Message Sending, Association, Aggregation – Requirement Workflow Functional, Non-functional – Characteristics of Requirements – Requirement Elicitation Techniques – Requirement Documentation – Use case specification, Activity Diagram.	10	CO2
3	Use-Case Modeling – Actors, Use Cases, Use Case Relationships, The Process of Requirements Use-Case – Identify Business Actors, Identify Business Requirements, Use Cases, Construct, Use Case Model Diagram – Class Diagrams and Object Diagrams – Package Diagrams – Sequence and Collaboration diagrams, State chart diagram.	10	CO3
4	Design Workflow: System Design Concept – Coupling and Cohesion – Architectural Styles – Identifying Subsystems and Interfaces – Design Patterns Implementation Workflow – Mapping models to Code – Mapping Object Model to Database Schema Testing – Formal Technical Reviews – Walkthrough and Inspection.	5	CO4
5	Software Configuration Management – Managing and controlling Changes – Managing and controlling versions Maintenance – Types of maintenance – Maintenance Log and defect reports – Reverse and re-engineering.	5	CO5, CO6

TEXT BOOKS:

1. Roger Pressman, (2005). *Software Engineering*, (Sixth Edition), TMH. ISBN no: 13:978-007-126782-3.
2. Bahrami, (2008). *Object Oriented Systems Development*, (Second edition), TMH. ISBNno: 13 978-0070265127.
3. Bernd Bruegge, (2004). *Object oriented software engineering*, (Second Edition), Pearson Education. ISBN no: 13 978-93332518681.

REFERENCE BOOKS:

1. Stephan R Schach, (2007). *Object oriented software engineering*, (Second edition), TMH. ISBN no: 9780071259415
2. Timothy C Lethbridge, Robert Laganier (2004). *Object-Oriented Software Engineering Practical software development using UML and Java*, (Second edition), TMH.

E- REFERENCES:

1. <https://nptel.ac.in/courses/106/105/106105224/>
2. <https://nptel.ac.in/courses/106/101/106101061/>
3. <https://www.edutechlearners.com/oose-notes/>
4. https://www.youtube.com/watch?v=BqVqjJq7_vI&list=PLrjkTq13jnm_kpRxNK6la_gHuKQ3WI_dL

Course Title: UNIFIED MODELING LANGUAGE

Course Code:	Credits	: 03
L:T:P:S : 4:0:0:0	CIA Marks	: 50
Exam Hours: 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking the course, the students will be able to understand the importance of various basic concepts of object modeling Gain the knowledge about various basic structural modeling along with their applicability contexts. The students can Analyze various basic Behavioral modeling of object-oriented software design (UML) and review the concepts of Advance Behavioral modeling.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Analyse the basic concepts of object modeling.
CO2	Demonstrate various Basic Structural Modeling using the appropriate notation
CO3	Demonstrate various Basic Behavioral Modeling using the appropriate notation
CO4	Analyse various Advanced Behavioral Modeling using the appropriate notation
CO5	Analyse Architectural Modeling using the appropriate notation
CO6	Apply various uml diagrams for software development.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	2	2	2	2	2	2	1	3	2	2	2	2
CO 2	3	3	2	2	3	1	3	3	1	3	3	3	2
CO 3	3	2	2	2	3	2	3	3	2	3	2	3	2
CO 4	2	3	2	2	2	2	2	2	2	2	2	2	3
CO 5	3	3	2	2	3	2	2	3	2	3	3	3	3
CO 6	2	2	2	3	3	3	3	3	2	2	3	2	2

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
1	Introduction to UML: Importance of modeling, principles of modeling, object oriented modeling, conceptual model of the UML, Architecture	9	CO1
2	Basic Structural Modeling: Classes, Relationships, common Mechanisms, and diagrams. Interfaces, Types and Roles, Packages. Class & Object Diagrams: Terms, Concepts, modeling techniques for Class & Object Diagrams.	9	CO2
3	Basic Behavioral Modeling: Interactions, Interaction diagrams. Use cases, Use case Diagrams, Activity Diagrams.	9	CO3
4	Advanced Behavioral Modeling: Events and signals, state machines, processes and Threads, time and space, state chart diagrams.	9	CO4
5	Architectural Modeling: Component, Deployment, Component diagrams and Deployment diagrams.	9	CO5, CO6

TEXT BOOKS:

1. Grady Booch, James Rumbaugh, Ivar Jacobson (2005). *The Unified Modeling Language User Guide*, (Second Edition), Pearson Education, ISBN no:0-201-57168-4
2. Hans-Erik Eriksson, Magnus Penker, Brian Lyons, David Fado (2003). *UML Toolkit*, (Second Edition), WILEY-Dreamtech India Pvt. Ltd, ISBN no:13:978-81-265-0466-4
3. Grady Booch (2007). *Object Oriented Analysis and Design*, (Third Edition), Addison Wesley, ISBN no :0-8053-5340-2

REFERENCE BOOKS:

1. Pascal Roques, Modeling (2007). *Software Systems Using UML2*, (Fourth Edition), WILEY-Dreamtech India Pvt. Ltd. ISBN no :13-978-81-265-0505-0
2. AtulKahate, (2000). *Object Oriented Analysis & Design*, Tata McGraw-Hill. ISBN no: 0-07-058376-5
3. Ali Bahrami, (1999). *Object Oriented Systems Development*, McGraw Hill. ISBN no:13-978-0-07-026512-7

E- REFERENCES:

1. www.uml-tutorials.trireme.com
2. www.smartdraw.com/resources/tutorials/uml-diagrams

Course Code:	Credits	: 03
L:T:P:S : 4:0:0:0	CIA Marks	: 50
Exam Hours: 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking the course, the students will be able to understand the concept of object-oriented development, and create a static object model and a dynamic behavioral model and a functional model of the system. They can easily understand the approaches to system design and object design, and the techniques of translating design to implementation.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Analyze object basics and UML.
CO2	Gain knowledge about attributes and relationships.
CO3	Interpret axioms and do a case study.
CO4	Detailed study about Micro level process.
CO5	Digital signatures.
CO6	Gain knowledge about various testing strategies.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	2	2	2	2	2	2	3	3	2	2	2	2
CO 2	3	3	2	2	3	1	3	3	1	3	3	3	2
CO 3	3	2	2	2	3	2	3	3	2	3	2	3	2
CO 4	2	3	2	2	2	2	2	2	2	2	2	2	3
CO 5	3	3	2	2	3	2	2	3	2	3	3	3	3
CO 6	2	2	2	3	3	3	2	2	2	2	3	2	2

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
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1	System development - object basics - development life cycle - methodologies - patterns - frameworks - unified approach - UML.	10	CO1
2	Use Case models - object analysis - object relations - attributes - methods, class and object responsibilities - case studies	10	CO2
3	Design processes - design axioms - class design - object storage - object interoperability - case studies.	10	CO3
4	User interface design - view layer classes - micro - level processes - view layer interface - case studies.	10	CO4
5	Quality assurance tests - testing strategies - object orientation on testing - test cases - test plans.	5	CO5

TEXT BOOKS:

1. Ali Bahrami, (1999). *Object Oriented Systems Development*, McGraw Hill. ISBN no:13-978-0-07-026512-7
2. Grady Booch (2007). *Object Oriented Analysis and Design*, (Third Edition), Addison Wesley, ISBN no :0-8053-5340-2
3. Bernd Bruegge, (2004). *Object oriented software engineering*, (Second Edition), Pearson Education. ISBN no: 13 978-93332518681.

REFERENCE BOOKS:

1. James Rumbaugh, Michael R. Blaha, (2004). *Object-Oriented Modeling and Design with UML* , (Second Edition),Prentice Hall ISBN no: 978-81-317-1106-4
2. AtulKahate, (2000). *Object Oriented Analysis & Design*, Tata McGraw-Hill. ISBN no: 0-07-058376-5
3. Roger Pressman, (2005). *Software Engineering*, (Sixth Edition), TMH. ISBN no: 13:978-007-126782-3.

E- REFERENCES:

1. <http://www.exforsys.com/tutorials/ood/ood-introduction.html>
2. <http://www.devshed.com/c/a/Practices/Introducing-UMLObjectOriented-Analysis-and-Design>

Course Code:	Credits	: 02
L:T:P:S : 0:0:5:0	CIA Marks	: 50
Exam Hours: 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking this course, students will be able to interpret the programming language and implement the various programs in handling data, strings, files, graphics, and data exploration.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Interpret the programming task logically and make the pseudo code.
CO2	Understand the IDE and write, execute and debug.
CO3	Implement the basic string functions.
CO4	Apply the concept of pygtk.
CO5	Understand the concept of interpret data exploration and data munging.
CO6	Understand and apply the knowledge on data science.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	1	1	3	1	3	1	1	3	3	2	2	3
CO 2	3	2	2	2	2	1	1	1	3	2	2	2	3
CO 3	3	2	2	2	2	1	1	1	3	3	3	3	2
CO 4	3	2	2	2	1	1	1	2	3	2	2	3	3
CO 5	3	3	2	2	2	2	1	1	3	3	3	3	2
CO 6	3	3	2	2	2	2	2	1	3	3	3	3	1

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
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1	<p>a) Simple calculator to do all the arithmetic operations.</p> <p>b) Programs to use control flow tools like if.</p> <p>c) Programs to use for loop.</p>	5	CO1
2	<p>a) Data structures</p> <ul style="list-style-type: none"> • Use list as stack • Use list as queue • Tuple, sequence <p>b) New module for mathematical operations and use in your program.</p> <p>c) Programs to read and write files, create and delete directories.</p> <p>d)</p>	5	CO2
3	<p>a) Programs with exception handling.</p> <p>b) Programs using classes and objects.</p> <p>c) Connect with MYSQL and create an address book and do the operations.</p> <ul style="list-style-type: none"> • Insert, read, update and delete 	7	CO3
4	<p>a) GUI program using PYGTK.</p> <p>b) programs Using Numpy.</p> <p>c) Programs Using scipy.</p>	8	CO4
5	<p>a) Programs using series and data frames.</p> <p>b) Programs using charts/graphs.</p>	10	CO5
6	<p>a) Programs using statistics.</p> <p>b) Programs for data exploration.</p>	10	CO6

Course Title: PRACTICAL II - JAVASCRIPT PROGRAMMING LAB

Course Code:	Credits	: 02
L:T:P:S : 0:0:5:0	CIA Marks	: 50
Exam Hours: 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking this course the student will be able to develop simple applications using control flow and loops, create arrays and perform various array functions and perform form validations, using different form events and design applications using object oriented concept and Cookies and to acquire knowledge about designing DOM.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Develop application using Control structures and Looping statements.
CO2	Develop application using array functions, string functions, date functions.
CO3	Develop applications using user defined functions and file operations
CO4	Build and implement application using Object oriented programming concept.
CO5	Build and develop application using Cookies
CO6	Develop Application using Form Validation

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 2	3	3	3	3	3	3	2	3	3	3	3	3	3
CO 3	3	3	3	3	3	3	3	2	3	3	3	3	3
CO 4	3	3	3	3	3	2	2	2	3	3	3	3	3
CO 5	3	3	3	3	3	3	2	3	3	3	3	3	3
CO 6	3	3	3	3	3	3	2	3	3	3	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
1	Create application using Control Structures such as IF-Statement – IF-Else, IF-Else IF – Nested IF, Switch Statement ,Built in application using Looping Statements such as For ,While, Do-While Statement	9	CO1
2	Create Application using array, Develop programs using String and Date Functions	9	CO2
3	Design application using Form Events and Validate the Forms	9	CO3
4	Design application using Exception handling and Develop application using OOPs Concept	9	CO4
5	Develop Application JavaScript redirect –Image Map, Implementation of DOM and Cookies Concept	9	CO5, CO6

Course Title: SPOKEN TUTORIAL - PYTHON

S.No	CONTENTS OF MODULE
1	Getting started with python – Using the plot command interactively –Embellishing a plot –Saving plots – Multiple plots – Additional features of Python – loading data from files – Plotting the data – Other types of plots – Getting started with sage notebook – Getting started with symbolic – Using Sage – Using sage to teach – Getting started with lists – Getting started with for – Getting started with strings – Getting started with files – Parsing data – Statistics – Getting started with arrays – Accessing parts of arrays – Matrices – Least square fit – Basic data types and operators – I/O – conditionals – Loops – Manipulating lists – Manipulating strings – Getting started with tuples – Dictionaries – Sets – Getting started with functions – Advanced features of functions – Using python modules – Writing python scripts – Testing and debugging

Note:

Courses Offered by IIT Mumbai through Spoken Tutorial Projects MHRD, Government of India. At the end of the course Online Examination will be conducted for 45 minutes and qualified students (Minimum passing 40%) will be issued certificate by IIT, Mumbai.

Course Title: DIGITAL IMAGE PROCESSING

Course Code:	Credits	: 04
L:T:P:S : 4:0:0:0	CIA Marks	: 50
Exam Hours: 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking this course, student will be able to understand digital image processing fundamentals, to compare and contrast the classification of image Enhancement techniques in detail, to identify and analyze the concepts of image restoration and degradation, to get good understanding of image segmentation and image compression techniques, to apply the knowledge in research.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Describe the fundamentals of image processing and its applications.
CO2	Gain adequate knowledge of Image enhancement techniques in spatial domain
CO3	Detailed classification of Image enhancement techniques in frequency domain and compare with spatial domain techniques
CO4	Analyze the Image restoration and degradation concepts Identify the fundamentals techniques in image segmentation
CO5	Acquire a good knowledge of Image compression techniques
CO6	Interpret Image segmentation, restoration and compression techniques

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	2	2	2	3	3	2	3	3	2	2	2	3
CO 2	3	2	3	3	2	3	2	3	2	3	2	3	3
CO 3	3	2	2	3	2	3	2	3	3	3	2	3	3
CO 4	3	2	3	2	2	3	2	3	3	3	2	3	2
CO 5	3	2	2	3	2	3	2	3	3	3	2	2	2
CO 6	3	3	3	2	3	3	3	3	3	3	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
1	UNIT I: Introduction–Origin of Digital Image Processing- steps in image processing – Components of Image Processing System - Image acquisition, representation, sampling and quantization, relationship between pixels.	9	CO1
2	UNIT II: Image enhancement in spatial domain – some basic gray level transformations – histogram processing – enhancement using arithmetic, logic operations – basics of spatial filtering and smoothing	9	CO2
3	UNIT III: Image enhancement in Frequency domain – Introduction to Fourier transform: 1-D, 2-D DFT and its inverse transform, smoothing frequency domain filters – Ideal low pass filters, Butterworth Low-pass filter, Gaussian Low-pass filters sharpening frequency domain filters – Ideal High pass filter, Butterworth high pass filter, Gaussian High Pass filter	9	CO3
4	UNIT IV: Image restoration: Model of degradation and restoration process – noise models – restoration in the presence of noise –periodic noise reduction. Image segmentation: Detection of Discontinuities - Point Detection - Line Detection – Edge Detection- Thresholding : Basic Global and Adaptive Thresholding - Region-based segmentation.	9	CO4
5	UNIT V: Image compression: Fundamentals – models – error free compression – Lossy compression: Lossy predictive coding, Transform coding, Wavelet coding.	9	CO5, CO6

TEXT BOOKS:

1. RC Gonzalez, RE Woods (2018). *Digital Image processing* (4th Edition), Pearson Education, ISBN 0201180758
2. RC Gonzalez (2020). *Digital Image Processing using MATLAB* (3rd edition), GP Publishers, ISBN 978-0070702622
3. Maria Petrou, Costas Petrou (2010). *Image Processing: The Fundamentals* (2nd edition), Wiley, ISBN 978-0470745861

REFERENCE BOOKS:

1. Chris Solomon. *Fundamentals of Digital Image Processing* (1st edition), Wiley, ISBN 978-0470844731.
2. Anil. K. Jain (1988). *Fundamentals of Digital Image Processing* (1st edition), Pearson ISBN 978-0133361650.
3. P. K. Sinha (2012). *Image Acquisition and preprocessing for machine vision systems* (1st edition), SPIE Press, ISBN 978-0819482020.

E- REFERENCES:

1. www.nptel.iitm.ac.in/video.php?subjectId=117105079
2. <http://www.library.cornell.edu/preservation/tutorial/contents.html>
3. <https://freevidelectures.com/course/2316/digital-image-processing-iit-kharagpur>

Course Title: ADVANCED DATABASE MANAGEMENT SYSTEM

Course Code:	Credits	: 04
L:T:P:S : 4:0:0:0	CIA Marks	: 50
Exam Hours: 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking this course, student will be able to understand the role of a database management system in an organization and the basic concepts and terminology related to DBMS, evaluate the normality of a logical data model, and correct any anomalies, understand the Object model and Object Relational database management system, understand the basics of data warehousing and Distributed Databases, and emerging database technologies.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Describe the characteristics of Database Management Systems and about the concepts and models of database.
CO2	Design ER-models to represent simple database application scenarios.
CO3	Convert the ER-model to relational tables, populate relational database. Improve the database design by normalization.
CO4	Describe the fundamental elements of Object and Object relational database management systems.
CO5	Get the knowledge of Data Warehousing And Distributed DBMS
CO6	Analyse and describe the Management issues of Mobile databases and Multimedia Databases

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	3	2	3	3	3	3	3	3	3	3
CO 2	3	3	3	3	3	2	3	3	3	3	3	2	3
CO 3	3	3	3	3	3	2	3	3	3	3	3	2	3
CO 4	3	2	2	3	3	2	2	2	3	2	2	3	3
CO 5	3	2	2	3	3	3	2	2	3	2	2	3	3
CO 6	3	3	3	3	3	3	3	3	3	3	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
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1	UNIT I: Database System Concepts And Architectures: Data Models – Schemas – Instances – Three Schema Architecture – Data Independence – Database Languages. E-R Model and EER Model: Entity Types – Entity Sets – Attributes – Key – Relationship Types – Relationship Sets – Weak Entity Types – ER Diagram – Naming Conventions – Subclasses – Super classes – Inheritance – Specialization And Generalization – Constraints and Characteristics Of Specialization and Generalization Hierarchies.	9	CO1,CO2
2	UNIT II: Normalization: Basic Definitions – Functional Dependencies – Types of FD – Introduction to Normalization – Decomposition – Dependency Preservation – First, Second, Third Normal Forms – BCNF – Multivalued Dependencies and Fourth Normal Form – Join Dependency and Fifth Normal Form.	10	CO3
3	UNIT III: Object And Object Relational Databases – Concepts for Object Databases: Object Identity – Object structure – Type Constructors – Encapsulation of Operations – Methods – Persistence – Type and Class Hierarchies – Inheritance – Complex Objects Object Database Standards and Languages: Overview of ODMG Model – ODL – OQL.	8	CO4
4	UNIT IV Data Warehousing And Distributed DBMS – Data Warehousing – Characteristics Of Data Warehouses – Data Modeling For Data Warehouses – Typical Functionality Of A Data Warehouse – Distributed DBMS – Features – Factors Encouraging DDBMS – Advantages Of Distributed Data Bases – Distributed DBMS Architecture – Types Of Distributed Data Bases.	9	CO5
5	UNIT V: Emerging Technologies – Mobile Databases – Architecture and Data Management Issues – Multimedia Databases – Nature of Data, Data Management Issues and Applications.	9	CO6

TEXT BOOKS:

1. R Elmasri, SB Navathe (2017). *Fundamentals of Database Systems* (7th Edition), Pearson Education/Addison Wesley.

REFERENCE BOOKS:

1. Henry F Korth, Abraham Silberschatz, S Sudharshan (2013). *Database System Concepts* (6th Edition), TMH.
2. CJ Date, A Kannan and S Swamynathan (2006). *An Introduction to Database Systems* (8th Edition), Pearson Education.

E- REFERENCES:

1. www.cse.iitb.ac.in/dbms/Data/Courses/CS632/
2. www.nptel.iitm.ac.in/video.php?subjectId=106106093
3. www.tutorialspoint.com/distributed_dbms/distributed_dbms_tutorial.pdf

Course Title: ENTERPRISE COMPUTING

Course Code:	Credits	: 04
L:T:P:S : 4:0:0:0	CIA Marks	: 50
Exam Hours: 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking this course, student will be able to understand the various concepts of Enterprise programming, developing RMI Application, Servlet and session management and learn data manipulation using JDBC, develop web applications using JSP, implement Javamail API and familiarize the students with the concepts of reusable classes using JavaBeans, Hibernate and Spring Framework applications.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand various concepts of Enterprise programming, analyze and implement the RMI Architecture for the necessary applications.
CO2	Implement Session management using Servlet and implement JDBC for the database connectivity.
CO3	Develop Web applications using JSP and JSP error pages.
CO4	Design an application that sends and receives email with attachments.
CO5	Implement Database connectivity through Hibernate Framework and also build web applications using Spring MVC.
CO6	Study and use modern tools for rapidly building enterprise applications.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	2	3	3	2	2	2	3	3	3	2	3
CO 2	3	3	2	3	3	2	2	2	2	3	3	3	3
CO 3	2	3	2	2	3	2	3	3	2	3	3	2	3
CO 4	3	3	2	3	3	2	2	2	2	3	2	3	2
CO 5	2	3	3	3	3	3	3	3	3	3	2	3	3
CO 6	3	3	3	3	3	3	3	3	3	2	3	2	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
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1	Need for Enterprise Programming – J2EE Advantage – Enterprise Architecture types– Architecture of J2EE – J2EE Components – J2EE Containers – Introducing RMI – RMI Architecture – Application Development with RMI – RMI over IIOP.	9	CO1
2	Introduction to Servlets – Servlet Life Cycle – Servlet API Basics – HTTP Redirects – Cookies – State and Session Management – Hidden Fields – URL rewriting – Session Management with the Servlet API – Inter Servlet Communication – Server Side Includes and Request Forwarding – Data Base Access with JDBC.	9	CO2
3	JSP: Introduction JSP – Examining MVC and JSP – JSP scripting elements & directives – Working with variables scopes – Error Pages – using Java Beans in JSP.	6	CO3
4	Javamail: Working with Java Mail – Understanding Protocols for Javamail – Components – Javamail API – Understanding Java Messaging Services: JMS Components EJB Fundamentals – EJB Architecture – EJB Roles – Introduction to Session Beans, Entity Beans & Message Driven Beans.	9	CO4
5	Hibernate: Overview of Hibernate, Hibernate Architecture, Hibernate Mapping Types, Hibernate O/R Mapping, Hibernate Annotation, Hibernate Query Language – Spring MVC – Overview of Spring, Spring Architecture, bean life cycle, XML Configuration on Spring, Aspect – oriented Spring, Managing Database, and Managing Transaction.	12	CO5, CO6

TEXT BOOKS:

1. Jason hunter, William Crawford (2011). *Java Server Programming* (2nd Edition), O'Reilly Media, Inc., ISBN: 9780596000400.
2. J McGovern, R Adatia, Y Fain (2003). *J2EE 1.4 Bible*, Wiley-dreamtech India Pvt Ltd.
3. H.Schildt (2002). *Java 2 Complete Reference* (5th Edition), TMH.

REFERENCE BOOKS:

1. K Moss (1999). *Java Servlets* (Second Edition), TMH.
2. Joseph O'Neil (1998) *Java Beans from the Ground Up*, TMH.
3. Tom Valesky (2000) *Enterprise JavaBeans*, Addison Wesley.
4. Cay S Horstmann & Gary Cornell (2002). *Core Java Vol II Advanced Features* (8th Edition), Addison Wesley.

E- REFERENCES:

1. <https://www.tutorialspoint.com/servlets/servlets-first-example.htm>
2. <http://www.servlets.com/jservlet2/examples/>
3. http://www.j2eetutorials.50webs.com/JSP_example1.html
4. <http://hibernate.org/>
5. <https://slideplayer.com/slide/7362666/>

Course Title: DATA MINING TECHNIQUES

Course Code:	Credits	: 04
L:T:P:S : 4:0:0:0	CIA Marks	: 50
Exam Hours: 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking this course the student will be able to understand and implement classical models and algorithms in data warehousing and data mining, analyze the data, identify the problems, and choose the relevant algorithms for the chosen dataset, compare and contrast different conceptions of data mining, to characterize the kinds of patterns that can be discovered by association rule mining, classification and clustering.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Appreciate the basic principles, concepts and applications of data mining
CO2	Have a good knowledge of the preprocessing techniques
CO3	Perform Data Mining using association rules
CO4	Get insights from data using classification and prediction techniques
CO5	Acquire knowledge of clustering techniques and outliers
CO6	Apply data mining techniques to real world data by cleaning the data, integrating the data from different sources, predicting a model to group the data tuples into classes, discovering patterns using association rule mining and grouping the data set into clusters.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 2	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 3	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 4	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 5	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 6	3	3	3	3	3	3	2	2	3	3	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
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1	UNIT I: What is Data Mining – What Kinds of Data can be mined- Kinds of Patterns that can be mined - Technologies used - Issues in Data Mining – Data Objects and Attribute Types- Basic Statistical Description of Data- Data Visualization.	9	CO1
2	UNIT II: Data Preprocessing: Why preprocess the data – Data cleaning – Data Integration – Data Transformation – Data Reduction – Data Discretization. Data Warehouse: Basic concepts-Data Warehouse Modelling:Data Cube and OLAP	9	CO2
3	UNIT III: Data Mining Techniques: Association Rule Mining – The Apriori Algorithm – Multilevel Association Rules – Multidimensional Association Rules – Constraint Based Association Mining.	9	CO3
4	UNIT IV: Classification and Prediction: Issues regarding Classification and Prediction – Decision Tree induction – Bayesian Classification – Back Propagation – Classification Methods – Prediction – Classifiers accuracy.	9	CO4, CO6
5	UNIT V: Clustering Techniques: cluster Analysis – Clustering Methods – Similarity and Distance Measures – Hierarchical Methods – Partitional Methods – Outlier Analysis	9	CO5, CO6

TEXT BOOKS:

1. Jiawei Han, Micheline Kamber, Jian Pei (2008). *Data Mining: Concepts and Techniques* (2nd edition), Morgan Kaufmann, ISBN- 9780123814791

REFERENCE BOOKS:

1. Dunham MH, (2003). *Data Mining: Introductory and Advanced Topics*, Pearson Education.
2. Paulraj Ponnaiah, (2001). *Data Warehousing Fundamentals*, Wiley Publishers.
3. SN Sivananda and S Sumathi, (2006). *Data Mining*, Thomsan Learning, Chennai

E- REFERENCES:

1. https://onlinecourses.nptel.ac.in/noc21_cs06/preview/
2. <https://www.udemy.com/fundamentals-of-data-mining/>
3. <https://www.coursera.org/specializations/data-mining/>
4. <https://www.classcentral.com/subject/data-mining/>

Course Title: ARTIFICIAL INTELLIGENCE

Course Code:	Credits	03
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L:T:P:S : 4:0:0:0
Exam Hours: 03

CIA Marks : 50
ESE Marks : 50

LEARNING OBJECTIVES:

On taking this course the student will be able to learn the basic concepts of AI algorithms that can improve computational thinking. AI concepts are used to impart artificial intelligence goals and techniques to students. They can acquire the basic knowledge of problem solving, and learning methods for solving real world problems. The students will be able to develop intelligent systems by assembling solutions to Heuristic Problems and also they can understand Natural Language Processing (NLP).

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand the various characteristics of Intelligent agents Evaluate Artificial Intelligence (AI) methods and describe their foundations.
CO2	Analyze and illustrate how search algorithms play vital role in problem solving
CO3	Apply basic principles of AI in solutions that require problem solving, inference perception, knowledge representation and learning.
CO4	Illustrate the construction of learning and Informed search
CO5	Know about the various applications of adversarial search in AI.
CO6	understand the different types of Hill Climbing Algorithm , Discuss current scope and limitations of AI and societal implications

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	1	1	3	2	1	3	1	1	3	3	2	2	3
CO 2	3	2	3	3	3	2	1	2	3	2	2	2	1
CO 3	3	3	3	2	3	1	1	1	3	2	2	3	2
CO 4	3	3	1	3	2	3	2	2	3	2	2	3	3
CO 5	3	3	2	2	2	2	1	1	3	3	3	3	2
CO 6	3	3	2	2	2	2	2	1	3	3	3	3	1

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
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1	UNIT I: Artificial Intelligence(AI) –Introduction-Goals of artificial intelligence, Pros and Cons of artificial intelligence- Types of Artificial intelligence- Type-1, Type2- Agents in artificial intelligence: Intelligent agents-Rational agent- Types of AI Agents	9	CO1
2	UNIT II: Searching Algorithms: - Terminologies- Types of Search algorithms: uninformed search algorithm - Breath First Search- Depth First Search- Depth Limited Search-Iterative Deepening Depth First Search-Uniform cost search-Bidirectional search	9	CO2
3	UNIT III: Informed search algorithm: Pure Heuristic search-Best first search algorithm (Greedy Search)-A* search algorithm-Natural Language Processing (NLP) : Applications of NLP-Phases of NLP.	9	CO3
4	UNIT IV: Hill Climbing Algorithm-Features-state space diagram- Types of Hill Climbing Algorithm – Simple –Steepest-ascend – stochastic hill climbing- Means Ends Analysis algorithm- example.	9	CO4
5	UNIT V: Adversarial search: Game Tree- Mini max algorithm- Example-alpha Beta Pruning-base theorem in AI- Bayesian Belief Network in AI	9	CO5, CO6

TEXT BOOKS:

1. S.J. Russell, Peter Norvik (2015). *Artificial Intelligence A Modern Approach*, (3rd Edition), Pearson Education, ISBN 10- 292-02420-8.
2. Patterson, (2015). *Introduction to Artificial Intelligence*, (1st Edition), Pearson Education, ISBN 978-93-325-51-94.

REFERENCE BOOKS:

1. Elaine Rich Shivashankar B. Nair (2017). *Artificial Intelligence*, (3rd Edition) McGraw Hill Education, ISBN 10-9780070087705.
2. Alpaydin E, (2010). *Introduction to Machine Learning*, 2nd edition, MIT Press.
3. Michael Negnevitsky (2020). *Artificial Intelligence: A Guide to Intelligent Systems*, (3rd Edition) Pearson Education, ISBN 10-9353946794.

E- REFERENCES:

1. <https://www.javatpoint.com/artificial-intelligence-tutorial>
2. <https://www.coursera.org/learn/machine-learning>
3. <https://nptel.ac.in/courses/106/105/106105077/>

Course Title: HIGH SPEED NETWORKS

Course Code:	Credits	03
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L:T:P:S : 4:0:0:0
Exam Hours : 03

CIA Marks : 50
ESE Marks : 50

LEARNING OBJECTIVES:

On taking this course the student will be able to Understand evolution of communication and networking, also to enhance future networks and principles of operation, Provide the various high speed digital access and broadband technologies, Performance issues and quality of service required for better performance of high speed networks, Develop an in-depth understanding, in terms of architecture, protocols and applications, of major high- speed networking technologies and Discusses logical, routing, Addressing, addressing, protocols and about ATM.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Identify the existing communication networks, understand the algorithm and technologies involved in internet and associated networks.
CO2	Develop specialized knowledge related to the building blocks and operation of high speed networking technology.
CO3	Demonstrate the knowledge of network planning and optimization
CO4	Apply the concepts to optimize and troubleshoot high speed network.
CO5	Use and assist in network design and implementation.
CO6	Select the ATM over other available transfer modes in network designs

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	3	3	3	2	2	3	3	3	2	2
CO 2	3	3	3	3	3	3	2	2	3	3	3	2	2
CO 3	3	3	3	3	3	3	2	2	3	3	3	2	2
CO 4	3	3	3	3	3	3	2	2	3	3	3	2	2
CO 5	3	3	3	3	3	3	2	2	3	3	3	3	2
CO 6	3	3	3	3	3	3	2	2	3	3	3	3	2

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
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1	UNIT I: High Speed Networks Frame Relay Networks – Asynchronous transfer mode – ATM Protocol Architecture, ATM logical Connection, ATM Cell – ATM Service Categories – AAL High Speed LAN's: Fast Ethernet, Gigabit Ethernet, Fibre Channel – Wireless LAN's: applications, requirements – Architecture of 802.11	9	CO1
2	UNIT II: Congestion And Traffic Management Queuing Analysis – Queuing Models – Single Server Queues – Effects of Congestion – Congestion Control – Traffic Management – Congestion Control in Packet Switching Networks – Frame Relay Congestion Control.	99	CO2
3	UNIT III: TCP And ATM Congestion Control TCP Flow control – TCP Congestion Control – Retransmission – Timer Management – Exponential RTO backoff – KARN's Algorithm – Window management – Performance of TCP over ATM Traffic and Congestion control in ATM – Requirements – Attributes – Traffic Management Frame work, Traffic Control – ABR traffic Management – ABR rate control, RM cell formats, ABR Capacity allocations – GFR traffic management.	9	CO3
4	UNIT IV: Integrated And Differentiated Services: Integrated Services Architecture – Approach, Components, Services- Queuing Discipline, FQ, PS, BRFQ, GPS, WFQ – Random Early Detection, Differentiated Services.	9	CO4, CO6
5	UNIT V: Protocols For Qos Support – RSVP – Goals & Characteristics, Data Flow, RSVP operations, Protocol Mechanisms – Multiprotocol Label Switching – Operations, Label Stacking, Protocol details – RTP – Protocol Architecture, Data Transfer Protocol, RTCP.	9	CO5, CO6

TEXT BOOKS:

1. William Stallings (2002). *High Speed Networks and Internet* (2nd Edition), Pearson Education, ISBN- 978-8177585698.

REFERENCE BOOKS:

1. Warland, Pravin Varaiya (2001). *High Performance Communication Networks* (2nd Edition), Jean Harcourt Asia Pvt Ltd.
2. Irvan Pepelnjk, Jim Guichard and Jeff Aparcar (2003). *MPLS and VPN Architecture*, Cisco Press.

E- REFERENCES:

1. <http://www.sterbenz.org/jpgs/tutorials/hsn/>
2. <https://www.slideshare.net/ayyakathir/unit1-29753217>
3. <http://pages.cpsc.ucalgary.ca/~carey/CPSC641/archive/Sept2005/>

Course Title: **WEB TECHNOLOGY**

Course Code:	Credits	: 03
L:T:P:S : 4:0:0:0	CIA Marks	: 50
Exam Hours: 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking the course, the students will be able to exhibit the knowledge about various tags in html and style sheets and to impart knowledge in designing form using scripting language and acquire knowledge about document objects and xml and style sheets to attain the cognizance of Wireless Scripting languages and Implement the XML Schema for acquiring the knowledge of user databases, to study the concepts of XML XSLT applications.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Develop knowledge of basic Web development, Web publishing , Web contents, Dynamic Web contents.
CO2	Have a good knowledge of HTML tags.
CO3	Gain the knowledge of DHTML, XHTML, Construct the Cascading Style Sheets
CO4	Gain the knowledge of XML applications and Preparing style sheets.
CO5	Implementation of XSLT.
CO6	Compare accepted standards and guidelines to select appropriate applications of XML to meet specified performance requirements.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	2	2	2	2	3	3	3	3	3	3	2
CO 2	3	3	2	3	3	2	2	2	2	2	3	2	2
CO 3	3	3	2	3	3	3	2	2	3	3	3	2	2
CO 4	3	3	2	3	3	3	2	2	3	3	3	2	3
CO 5	3	3	2	3	3	3	2	2	3	3	3	3	2
CO 6	3	3	2	3	3	3	2	2	2	3	3	3	2

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
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1	Introduction to the Web : History and Evolution, Web development cycle , Web publishing , Web contents, Dynamic Web contents	9	CO1
2	Introduction to HTML: HTML Fundamentals , HTML Browsers, HTML tags, Elements and Attributes , Structure of HTML code, Ordered List , Unordered List , Definition List, Nesting List, Block Level Tags, Text Level Tags. Inserting graphics, Scaling images, Frameset, Forms.	9	CO2
3	An introduction to DHTML: Document Object Model (DOM) , Scripts, XHTML, Cascading Style Sheets (CSS):The usefulness of style sheets , Creating style sheets.	9	CO3
4	XML introduction – XML life cycle – XML tree – XML syntax – elements – attributes – XML tags – XML Parser – X query – X Path – Link – DTD – XML schema- Applications of XML – XML for XML – XML Examples – Preparing a style sheet for Document Display.	9	CO4
5	XSLT: introduction – XSL language – XSLT Transform – XSLT <template> – XSLT<value of> – XSLT<For each> - XSLT<if> – XSLT<sort> – XSLT<choose> – XSLT edit XML – XSLT examples.	9	CO5, CO6

TEXT BOOKS:

1. Thomas A. Powel, (2001). *HTML:The complete reference* (Third Edition), Osborne/McGraw-Hill, ISBN 0072129514, 9780072129519 .
2. Norman E. smith, *HTML Examples* , BPB publications, ISBN: 817029939-X.
3. Charles Arehart et. al (2000). *Professional WAP with WML, WML, WML script, ASP, JSP, XML, XSLT, WTA, Push and Voice XML*, Shroff Publishers and Distributors Pvt Ltd., ISBN no :1-861004-0-44.
4. Elliotte Rusty Harold (2003). *XML™ Bible* (Third Edition), IDG Books India (P) Ltd., ISBN no:0-7645-4986-3.

REFERENCE BOOKS:

1. David Hunter, Jeff Rafter, Joe Fawcett, Andrew Watt, Linda McKinnon (2007). *Beginning XML*, (Fourth Edition), Wrox Press publishers. ISBN:978-0764570773.
2. P Nicopolitidis, Mohammad S Obaidat, Georgios I Papadimitriou(2003). *Wireless Networks*, Wiley publishers, ISBN:978-0470845295.
3. Ramesh Bangia (2007). *Multimedia & Web Technology* (First Edition), Laxmi Publications, ISBN-13 : 978-8131800287.

E- REFERENCES:

1. <https://www.w3schools.com/xml/default.asp>
2. http://www.tutorialspoint.com/xml/xml_tutorial.pdf
3. <https://www.coursera.org/projects/html-css-single-page>
4. <https://www.mooc-list.com/course/http-web-servers-udacity>

Course Title: **PRACTICAL III - ENTERPRISE COMPUTING LAB**

Course Code:	Credits	: 02
L:T:P:S : 0:0:5:0	CIA Marks	: 50
Exam Hours: 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking this course, student will be able to equip the students with the advanced feature of contemporary java, to enable them in handling complex programs relating to managing data and processes over the network, to provide a sound foundation on the concepts, precepts and practices, in a field that is of immense concern to the industry and business.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Invoke the remote methods in an application using Remote Method Invocation, Access database through Java programs, using Java Data Base Connectivity.
CO2	Manage sessions within an application and communication between sessions.
CO3	Implement and manage web sessions using Servlet and JSP. Handling Errors and Exceptions in any web application
CO4	Understanding Java Messaging Services done through javamail API.
CO5	Develop applications with hibernate framework.
CO6	Develop spring applications with spring framework.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	2	3	2	3	3	3	3	2	3	3	3
CO 2	3	2	2	2	3	2	3	3	2	3	2	2	2
CO 3	3	2	2	3	2	2	3	3	3	3	2	3	2
CO 4	3	2	3	2	3	2	3	2	3	2	2	3	3
CO 5	3	3	3	3	2	3	3	3	3	2	3	3	3
CO 6	3	3	3	3	2	3	3	3	3	2	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
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1	<ul style="list-style-type: none"> a) Develop an RMI Application for arithmetic operations b) Simple Servlet Application with login page. 	5	CO1
2	<ul style="list-style-type: none"> a) Design Web application using HTML and java servlet for session tracking and management using cookies, Hidden form field, URL rewriting, HTTP session. b) Display session details of any web application. 	9	CO2
3	<ul style="list-style-type: none"> a) Implementation of JSP: student scoring system b) Implement exception handling using Error pages in JSP. c) Design web page using JSP and implement the concept of Java Bean in JSP d) Design web page using HTML and java servlet pages for the implementation of inter servlet communication using Request Dispatcher. e) MYSQL database connectivity using JDBC. 	6	CO3
4	<ul style="list-style-type: none"> a) Design a web page with options for sending email using Javamail API. 	7	CO4
5	<ul style="list-style-type: none"> a) Implementation of database manipulation using ORM Mapping in Hibernate. 	7	CO5
6	<ul style="list-style-type: none"> a) Design Simple application using spring framework. b) Web application for connecting database in spring. 	11	CO6

Course Title: PRACTICAL IV - DATA MINING LAB USING PYTHON

Course Code:	Credits	: 02
L:T:P:S : 0:0:5:0	CIA Marks	: 50
Exam Hours: 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking this course the student will be able to create a DataFrame, load a dataset and perform data cleaning operations, to integrate data from different sources, to select the relevant data and remove the irrelevant data, to perform classification using classification algorithms and apply clustering algorithms to cluster the data.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Perform Data Cleaning, Data Integration
CO2	Perform Data Transformation
CO3	Remove Outliers
CO4	Perform Association Mining
CO5	Do Classification using Classification algorithms
CO6	Perform Clustering using Clustering algorithms

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 2	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 3	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 4	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 5	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 6	3	3	3	3	3	3	2	2	3	3	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S. No	CONTENTS OF MODULE	Hrs	COs
1	Data Preprocessing and Data Integration	9	CO1
2	Programs using Min max Normalization, Zscore Normalization	9	CO2
3	Programs to remove Outliers	9	CO3
4	Programs using Association Mining	9	CO4
5	Programs using Naïve Bayes Classification, Decision Tree Classification, Clustering using Kmeans and Agglomerative.	9	CO5, CO6

Course Title: SPOKEN TUTORIAL - LINUX

S.No	CONTENTS OF MODULE
1	Ubuntu Desktop- Desktop Customization- Synaptic Package Manager- Ubuntu Software Center- Basic Commands- General Purpose Utilities in Linux- File System- Working with Regular Files- File Attributes- Redirection Pipes- Working with Linux Process- The Linux Environment- Basics of System Administration- Simple filters- The grep command- More on grep command- The sed command- More on sed command- Basics of AWK.

Note:

Courses Offered by IIT Mumbai through Spoken Tutorial Projects MHRD, Government of India. At the end of the course Online Examination will be conducted for 45 minutes and qualified students (Minimum passing 40%) will be issued certificate by IIT, Mumbai.

Course Code:

L:T:P:S : 4:0:0:0

Credits : 04

CIA Marks : 50

LEARNING OBJECTIVES:

On taking this course, student will be able to gain knowledge on concepts of .NET environment and C# basics, to create console application in C# using object-oriented concepts, to integrate C# and ASP.NET in developing web application, to build a web application using database connectivity, to construct a web application with enhanced Add-on services which includes web services, cookies and session

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Acquire the knowledge of .NET environment. Expertise the fundamental concepts in developing the basics of C# programming
CO2	Develop, compile and execute console application in C# using object-oriented concepts. Construct console application in C# program using delegates and events
CO3	Build a web application in ASP.NET using webserver controls
CO4	Demonstrate web application with database connectivity
CO5	Integrate web application using cookies, sessions and web services
CO6	Create a complete web Application for real-time situations

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	2	2	3	2	3	2	3	3	2	3	2	2
CO 2	3	3	3	3	2	3	2	3	2	3	2	3	2
CO 3	3	2	2	3	2	3	2	3	3	3	2	3	2
CO 4	3	2	3	2	2	3	2	3	3	3	2	3	2
CO 5	3	2	2	3	2	3	2	3	3	3	2	2	2
CO 6	3	3	3	2	3	3	3	3	3	3	3	3	2

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
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1	UNIT I: Introduction to .NET – Overview of C#, Literals, Variables, Data Types, Operators and Expressions, Branching, Looping, Methods, Arrays and Structures, Enumerations.	9	CO1
2	UNIT II: Classes, Objects, Inheritance, Interfaces, Delegates, Events, Errors and Exceptions.	9	CO2
3	UNIT III: Programming Web Applications with Web Forms – Standard Web server Controls – Label, Textbox, Button, Link Button, Image, Image map, Links, Check & Radio button. Rich controls – Calendar, Ad Rotator – List Controls – Check box list, Radio button list, Drop down list, List box, Data controls – Data grid, Repeater – Validation Controls.	9	CO3
4	UNIT IV: Working with Data – OLEDB connection class, command class, data adaptor class, data reader – data set class – Web services.	9	CO4
5	UNIT V: Session & Application Object: Application Object – global.asa file, Webconfig files – creating & reading application variables, Session object – introduction, storing session-information, contents & identifying session, controlling when session ends, creating & reading cookies.	9	CO5, CO6

TEXT BOOKS:

1. E Balagurusamy (2004). *Programming in C#* (3rd edition), Tata McGraw-Hill India. ISBN 9780070702073
2. Stephen Walter (2006). *ASP.NET 2.0 Unleashed*, (1st edition), Pearson Education, ISBN 978-8131703236
3. Greg Buczek (2010). *ASP.NET Developer's guide* (1st edition), Tata McGraw-Hill India, ISBN 978-0070499171

REFERENCE BOOKS:

1. Herbert Schildt (2010). *The Complete Reference: C#4.0*, Tata McGraw-Hill Education India ISBN: 9780070703681.
2. Mathew Macdonald (2017). *ASP.NET: The Complete Reference*, McGraw Hill Education, ISBN 978-0070495364
3. Bill Evjen, Scott Hanselman, Devin Rader (2008). *Professional ASP.NET 3.5 In C# and VB* (Pap/Psc edition), Wrox publishers, ISBN 978-0470187579
4. Dino Sposito (2019). *Programming ASP.NET Core*, PHI learning | Microsoft Press, ISBN 978-9388028431

E- REFERENCES:

1. <http://www.csharp-station.com/tutorial.aspx>
2. <http://www.tutorialspoint.com/csharp>
3. <http://asp.net-tutorials.com>
4. <http://www.aspnetbook.com>

Course Title: CLOUD COMPUTING

Course Code:	Credits	: 04
L:T:P:S : 4:0:0:0	CIA Marks	: 50
Exam Hours: 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking this course the student will be able to assess fundamental ideas behind cloud computing, the evolution of the paradigm, its applicability and benefits. Public, private and hybrid cloud deployment models and various cloud computing services such as SaaS, PaaS and IaaS. Understand the purpose of Collaboration of cloud with other applications such as calendars, events, projects and social networks. Know the key concepts of Virtualization and its types and outline their roles. Gain the core issues of cloud computing such as security and privacy problems and how they are addressed.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Articulate the main concepts, key technologies, strengths, and limitations, the current and future challenges of cloud computing. Analyse various cloud deployment models and their issues on the cloud.
CO2	Identify the architecture and infrastructure of various cloud services including SaaS, PaaS, and IaaS and apply them to develop a applications.
CO3	Analyse the implications of cloud collaboration with other applications.
CO4	Design and develop various algorithms using tools for virtualization in cloud computing and acquire the knowledge of doing research.
CO5	Assess cloud Storage systems and Cloud security, the risks involved, its impact and develop secure cloud applications.
CO6	Develop and deploy cloud applications using modern tools and techniques based on the organizational needs.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	2	2	2	2	2	3	2	3	2	2
CO 2	3	3	3	2	2	3	3	1	2	3	3	3	2
CO 3	3	2	3	2	3	2	3	3	2	3	2	3	2
CO 4	2	3	3	3	2	3	2	3	2	2	2	2	3
CO 5	3	3	2	3	2	3	2	3	2	3	3	3	3
CO 6	2	2	2	3	3	3	3	3	2	2	3	2	2

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
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1	UNIT I: Cloud introduction – Cloud Computing Fundamentals: Cloud Computing definition, Types of cloud, Cloud services: Benefits and challenges of cloud computing, Evolution of Cloud Computing , usage scenarios and Applications , Business models around Cloud – Major Players in Cloud Computing – Issues in Cloud – Eucalyptus – Nimbus – Open Nebula, CloudSim.	9	CO1
2	UNIT II: Cloud services and file system: Types of Cloud services: Software as a Service – Platform as a Service – Infrastructure as a Service – Database as a Service – Monitoring as a Service – Communication as services.	9	CO2
3	UNIT III: Collaborating with cloud: Collaborating on Calendars, Schedules and Task Management – Collaborating on Event Management, Contact Management, Project Management – Collaborating on Word Processing, Databases – Storing and Sharing Files – Collaborating via Web-Based Communication Tools – Evaluating Web Mail Services Collaborating via Social Networks.	9	CO3
4	UNIT IV: Virtualization for cloud: Need for Virtualization – Pros and cons of Virtualization – Types of Virtualization – System VM, Process VM, Virtual Machine monitor – Virtual machine properties – Interpretation and binary translation.	9	CO4
5	UNIT V: Security, Standards, and Applications: Security in Clouds: Cloud security challenges – Software as a Service Security, Common Standards: The Open Cloud Consortium – The Distributed management Task Force – End user access to cloud computing, Mobile Internet devices and the cloud.	9	CO5, CO6

TEXT BOOKS:

1. Bloor R, Kanfman M, Halper F. Judith Hurwitz (2010). *Cloud Computing for Dummies*, Wiley India Edition.
2. John Rittinghouse & James Ransome (2010). *Cloud Computing Implementation Management and Strategy*, CRC Press.
3. Antohy T Velte (2009). *Cloud Computing a Practical Approach*, McGraw Hill Publications.

REFERENCE BOOKS:

1. Haley Beard (2008). *Cloud Computing Best Practices for Managing and Measuring Processes for On-demand Computing, Applications and Data Centers in the Cloud with SLAs*, Emereo Pty Limited.
2. Michael Miller (2008). *Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online*, Que Publishing.
3. James E Smith, Ravi Nair (2006). *Virtual Machines*, Morgan Kaufmann Publishers.

E- REFERENCES:

1. webpages.iust.ac.ir/hsalimi/.../89.../Cloud%20Common%20standards.ppt
opennebula.org
2. www.cloudbus.org/cloudsim/

3. <http://www.eucalyptus.com/>
4. http://hadoop.apache.org/docs/stable/hdfs_design.html
5. http://static.googleusercontent.com/external_content/untrusted_dlcp/research.google.com/en//archive/map_reduce-osdi04.pdf

Course Title: BIG DATA ANALYTICS

Course Code:	Credits	: 04
L:T:P:S : 4:0:0:0	CIA Marks	: 50
Exam Hours: 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking the course, the students will be able to demonstrate the insight of an exciting growing field of Big Data analytics. They Gain analytical challenges traditional data mining algorithms face when analyzing Big Data, to prove the building initiative of Hadoop, NoSql, MapReduce, to Derive the coding to manage and analyze big data like Hadoop, NoSql, MapReduce. Also, they can exhibit the fundamental techniques and principles in achieving big data analytics with scalability and streaming capability and validate the students to have skills that will help them to solve complex real-world problems in for decision support.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Knows the reason about the evolution of data science and its development. Study the basic of big data analytics and to develop the code. Importance of various kinds of data comparing the other language.
CO2	Develop HDFS environment using NOSQL Implementing the queries. Aggregate the data using NOSQL
CO3	Concept of basic Hadoop, data format and analysing the data in the HDFS environment. Implementing the concept Hadoop pipes and implementations and java interfaces Significance of various methods of compression, serialization
CO4	Apply Mapreduce applications, unit test , MRUnit, Create file using Mapreduce sorting and shuffling process. Creating input and output format of Mapreduce.
CO5	Usage Hadoop related tools. Definition of hbase,Hbase clients, Cassandra, Pig, HiveQL Life Build data manipulation byHiveQL queries.
CO6	Analyze Life Build data manipulation byHiveQL queries.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	2	2	2	2	2	2	1	3	2	2	2	2
CO 2	3	3	2	2	3	1	3	3	1	3	3	3	2
CO 3	3	2	2	2	3	2	3	3	2	3	2	3	2
CO 4	2	3	2	2	2	2	2	2	2	2	2	2	3
CO 5	3	3	2	2	3	2	2	3	2	3	3	3	3
CO 6	2	2	2	3	3	3	3	3	2	2	3	2	2

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
1	Understanding big data: What is big data – why big data – convergence of key trends – unstructured data – industry examples of big data – web analytics – big data and marketing – fraud and big data – risk and big data – credit risk management – big data and algorithmic trading – big data and healthcare – big data in medicine.	10	CO1
2	Nosql data management: Introduction to NoSQL – aggregate data models – aggregates – key-value and document data models – relationships – graph databases – schemaless databases – materialized views – distribution models – sharding – master-slave replication – peer-peer replication – sharding and replication – consistency – relaxing consistency – version stamps – map-reduce – partitioning and combining – composing map-reduce calculations.	10	CO2
3	Basics of Hadoop: Data format – analyzing data with Hadoop – scaling out – Hadoop streaming – Hadoop pipes – design of Hadoop distributed file system (HDFS) – HDFS concepts – Java interface – data flow – Hadoop I/O – data integrity – compression – serialization – Avro – file-based data structures.	10	CO3
4	Mapreduce applications: Mapreduce workflows – unit tests with MRUnit – test data and local tests – anatomy of MapReduce job run – classic Map-reduce – YARN – failures in classic Map-reduce and YARN – job scheduling – shuffle and sort – task execution – MapReduce types – input formats – output formats.	10	CO4
5	Hadoop related tools: hbase – data model and implementations – Hbase clients – Hbase examples – praxis.Cassandra – cassandra data model – cassandra examples – cassandra clients. Hadoop integration. Pig – Grunt – pig data model – Pig Latin – developing and testing Pig Latin scripts. Hive – data types and file formats – HiveQL data definition – HiveQL data manipulation – HiveQL queries.	5	CO5, CO6

TEXT BOOKS:

1. Minelli, M., Chambers, M., & Dhiraj, A. (2013). *Big data, big analytics: emerging business intelligence and analytic trends for today's businesses*. John Wiley & Sons. Michael, ISBN no: 9781118-14760-354995
2. Sadalage, P. J., & Fowler, M. (2013). *NoSQL distilled: a brief guide to the emerging world of polyglot persistence*. Pearson Education. ISBN no: 13:978-0-321-82662-6
3. Tom White, (2012). *Hadoop: The Definitive Guide*, (Third Edition), O'Reilley. ISBN no: 978-1-491-90163-2
4. Eric Sammer, (2012). *Hadoop Operations*, (First Edition) O'Reilley., ISBN no: 978-1149327057
5. Alan Gates, (2011). *Programming Pig*, (First Edition), O'Reilley. ISBN no: 978-1-449-302641
6. Alex Holmes, (2012). *Hadoop in Practice*, Manning Publ. ISBN no: 9781617292224
7. ECapriolo, D Wampler, and JRutherglen, (2012), *Programming Hive*, O'Reilley.

REFERENCE BOOKS:

1. Lars George, (2011). *HBase: The Definitive Guide*, (First Edition) O'Reilley. ISBN no:10 144396100

2. Eben Hewitt, (2010). *Cassandra: The Definitive Guide*, (First Edition) O'Reilley. ISBN no :9781491933664

E- REFERENCES:

1. Hadoop: <http://hadoop.apache.org/>,
2. Hadoop: <https://www.edureka.co/blog/hadoop-tutorial>
3. Hive: <https://cwiki.apache.org/confluence/display/Hive/Home>
4. Piglatin: <http://pig.apache.org/docs/r0.7.0/tutorial.html>
5. https://www.tutorialspoint.com/apache_pig/apache_pig_grunt_shell.htm

Course Title: CRYPTOGRAPHY

Course Code:	Credits	: 04
L:T:P:S : 4:0:0:0	CIA Marks	: 50
Exam Hours: 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking this course, student will be able to understand the mathematics behind cryptography, security concepts, vulnerabilities, different types of cryptosystems and attacks on various cryptosystems.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Gain knowledge about Conventional encryption model
CO2	Analyse Euclidean Algorithm and Number theory
CO3	Understanding Key exchanges.
CO4	Detailed representation of Hashing functions.
CO5	Describe the various Digital signatures logic.
CO6	Apply different encryption and decryption techniques

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	2	1	3	1	1	3	3	2	2	3
CO 2	3	2	3	3	3	2	1	2	3	2	2	2	1
CO 3	3	3	3	2	3	1	1	1	3	2	2	3	2
CO 4	3	3	1	3	2	3	2	2	3	2	2	3	3
CO 5	3	3	2	2	2	2	1	1	3	3	3	3	2
CO 6	3	3	2	2	2	2	2	1	3	3	3	3	1

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
1	UNIT I: Conventional encryption model – Security Concepts - Substitution and Transposition Ciphers - DES algorithm – AES algorithm - Random number generation.	7	CO1
2	UNIT II: Number Theory: Modular arithmetic – Euler’s theorem – Euclid’s algorithm – Extended Euclidean Algorithm and its applications- Chinese remainder theorem – Prime numbers and factorization –Discrete Logarithms.	15	CO2, CO3
3	UNIT III: Principles of Public key Cryptography– RSA algorithm – Key Management- Diffie – Hellman key exchange	8	CO4
4	UNIT IV: Message Authentication and Hash functions: Authentication requirements –Authentication function - Message Authentication codes -Hash functions - Secure Hash Algorithm.	8	CO5
5	UNIT V: Digital Signature and Authentication Protocols: Digital Signature Authentication Protocols – Digital Signature Standard.	7	CO6

TEXT BOOKS:

1. Stallings. W (2013). *Cryptography and Network Security, Principles and Practice*, Pearson Education, Delhi,ISBN:9788131761663.

REFERENCE BOOKS:

1. Charlie Kaufman, Radia Perlman, Mike specimen (2016). *Network Security Private Communication in a public world*, Prentice Hall PTR, ISBN: 9789332586000.
2. Michael Welsehenbach (2013). *Cryptography in C & C++*, Apress, ISBN:9781430250999.

E- REFERENCES:

1. <http://www.webopedia.com/TERM/C/cryptography.html>
2. <http://www.sagemath.org/pdf/en/reference/cryptography/cryptography.pdf>
3. <http://www.freetechbooks.com/lecture-notes-on-cryptography-t565.html>
4. <https://nptel.ac.in/courses/106105031/>
5. <https://nptel.ac.in/courses/106105162/>

Course Title: INFORMATION SECURITY

Course Code:	Credits	: 03
L:T:P:S : 4:0:0:0	CIA Marks	: 50
Exam Hours: 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking this course the student will be able to understand and revise the common threats faced today, To understand the foundational theory behind information security and analyze What are the basic principles and techniques when designing a secure system, to apply attacks and defenses work in practice and how to assess threats for their significance and how to gauge the protections and limitations provided by today's technology.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand Information Security Principles such as security attacks and services.
CO2	Design Terms, concepts related to public key cryptography and digital signatures.
CO3	Apply the Concepts of various privacy methods.
CO4	Analyse Typical Network Attacks and Threats from the Internet.
CO5	Create SNMP, Firewall design Principles and Intrusion detection system.
CO6	Create the protections and limitations provided by internet security technology

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	3	3	3	2	2	3	3	3	2	3
CO 2	3	3	3	3	3	3	3	2	3	3	3	2	3
CO 3	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 4	3	3	3	3	3	2	2	2	3	3	3	3	3
CO 5	3	3	3	3	3	3	2	3	3	3	3	3	3
CO 6	3	3	3	3	3	3	2	2	3	3	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
1	UNIT I: Security Attacks (Interruption, Interception, Modification and Fabrication), Security Services (Confidentiality, Authentication, Integrity, Non-repudiation, access Control and Availability) and Mechanisms.	9	CO1
2	UNIT II: Public key cryptography principles, public key cryptography algorithms, digital signatures, digital Certificates, Certificate Authority and key management Kerberos,X.509 Directory Authentication Service	9	CO2
3	UNIT III: Email privacy: Pretty Good Privacy (PGP) and S/MIME.P Security Overview, IP Security Architecture, Authentication Header, Encapsulating Security Payload, Combining Security Associations and Key Management	9	CO3
4	UNIT IV: Web Security Requirements, Secure Socket Layer (SSL) and Transport Layer Security (TLS), Secure Electronic Transaction (SET	9	CO4
5	UNIT V: Basic concepts of SNMP, SNMPv1 Community facility and SNMPv3, Intruders, Viruses and related threats Firewall Design principles, Trusted Systems, Intrusion Detection Systems	9	CO5, CO6

TEXT BOOKS:

- 1 William Stallings (2008). *Network Security Essentials (Applications and Standards)*, Pearson Education.
- 2 Chris McNab(2016). *Network Security* (3rd edition), O'Reilly Media.
- 3 Joseph Migga Kizza (2014). *Computer Network Security*, Springer International Publishing.

REFERENCE BOOKS:

- 1 Eric Maiwald(2004). *Fundamentals of Network Security*, Dreamtech press.
- 2 CharlieKaufman, Radia Perlman and Mike Speciner. *Network Security – Private Communication in a Public World* (Second Edition), Pearson/PHI.

E- REFERENCES:

- 1 <http://www.freetechbooks.com/an-introduction-to-computer-security-the-nist-handbook-t725.html>
- 2 <http://www.freetechbooks.com/fundamentals-of-cryptology-t801.html>

Course Title: INTERNET SECURITY AND COMPUTER FORENSICS

Course Code:	Credits	: 03
L:T:P:S : 4:0:0:0	CIA Marks	: 50
Exam Hours: 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking this course, student will be able to understand the main issues related to security in modern networked computer systems, the underlying concepts and foundations of computer security, basic knowledge about security-relevant decisions in designing IT infrastructures, understand Computer forensics fundamental, understand collecting, investigating, preserving, and presenting evidence of cybercrime left in digital storage devices, analyze various computer forensics technologies and to identify methods for data recovery.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Gain a good understanding of the concepts and foundations of computer security and identify vulnerabilities of IT systems
CO2	Analyse basic security tools to enhance system security and can develop basic security enhancements in stand-alone applications
CO3	Identify some of the factors driving the need for network security and analyse various computer forensics systems
CO4	Analyse and summarize duplication and preservation of digital evidence
CO5	Illustrate the methods for data recovery, evidence collection and data seizure.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	2	1	3	1	1	3	3	2	2	3
CO 2	3	2	3	3	3	2	1	2	3	2	2	2	1
CO 3	3	3	3	2	3	1	1	1	3	2	2	3	2
CO 4	3	3	1	3	2	3	2	2	3	2	2	3	3
CO 5	3	3	2	2	2	2	1	1	3	3	3	3	2
CO 6	3	3	3	2	1	3	1	1	3	3	2	2	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
1	UNIT I - NETWORK LAYER SECURITY & TRANSPORT LAYER SECURITY IPSec Protocol - IP Authentication Header - IP ESP - Key Management Protocol for IPSec . Transport layer Security: SSL protocol, Cryptographic Computations - TLS Protocol. 189 CS-Engg&Tech-SRM-2013	8	CO1
2	UNIT II - E-MAIL SECURITY & FIREWALLS PGP - S/MIME - Internet Firewalls for Trusted System: Roles of Firewalls - Firewall related terminology- Types of Firewalls - Firewall designs - SET for E-Commerce Transactions.	10	CO2
3	UNIT III - INTRODUCTION TO COMPUTER FORENSICS (9 hours) Computer Forensics Fundamentals – Types of Computer Forensics – Forensics Technology and Systems - Understanding Computer Investigation – Data Acquisition	9	CO3
4	UNIT IV - EVIDENCE COLLECTION AND FORENSICS TOOLS Processing Crime and Incident Scenes – Working with Windows and DOS Systems. Current Computer Forensics Tools: Software/ Hardware Tools.	9	CO4
5	UNIT V - ANALYSIS AND VALIDATION Validating Forensics Data – Data Hiding Techniques – Performing Remote Acquisition – Network Forensics – Email Investigations – Cell Phone and Mobile Devices Forensics	9	CO5

TEXT BOOKS:

1. Man Young Rhee (2003). *Internet Security: Cryptographic Principles, Algorithms and Protocols*, Wiley Publications.

REFERENCE BOOKS:

1. Nelson, Phillips, Enfinger, Steuart (2014). *A Guide to Computer Forensics and Investigations* Cengage Learning, ISBN: 9781305176089.
2. John R. Vacca (2002). *Computer Forensics*, Firewall Media, ISBN: 1584503890.
3. Richard E. Smith (2008). *Internet Cryptography* (3rd Edition), Pearson Education, ISBN: 8131704122.
4. Marjie T. Britz (2013), *Computer Forensics and Cyber Crime: An Introduction* (1st Edition), Pearson Education, ISBN: 0132677717.

E- REFERENCES:

1. <https://www.geeksforgeeks.org/information-security-and-computer-forensics/>
2. <https://nptel.ac.in/courses/106106178/>

Course Title: PRACTICAL-V: INTERNET TECHNOLOGY LAB

Course Code:	Credits	: 02
L:T:P:S : 0:0:5:0	CIA Marks	: 50
Exam Hours: 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking this course, student will be able to develop simple console applications using control flow, loops, arrays, to create console application using strings, delegates and events, to design and develop console applications using object-oriented concepts, to create simple web page using ASP.NET, to design a website utilizing database and connect to the database from ASP.NET, to develop web application using cookies, sessions and Web services.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Design the algorithm
CO2	Develop console application using C#
CO3	Build and develop web-application using ASP.NET controls and validations
CO4	Develop web application using ASP.NET incorporating database connection
CO5	Develop web application using ASP.NET using cookies and session
CO6	Synthesize console and web application based on requirements

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	2	3	2	2	3	2	3	2	2	3	3	3
CO 2	3	3	3	3	3	3	2	3	3	3	3	3	2
CO 3	3	2	2	3	2	3	2	3	3	3	2	3	2
CO 4	3	2	3	2	2	3	2	3	3	3	2	3	2
CO 5	3	2	2	3	2	3	2	3	3	3	2	2	2
CO 6	3	3	3	2	3	3	2	3	3	3	3	3	2

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
1	C# 1. Creating a simple Console application 2. Programs using Array and Array List 3. Programs using string 4. Create a console application containing classes and Inheritance 5. Programs using Interface 6. Programs using Structures and Enumerations 7. Create a console application to implement delegates 8. Create a console application for exception handling	23	CO1, CO2, CO6
2	1. Create a Website containing various standard controls 2. Create a Webform that demonstrate using Validator control 3. Create a Website that contains AdRotator and Calenda controls. 4. Create a Web application using Data Base Connections 5. Create a Web application using web services	22	CO3, CO4, CO5, CO6

Course Title: PRACTICAL-VI: BIG DATA ANALYTICS LAB

Course Code:	Credits	: 02
L:T:P:S : 0:0:5:0	CIA Marks	: 50
Exam Hours: 03	ESE Marks	: 50

LEARNING OBJECTIVES:

On taking the course, the students will be able to demonstrate the insight of an exciting growing field of Big Data analytics. They can derive the scripts of Hadoop, NoSql, MapReduce to develop the knowledge of data science. To derive the coding, manage and analyze big data like Hadoop, No Sql, MapReduce. Practice big data analytics and machine learning approaches, which include the study of modern computing big data technologies.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Derive the steps of algorithms for every exercise.
CO2	Scaling up machine learning techniques focusing on industry applications.
CO3	Exhibit the fundamental techniques and principles in achieving big data analytics with scalability and streaming capability.
CO4	Implementation of big data analytics
CO5	Practice bigdata tools Pig, Hive etc.
CO6	Validate the students to have skills that will help them to solve complex real-world problems in for decision support.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	2	2	2	2	2	3	3	3	3	3	3	3
CO 2	3	3	3	3	3	3	3	3	1	3	3	3	2
CO 3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO 4	2	3	2	2	2	2	2	2	2	2	2	2	3
CO 5	3	3	2	2	3	3	3	3	3	3	3	3	3
CO 6	2	2	2	3	3	3	3	3	2	2	3	2	2

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
1	Perform setting up and Installing Hadoop in its three operating modes: Standalone, Pseudo distributed, fully distributed Use web based tools to monitor your Hadoop setup.	9	CO1
2	Implement the following file management tasks in Hadoop: a) Adding files and directories b) Retrieving files Deleting files Hint: A typical Hadoop workflow creates data files (such as log files) elsewhere and copies them into HDFS using one of the above command line utilities.	9	CO2
3	Run a basic Word Count Map Reduce program to understand Map Reduce Paradigm.	9	CO3
4	Write a Map Reduce program that mines weather data. Weather sensors collecting data every hour at many locations across the globe gather a large volume of log data, which is a good candidate for analysis with MapReduce, since it is semi structured and record-oriented.	9	CO4
5	Implement Matrix Multiplication with Hadoop Map Reduce	9	CO5
6	Install and Run Pig then write Pig Latin scripts to sort, group, join, project, and filter your data.	5	CO6
7	Install and Run Hive then use Hive to create, alter, and drop databases, tables, views, functions, and indexes.	4	CO6

Course Title: SPOKEN TUTORIAL - JAVA

S.No	CONTENTS OF MODULE
1	<p>Getting started java Installation – First Java Program – Installing Eclipse – Getting started Eclipse-Hello World Program in Eclipse – Errors and Debugging in Eclipse – Programming features Eclipse – Numerical Datatypes – Arithmetic Operations – Strings – Primitive type conversions – Relational Operations – Logical Operations – if else – Nested if – switch case – while loop – For loop – do while – introduction to Array – Array operations – creating class – creating object – instance fields – Methods – Default constructor – Parameterized constructors – using this keyword – Non static block – Constructor overloading – Method overloading – userinput – subclassing and method overriding – Calling methods of the superclass – Using final keyword – Polymorphism – Abstract Classes – Java Interfaces – Static Variables – Static Methods – Static Blocks.</p>

Note:

Courses Offered by IIT Mumbai through Spoken Tutorial Projects MHRD, Government of India. At the end of the course Online Examination will be conducted for 45 minutes and qualified students (Minimum passing 40%) will be issued certificate by IIT, Mumbai.

LEARNING OBJECTIVES:

FIRST SEMESTER

Course Title: CORE THEORY 2 –

COMPUTER ORGANIZATIONS AND ARCHITECTURE

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

Conceptualize the basics of Organizational and Architectural issues of a digital Computer. Understanding the concepts of Boolean algebra, Logical Operations and various Adders. Learn various types of Flip-Flops and Data Transfer Techniques in Digital Computer and Articulate design issues in the development of Processor or other components that satisfy design requirements and objectives to explain different types of Addressing Modes and Memory Organization.

Course outcomes: At the end of course, the student will be able to

COS	Content of module
CO1	Detailed representation about number systems and boolean algebra.
CO2	Describe the various types of flip flops, registers and circuit system.
CO3	Analyse the stack organization and identify the addressing modes.
CO4	Interpret peripheral devices with memory access.
CO5	Acquire a good knowledge about memory hierarchies and mapping.
CO6	Gain knowledge about Virtual memory and data manipulation

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	2	1	3	1	1	3	3	2	2	3
CO 2	3	2	3	3	3	2	1	2	3	2	2	2	1
CO 3	3	3	3	2	3	1	1	1	3	2	2	3	2
CO 4	3	3	1	3	2	3	2	2	3	2	2	3	3
CO 5	3	3	2	2	2	2	1	1	3	3	3	3	2
CO 6	3	3	2	2	2	2	2	1	3	3	3	3	1

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	HRS	COS
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1	UNIT I: Number System – Converting numbers from one base to– Complements – Binary Codes– Boolean algebra – Properties of Boolean algebra – Boolean functions. – Logical Operations – Logic gates - Adder – Subtractor.	9	CO1
2	UNIT II: Decoders – Multiplexers- Flip Flops – Triggering of flip-flops – Analyzing a sequential circuit – State reduction – excitation tables – Design of sequential circuits – Counters. –shift registers.	9	CO2
3	UNIT III: Central processing unit: General register and stack organizations, instruction formats - Addressing modes, Data transfer and manipulation - program control, RISC.	9	CO3
4	UNIT IV: Input-output organization - peripheral devices, I/O interface, modes of transfer- Interrupt, Direct memory access, I/O processor.	9	CO4
5	UNIT V: Memory Organization - Memory Hierarchy- Main memory- Auxiliary memory-Associative memory and its mapping techniques - Cache memory-cache memory mapping techniques- Virtual Memory.	9	CO5, CO6

TEXT BOOKS

1. M. Morris Mano (2007). Computer System Architecture (3rd Edition), PHI, ISBN: 9789332585607.
2. D. P. Leach and A. P. Malvino (2002). Digital Principles and Applications (5th Edition), TMH, ISBN: 9780070141704.

REFERENCE BOOKS

1. William Stallings (2015). Computer Organization and Architecture (10th Edition), Pearson Education, ISBN: 9780134101613.
2. M. Morris Mano (2007). Digital Logic and Computer Design (3rd Edition) , Pearson Education, ISBN:817758409X
3. V.C. Hamacher, G. Vranesic, S. G. Zaky (2000). Computer Organization (Revised Edition), TMH, ISBN: 0471467405.

E-REFERENCES

1. <http://www.freetechbooks.com/computer-organization-and-design-fundamentals-t347.html>
2. <http://www.nptel.iitm.ac.in/video.php?subjectId=106102062>
3. <https://freevideolectures.com/course/2277/computer-organization>
4. <http://www.infocobuild.com/education/audio-video-courses/computer-science/ComputerOrganizationArchitecture-IIT-Madras>

FIRST SEMESTER

Course Title: CORE THEORY 3 - DATABASE MANAGEMENT SYSTEMS

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Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks :
40	

LEARNING OBJECTIVES:

On taking this course the student will be able to assess the applications of DBMS, difference between File Systems vs. DBMS, identify the data models and understand the DBMS structure and identifies the Entity, Attribute and Entity Relationship Diagrams. Understand the Relational Algebra concepts, selection, projection, relational calculus which helps in understanding queries. Study the concepts of functional dependencies and the need of normalization and Normal forms I, II, III, IV BCNF and know the properties of transaction management and the recovery management. Compile various file organization methods and access methods to store the data.

Course outcomes: At the end of course, the student will be able to

CO1	Describe a database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS. Design ER-models to represent simple database application scenarios.
CO2	Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data for current needs. Develop applications using DDL, DML queries.
CO3	Identifies the Functional dependencies, decompositions, lossless join, and dependency preserving decomposition. Classify the various normalization techniques and improve the database design by applying it.
CO4	Use the concept of a transaction and design the database using some tools which satisfies the ACID properties when concurrent transaction occurs in a database. Evaluate the sophisticated access protocols to control access to the database.
CO5	Identifies the suitable File organization methods and access methods and design the database for storing the data.
CO6	Develop and evaluate a real database application using a database management system.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	3	3	3	2	2	3	3	3	2	3
CO 2	3	3	3	3	3	3	3	2	3	3	3	2	3
CO 3	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 4	3	3	3	3	3	2	2	2	3	3	3	3	3
CO 5	3	3	3	3	3	3	2	3	3	3	3	3	3
CO 6	3	3	3	3	3	3	2	2	3	3	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S. No	CONTENTS OF MODULE	Hrs	COs
1	UNIT- I Introduction to DBMS and ER Model-Advantage of DBMS approach, various view of data, data independence, schema and sub-schema, primary concepts of data models, Database languages, Database administrator and users, data dictionary, overall system Architecture. Basic concepts of ER Model , mapping constraint, keys, ER diagram, weak and strong entity sets, specialization and generalization, aggregation.	9	CO1

2	UNIT- I Domains, Relations and Keys, Relational Algebra & SQL - Domains, Relations, kind of relations, relational database, various types of keys-candidate, primary, alternate and foreign key. Relational algebra, SQL- set operations, aggregate functions, null values, nested sub queries, views, join relations, DDL in SQL.	9	CO2
3	UNIT- III Functional Dependencies and Normalization -Basic definitions, trivial and non-trivial dependencies, introduction to normalization, non-loss decomposition, FD diagram, first, second, third Normal forms, dependency preservation, BCNF, multivalued dependencies and fourth normal form, Join dependency and fifth normal form.	9	CO3
4	UNIT- IV Transaction, concurrency and Recovery-Basic concepts of Transaction, ACID properties , Transaction states, implementation of atomicity and durability, concurrent executions, basic idea of serializability, concurrency control-two phase locking and deadlock handling, Recovery system-Failure Classification, Storage Structure ,Recovery and Atomicity , Log-Based Recovery, Shadow Paging.	9	CO4
5	UNIT- V Storage structure and file organizations-Overview of physical storage media, magnetic disks-performance and optimizations, basic idea of RAID, file organizations, organization of records in files, basic concepts of indexing, ordered indices, basic idea of B-tree and B+-tree organization.	9	CO5, CO6

TEXT BOOK

1. Henry Forth, Abraham Silberschatz, S. Sudharshan (2006).*Database System Concepts* (5thEdition), McGraw Hill Publications.
2. R. Elmasri, S.B. Navathe (2007). *Fundamentals of Database Systems* (5th Edition), Pearson Education.

REFERENCE BOOKS

1. Raghu Ramakrishnan , Johannes Gehrke(2014) ,*Database Management Systems*(3rd Edition), McGraw Hill Publications.
2. J. Date, A. Kannan and S. Swamynathan, (2009). *An Introduction to Database Systems* (8thEdition), Pearson Education.

E- REFERENCES:

1. <https://www.coursera.org/course/datasci>
2. <http://www.nptel.iitm.ac.in/video.php?subjectId=106106093>
3. <https://gateoverflow.in/47124/which-video-lecture-will-be-the-best-for-dbms>

SECOND SEMESTER

Course title: **ELECTIVE 2 - OBJECT ORIENTED ANALYSIS AND DESIGN**

Course Code :	Credits : 03
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

On taking the course, the students will be able to understand the concept of object-oriented development, and create a static object model and a dynamic behavioral model and a functional model of the system. They can easily understand the approaches to system design and object design, and the techniques of translating design to implementation.

Course Outcome: At the end students will be able to

CO1	Analyze object basics and UML
CO2	Gain knowledge about attributes and relationship.
CO3	Interpret axioms and do a case study
CO4	Detailed study about Micro level process
CO5	Digital signatures
CO6	Gain knowledge about various testing strategies.

Mapping of Course Outcomes to Program Specific Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	3	2	2	2	2	2	2	3	3	2	2	2	2
CO2	3	3	2	2	3	1	3	3	1	3	3	3	2
CO3	3	2	2	2	3	2	3	3	2	3	2	3	2
CO4	2	3	2	2	2	2	2	2	2	2	2	2	3
CO5	3	3	2	2	3	2	2	3	2	3	3	3	3
CO6	2	2	2	3	3	3	2	2	2	2	3	2	2

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

SNO	CONTENT OF MODULE	Hrs	COS
1	UNIT-I: System development - object basics - development life cycle - methodologies - patterns - frameworks - unified approach - UML.	9	CO1
2	UNIT-II: Use Case models - object analysis - object relations - attributes - methods, class and object responsibilities - case studies	9	CO2
3	UNIT-III: Design processes - design axioms - class design - object storage - object interoperability - case studies.	9	CO3
4	UNIT-IV: User interface design - view layer classes - micro - level processes - view layer interface - case studies.	9	CO4
5	UNIT-IV: Quality assurance tests - testing strategies - object orientation on testing - test cases - test plans - continuous testing - debugging principles - system usability - measuring user satisfaction - case studies	9	CO5,CO6

TEXT BOOKS:

1. Ali Bahrami, (1999). *Object Oriented Systems Development*, McGraw Hill. ISBN no:13-978-0-07-026512-7
2. Grady Booch (2007). *Object Oriented Analysis and Design*, (Third Edition), Addison Wesley, ISBN no :0-8053-5340-2
3. Bernd Bruegge, (2004). *Object oriented software engineering*, (Second Edition), Pearson Education. ISBN no: 13 978-93332518681.

REFERENCE BOOKS:

1. James Rumbaugh, Michael R. Blaha, (2004). *Object-Oriented Modeling and Design with UML* , (Second Edition),Prentice Hall ISBN no: 978-81-317-1106-4
2. AtulKahate, (2000). *Object Oriented Analysis &Design*, Tata McGraw-Hill. ISBN no: 0-07-058376-5
3. Roger Pressman, (2005). *Software Engineering*, (Sixth Edition), TMH. ISBN no: 13:978-007-126782-3.

E-REFERENCES:

1. <http://www.exforsys.com/tutorials/ood/ood-introduction.html>
2. <http://www.devshed.com/c/a/Practices/Introducing-UMLObjectOriented-Analysis-and-Design>

SECOND SEMESTER SYLLABUS

Course Title: CORE THEORY-5 **DATA STRUCTURES AND ALGORITHMS**

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks :
40	
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

Develops skills in implementations and applications of data structures. Implements basic algorithms for sorting and searching. Implements basic data structures such as stacks, queues and trees. Applies algorithms and data structures in various real-life software problems.

Course outcomes: At the end of course, the student will be able

CO1	Define data structures like array, stack, queues and linked list.
CO2	Explain insertion, deletion and traversing operations on data structures.
CO3	Identify the asymptotic notations to find the complexity of an algorithm.

CO4	Compare various searching and sorting techniques.
CO5	Choose appropriate data structure while designing the algorithms.
CO6	Design advanced data structures using nonlinear data structures.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	2	3	3	1	3	2	1	3	3	2	2	3
CO 2	3	2	3	3	3	2	1	2	3	2	2	2	1
CO 3	3	3	3	2	3	1	1	1	3	2	2	3	2
CO 4	3	3	1	3	2	3	2	2	3	2	2	3	3
CO 5	3	3	2	2	2	2	1	1	3	3	3	3	2
CO 6	3	3	2	2	2	2	2	1	3	3	3	3	1

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	HRS	COS
1	UNIT I: Abstract data types asymptotic notations – complexity analysis – Arrays- representation of arrays – Linked lists: Singly linked list - Circular linked lists – Doubly linked lists – stacks – queues - circular queues – Postfix Notation.	10	CO1, CO2
2	UNIT II: Trees – Binary Trees – Binary Tree Traversals – Binary Tree Representations – Binary Search Trees – Threaded Binary Trees -Introduction to AVL Trees-Red-Black Trees, Splay Trees, B-Trees.	8	CO3, CO4
3	UNIT III: – Representation of Graphs – Graph Implementation – Graph Traversals- Minimum Cost Spanning Trees – Shortest Path Problem.	9	CO5
4	UNIT IV: Divide and conquer – Quick sort, Merge sort – Greedy Method: General Method –knapsack problem.	9	CO6
5	UNITV: Back Tracking: General Method – 8-queens - Branch and Bound: General Method - Traveling Salesperson problem.	9	CO2

TEXT BOOKS

1. E. Horowitz, S. Sahni and S. Rajasekaran (2001). *Computer Algorithms*, Galgotia publishers, ISBN:9788173716126
2. E.Horowitz, S. Sahni and Mehta(2000).*Fundamentals of Data Structures in C++*, Galgotia publishers,ISBN:0929306376

REFERENCE BOOKS

1. G. L. Heileman(1999). *Data Structures, Algorithms and Object Oriented Programming*, Revised Edition, TMH, ISBN: 0070278938.
2. A.V.Aho, J.D. Ullman, J.E. Hopcraft (1983). *Data Structures and Algorithms*, Revised Edition, Addison Wesley publishers, ISBN: 0201000237.
3. A.V. Aho, J.E. Hopcroft, J.D. Ullmann (1974).*The design and analysis of Computer Algorithms*, Revised Edition, Addison Wesley publishers,ISBN:0201000237.

E-REFERENCES

1. www.freetechnbooks.com/a-practical-introduction-to-data-structures-and-algorithm-analysis-third-edition-c-version-t804.html
2. www.nptel.iitm.ac.in/courses/106101060
3. <http://www.nptel.iitm.ac.in/courses/106104019/>
4. <https://www.techiedelight.com/best-online-courses-data-structures-algorithms/>
5. <https://freevideolectures.com/course/2279/data-structures-and-algorithms/>

SECOND SEMESTER

Course Title: CORE THEORY 6 - **COMPUTER NETWORKS**

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Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks :
40	
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

On taking this course the student will be able to assess the basic taxonomy and terminology of the Computer Networks and the layers of OSI model and TCP/IP model and various Transmission Medias. Understand the Telephone System Structure of Physical layer and Data link layer protocols. Describe data link layer and MAC layer concepts, design issues, and protocols. Gain core knowledge of Network layer Routing protocols and IP addressing. Discuss the Session layer design issues, Transport layer services, and protocols.

Course outcomes: At the end of course, the student will be able to

CO1	Gain a basic knowledge of Networking and functions of each layer in OSI and TCP/IP model. Demonstrate the network topology.
CO2	Diagnose the problems of a Current Multiplexing Techniques.
CO3	Classify the various multiple access protocols and identify the deficiencies in existing protocols, and then go onto formulate new and better protocols.
CO4	Apply the mathematical background of routing protocols. Analyze the collision occurred in current networks. Classify the classes of IP protocols and select the IP addresses for the given network.
CO5	Describe the issues surrounding in Session layer and Transport layer and identify how to rectify.
CO6	Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies.

Mapping of Course Outcomes to Program Specific Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	3	3	3	2	2	2	2	2	3	2	3	2	2
CO2	3	3	3	2	2	3	3	2	2	3	3	3	2
CO3	3	2	3	2	3	2	3	3	2	3	2	3	2
CO4	2	3	3	3	2	3	2	3	2	2	2	2	3
CO5	3	3	2	3	2	3	2	3	2	3	3	3	3
CO6	2	2	2	3	3	3	3	3	2	2	3	2	2

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

SNO	CONTENT OF MODULE	Hrs	COS
1	UNIT I: Introduction: Network Hardware – Software – Reference Models – OSI and TCP/IP Models. Physical Layer: Transmission Media- Wireless Transmission -Narrow Band ISDN.	9	CO1
2	UNIT II: Telephones Structure: Local Loops – Trunks, Multiplexing, and Switching. Data Link Layer: Design Issues – Error Detection and Correction - Elementary data link protocols - Sliding Window Protocols.	9	CO2
3	UNIT III: Medium Access Sub Layer: Channel Allocation Problem. Multiple Access Protocols: ALOHA – Carrier Sense Multiple Access Protocols – Collision Free Protocols – Limited Contention Protocols. Bridges: Transparent Bridges – Spanning Tree Bridges – Source Routing Bridges.	9	CO3
4	UNIT IV: Network layer Design Issues. Routing Algorithms: Shortest Path Routing – Flooding – Distance Vector Routing – Link State Routing – Hierarchical Routing. Congestion control algorithms: General Principles – Congestion Control in Virtual Circuit Subnets – Choke Packets – Load Shedding – Jitter Control. IP protocol: IP Address – Subnets - Internet Control Protocol.	9	CO4
5	UNIT V: Transport layer: Elements – Connection management – Addressing, Establishing & Releasing a connection – Transport Control Protocol: TCP Protocol – TCP segment Header – Connection Management – Congestion control.	9	CO5, CO6

TEXT BOOK

1. A.S.Tanenbaum (2003). *Computer Networks* (4th Edition), Pearson Education, Prentice hall of India Ltd.

REFERENCE BOOKS

1. B. Forouzan (1998). *Introduction to Data Communications in Networking*, TMH.
2. Fred Halsall (1995). *Data Communications, Computer Networks and Open Systems*, Addison Wesley.

E-REFERENCES:

1. <http://www.technolamp.co.in/2010/08/computer-networks-tanenbaum-powerpoint.html>
2. <http://www.freetechbooks.com/computer-networks-performance-and-quality-of-service-t830.html>
3. <https://freevideolectures.com/course/3162/computer-networking-tutorial>
4. http://video.bilkent.edu.tr/course_videos.php?courseid=32

THIRD SEMESTER**SYLLABUS****Course Title: CORE THEORY 9 - ENTERPRISE COMPUTING**

Course Code:	Credits	: 04
L:T:P:S : 4:0:0:0	CIA Marks	: 40
Exam Hours: 03	ESE Marks	: 60

LEARNING OBJECTIVES:

On taking this course, student will be able to understand the various concepts of Enterprise programming, developing RMI Application, Servlet and session management and learn data manipulation using JDBC, develop web applications using JSP, implement Javamail API and familiarize the students with the concepts of reusable classes using JavaBeans, Hibernate and Spring Framework applications.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand various concepts of Enterprise Computing, analyze and implement the RMI Architecture for the necessary applications.
CO2	Implement Session management using Servlet and implement JDBC for the database connectivity.
CO3	Develop Web applications using JSP and JSP error pages.
CO4	Design an application that sends and receives email with attachments.
CO5	Implement Database connectivity through Hibernate Framework and also build web applications using Spring MVC.
CO6	Study and use modern tools for rapidly building enterprise applications.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	2	3	3	2	2	2	3	3	3	2	3
CO 2	3	3	2	3	3	2	2	2	2	3	3	3	3
CO 3	2	3	2	2	3	2	3	3	2	3	3	2	3
CO 4	3	3	2	3	3	2	2	2	2	3	2	3	2

CO 5	2	3	3	3	3	3	3	3	3	3	2	3	3
CO 6	3	3	3	3	3	3	3	3	3	2	3	2	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	Hrs	COs
1	UNIT-I: Need for Enterprise Programming – J2EE Advantage – Enterprise Architecture types– Architecture of J2EE – J2EE Components – J2EE Containers – Introducing RMI – RMI Architecture – Application Development with RMI – RMI over IIOP.	9	CO1
2	UNIT-II: Introduction to Servlets – Servlet Life Cycle – Servlet API Basics – HTTP Redirects –Cookies –State and Session Management –Hidden Fields – URL rewriting –Session Management with the Servlet API –Inter Servlet Communication – Server Side Includes and Request Forwarding –Data Base Access with JDBC.	9	CO2
3	UNIT-III: JSP: Introduction JSP –Examining MVC and JSP –JSP scripting elements & directives –Working with variables scopes – Error Pages –using Java Beans in JSP.	6	CO3
4	UNIT-IV: Javamail: Working with Java Mail –Understanding Protocols for Javamail –Components –Javamail API –Understanding Java Messaging Services: JMS Components EJB Fundamentals – EJB Architecture – EJB Roles – Introduction to Session Beans, Entity Beans & Message Driven Beans.	9	CO4
5	UNIT-V: Hibernate: Overview of Hibernate, Hibernate Architecture, Hibernate Mapping Types, Hibernate O/R Mapping, Hibernate Annotation, Hibernate Query Language – Spring MVC – Overview of Spring, Spring Architecture, bean life cycle, XML Configuration on Spring, Aspect – oriented Spring, Managing Database, and Managing Transaction.	12	CO5, CO6

TEXT BOOKS:

1. Jason hunter, William Crawford (2001). *Java Server Programming* (2nd Edition), O'Reilly Media, Inc., ISBN: 9780596000400.
2. J McGovern, R Adatia, Y Fain (2003). *J2EE 14 Bible*, Wiley-dreamtech India Pvt Ltd.
3. James Holmes, Herbert Schildt (2000). *Struts: The complete Reference* (2nd Edition), TMH.
4. H.Schildt (2002). *Java 2 Complete Reference* (5th Edition), TMH.

REFERENCE BOOKS:

1. K Moss (1999). *Java Servlets* (Second Edition), TMH.
2. Joseph O'Neil (1998). *Java Beans from the Ground Up*, TMH.
3. Tom Valesky (2000). *Enterprise JavaBeans*, Addison Wesley.
4. Cay S Horstmann & Gary Cornell (2002). *Core Java Vol II Advanced Features* (8th Edition), Addison Wesley.

E- REFERENCES:

1. <https://www.tutorialspoint.com/servlets/servlets-first-example.htm>
2. <http://www.servlets.com/jservlet2/examples/>
3. http://www.j2eetutorials.50webs.com/JSP_example1.html
4. <http://www.javatpoint.com/ejb-tutorial>
5. <https://slideplayer.com/slide/7362666/>

THIRD SEMESTER

Course Title: **CORE THEORY 10 - PROGRAMMING IN PYTHON**

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Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks :
40	

Exam Hours : 03

LEARNING OBJECTIVES:

On taking this course the student will be able to develop a basic understanding of programming and the Python programming language and understand the basics of Strings, Lists and Tuples, learn how to design object-oriented programs with Python classes, learn how to use class inheritance in Python for reusability and how to use exception handling in Python applications for error handling, to provide knowledge on how to develop the ability to write database applications in Python, to develop the skills of designing Graphical user interface in Python and to acquire knowledge about Data science in Python using numpy.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	To acquire basic programming skills of Python programming language.
CO2	To develop applications using python sequence.
CO3	Implement basic object oriented concepts like inheritance and polymorphism.
CO4	Develop GUI applications using PyGTK. and GUI applications.
CO5	To have basic knowledge of implementing data science in python.
CO6	To use python as a tool for research.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 2	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 3	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 4	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 5	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 6	3	3	3	3	3	3	2	2	3	3	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S. No	CONTENTS OF MODULE	Hrs	COs
1	UNIT-I : Introduction to Python - Installing in various Operating Systems - Variables and Data Types - Operators –	9	CO1

	Conditional Statements- if-if-else-nested if – Looping – for-while-nested loops– Control Statements- break-continue-pass- Input/output Statements		
2	UNIT-II: Sequences -String Manipulations - Lists – Tuples – Mapping and Set types - Dictionaries –Set- Functions-Defining a function – calling a function – types of function – function arguments-lambda function- Exception Handling - Modules	9	CO2
3	UNIT-III : File handling - Object Oriented Programming - Classes - Objects –Attributes - Inheritance - Overloading - Polymorphism -Interacting with Databases - Introduction to MySQL - interacting with MySQL – Database connection -creating database table, insert operation, read operation-update operation-delete operation - Regular Expressions - Text handling	9	CO3
4	UNIT-IV: Introduction to Graphics programming - Introduction to GTK - PyGTK - Developing GUI applications using PyGTK–Tooltip, Check button, Combo box, Menus, Calendar, Image, Image processing- Network Programming - socket module - server socket methods - client socket methods - general socket methods- Web services using SOAP	9	CO4, CO6
5	UNIT-V: Data Science in Python –Numpy – Numpy introduction, Data types Object – dtype-Numerical operations on Numpy arrays– Changing the dimensions of arrays -matrix arithmetic Scipy–introduction – basic functions – special function – optimization – linear algebra – Pandas-Introduction to Series and DataFrames – reading and writing data – Data Exploration – Data Munging-Introduction to version control system – subversion/Git	9	CO5, CO6

TEXT BOOKS:

1. Allen B Downey(2012), *Think Python: How to Think Like a Computer Scientist*(1st Edition), O’Reilly Publications.
2. Jeff McNeil(2010), *Python 26 Text Processing: Beginners Guide*, Packet Publications.
3. Mark Pilgrim(2009), *Dive into Python*(2nd edition), Apress publications.

REFERENCE BOOKS:

1. Kent D Lee(2010), *Python Programming Fundamentals*(2nd Edition), Springer,.
2. John V Guttag , *Introduction to Computation and Programming Using Python*, Prentice Hall of India.

E- REFERENCES

1. <http://wwwswaroopchcom/notes/python>
2. http://enwikibooksorg/wiki/Python_Programming
3. <http://docspythonorg/release/301/tutorial/>
4. <http://learnpythonthehardwayorg/>
5. <https://wwwcourseraorg/course/interactivepython>
6. <http://wwwpython-courseeu/pandasphp>

7. http://wwwspoken_tutorialorg
8. <https://www.coursera.org/learn/python-data?specialization=python>
9. <https://www.coursera.org/learn/python-programming-introduction>

THIRD SEMESTER

Course Title: CORE THEORY 11 - DATAWAREHOUSING AND DATAMINING

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Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks :
40	
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES:

On taking this course the student will be able to understand and implement classical models and algorithms in data warehousing and data mining. To analyze the data, identify the problems, and choose the relevant algorithms for the chosen dataset. To compare and contrast different conceptions of data mining, to characterize the kinds of patterns that can be discovered by association rule mining, classification and clustering

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	To appreciate the basic principles, concepts and applications of data warehousing and data mining
CO2	Have a good knowledge of the preprocessing techniques
CO3	To perform Data Mining using association rules
CO4	To get insights from data using classification and prediction techniques
CO5	Knowledge of clustering techniques and outliers
CO6	To be able to apply data mining techniques to real world data by cleaning the data, integrating the data from different sources, predicting a model to group the data tuples into classes, discovering patterns using association rule mining and grouping the data set into clusters.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	3	3	3	2	2	3	3	3	2	3
CO 2	3	3	3	3	3	3	3	2	3	3	3	2	3
CO 3	3	3	3	3	3	3	2	2	3	3	3	3	3
CO 4	3	3	3	3	3	2	2	2	3	3	3	3	3
CO 5	3	3	3	3	3	3	2	3	3	3	3	3	3

CO 6	3	3	3	3	3	3	2	2	3	3	3	3	3
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3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S. No	CONTENTS OF MODULE	Hrs	COs
1	UNIT I: Introduction to data warehousing – OLAP – Data Mining tasks – Data Mining versus Knowledge Discovery in Data bases – Mining Issues – Metrics – Social implications of Data mining Data Mining Techniques – Introduction – A statistical perspective on Data Mining – similarity measures – Decision Trees – Neural Networks – Genetic Algorithms.	9	CO1
2	UNIT II: Data Preprocessing: Why preprocess the data – Data cleaning – Data Integration – Data Transformation – Data Reduction – Data Discretization.	9	CO2
3	UNIT III: Data Mining Techniques: Association Rule Mining – The Apriori Algorithm – Multilevel Association Rules – Multidimensional Association Rules – Constraint Based Association Mining.	9	CO3
4	UNIT IV: Classification and Prediction: Issues regarding Classification and Prediction – Decision Tree induction – Bayesian Classification – Back Propagation – Classification Methods – Prediction – Classifiers accuracy.	9	CO4
5	UNIT V: Clustering Techniques: cluster Analysis – Clustering Methods – Similarity and Distance Measures – Hierarchical Methods – Partitional Methods – Outlier Analysis.	9	CO5, CO6

TEXT BOOKS:

1. Jiawei Han, MichelineKamber, Jian Pei (2008), *Data Mining: Concepts and Techniques*, 2nd edition, Morgan Kaufmann.
2. Mohammed J.Zaki,Wagnew Meira,Jr,Wagner Meira,(2014),*Data Mining and Analysis*,Cambridge University Press.
3. Charu C.Aggarwal(2015),*Data Mining*, 2nd edition,Springer International Publishing.

REFERENCE BOOKS:

1. RasmusLerdorf MH Dunham (2003), *Data Mining: Introductory and Advanced Topics*, 2003, Pearson Education.
2. PaulrajPonnaiah(2001), *Data Warehousing Fundamentals*, 2001, Wiley Publishers.
3. SN Sivananda and S Sumathi(2006), *Data Mining*, 2006,Thomsan Learning, Chennai.

E-REFERENCES:

1. <http://nptel.iitm.ac.in/video.php?subjectId=106106093>
2. <http://cecs.louisville.edu/datamining/PDF/0471228524.pdf>
3. <http://www.spoken-tutorials.org>
4. <https://www.udemy.com/fundamentals-of-data-mining/>
5. <https://www.coursera.org/learn/cluster-analysis>

THIRD SEMESTER

Course Title: CORE THEORY 12 - SOFTWARE TESTING

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks :
40	
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES

On taking this course the student will be able to study fundamental concepts in software testing, including software testing objectives, process, criteria, strategies, and methods, to discuss various software testing issues and solutions in software unit test; integration, regression, and system testing, to learn how to planning a test project, design test cases and data, conduct testing operations, manage software problems and defects, generate a testing report, to learn various software testing process like verification and validation, to gain the techniques and skills on how to use modern software testing tools to support software testing projects.

Course outcomes: At the end of course, the student will be able to

CO1	Discuss about the concept of bugs and analyses the principles in software testing to prevent and remove bugs.
CO2	Discuss about domains and path Analyze Linguistic and Structural Metric
CO3	Discuss about Verification and Validation. Analyse various levels of Testing, Testing Approaches, and Types of Testing & Test Plan.
CO4	Analyze Defect Management Discuss about Acceptance testing and special test.
CO5	Analyze various automation testing tools.
CO6	Gain the knowledge about various testing tools.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	3	3	2	3	3	3	3	3	3	3	3	2	3
CO2	3	2	3	3	2	3	3	3	3	2	3	3	3
CO3	3	3	3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	2	3	3	3	3	3	3	2	3	3
CO5	3	3	2	3	3	3	3	2	3	3	3	3	3
CO6	3	2	3	3	3	2	3	3	2	3	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No.	CONTENT OF MODULE	Hrs	COs
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1	UNIT I: Introduction: Purpose – Productivity and Quality in Software – Testing Vs Debugging Model for Testing – Bugs – Types of Bugs – Testing during Development Life-cycle. Requirement Traceability matrix-Work Bench. Principles of software testing, Salient features of Good Testing-Challenges in Testing-cost Aspect of Testing-Developing Testing Methodologies.	9	CO1
2	UNIT II: Domain Testing: Domains and Paths – Domains and Interface Testing- Metrics –Linguistic and Structural Metric.	9	CO2
3	UNIT III: Software Testing Process-Verification and Validation-Levels of Testing-Testing Approaches-Types of Testing-Test Plan.	9	CO3
4	UNIT IV: Test Model - Defect Management-Levels of Testing-Acceptance Testing-Special Tests-Test Planning.	9	CO4
5	UNIT V: Software Testing Tools Overview- QTP Tools-Performance Testing Tools-LoadRunner Tool. Testing Management Tools-TestDirector-GUI Testing-SilkTest-Open Source Testing Tool-JMeter.	9	CO5,CO6

TEXT BOOKS

1. B. Beizer (2003). *Software Testing Techniques*, Second Edition), DreamTechIndia, New Delhi. (UNIT I and II).
2. K.V.KK. Prasad (2005). *Software Testing Tools*, DreamTech. , India, New Delhi.
3. (UNIT III, IV and V).
4. M.G.Limaye (2009). *Software Testing Principles, Techniques and Tools*, TataMc.Graw Hill Education Private Limited, New Delhi.(UNIT III and IV)

REFERENCE BOOKS

1. I.Burnstein (2003). *Practical Software Testing*, Springer International Edition.
2. M G Limaye (2009). *Software Testing*, TMH, New Delhi.

E-REFERENCES

1. <http://awards.istqb.org/award-winner/boris-beizer.html>
2. <http://www.testingreferences.com/testinghistory.php>
3. <http://www.swquality.com/users/pustaver/Books/books.htm>
4. <http://www.bullseye.com/coverage.html>
5. https://www.tutorialspoint.com/software_testing/
6. <https://lecturenotes.in/subject/129/software-testing-st>
7. www.ecs.csun.edu/~rlingard/COMP595VAV/SoftwareTesting.ppt

THIRD SEMESTER

Course Title: **ELECTIVE 3 - CRYPTOGRAPHY**

Course Code :	Credits : 03
L:T:P:S : 4:0:0:0	CIA Marks :
40	
Exam Hours : 03	ESE Marks : 60

LEARNING OBJECTIVES

To understand the mathematics behind cryptography, security concepts, vulnerabilities, different types of cryptosystems and attacks attacks on various cryptosystems.

Course outcomes: At the end of course, the student will be able

COS	Content of module
CO1	Gain knowledge about Conventional encryption model
CO2	Analyse Euclidean Algorithm and Number theory
CO3	Understanding Key exchanges.
CO4	Detailed representation of Hashing functions.
CO5	Describe the various Digital signatures logic.
CO6	Apply different encryption and decryption techniques

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO 1	3	3	3	2	1	3	1	1	3	3	2	2	3
CO 2	3	2	3	3	3	2	1	2	3	2	2	2	1
CO 3	3	3	3	2	3	1	1	1	3	2	2	3	2
CO 4	3	3	1	3	2	3	2	2	3	2	2	3	3
CO 5	3	3	2	2	2	2	1	1	3	3	3	3	2
CO 6	3	3	2	2	2	2	2	1	3	3	3	3	1

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

S.No	CONTENTS OF MODULE	HRS	COS
1	UNIT I: Conventional encryption model –Security Concepts- Substitution and Transposition Ciphers- DES algorithm –AES algorithm - Random number generation.	9	CO1
2	UNIT II: Number Theory: Modular arithmetic – Euler’s theorem – Euclid’s algorithm – Extended Euclidean Algorithm and its applications. Chinese remainder theorem – Prime numbers and factorization –Discrete Logarithms.	9	CO2
3	UNIT III: Principles of Public key Cryptography– RSA algorithm – Key Management- Diffie – Hellman key exchange	9	CO3
4	UNIT IV: Message Authentication and Hash functions: Authentication requirements –Authentication function- Message Authentication codes-Hash functions-Secure Hash Algorithm.	9	CO4
5	UNIT V: Digital Signature and Authentication Protocols: Digital Signature Authentication Protocols –Digital Signature Standard.	9	CO5 ,CO6

TEXT BOOK

1. Stallings. W (2013). Cryptography and Network Security Principles and Practice, Pearson Education, Delhi, ISBN: 9788131761663.

REFERENCE BOOKS

1. Charlie Kaufman, Radia Perlman, Mike specimen (2016). Network Security Private Communication in a public world, Prentice Hall PTR, ISBN: 9789332586000
2. Michael Welsehenbach (2013). Cryptography in C & C++, Apress, ISBN: 9781430250999.

E-REFERENCES

1. <http://www.webopedia.com/TERM/C/cryptography.html>
2. <http://www.sagemath.org/pdf/en/reference/cryptography/cryptography.pdf>
3. <http://www.freetechbooks.com/lecture-notes-on-cryptography-t565.html>
4. <https://nptel.ac.in/courses/10610503/>
5. <https://nptel.ac.in/courses/106105162/>

THIRD SEMESTER

Course Title: CORE THEORY T10-DOT NET PROGRAMMING (For Students admitted from 2020 onwards)

Course Code	: XX29319 XX29213(A) (XX-Year of admission)	Credits	: 04
L:T:P:S	: 3:1:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- To understand .NET Platform and its core functionalities.
- To develop windows and web applications with Microsoft SQL and Visual Studio.
- To understand and develop user defined Applications using MVC framework.
- To strengthen Object Oriented Programming using advance VB.NET concepts

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Explore Microsoft .NET Integrated Development Environment (IDE)
CO2	Understand the basic concepts of VB.NET framework.
CO3	Developing programs using VB .NET.
CO4	Illustrate and implement the concepts of Class and objects, Inheritance, Overloading, Exceptions and File Handling in VB.NET
CO5	Building ASP.NET Programming through Web Server Controls, Validation Controls and DataList Web Server Controls.
CO6	Apply ADO.NET and OLEDB concepts for establishing connectivity among applications with reduced code complexity and develop network applications

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	3	3	2	3
CO2	3	3	1	2
CO3	3	3	1	2
CO4	3	2	1	3
CO5	3	2	2	2
CO6	3	3	3	2

3-Strong 2-Medium 1-Low

SI No.	Contents of Module	Hrs	COs
1	Introducing Microsoft .NET:- Microsoft .NET platform: .NET Enterprise Servers, .NET framework and .NET Building block Services - .NET Namespaces. Common Type System(CTS), Common Language Specification(CLS) and CLR Execution (Class loader, verifier, JIT compilers).	12	CO1
2	VB.Net Basics: VB Dot Net Framework Basics - Visual Studio Environment – Data Types , Variables, constants ,Operators and Expressions – Decisions and Conditions - Loops - Sub Procedures and Functions – Built-in functions - Arrays - Structures- Enumerators – Delegates and Events.	12	CO2,CO3
3	VB.Net Advanced: Windows Forms and Basic Controls - Timer control - Graphics and Animation: The Graphics Environment – Simple Animation – Scroll Bar Controls - Menus and Status Bars- Multi Form applications - Class and Objects - Inheritance - Exception Handling.	12	CO3,CO4

4	ASP.NET Basics: ASP.NET Language Structure - Page Structure - Page event, Properties & Compiler Directives. Basic Web Server Controls: TextBox, Label, Button, CheckBox, RadioButton and LinkButton. Validation Controls: RequiredValidator, CompareValidator and RegularExpressionValidator. DataListWebserver Controls: ListBox, CheckedList, RadioButtonList, DropDownList and Data Grid control.	12	CO5
5	Working with Data: Benefits of ADO.NET, ADO.NET Architecture, Main classes in ADO.NET, Developing a Windows/Web application using database. OLEDB Connection class, Command class, Transaction class, DataAdaptor class, DataSet class. ASP.NET Advanced: MVC Pattern, Life Cycle, Controllers, Actions, Views, Data Model. Model Binding, using Databases. Request and Response Objects, Cookies.	12	CO6

Text Books:

1. Jeff Prosize, Programming Microsoft .NET - Microsoft Press, 1st Edition, 2009.
2. Visual Basic.Net Black Book by Steven Holzner Dreamtech Press
3. The Complete Reference Visual Basic .NET Jeffery R. Shapiro Tata McGraw Hills
4. Thuan Thai, .NET Framework, O'Reilly publications, 3rd edition, 2009

Reference Books:

1. David S Platt, Introducing Microsoft .NET ,Microsoft press, 3rd Edition, 2003
2. Murach's Beginning Visual basic .Net By Anne Bohem
3. Freeman, Adam, Pro ASP.NET MVC, après, 2013
4. Paul Yao, David Durant, Programming .NET Compact Framework 3.5, Pearson Education, 2nd Edition, 2010.

E-References:

1. http://www.nptelvideos.com/visualbasic_net/visualbasicnet_video_tutorials.php
2. <http://www.nptelvideos.com/video.php?id=1775&c=21>
3. <https://freevideolectures.com/course/3002/dot-net-tutorial/1>
4. http://www.philadelphia.edu.jo/academics/qhamarsheh/uploads/Lecture_14_Introduction_to_ASP.pdf
5. <http://sigc.edu/department/computerscience/studymet/AdvancedASP.NET.pdf>

SECOND SEMESTER

Course Title: CORE THEORY T6-MOBILE APPLICATION DEVELOPMENT (For Students admitted from 2020 onwards)

Course Code	: XX29210 (XX-Year of admission)	Credits	: 04
L:T:P:S	: 3:1:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- To introduce Android platform and its architecture.
- To learn activity creation and Android UI designing.
- To be familiarized with Intent, Broadcast receivers and Internet services.
- To work with SQLite Database and content providers.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define Android applications, download and install Android Studio, work in development environment and to execute the First Android Application.
CO2	Illustrate the use of activities, fragments and intents in Android to invoke Built-in Applications and use of notification in Android.
CO3	Design and implement the user interfaces using basic widgets, views, view groups and layouts of Android.
CO4	Work with user interface to handle pictures and menus and explain data storage options using the internal and external storage using Shared Preferences, files, SQLite database and Content Providers.
CO5	Illustrate the formation of SMS and E-mail in the mobile phones and demonstrate the Location Based Services (LBS) and consumption of Web Services in Android using JSON and Sockets.
CO6	Developing Android Services by establishing communication between a service and an activity and illustrating the steps for publishing Android applications.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	2	3	3	2
CO2	3	2	2	3
CO3	3	3	2	2
CO4	3	3	2	3
CO5	3	3	3	2
CO6	3	3	2	2

3-Strong 2-Medium 1-Low

SI No.	Contents of Module	Hrs	COs
1	Introduction to Android – Features of Android-Architecture of Android-Obtaining the Required Tools- Creating First Android Application - Anatomy of Android Application-Components of Android Application-Lifecycle of Activity. Intents: Creating Intents, Types of Intents, Intents returning result, Intent Filters, Calling Built-In Application Using Intents and Displaying Notifications using PendingIntent. Fragments: Lifecycle of Fragment, Types of Fragments and how to create and use fragments.	12	CO1,CO2
2	Screen Layouts: Linear, Table, Relative, Absolute and Grid. Basic Views: Toast, TextView, EditText, Button, AutoCompleteTextView, CheckBox, ToggleButton,	12	CO3

	ImageButton, RadioButton, SeekBar, ListView, ImageView, DatePicker and TimePicker- Adapting to Display Orientation - Creating the views programmatically.		
3	Menus: OptionsMenu, ContextMenu and PopupMenu. Data Persistence: Saving and Loading using Shared Preferences - Persisting Data to Files - SQLite Database: Create, Insert, Delete, Update and Select queries. Content Provider: Creating and using Content Provider.	12	CO4
4	Sending SMS - Sending E-Mail- Location – Based Services: Displaying Maps - Getting Location Data. Networking: Consuming Web Services Using HTTP - Consuming JSON Services - Sockets Programming.	12	CO5
5	Developing Android Services: Lifecycle of Service, Types of service and Creating own services. Threading: Worker thread and Async thread. Publishing Android Applications: Preparing for Publishing - Deploying APK Files.	12	CO6

Text Book:

1. J.F. DiMarzio, “**Beginning Android Programming with Android Studio**”, 4th Edition, Wiley Publications, 2017.

Reference Books:

1. Wei Meng Lee, “**Beginning Android 4 Application Development**”, Wiley Publications, 2013.
2. Anubhav Pradhan, Anil V Deshpande, ‘Mobile Applications Development’, First Edition.
3. Barry Burd ‘Android Applications Development all in one for Dummies’, First Edition.
4. “Teach Your self Android Application Development in 24 hours” First Edition, SAMS.
5. Rick Boyer, “**Android 9 Development Cookbook**”, 3rd Edition, Packt Publishing, 2018.
6. Reto Meier and Ian Lake, “**Professional Android**”, 4th Edition, Wiley Publishers.

E-References:

1. <http://developer.android.com/>
2. <https://www.tutorialspoint.com/android/index.htm>
3. <https://abhiandroid.com/>

THIRD SEMESTER

Course Title: CORE THEORY ELECTIVE 3-INTRODUCTION TO INTERNET OF THINGS
(For Students admitted from 2020 onwards)

Course Code	: XX29322(A) (XX-Year of admission)	Credits	: 04
L:T:P:S	: 4:0:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- *To understand the fundamentals of Internet of Things*
- *To learn about the basics of IOT protocols*
- *To build a small low cost embedded system using RaspberryPi.*
- *To apply the concept of Internet of Things in the real world scenario*

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Interpret the vision of IoT from a global context
CO2	Describe the fundamentals of IoT and M2M
CO3	Analyze applications of IoT in Raspberry Pi
CO4	Appreciate the role of big data, cloud computing and data analytics in a typical IoT system
CO5	Determine the market perspective of IoT
CO6	Illustrate the application of IoT in Industrial Automation and identify Real World Design Constraints.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	3	3	2	2
CO2	3	3	2	2
CO3	3	3	3	3
CO4	3	3	3	3
CO5	3	2	3	3
CO6	2	1	3	3

3-Strong 2-Medium 1-Low

SI No.	Contents of Module	Hrs	COs
1	Introduction - Physical Design of IoT- Logical Design of IoT - IoT Enabling Technologies - IoT Levels & Deployment Templates.	12	CO1
2	IoT and M2M - M2M – Difference between IoT and M2M-SDN and NFV for IoT - IoT system management –Need for SNMP-Network operator requirements- NETCONF - YANG - IoT System Management with NETCONF-YANG.	12	CO2
3	IoT Platforms Design Methodology: Ten steps in IoT design methodology- IoT Physical Devices & Endpoints: Basic building blocks of IoT devices – Exemplary device: Raspberry Pi – Linux on Raspberry Pi – Raspberry Pi Interfaces – Programming Raspberry Pi with Python.	12	CO3

4	IoT Physical Servers and Cloud Offerings :Introduction to Cloud storage models and Communication APIs – WAMPAutoBahn for IoT – Xively Cloud for IoT – Python Web Application Framework -DJANGO — Amazon Web Services for IoT – Amazon EC2 – Amazon AutoScaling – Amazon S3 – AmazonRDS – Amazon DynamoDB – Data Analytics for IoT: Apache Hadoop –MapReduce Programming Model – Hadoop	12	CO4
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	MapReduce job Execution – MapReduce job for Execution Workflow.		
5	Case Studies and Real-World Applications: Realworld design constraints – Applications: Asset Management - Smart Grid - Commercial Building Automation - Smart Cities - Participatory Sensing.	12	CO5,CO6

Text Books:

1. ArshdeepBahga, Vijay Madiseti, "Internet of Things: A Hands-on Approach" , First Edition, Universities Press, 2015.
2. Jan Holler, VlasiosTsiatsis , Catherine Mulligan, Stamatis , Karnouskos, Stefan Avesand. David Boyle, "From Machine-to-Machine to the Internet of Things - Introduction to a New Age of Intelligence", Elsevier, 2014.

Reference Books:

1. Dieter Uckelmann, Mark Harrison, Michahelles, Florian (Eds), "Architecting the Internet of Things", Springer, 2011.
2. Honbo Zhou, "The Internet of Things in the Cloud: A Middleware Perspective", CRC Press, 2012.
3. Olivier Hersent, David Boswarthick, Omar Elloumi , "The Internet of Things – Key applications and Protocols", Wiley, 2012
4. AmmarRaves, SamereSalam, "Internet of Things – From Hype to Reality", First Edition, Springer Publishers, 2017.
5. Raj Kamal, "Internet of Things Architecture and Design Principles", First Edition, Mc-Graw Hill Education, 2017.
6. AgusKurniawan, "Smart Internet of Things Projects", First Edition, Packt Publishing Ltd., 2016.

E-References:

1. <https://nptel.ac.in/courses/106/105/106105166/>
2. <https://www.edureka.co/blog/iot-tutorial/>

<https://www.javatpoint.com/iot-internet-of-things>

THIRD SEMESTER

Course Title: CORE THEORY ELECTIVE 2-COMPUTER FORENSICS AND BIOINFORMATICS
(For Students admitted from 2020 onwards)

Course Code	: XX29321 (A) (XX-Year of admission)	Credits	: 04
L:T:P:S	: 4:0:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- To provide an understanding Computer forensics fundamentals
- To analyze various computer forensics technologies
- To provide computer forensics systems
- To identify methods for data recovery.
- To understand Genomic data acquisition and analysis, comparative and predictive analysis in Bioinformatics field.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Demonstrate competency in the collection, processing, analyses, and evaluation of evidence.
CO2	Demonstrate competency in the principles of crime scene investigation, including the recognition, collection, identification, preservation, and documentation of physical evidence. Classify and apply the acquisition tools
CO3	Identify the role of the forensic scientist and physical evidence within the criminal justice system. Identify and examine current and emerging concepts and practices within the forensic science field.
CO4	To get introduced to the basic concepts of Bioinformatics and its significance in Biological data analysis.
CO5	Describe the history, scope and importance of Bioinformatics and role of internet in Bioinformatics
CO6	Classify different types of Biological Databases. Introduction to the basics of sequence alignment and analysis

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	3	3	2	3
CO2	3	3	3	3
CO3	3	3	1	3
CO4	3	2	3	3
CO5	3	2	2	3
CO6	2	1	3	3

3-Strong 2-Medium 1-Low

Sl No.	Contents of Module	Hrs	COs
1	Understanding of Computer Forensics: Computer Forensics vs other related disciplines – A brief history of Computer Forensics – Understanding Case law – Developing Computer Forensics resources-Preparing for Computer Investigation.	12	CO1
2	Data Acquisition: Understanding Storage Formats for Digital Evidence – Determining the Best Acquisition Model – Contingency Planning for Image Acquisitions – Using Acquisition Tools – Validating Data Acquisition.	12	CO2
3	Processing Crime and Incident Scenes: Identifying Digital Evidence – Collecting Evidence in Private Sector Incident Scenes – Seizing Digital Evidence at the Scene – Storing Digital Evidence.	12	CO3

4	Introduction to Bioinformatics – Databases and Matrices – Biological Database – Database Searching – Scoring Matrices.	12	CO4,CO5
5	Sequence Alignment – Pair wise sequence alignment – Multiple sequence alignment. Probabilistic Modes - Markov chain - Hidden Markov Models.	12	CO6

Text Books:

1. Bill Nelson, Amelia Philips and Christopher Stewart, "Guide to Computer Forensics and Investigations", Cengage Learning, 2010.
2. Ruchi Singh and Richa Sharma, Bioinformatics, University Press, Hyderabad, 2010.
3. Richard Durbin, Sean Eddy, Anders Krogh, and Graeme Mitchison, "Biological Sequence Analysis: Probabilistic Models of Proteins and Nucleic Acids", Cambridge University Press, 2008.

Reference Books:

1. Jay G Heiser and Warren G Kruse, "Computer Forensics: Incident Response Essentials", Addison Wesley, New Delhi, 2010.
2. Robert M Slade, "Software Forensics: Collecting Evidence from the scene of a Digital Crime", Tata Mc Graw Hill, New Delhi, 2011.
3. Arthur M Lesk, "Introduction to Bioinformatics", Oxford University Press, 2014.
4. Bishop M.J., Rawlings C.J. (Eds.), "DNA and protein sequence analysis: A Practical Approach", IRL Press, Oxford, 2010

E-References:

1. <https://www.bioinformatics.org/>

**Course Title: CORE THEORY T11-PRINCIPLES OF CLOUD COMPUTING
(For Students admitted from 2020 onwards)**

Course Code	: XX29320 XX29213(A) (XX-Year of admission)	Credits	: 04
L:T:P:S	: 4:0:0:0	CIA Marks	: 40
Exam Hours	: 03	ESE Marks	: 60

Course Objectives:

- To introduce the broad perspective of cloud architecture and model
- To understand the concept of virtualization and design of cloud Services
- To be familiar with the lead players in cloud.
- To study the various security issues in cloud computing.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Analyze the core concepts of the cloud computing paradigm: Evolution, characteristics, advantages and challenges brought about by the various models and services in cloud computing.
CO2	Develop the ability to understand and use the architecture of compute and storage cloud, service and delivery models.
CO3	Apply fundamental concepts in cloud infrastructures to understand the tradeoffs in power, efficiency and cost.
CO4	Analyse and develop multimedia cloud application.
CO5	Implementation of cloud platform using python

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4
CO1	3	3	2	2
CO2	3	3	3	2

CO3	3	3	3	2
CO4	3	3	3	3
CO5	3	3	3	3

3-Strong 2-Medium 1-Low

Sl No.	Contents of Module	Hrs	COs
1	Introduction to Cloud Computing – Definition of Cloud – Characteristics of Cloud Computing – Cloud Models – Cloud Service Examples – Cloud Based Services and applications- Cloud Concepts and Technologies.	12	CO1
2	Cloud Services and Platforms: Compute Services – Storage Services – Database Services – Application Services – Content Delivery Services – Analytic Services – Deployment and Management Services – Identity and Access Management Services – Open Source Private Cloud Software. Developing for Cloud: Cloud Application Design – Reference Architectures for Cloud Applications – Cloud Application Design Methodologies – Data Storage Approaches.	12	CO2
3	Python for Cloud: Python for Amazon Web Services – Python for Google Cloud Platform – Python for Windows Azure – Python for MapReduce – Python Packages of Interest – Python Web Application Framework Django.	12	CO3

4	Cloud Application Benchmarking and Tuning: Introduction – Workload Characteristics – Application Performance Metrics – Design Consideration for Benchmarking Methodology – Benchmarking tools – Deployment Prototyping – Cloud Security.	12	CO4
5	Case Studies: Cloud for Manufacturing Industry – Cloud for Healthcare – Cloud for Education – Load Testing and Bottleneck Detection – Hadoop Benchmarking – Live Video Streaming App – Video Transcoding App.	12	CO5

Text Book:

1. Arshdeep Bahga and Vijay Madiseti, " **Cloud Computing: A Hands on Approach**", University Press, Hyderabad, 2014.

Reference Books:

1. Barrie Sosinsky, " **Cloud Computing Bible**", Wiley Publishing Inc, 2013.
2. John W. Rittinghouse and James F. Ransome, " **Cloud Computing: Implementation, Management, and Security**", CRC Press, 2010.
3. Kai Hwang, Geoffrey C Fox, Jack G Dongarra, " **Distributed and Cloud Computing, From Parallel Processing to the Internet of Things**", Morgan Kaufmann Publishers, 2012

E-References:

1. <https://nptel.ac.in/courses/106/105/106105167/>
3. https://www.tutorialspoint.com/cloud_computing/index.html
4. <https://www.guru99.com/cloud-computing-for-beginners.html>

<https://www.youtube.com/watch?v=LICA-ILkO4w>

RESEARCH METHODOLOGY

Subject code: 31103

Total Hours - 90

Credits – 4

Course Description-The student would be able to understand the meaning of research and get a step by step knowledge of the entire research process,

UNIT-I

Meaning of Research - Nature and scope of Social Research – Aims – Objectives – Basic Principles of Research – Types of Research – Research Process.

UNIT-II

Review of Literature – Empirical and Theoretical Framework - Formulation of Hypothesis – Selection of Research problem - Research design.

UNIT-III

Techniques of data collection - Observation, schedule, questionnaire and interview method - Social survey - Case study.

UNIT-IV

Analysis of data – Editing – Coding - Processing - Consolidation and tabulation – Scaling techniques - Likert's scale – Application of software techniques.

UNIT-V

Research presentation - General organization of research presentation – Rules for arrangement of text, diagrams – Reference - Bibliography and footnote.

Recommended Texts:

1. Cochran w.g.(1983) - Sampling techniques(second edition)
2. Donald R.Cooper, Pamela S. Schindler(1999) - Business - Research Methods
Tata Mcgraw Hill, New Delhi.
3. V.Shanmugasundaram,- Methodology of Research in Social Science - Madras
University- 1974.

Reference Books:

1. Forces And Bircher(1973) - Social Research Method.
2. Basil Blackwell, Kiplinger - Foundation Of Behavioral Research
4. Kurien ,C.T.(Ed)(1973) - A Guide To Research In Economics- Sangam
publishing house
5. Murthy ,M.N.(1967) - Sampling Theory And Methods – Statistical
publishing society

Course Outcomes

CO1	To explain the meaning of research, its aims, principles and types.
CO2	To be able to select a research problem after careful review of literature and formulate the design for the study.
CO3	To distinguish between the various methods of data collection.
CO4	To outline the steps involved in the analysis of data.
CO5	To illustrate the general organization of a research thesis with thorough understanding of the rules and ethics.

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	2	3	3	2	3	3	3
CO2	2	3	3	3	3	3	3
CO3	2	3	3	3	3	3	3
CO4	2	3	3	3	3	3	3
CO5	2	3	3	2	3	3	3

Correlation levels: 1- Weak 2-Medium 3-High

HEALTH ECONOMICS

Subject code: 31104

Total hours – 90

Credits-4

Course Description-The student can understand the importance of investment in health for human and economic development and the role of the government in this regard.

UNIT-I

Definition – Role of health in human development – Role of economics in the health sector - Health indicators - Health status - Nutritional status - Relationship of health care with macro economic performance - Health as an investment.

UNIT-II

Demand for Health care services - Health inputs and health output - Efficiency of production of Health services - Choice of health care - Allopathy, Indian alternative medicines - Market for health services - Demand, supply and equilibrium.

UNIT-III

Evaluation of Health care Programmes - Measuring cost – Measuring benefit - Cost Effectiveness - Cost Benefit analysis – Standardized measures of outcome & utility scores - Measures of QALY and DALY - Burden of Disease - Measures of health gains and utilities.

UNIT-IV

Medical Tourism - Significance and role - Uncertainty and health insurance market - Voluntary insurance - Social insurance systems – Alternative insurance mechanisms.

UNIT-V

Health Sector in India – An overview – Health outcomes – Health systems - Health financing - Health policy in India with special reference to Tamil Nadu.

Recommended Texts:

1. William Jack, Principles of Health Economics for Developing Countries, World Bank Institute Development Studies, 1999
2. World Development Report, Investing in Health, The World Bank, 1993
3. Ronald G., Ehrenberg and Robert S., Smith, Modern Labor Economics: Theory and Public Policy, Addison Wesley, 2005.

Reference Books:

1. Baru R.V: Private Health Care in India, Social Characteristics and Trends (Sage, New Delhi, 1998)
2. 2.Becker G.S: Human Capital (National Bureau of Economic Research, New York, 1974)
3. Berman P & Khan M.E: Paying for India's Health Care (Sage, New Delhi, 1993)
4. Berman P (Ed): Human Health Sector Reform in Developing Countries -
5. Making Health Development Sustainable (Harvard Series on Population and International Health, Boston 1995)

Course Outcomes

CO1	To explain the role of health and its indicators in human and economic development
CO2	To assess the market for health services in terms of demand and supply
CO3	To evaluate health care programmes
CO4	To demonstrate the role of medical tourism and assess the health insurance mechanism in India.
CO5	To analyse the health policy in India and Tamilnadu.

Mapping of CO v/s PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	3	3	3	2	3	3	3
CO2	3	3	3	3	3	3	3
CO3	3	3	3	2	3	3	3
CO4	3	3	3	2	2	3	3
CO5	3	3	3	2	3	3	3

Correlation levels: 1- Weak 2-Medium 3-High

Soft Skill I
(Handled by Department of English)

Soft Skill II
(Handled by Department of English)

Artificial Intelligence in HR Practices (45)

Department: M.A.HRM		Academic Semester: EVEN	
Semester: III	Section:	Course Code:	Course: Artificial Intelligence in HR Practices
Course Instructor:		Contact Hours /week: 3	No. of credits: 4
CIA: 50		ESE : 50	Exam Hours: 03

Content delivery:	Chalk and Talk, Power Point Presentation, Quiz and Assignments, Google Classroom, Seminar, Group Discussion and Practical Session
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COURSE OUTCOMES: At the end of the Course, the Student will be able to:

CO1	Understand the basics of Artificial Intelligence and its usage in Decision making
CO2	Describe the concepts of Artificial Intelligence, benefits of automation and role of chatbots, voice bots in various sectors.
CO3	Analyse and Evaluate the AI assisted HR functions - Challenges in Applying Artificial Intelligence.
CO4	Practical Session on Basics of Artificial Intelligence
CO5	Practical Session on Artificial Intelligence in HR functions

Mapping of CO v/s PSO:

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	2	3	2
CO2	2	2	2	2	3
CO3	2	2	2	3	3
CO4	3	3	2	3	2
CO5	3	2	2	3	2

Correlation levels: 1- Weak 2-Medium 3-High

SUBJECT NAME: ARTIFICIAL INTELLIGENCE IN HR PRACTICES

Theory

UNIT I

Introduction–Definition & Meaning of Artificial Intelligence – Emerging Technology in HR – Need and Use of Automation – Understanding Data Structure – Role of data in machine learning - Problem Solving and Decision Making with the help of AI. – AI a boon or bane for HR.

UNIT II

Evolution of Artificial Intelligence - Concepts related to the AI application – Tools of HR automation – Overview of SAP, ERP, Power BI, Chatbot - limitations of using data in HR decisions – Benefits of HR Automation – Role of Chatbots in Onboarding- Voice bots and its uses in different sectors.

UNIT III

AI to streamline all HR functions – Employee Engagement with Conversational AI – Implementation of HR Tools in HR process – Cost & Benefit Analysis in implementation of AI - HR Challenges in Applying AI.

Practical

UNIT IV

Basic understanding of AI and HR functions

UNIT V APPLICATIONS

Chatbots – Role of Artificial Intelligence from NEO to Exit - AI governance strategy

References

1. AI Revolution in HRM – Ashwani Kumar Upadhyay, Komal Khandelwal, Jayanthi Iyengar – Sage Publication.
2. Digital HR Strategy Achieving Sustainable Transformation in the Digital Age 2020 Edition by Soumyasanto Sen , Kogan Publication.
3. Handbook of Research on Artificial Intelligence in Human Resource Management Edited by Stefan Strohmeier, Saarland University, Edward Elgar Publication, Germany.
4. Data-Driven HR , Bernard Marr, Kogan Page Ltd.
5. Artificial Intelligence for HR, Ben Eubanks, Kogan Page Ltd.

GLOBAL AND STRATEGIC HUMAN RESOURCE MANAGEMENT

Course Objective

To understand the nature of International HRM and appreciate how and why International HRM has become so critical to competitiveness and to our society's wellbeing. To understand SHRM, and strategies of SHRM

(60 Hours)

Department: M.A.HRM		Academic Semester: EVEN	
Semester: IV	Section:	Course Code:	Course: Global & Strategic HRM
Course Instructor:		Contact Hours /Week: 4	No. of credits:4
CIA:50		ESE :50	Exam Hours: 03

COURSE OUTCOMES: At the end of the Course, the Student will be able to:

CO1	Understand Globalization and Global Impact on Indian Economy across Sectors. Modes of Entry strategies.
CO2	Illustrate the International Business Environment, GATT and WTO, Understanding International cultural aspects, Values and norms, religion and ethics, language, education impact of cultural differences on business
CO3	Explain the International HRM(IHRM) Definition, Difference between IHRM and Domestic HRM, Models of IHRM- 5P Model European Model.
CO4	Analyse and Evaluate SHRM process, difference between SHRM and Traditional HRM- Benefits and Role.
CO5	Analyse and evaluate various recruitment, retention and training and development strategies and choose the appropriate ones for a given situation. Describe the management trends and use the new strategic management tools in industries to gain a competitive advantage.

Co vs Po

COURSE OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	2	2	2	2	2	2	2	2	2	3
CO2	3	2	2	2	2	2	2	2	3	2
CO3	3	2	3	2	3	3	3	2	3	3
CO4	3	3	2	3	2	2	3	2	2	2
CO5	3	3	2	2	3	2	3	2	2	3

Mapping of CO v/s PS

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	3	3	2
CO2	2	2	3	3	2
CO3	3	3	2	2	2
CO4	3	2	2	2	2
CO5	3	2	3	2	2

S.NO	CONTENTS	HOURS	OUTCOME
1	Globalization and the Indian Business Environment Meaning and Implications, Phases, Global Impact on Indian Economy across Sectors. Modes of Entry strategies.	9	CO 1
2	International Business Environment: Review of the global economy, the global recession, Business environment in Developed and Developing Countries International trade theories. GATT and WTO: Agreements and Implications. International cultural aspects- Values and norms, religion and ethics, language, education, impact of cultural differences on business.	9	CO 2
3	International HRM(IHRM) Definition reasons for going global, Approaches to IHRM, Difference between IHRM and Domestic HRM, Reasons for emergence of IHRM, Models of IHRM-Matching model Harvard Model, Contextual Model, 5P Model European Model, Models - The Challenges of International Human Resource Management. – Overview of International Compliances, Tax, Work Permit, Visa Process and Offshoring business.	9	CO 3
4	Definition, Meaning -SHRM - Process - Types of Corporate Strategies - Difference between SHRM and HRM, - Porter generic model - Benefits of SHRM, Role of HR in Strategic Human Resource.	9	CO 4
5	HR strategies – Recruitment, Retention, Training & Development, and Retrenchment Strategies, Strategic management tools and recent trends in SHRM.	9	CO 5

Reference

1. Aswathappa, K. (2010) *Human Resource Management – Text and Cases*. New Delhi. Tata McGraw Hill.
2. Dessler, Gary & Varkkey, B. (2017). *Human Resource Management* (15th ed.)India, Pearson Education. Gupta C.B. (2018) *Human Resource Management Text and Cases* (19th ed.)India – Sultan Chand and Sons.
3. Gyanchandani Rajni,(2014) *Strategic Human Resource Management*. Nirali Prakashan. Reference Books. Jack Lawrence .R & Glueck William F(2008)-*Strategic Human ResourceManagement*-Tata Mc Graw Hill Publishing Company Ltd.
4. Dr.B.RathanReddy(2015)*EffectiveHumanResourceTrainingandDevelopment Strategy*, (3rd ed.).Mumbai,Himalaya PublishingHouse.
5. Armstrong Micheal (2011),*Armstrong's Handbook of Strategic Human Resource Management* (5th ed.). London, Kogan Page Ltd.
6. K. Aswathappa(2017), “International Human Resource Management” published by McGraw Hill Education, ISBN-13: 978-0071077941
7. P. Subba Rao(2015), “International Human Resource Management” published by Himalaya Publishing House, SBN-13: 978-9352028375 2018-20 Page 58 Reference Books:
8. Dr. S. C. Gupta(2014), “International Human Resource Management” published by Laxmi Publications, SBN-13: 978-0230330795
9. Vance (2013), “Managing a Global Workforce Challenges and Opportunities in International Human Resource Management” published by Prentice Hall India Learning Private Limited, ISBN-13: 978-8120347946 3.



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துவாரகதாஸ் கோவர்தந்தாஸ் வைணவக் கல்லூரி (தன்னாட்சி)

அரும்பாக்கம், சென்னை – 600 106.

தமிழ்த்துறை

பாடத்திட்டம் - 2022 - 2023

(2020 - 2021 கல்வியாண்டு முதல்)

OUTCOME BASED EDUCATION

பட்டப்படிப்பு – முதலாம் ஆண்டு – முதற்பருவம் (First Semester)

(செய்யுள், சிறுகதைகள், நாடகம், மொழிப்பயிற்சி, இலக்கிய வரலாறு)

Course Code : 23AT16101 / 2335101	Credits : 03
L:T:P:S : 4:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Outcomes: At the end of the Course, the Student will be able to:

CO1	மகாகவி பாரதியாரின் தமிழ், கண்ணன் என் அரசன்; பாவேந்தர் பாரதிதாசனின் நூலைப்படி; நாமக்கல் கவிஞர் வெ. இராமலிங்கம்பிள்ளையின் புதிய சமுதாயம், தூய்மை சோதி; கவிஞராயிறு தாராபாரதியின் வெறுங்கை என்பது மூடத்தனம் ஆகிய கவிதைகளிலிருந்து தமிழின் ஆழம், அரசனின் ஆளுமைத் திறம், சமுதாயப் பார்வை, தன்னம்பிக்கையின் ஆழம், ஆகியன அறியப்பெற்றன. இவற்றின் மூலம் படித்தல் திறன், கவிதை வாசிப்புத் திறன், கவிதை இயற்றும் திறன் ஆகியன சிறப்பாக வெளிப்பட்டன.
CO2	ஈரோடு தமிழன்பனின் வசப்படுவாயா வள்ளுவ? எனும் கவிதையிலிருந்து வள்ளுவரின் சிறப்பையும் திருக்குறளின் சிறப்பையும் அறிந்து கொள்ளப்பட்டன. கவிக்கோ அப்துல் ரகுமானின் ஐந்தாண்டுக்கு ஒருமுறை, கேள்வி, சித்திர மின்னல்கள், பெயர் ஆகிய கவிதைகளிலிருந்து படிமம், தொன்மம் போன்ற கவிதை உத்திகள் அறிந்து கொள்ளப்பட்டன. கவிப்பேரரசு வைரமுத்துவின் கேள் மனமே கேள், நா.முத்துக்குமாரின் தூர், நாட்டுப்புறப்பாடலான அன்புள்ளம் கொண்ட அம்மாவுக்கு மகள் எழுதும் கடிதம் ஆகிய கவிதைகளிலிருந்து மனித உள்ளத்தின் தன்மையும் பழமையின் சிறப்பும் வறுமையின் திறமும் அறியப்பெற்றன. இவற்றின் மூலம் மரபுக்கவிதையும் வசன கவிதையும் இயற்றும் திறன், நாட்டுப்புறப் பாடல் இயற்றும் திறன் ஆகியன வெளிப்பட்டன.



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CO3	கவிமணி தேசிக விநாயகம் பிள்ளையின் புத்தனும் ஏழைச் சிறுவனும், உமார்கய்யாம் பாடல்கள், த.கோவேந்தனின் சமூகம், ஓடிக்கொண்டிரு, ஆற்றல் ஆகிய மொழிபெயர்ப்புக் கவிதைகள், இரா.தண்டாயுதம் இயற்றிய மலேசிய நாட்டுப்புறப் பாடல்கள், வால்ட்விட்மனின் என்பாடத் துவக்கம், என்னை நானே பாடுகிறேன் ஆகிய கவிதைகளின் வழி அயல்நாட்டுக் கவிஞர்களின் அறிமுகமும் மொழிபெயர்ப்புத் தன்மையும் உயரிய சிந்தனையும் பெறப்பட்டன. பாரதிதாசனின் வீரத்தாய் நாடகம் வழி நாடகம் படித்தல் திறனும் நடிப்புத் திறனும் வெளிப்பட்டன.
CO4	புதுமைப்பித்தனின் பொன்னகரம், அறிஞர் அண்ணாவின் செவ்வாழை, ஜெயகாந்தனின் உண்மை சுடும், அம்பையின் பயணம், சோ.தர்மனின் சோகவனம் ஆகிய சிறுகதைகளிலிருந்து சிறுகதை படித்தல் திறனும் சிறுகதை இயற்றும் திறனும் வெளிப்பட்டன.
CO5	கலைச்சொற்கள், வல்லினம் மிகும் இடங்கள், வல்லினம் மிகா இடங்கள், எழுத்துக்களின் வேறுபாடு, ஒலி வேறுபாடு, பொருள் வேறுபாடு, நேர்காணல் முதலான மொழிப்பயிற்சிகளின் வழி மொழியைப் பிழையின்றி எழுதவும் பேசவும் அறிந்து கொள்ளும் திறன்கள் வெளிப்படுத்தப்பட்டன. பாடம் சார்ந்த தமிழ் இலக்கிய வரலாறுகளின் மூலம் தமிழ் இலக்கியங்களின் வரலாற்றை அறிந்து கொள்ளும் திறன் வெளிப்பட்டது.

பட்டப்படிப்பு – முதலாம் ஆண்டு – இரண்டாம் பருவம்
(செய்யுள், உரைநடை, மொழிப்பயிற்சி, இலக்கிய வரலாறு)

Course Code : 23AT16204 / 2335201	Credits : 03
L:T:P:S : 4:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	மீனாட்சி சுந்தரம்பிள்ளையின் சேக்கிழார் பிள்ளைத்தமிழ், தமிழ்விடு தூது, முக்கூடற் பள்ளு முதலான சிற்றிலக்கியங்கள் படிக்கப்பட்டன. மரபு வடிவிலான யாப்புடன் அமைந்த பாடல்கள் புணைய பயிற்சி பெறப்பட்டது.
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CO2	செயங்கொண்டாரின் கலிங்கத்துப் பரணி, புகழேந்திப் புலவரின் நளவெண்பா ஆகிய இலக்கியங்கள் படிக்கப்பட்டன. இதன்மூலம் பண்டைய வரலாறுகளும் வரலாற்று மூலங்களும் படிக்க ஊக்குவிக்கப்பட்டது. புராணங்களில் காணப் பெறும் மனித வாழ்வின் விழுமியங்களையும் வாழ்வியல் முறைகளையும் உணரச் செய்யப்பட்டு வாழ்க்கையைச் செம்மையாக வாழ ஆலோசனை பெறப்பட்டது.
CO3	உமறுப்புலவரின் சீறாப்புராணம், கவியரசு கண்ணதாசனின் இயேசுகாவியம் ஆகியவற்றின் மூலம் இஸ்லாமிய கிறித்துவ சமயங்களின் சிந்தனைகளும் இறைத்தூதர்களின் வரலாறுகளும் பெறப்பட்டன.
CO4	இரா.பி.சேதுப்பிள்ளையின் பாரதப்பண்பாடு, சாமி.சிதம்பரனாரின் ஒற்றுமையே உயர்ந்த பண்பு, கலீல் ஜிப்ரானின் அன்பு, ஏ.கே.செட்டியாரின் தென்னாப்பிரிக்காவில், கணினித் தமிழ் ஆகிய கட்டுரைகளின் வழி உரைநடை வாசிப்புத் திறனும் கட்டுரை எழுதும் திறனும் பெறப்பட்டன.
CO5	ஒரு பொருள் குறித்த பல சொற்கள், பல பொருள் குறித்த ஒரு சொல், அகரவரிசைப்படுத்தல், திணை, காலம், பால், இடம், எண் ஆகிய தொடர்பிழை நீக்கம், இலக்கணக் குறிப்பு ஆகிய மொழிப்பயிற்சி வாயிலாக பிழையின்றி எழுதவும் பேசவும் பயிற்சிகள் பெறப்பட்டன. பாடம் சார்ந்த தமிழ் இலக்கிய வரலாறுகளின் மூலம் தமிழ் இலக்கியங்களின் வரலாற்றை அறிந்து கொள்ளும் திறன் பெறப்பட்டது.

பட்டப்படிப்பு – இரண்டாம் ஆண்டு – மூன்றாம் பருவம்
(செய்யுள், மொழிப்பயிற்சி, இலக்கிய வரலாறு)

Course Code : 22AT16307	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	திருஞானசம்பந்தரின் கோளறு பதிகம், மாணிக்கவாசகரின் அறிவுறுத்தல், திருவெம்பாவை, ஆண்டாளின் வாரணமாயிரம் ஆகிய இலக்கியங்களின் வழி பக்திச் சிறப்பை உணரப்பட்டன. பக்தி இலக்கிய வளர்ச்சிக்கு நாயன்மார்களும் ஆழ்வார்களும் ஆற்றிய பணிகளும் அவர்களுடைய வரலாறுகளும் சிந்தனைகளும் அறியப்பட்டன. மரபுக் கவிதைகள் வாசிக்கும் பயிற்சியும் இயற்றும் பயிற்சியும் பெறப்பட்டன.
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CO2	கம்பரின் வாலிவதைப் படலத்தின் வழி இராமாயணக் கதையும் கம்பரின் கவித்துவமும் அறிந்து கொள்ளப்பட்டன. இதிகாசங்கள் வழி பண்டைய வாழ்வியல் உண்மைகள் உணரப்பட்டன. மரபுக் கவிதைகள் வாசிக்கும் பயிற்சியும் இயற்றும் பயிற்சியும் பெறப்பட்டன.
CO3	சித்தர் பாடல்கள் வழி சித்தர்கள் கூறும் மெய்ஞ்ஞானக் கூறுகளையும், உடலியல், உளவியல் கூறுகளையும் அறிந்து கொள்ளப்பட்டன. சேக்கிழாரின் மெய்ப்பொருள் நாயனார் புராணம் வழி மதம், இனம், மொழி கடந்து மாந்தர்கள் உள்ளத்தில்தான் இறைவன் குடி கொண்டிருக்கின்றான் என்ற உண்மை உணரப்பட்டது. இதன் மூலம் மெய்ஞ்ஞானத்திறன் பெறப்பட்டது.
CO4	இராமலிங்க அடிகளின் திருவருட்பா, டி.வி.ராதாகிருட்டிணன் பதிப்பித்த திருக்கோளூர் பெண்பிள்ளை ரகசியம் ஆகிய பாடல்களின் வழி வாழ்வியலில் பொதிந்துள்ள உண்மைக் கூறுகள் உணரப்பட்டன. வாழ்வியல்முறை அறிந்து கொள்ளப்பட்டன.
CO5	விண்ணப்பக் கடிதங்கள், புகார் கடிதங்கள் ஆகிய மொழிப்பயிற்சியின் வழி கடிதம் எழுதும் திறன் பெறப்பட்டது. பாடம் சார்ந்த தமிழ் இலக்கிய வரலாறுகளின் மூலம் தமிழ் இலக்கியங்களின் வரலாற்றை அறிந்து கொள்ளும் திறன் பெறப்பட்டது.

பட்டப்படிப்பு – இரண்டாம் ஆண்டு – நான்காம் பருவம்

(செய்யுள், மொழிப்பயிற்சி, இலக்கிய வரலாறு)

Course Code : 22AT16408	Credits : 03
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	நற்றிணை, குறுந்தொகை, கலித்தொகை, புறநானூறு ஆகிய சங்க இலக்கியங்களின் தேர்ந்தெடுக்கப் பெற்ற பாடல்கள் மூலம் சங்க இலக்கியக் காலத்திலிருந்து தமிழின் மேன்மையும் சிறப்பும் மாந்தர்களின் வாழ்வியலும் உணரப்பட்டது. சங்க இலக்கியம் படிப்பது உறுதி செய்யப்பட்டது. மரபு வடிவிலான யாப்புடன் அமைந்த பாடல்களைப் புணைய பயிற்சி பெறப்பட்டது. இதனால் இலக்கியம் படைக்கும் ஆற்றல் பெறப்பட்டது.
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CO2	சிறுபாணாற்றுப்படையின் வழி மன்னர்கள் மற்றும் புலவர்களின் வாழ்வியல் முறைகள் அறிந்து கொள்ளப்பட்டன. எட்டுத்தொகை, பத்துப்பாட்டு ஆகிய இலக்கியங்களின் வரலாறுகளும் அவற்றில் இடம்பெற்றுள்ள செய்திகளும் அறியப்பட்டன.
CO3	திருத்தக்கதேவர் இயற்றிய சீவகசிந்தாமணியில் காந்தருவ தத்தையார் இலம்பகத்தின் வழி காப்பியத்தின் கதை அறிந்து கொள்ளப்பட்டது. ஐம்பெருங்காப்பியங்களையும் ஐஞ்சிறு காப்பியங்களையும் படிப்பதன்வழி தொன்று தொட்ட தமிழரின் வாழ்வியல் முறைகளைக் கடைபிடிக்க ஏதுவாகிறது.
CO4	இளங்கோவடிகள் இயற்றிய சிலப்பதிகாரத்தில் இடம்பெறும் புகார் காண்டம் பகுதி வழி காப்பியக் கதை அறிந்து கொள்ளப்பட்டது. அக்கால மணமுறை குறித்தும் அறிந்து கொள்ளப்பட்டது. திருக்குறள் அறத்துப்பாலில் உள்ள காலம் அறிதல், இனியவை நாற்பது, நாலடியார், அறநெறிச்சாரம் ஆகிய இலக்கியங்களிலிருந்து அறநெறிக் கருத்துக்கள் அறியப்பட்டன. மனித வாழ்வியலில் அறநெறி சார்ந்து வாழும் முறை அறியப்பட்டன.
CO5	தமிழிலிருந்து ஆங்கிலத்திற்கும் ஆங்கிலத்திலிருந்து தமிழிற்கும் மொழிபெயர்ப்புப் பயிற்சி பெற்றதன் வழி மொழிபெயர்க்கும் ஆற்றல் பெறப்பட்டது. தமிழிலும் ஆங்கிலத்திலும் பிழையின்றி எழுதவும் பேசவும் பயிற்சி பெறப்பட்டது. பாடம் சார்ந்த தமிழ் இலக்கிய வரலாறுகளின் மூலம் தமிழ் இலக்கியங்களின் வரலாற்றை அறிந்து கொள்ளும் திறன் பெறப்பட்டது.



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(AUTONOMOUS)

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College with Potential for Excellence, Linguistic Minority Institution

Affiliated to University of Madras

Arumbakkam, Chennai – 600 106

DEPARTMENT OF VISUAL COMMUNICATION

CURRICULA DEVELOPED AND IMPLEMENTED HAVE RELEVANCE TO THE GLOBAL

S.NO	NAME OF THE COURSE	COURSE CODE	OUTCOME
1	Introduction to Visual Communication	14101	Introduction to Visual Communication builds a foundation for visual literacy and visual design thinking. The class focuses on the fundamentals of visual communication – line, color, composition, typography – as well as their application in a variety of contexts.
2	Advertising	14206	Advertising is the practice and techniques employed to bring attention to a product or service. Advertising aims to put a product or service in the spotlight in hopes of drawing it attention from consumers.

Course Title: CORE II: ECONOMICS FOR FINANCE

Course Code : 45102	Credits : 4
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to obtain practical knowledge and analytical framework of economics, elucidate the concept of national income, its related concepts and its determination, examine the fiscal role of government, the rationale behind government's intervention and application of fiscal policy, emanate the role of money in the financial system and describe the impact of exchange rate in the domestic economy.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Articulate the concept of National Income and Identify the challenges in National Income computation.
CO2	Examine the functional framework & various instruments of fiscal policy & application of fiscal policy tools and understand the role of government in an economic system
CO3	Define money and describe the different determinants of money demand and supply
CO4	Define monetary policy and its objectives and elucidate different components of monetary policy framework, the operating procedures and instruments of monetary policy
CO5	Understand the concept of exchange rate, analyze the difference between nominal and real exchange rate and describe the impact of exchange rate fluctuation on domestic economy

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	2	3	1	2	1	1	1	2	3	2	1	3
CO2	3	3	2	2	1	2	1	1	3	3	3	2
CO3	2	2	2	1	1	2	1	3	3	2	1	-
CO4	1	3	2	1	1	2	1	-	3	2	2	1
CO5	2	2	2	1	1	2	2	3	3	3	2	3

MODULE	CONTENTS OF MODULE	Hours	COs
I	<p>National Income – Definition, Usefulness and significance, Different concepts of National Income: GDP - Real Vs. Nominal GDP, Gross National product (GNP), Net Domestic Product (NDP), Net National product (NNP), Per capita Income, Personal Income (PI), Disposable Personal Income (DI) - Circular flow of Income (2,3,4 sector model) - Methods of National Income calculation: Product/Value added method, Expenditure method, Income method – Limitations and Challenges of National Income calculation.</p>	20	CO1
II	<p>Public Finance – Role of Government in an economic system – Functional framework – Allocation, Redistribution and stabilization function - Fiscal policy: Objectives, Automatic stabilizer Vs. Discretionary Fiscal Policy, Instruments of Fiscal Policy, Types of fiscal policy, Fiscal policy for long-run economic growth, Limitations of fiscal policy – Crowding effect.</p>	15	CO2
III	<p>Money Market - Concept of money, Characteristics of money, Functions of money, Demand for money, Theories of demand for money – Quantity theory of money (Classical approach), Neo-classical approach, Keynesian theory of demand for money-Behavior toward Risk.</p> <p>Money market – Money supply, Definition, Sources of Money Supply, Measurement of money supply, Determinants of money supply – Money multiplier concept – Determinants of Interest Rate: Concept - Money Multiplier approach to supply of money.</p>	20	CO3
IV	<p>Monetary Policy – Definition, Framework, Objectives, Operating procedures and instrumentation (implementation) – Direct instruments: Cash Reserve Ratio (CRR), Statutory Liquidity Ratio (SLR), Direct Credit - Indirect instruments: Repos, Open market operation, Standing facilities - Monetary Policy Committee – Inflation, Deflation And Reflation: Definition, Types, Causes and effects of inflation on different sectors of the economy, Measures to control inflation.</p>	20	CO4
V	<p>Exchange Rate and its Economic Effects - Foreign Exchange: Meaning - Exchange Rate, Exchange Rate Regimes, Advantages – Nominal Vs. Real Exchange rates, Determination of Nominal Exchange rate – Changes in Exchange rate – Devaluation – Revaluation – Depreciation – Appreciation – Impact of exchange rate fluctuation on domestic economy.</p>	15	CO5

TEXT BOOKS:

1. Muniraju. M., & Podder, S.K. (2014). *Macroeconomics for Business Decisions* Mumbai, India: Himalaya Publishing House.
2. Mithani, D.M. (2019). *Macro Economics*. Mumbai, India: Himalaya Publishing House.

REFERENCE BOOKS:

1. Ahuja. H.L. (2019). *Macro Economics*. New Delhi, India: S. Chand & Sons.
2. Girija, M., Cauvery, R., Sudha Nayak, U.K., & Meenakshi, R. (2018). *Macro Economics*. New Delhi, India: S. Chand & Sons.
3. Sankaran, S. (2019). *Macro Economics*. Chennai, India: Margham Publications
4. Jingham M. L. (2016.) *Macro Economic Theory*. New Delhi, India: Vikas Publishing House

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. www.learn-economics.co.uk
2. www.bookboon.com
3. <http://www2.econ.iastate.edu/tesfatsi/sources.htm>
4. <https://learn.mru.org>
5. www.tutor2u.net

Course Title: NME PAPER I: INTRODUCTION TO SUPPLY CHAIN MANAGEMENT

Course Code : 45103	Credits 2
L:T:P:S : 2:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able to develop a sound understanding of the important role of supply chain management in today's business environment, the current trends, tools & equipment and kindle an interest to choose SCM as a career option.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Outline the key concepts relating supply chain management and logistics management
CO2	Identify the main drivers of supply chain performance and explain their role in supply chain
CO3	Recommend the best mode of transportation under various situation and determine the various factors affecting transportation
CO4	Explain the role of warehouse and the various types of warehouses
CO5	Determine the importance of material handling and list out the various tools and equipment used for material handling & Summarize the role of information technology in SCM

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	-	1	1	2	3	-	2	2	-	2	2	2
CO2	-	2	2	2	3	2	2	1	1	1	3	3
CO3	-	3	3	3	3	2	2	2	1	3	2	2
CO4	-	2	3	3	3	2	2	1	-	2	3	2

CO5	-	2	3	3	3	3	3	3	3	3	2	3
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MODULE	CONTENTS OF MODULE	Hours	COs
I	Supply Chain Management – Introduction, Definition, Objectives, Importance, Functions – SCM as a profession - SCM Vs Logistics	6	CO1
II	Key concepts in SCM - Enablers of supply chain performance - Linking supply chain and business performance – Supply Chain Performance Measures.	6	CO1 CO2
III	Transportation selection – Modes of transportation – Modes of Distribution – Factors affecting network effectiveness – Indian Transport Infrastructure	6	CO3
IV	Value information and Order Management - Distribution Requirement Planning - Just-In-Time system - Warehousing and materials Handling Management - Automated Warehousing System	6	CO4 CO5
V	Information Technology in SCM – Web-based supply chain – E-business and SCM – Benchmarking	6	CO5

TEXT BOOKS:

1. Shah, J. (2016). *Supply Chain Management – Text and cases*. New Delhi, India: Pearson India Education Services.
2. Chopra, S. & Meindl, P. (2019). *Supply Chain Management-Strategy Planning and Operation*. Noida, India: PHI Learning

REFERENCE BOOKS:

1. Natarajan, L. (2018). *Logistics and Supply Chain Management*. Chennai, India: Margham Publications

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. <https://www.inboundlogistics.com/cms/index.php>
2. <https://supplychaindigital.com/>
3. <https://www.supplychainbrain.com/>

4. <https://www.scmr.com/>
5. <https://www.logisticsmgmt.com/>

Course Title: CORE IV- MANAGEMENT CONCEPTS & ORGANIZATIONAL BEHAVIOUR

Course Code : 45205	Credits : 4
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to understand the conceptual framework of management and organizational behaviour.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Define the skills that a manager is expected to possess
CO2	Restate the essentials of planning in management and sketching the organizational structure adopted in any organization
CO3	Analyze the role of recruitment, selection and training and articulate the managerial aspects of controlling and coordinating
CO4	Analyze the organizational and individual behaviour
CO5	Understand & evaluate the importance of leadership skills and motivational needs

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	2	2	3	3	3	1	2	3	2	3	3	3
CO2	3	2	2	2	3	1	2	3	3	3	3	2
CO3	3	2	2	3	3	2	3	3	1	2	2	1
CO4	2	1	1	1	2	2	3	2	3	3	3	2
CO5	3	1	1	2	3	2	3	3	1	3	1	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction - Management: Meaning – Definition - Nature and Scope of Management – Management both Science and Art – Levels of Management – Role and Skills expected of a Manager- Business enterprise- different forms of business- Sole proprietorship- One Person Company, Joint Hindu Family Firm, Partnership firm, Joint Stock Company, Cooperative society; Limited Liability Partnership- Choice of form of Organization - Basic consideration in setting up of enterprise	25	CO1
II	The Process of Management: Management by Objectives (MBO) Planning; Decision-making; Strategy Formulation. Organizing: Basic Considerations; Organization Structure, Departmentation – Functional, Project, Matrix and Network; Delegation and Decentralization of Authority	20	CO2
III	Staffing: Recruitment: Meaning & Sources, Selection, Stages – Interview: Types – Training: Process and Methods of Training – Direction: Meaning, Importance, Principles Controlling: Meaning, Definitions, Nature, Characteristics, Benefits of Control, Importance, Problems – Management By Exception (MBE) - SWOT Analysis – Management Information Systems (MIS) - Coordination: Meaning, Definition, Nature, Importance, Problems - Principles of Coordination – Techniques of Coordination	20	CO3
IV	Introduction to Organizational Behaviour: Introduction to Organization - Organizational behavior - OB Concepts - OB Model - Introduction to Individual Behavior - Motivation at work - Dynamics of group behaviour - Individual & organizational factors to stress - Prevention & Management of stress.	10	CO4
V	Leadership: Concept and Styles; Trait and Situational Theory of Leadership-Motivation: Concept and Importance – Maslow Need Hierarchy Theory - Herzberg Two Factors Theory - McGregor and Ouchi theory - Control: Concept and Process - Communication: Process and Barriers - Transactional Analysis (TA) - Johari Window - Change Management: Resistance to change and strategies to manage change - Conflict levels, causes and resolution - Functional and Dysfunctional aspects of conflict - Emerging issues in management	15	CO5

TEXT BOOK:

1. Gupta, C.B.(2017). *Management Theory & Practice*, NewDelhi, India: Sultan Chand & Sons.

2. Gupta, C.B. (2014). *A Textbook on Organizational behaviour*. New Delhi, India: S. Chand Publications.
3. Natarajan, K & Ganesan, K.P. (2020). *Principles of Management*. Mumbai, India: Himalaya Publishing House.

REFERENCE BOOKS:

1. Gupta, C.B. (2014). *A Textbook on Organizational behaviour*. New Delhi, India: S. Chand Publications.
2. Viswanthan, R. (2018). *Principles of Management – Concepts & Cases*. Mumbai, India: Himalaya Publishing House.
3. McShane, S. L. & Glinow, M. A. V. (2019). *Organizational Behavior*. New York, United States of America: McGraw-Hill Education,

Note: Latest Edition of the reading to be used.

Course Title: NME II - E-COMMERCE

Course Code : 45206	Credits : 2
L:T:P:S : 2:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to improve his knowledge on the concept of e-commerce, its applications and development and the challenges faced while entering into/managing an e-business.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Develop an in-depth knowledge about the concept of E-Commerce and list out the benefits and limitations of the same.
CO2	Understand the application of various E-Commerce applications like E-Marketing, E-Shopping, E- Advertising
CO3	Gain an insight on the role played by Electronic Data Inter-change in the modern world
CO4	Maximize the usage of electronic payment systems like payment using credit cards, debit cards, electronic wallets etc.
CO5	Identify and understand the usage of e-marketing techniques

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	2	1	1	1	3	1	1	2	-	3	2	2
CO2	2	1	1	1	3	1	1	1	-	2	2	3
CO3	2	1	3	3	3	3	3	3	1	3	3	3
CO4	2	2	2	3	3	3	2	3	2	3	3	3
CO5	2	2	3	3	3	3	3	3	2	2	3	3

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to E-Commerce: Definition, Classification of E-Commerce: B2B, B2C, C2B, C2C, Benefits, Limitations, Traditional Commerce Vs E-Commerce, Resources required for Successful implementation of E-Commerce, Threats to E-Commerce Transactions, Disputes.	6	CO1
II	E-Commerce Applications: Entertainment – E-Marketing – E-Advertising and its techniques: Banners, Sponsorships, Portals, Online Coupons - Online Trading – E-Shopping – Mobile Commerce: Advantages, Problems and Future of M-Commerce.	6	CO2
III	Electronic Data Interchange (EDI): Applications – Security and Privacy Issues – Software Implementations – Value Added Networks – Internal Information System – Work-flow Automation and Coordination – Customization – Supply Chain Management	6	CO3
IV	Electronic Payments Systems: Electronic Payment System: Special features required in payment system for e-commerce, Types of e-payment System: E-cash & currency servers, e- cheques, credit cards, smart cards, electronic purses & debit cards - Advantages - Issues of EPS.	6	CO4
V	E-Marketing Techniques: Search Engines, Directories, Registrations, Solicited targeted E-mails, Interactive sites, Banners, Advertising, Spam Mails, E-mail, Chainletters. Applications of 5P's (Product, Price, Place, Promotion, People)	6	CO5

TEXT BOOKS:

1. Dr. Abirami Devi. K & Dr. Alagammai, M. (2019). *E-Commerce*. Chennai, Tamil Nadu, India: Margham Publications.
2. Dr. Raydu, C.S (2018). *E-Commerce & E-Business*. Mumbai, India: Himalaya Publishing House.

REFERENCE BOOKS:

1. Dr. Arora, S. (2020). *E-Commerce*, Chennai, Tamil Nadu, India: Taxmann Publications.
2. Dr. Pandey U.S & Saurabh, S. (2014). *E-Commerce and Mobile Commerce Technologies*. New Delhi, India: Sultan Chand & Sons Private Limited.
3. Bansal, R. Bansal, S. & Bansal, S. (2016). *E-Commerce*. New Delhi, India: Kalyani Publications.
4. Murthy, C.S.V. (2019). *E-Commerce (Concepts, Models, Strategies)*. Mumbai, India: Himalaya Publishing House

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. <https://irp-cdn.multiscreensite.com/1c74f035/files/uploaded/introduction-to-e-commerce.pdf>.
2. <https://saif4u.webs.com/E-ommerce-Notes.pdf>
3. https://backup.pondiuni.edu.in/storage/dde/dde_ug_pg_books/E-%20Commerce.pdf.

Course Title: CORE VIII: FINANCIAL MANAGEMENT - I

Course Code : 45310	Credits : 4
L:T:P:S : 5:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be familiarized with the importance of the finance function and the key business decisions, the various sources of raising funds and its associated costs, gain knowledge on the concept of time value and its applications and the concept of leverage.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Demonstrate an understanding of the overall role and importance of the finance function and gain basic knowledge of financial management.
CO2	Gain an insight on the goals of the finance manager and identify funding sources, instruments and markets.
CO3	Demonstrate knowledge about the value of money over time, its uses and application.
CO4	Identify the firm's business and financial risk and the study the impact of leverage on the expected return, expected EPS and the risk borne by the shareholders through its application.
CO5	Appraise the risk profile of firms, understand the influences of economic and political factors on the cost of various sources of funds, and estimate the specific costs of capital being debt, preference and equity capital and the overall cost of capital, using financial data.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	1	1	2	2	1	1	1	2	1	2	3	2
CO2	1	-	1	1	2	1	1	1	3	2	2	2
CO3	1	2	2	1	1	1	1	1	3	2	1	1
CO4	1	1	3	3	1	2	1	1	1	3	2	2

CO5	1	1	2	2	1	1	1	1	1	3	2	1
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MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to Financial Management: Financial Management – Meaning & Significance - Key Decision Areas in Financial Management - Objectives and goals of Financial Management - Factors affecting Financial Decisions - Key activities of Finance Manager - Agency Problem - Basics of Risk and Return	15	CO1
II	Sources of Finance: Short term - Money markets instruments – T-bills, Commercial paper, Certificate of deposit, Factoring, Trade credit, Letter of credit, Repurchase agreements Medium term - Leasing, Hire purchasing, External commercial borrowings. Long term - Gilt-edged securities, Equity shares, Hybrid financing instruments, Preference shares, Terms loans, Debentures, Bonds, Venture capital, Retained earnings, Public Deposits, ADR, GDR	5	CO2
III	Time Value of Money: Concept of Time value of Money - Process of Compounding and Discounting – Simple problems on Future Value of a Single amount, Future Value of an Annuity, Present Value of a Single Amount, Present Value of an Annuity (using time value tables only) – Applications – Effective Interest Rate (EIR)	15	CO3
IV	Leverages - Concept of Business and Financial Risk, Operating Leverage, Financial Leverage, Combined Leverage - EBIT-EPS Analysis - Indifference Point of EBIT	20	CO4
V	Cost of capital – Concept, Measurement & Significance – Cost of Equity – Cost of Preference Capital – Cost of Debt – Cost of Retained Earnings - Weighted Average (or) Composite Cost of Capital (WACC)	20	CO5

PROPORTION OF THEORY WILL BE 40% AND PRACTICAL 60%

TEXT BOOKS:

1. Khan, M. Y. & Jain, P. K. (2018). *Financial Management*. New Delhi. McGraw Hill (India) Pvt. Ltd.

2. Pandey I.M. (2021). *Financial Management*, Noida, New Delhi, India: Pearson India Education Services
3. Kishore, R. M. (2020). *Financial Management*. New Delhi, India: Taxmann Publications

REFERENCE BOOKS

1. Murthy, A. (2020). *Financial Management*. Chennai, India: Margham Publications
2. Tulsian, P.C. &Tulsian, B. (2017). *Financial Management – A Self-study Text Book*. New Delhi, India: S. Chand Publishing
3. Chandra, P. (2020). *Fundamentals of Financial Management*. Noida, New Delhi, India: McGrawHill (India) Pvt. Ltd.
4. Rustagi, R.P. (2018). *Financial Management*. New Delhi, India: Taxmann Publications
5. Singhal, A. (2019). *Fundamentals of Financial Management*. New Delhi, India: S. Chand Publishing.

Note: Latest Edition of the reading to be used.

Course Title: CORE X - FINANCIAL MANAGEMENT - II

Course Code : 45412	Credits : 4
L:T:P:S : 5:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be understand the impact of capital structure decisions and dividend policy on firm value and gain an in–depth understanding of management tools and techniques used in investment decisions of corporate organizations.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the factors that influence capital structure decisions of a business organization and their impact on the market value of the firm
CO2	Understand the importance and application of the various techniques of capital budgeting for the evaluation of long term projects, their pros and cons and the basis of selection criteria of projects.
CO3	Understand the concept and importance of working capital, factors determining its quantum and its computation, and meaning & determination of operating cycle
CO4	Explain the key strategies & techniques used for managing cash, the determination of the best collection period for accounts receivables & techniques for effective management of inventory.
CO5	Understand the concept of dividend & justify the dividend strategies that support wealth maximization.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	1	1	2	1	1	1	1	2	1	2	2	2
CO2	2	1	3	3	2	1	1	1	3	2	3	1
CO3	2	2	3	3	2	1	1	2	2	2	2	1
CO4	1	2	3	3	2	1	1	1	1	3	2	1
CO5	1	-	1	1	-	1	1	2	1	2	3	1

MODULE	CONTENTS OF MODULE	Hours	COs
I	Capital Structure: Capital structures planning, Factors affecting Capital Structure, Determining Debt and equity proportion – Theories of Capital Structure: Net Income Approach, Net operating income Approach, Traditional Approach, Modigliani - Miller Approach	10	CO1
II	Basics of Capital Budgeting - Cash flow estimation, Investment criteria – Discounted and non-discounted techniques - Net Present Value, Internal Rate of Return, Profitability Index, Payback, Discounted Payback, Accounting Rate of Return (Simple problems)	15	CO2
III	Working Capital Management Policy: Working Capital – Concept, Definition, Need, Planning of working capital – Permanent & Temporary - Operating cycle analysis - Determinants of working capital, Financing of working capital – Computation of Working Capital	15	CO3
IV	Management of Cash, Receivables & Inventory Managing the components of working capital - inventory, receivables and cash – Cash Management – Introduction, Meaning & Importance – Preparation of Cash Budget – Receivables Management – Introduction, Evaluation of credit policy – Inventory Management – Importance, Inventory Management Techniques – EOQ, ABC System, JIT	20	CO4
V	Dividend Policy: Dividend – Concept, Types - Factors affecting dividend payment – Forms of dividend – Dividend Models - Walter’s Model, Gordon’s Model, Modigliani & Miller’s Model	15	CO5

PROPORTION OF THEORY WILL BE 20% AND PRACTICAL 80%

TEXT BOOKS:

1. Khan, M.Y. & Jain, P.K.(2018). *Financial Management*. New Delhi. McGrawHill (India) Pvt. Ltd.
2. Pandey I.M. (2021). *Financial Management*, Noida, New Delhi, India: Pearson India Education Services
3. Kishore, R. M. (2020). *Financial Management*. New Delhi, India: Taxman Publications

REFERENCE BOOKS

1. Murthy, A. (2020). *Financial Management*. Chennai, India: Margham Publications
2. Tulsian, P.C. &Tulsian, B. (2017). *Financial Management – A Self-study Text Book*. New Delhi, India: S. Chand Publishing
3. Chandra, P. (2020). *Fundamentals of Financial Management*. Noida, New Delhi, India: McGraw Hill (India) Pvt. Ltd.
4. Rustagi, R.P. (2018). *Financial Management*. New Delhi, India: Taxman Publications
5. Singhal, A. (2019). *Fundamentals of Financial Management*. New Delhi, India: S. Chand Publishing.

Note: Latest Edition to be used.

Course Title: CORE XII - BUSINESS COMMUNICATION

Course Code : 45414	Credits : 4
L:T:P:S : 5:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to improve his verbal and written communication and presentation skills and train and prepare for placements.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Apply communication tools, strategies, and principles to make communication more effective
CO2	Develop an understanding about appropriate verbal skills of communication and presentation skills
CO3	Prepare various forms of business letters, reports, business proposals and forms of internal communication tools
CO4	Explain and illustrate the various interpersonal communication including etiquette and netiquette
CO5	Groom and prepare themselves for placements through various stages

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	3	3	1	2	2	2	3	2	1	3	2	1
CO2	3	3	1	2	2	2	2	2	1	3	2	1
CO3	3	2	1	2	2	1	2	2	1	2	1	1
CO4	3	1	1	2	3	1	2	3	2	1	2	1
CO5	3	1	1	2	3	1	2	3	1	1	2	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to communication: Importance of Business Communication- Types and Effectiveness - Seven Cs of Communication. Using technology to improve business communication - Cross-cultural communication and their challenges in a global field – Technical writing – Executive Summary/Abstract Writing	12	CO1
II	Verbal Communication Effective Public Speaking - Body Language - When, What, How, To Whom to Speak - Presentation skills - Delivering the business presentation using visual aids, Handouts - Glossophobia and Low confidence - Mastering listening skills - Conversational Skills - Criss-Cross communication: upward, downward, lateral, formal, informal, grapevine.	20	CO2
III	Business Correspondence (Written) Guidelines to business communication - Formal & informal Writing - Tools of Business writing - Business Letter, Claims & Response to Claims (Accept, Reject, Partially Accept) – Report writing - Business Proposals - Circular, Notice, Memorandum.	18	CO3
IV	Interpersonal Communication Netiquette (email & online), Telephone Etiquette, Social Etiquette, Dress Etiquette (Corporate Dressing) - Effective Team Communication - Team building, Team spirit – Time management - Agenda, Minutes of meetings – Podcasts – Feedback - Importance of Feedback, Kinds: No Feedback, Positive, Negative, Specific feedback, Constructive Criticism.	17	CO4
V	Placement Grooming Cover Letter, Resume Writing, Pre-Placement Talk, Tests: Aptitude, Technical. Group Discussions, Personal Interview.	8	CO5

TEXT BOOKS:

1. Nawal, M. (2020). *Business Communication*. New Delhi, India: Cengage
2. Rath, P., Shalini, K. & Ray, D. (2018). *Corporate Communication*. New Delhi, India: Cengage
3. Gupta, C.B. (2019). *Essential Business Communication*. New Delhi, India: Cengage
4. Rajendra Pal & Korlahalli J.S. (2015). *Essentials of Business Communication*. New Delhi, India: Sultan Chand & Sons.
5. Taylor, S. (2005). *Communication for Business*. New Delhi, India: Pearson India Education Services.

REFERENCE BOOKS

1. Jain,N. & Mukherji,S. (2020). *Effective Business Communication*. New Delhi, India: McGraw Hill India Pvt. Ltd.
2. Mohan, K. Mohan, R.C. & Nirban, V.S. (2020). *Business Correspondence & Report Writing*. New Delhi, India: McGraw Hill India Pvt. Ltd.
3. Rai, U. & Rai, S.M. (2019). *Business Communication*. Mumbai, India: Himalaya Publishing Pvt. Ltd.
4. Bovee, C.L., Thill, J.V. & Raina, R.L. (2018). *Business Communication Today*. New Delhi, Pearson India Education Services

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. www.businesscommunication.org

SEMESTER V

Course Title: CORE XIII - **BASICS OF COST ACCOUNTING**

Course Code : 45515	Credits	4
L:T:P:S : 6:0:0:0	CIA Marks	: 50
Exam Hours : 03	ESE Marks	: 50

Learning Objectives:

On taking this course the student will be able to possess in-depth knowledge about the basic cost concepts and its objectives, apply cost control and reduction techniques in practical, determine stock levels for efficient materials management, compute labour costs, analyze the implication of overheads and their effective apportionment, prepare the cost ledger and reconcile the cost and financial statements.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Demonstrate the basic concept of cost and cost accounting and how to compute the cost of a product by preparing a cost sheet and quotation for a production industry.
CO2	Discover the need for fixing stock levels for production and its computation. Prepare stores ledger to value of closing stock and the cost of goods sold or sent for production
CO3	Understand the different wage payment systems and their computation, the concept of labour cost and labour turnover and their computation
CO4	Develop knowledge regarding overheads and the concept of allocation and apportionment of overheads to various departments on a suitable basis.
CO5	Create cost ledger and identify the reasons for disagreement of profit and prepare the reconciliation statement

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	1	2	3	3	2	2	2	3	2	3	2	2
CO2	2	2	2	3	1	3	1	2	2	1	2	1
CO3	3	3	2	3	2	2	1	2	2	2	1	1
CO4	2	2	3	3	1	1	1	2	3	3	2	1
CO5	-	1	3	3	1	2	1	2	1	3	2	1

MODULE	CONTENTS OF MODULE	Hours	COs
I	CAS-1: Meaning, nature and scope of Cost Accounting, Cost analysis, Concepts and Classifications, Differences between Cost and Management accounting, Cost and Financial accounting, Cost control and Cost reduction: Meaning, Importance and Distinction- Techniques of cost control – Cost Sheet: Purpose, Preparation of cost sheet, tender and quotation	20	CO1
II	CAS-6: Material purchase control: Level, aspects, need and essentials of material control - Stock level determination - Maximum, Minimum, Reorder, Danger and Average - Stores control - Stores Department, EOQ, Stores records, ABC analysis, VED analysis - Material costing: Issue of materials: FIFO, LIFO, Weighted Average Method – Other methods: HIFO, Simple Average Method, Market price, Base stock method and Standard Price method	20	CO2
III	CAS-7: Labour: Essentials of a good wage system, Methods of Wage Payment: Time Rate, Piece Rate, Taylor, Halsey and Rowan - Different types of Bonus plan: Gantt’s task and bonus plan, Merricks multiple piece rate system - Causes of Labour Turnover, Methods of calculating labour turnover: Separation method, Replacement and Flux method - Methods of reducing labour turnover	20	CO3
IV	CAS-3: Overheads: Meaning and Definition, Importance of overhead costs, Classification of overhead costs, Codification of overheads – Departmentalisation of overheads – Methods of apportionment of overheads: Primary and Secondary apportionment – Under-absorption and over-absorption of overheads - Machine hour rate: Meaning, Importance and Computation	15	CO4
V	Preparation of cost ledger – Integral & Non-Integral Accounts - Reconciliation of Cost and Financial Accounts	15	CO5

PROPORTION OF THEORY WILL BE 20% AND PRACTICAL 80%

TEXT BOOK:

1. Khan, M.Y. & Jain, P.K. (2017). *Cost Accounting*. New Delhi, India: McGraw Hill (India) Pvt. Ltd.
2. Maheswari, S.N. & Mittal, S.N (2021). *Cost Accounting Principles and Practice*. New Delhi, India: Shree Mahavir Book Depot
3. Lal, J. & Srivastava, S. (2020). *Cost Accounting*. New Delhi, India: McGraw Hill (India) Pvt. Ltd

REFERENCE BOOKS:

1. Reddy, T.S. & Hariprasad Reddy, Y.T. (2020). *Cost Accounting*, Chennai, India: Margham Publications
2. Jain, S.P & Narang, K. L. (2019). *Cost Accounting*. New Delhi, India: Kalyani Publications
3. Singh, M. & Chauhan, M. (2020). *Cost Accounting*. Mumbai, India: Himalaya Publishing House.
4. Dr. Gupta, S., Dr. Reeta & Dr. Rao, R.P. (2020). *Cost Accounting*. New Delhi: India: Sultan Chand & Sons

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. www.cost-accounting-info.com
2. www.introtocost.info
3. <https://fasab.gov/resources/managerial-cost-accounting-resources>

Course Title: ELECTIVE I (OPEN): (A) INTERNATIONAL BUSINESS

Course Code : 45519 (A)	Credits : 5
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to gain knowledge about the international business environment, principles and theories of international trade, and assess various international business avenues, financial markets and global financial transactions.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the international business environment and justify the need for globalization
CO2	Identify the modes of entry into international business and explore the international business opportunities
CO3	Describe the international trade theories, concepts and functional framework of international business organizations
CO4	Develop in depth knowledge regarding export-import policies and carry out the documentation process
CO5	Organize the information for international finance and identify the modes of payment in international trade

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	3	3	1	2	3	1	1	3	3	1	-	2
CO2	3	3	2	1	3	2	1	3	2	3	2	3
CO3	1	1	1	1	-	1	1	1	-	2	1	-
CO4	2	1	3	2	3	1	2	3	1	3	1	3

CO5	2	2	2	2	2	1	1	2	3	3	3	3
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MODULE	CONTENTS OF MODULE	Hours	COs
I	International Business Environment: International Business: Meaning, Nature, Concept – Micro and Macro Environment, STEEPLE/PESTLE analysis – Globalization: Meaning and implications, Drivers of Globalization, The Globalization Debate: Arguments for and against – Multinational Corporations - EPRG Model	10	CO1
II	International Business Avenues: Differences between Domestic and International Business-Different Modes of entry into International Markets, Factors, Types: Indirect and Direct Exports, Production Abroad, Assembly/Contract Manufacturing, Licensing, Franchising, Joint Ventures, Mergers & Acquisitions, Wholly owned subsidiary.	15	CO2
III	Introduction to International Business Theories: Theory of Mercantilism: Absolute Advantage, Comparative Advantage, Hecksher-Ohlin Theory, The New Product Life Cycle Theory, The New Trade Theory, Porter’s Diamond Model-Tariff & Non-tariff barriers International Business Organizations: GATT, WTO, TRIPS, TRIMS, GATS	15	CO3
IV	Overview of Export & Import: India’s Export-Import (EXIM) Policy - Promotional Measures - Export-oriented-Units (EOUs) - Deemed Exports - Export-Import Documentation	20	CO4
V	International Financial market: International Financial Markets: Equity, Debt, Foreign Exchange, Commodities, Derivatives, FDIs, FIIs - Role of Banks in Global Financial Transactions - Modes of Payment in International Trade: NOSTRO, VOSTRO, SWIFT & CHIPS	15	CO5

TEXT BOOK:

1. Cherunilam, F. (2019). *International Business Text and cases*. Mumbai, India: Himalaya Publishing House
2. Verma,S.(2021).*International Business*. New Delhi,India: Pearson India Education Services

REFERENCE BOOKS:

1. Subba Rao, P. (2019). *International Business (Text and cases)*. Mumbai, India: Himalaya Publishing House.
2. Jeevanandham, C. (2020). *Foreign Exchange and Risk Management*. New Delhi, India: S. Chand & Sons.
3. Krugman, P. R., Obstfeld, M. & Melitz, M. J. (2018). *International trade: theory and policy*. New Delhi, India: Pearson India Education Services.

Note: Latest Edition of the reading to be

used. WEB RESOURCES

1. www.fte.org
2. www.lpude.in
3. www.open.umn.edu

Course Title: ELECTIVE I: (B) CORPORATE DECISION MAKING

Course Code : 45519 (B)	Credits : 5
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able to gain insight into the key aspects of corporate finance, corporate governance, ethics and corporate social responsibility, restructuring methods and ways of raising finance in the international markets

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the various sources & underlying principles of corporate finance and its importance in the corporate world, determine the main constituents and the benefits of corporate governance and the ethical issues in finance and summarize and elaborate the importance of Corporate Social Responsibility in business
CO2	Explain the need and importance of corporate financial planning and determine the factors affecting financial plans
CO3	Outline the various methods of corporate restructuring and financial restructuring and point out their benefits and drawbacks
CO4	Explain the functioning of International Financial Market and gain knowledge about the various financial instruments traded in International Financial Market
CO5	Explain the need and importance of corporate financial planning and determine the factors affecting financial plans

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	-	2	3	3	2	2	1	1	-	2	1	3
CO2	-	3	3	2	2	2	1	2	2	2	1	3
CO3	-	3	2	3	2	2	1	2	3	2	2	3
CO4	-	2	3	3	2	2	1	2	1	2	2	3
CO5	-	3	3	3	2	2	1	3	2	3	3	3

MODULE	CONTENTS OF MODULE	Hours	COs
I	Corporate Finance – Nature, Importance, Objectives of Corporate Finance - Functions of Finance Manager - Shareholder Wealth Maximization - Agency Problems - Corporate Governance: Meaning, Origin, Objectives and Benefits of Corporate governance, Fundamental Pillars of Corporate Governance - Business Ethics, Ethical issues in Finance - Corporate Social Responsibility: Concept, Significance, CSR provisions under the Companies Act 2013 - Social Audit - Ethical Investing	20	CO1
II	Corporate Financial Planning - Meaning, Definition, Objectives, Characteristics, Scope, Factors affecting financial planning, Essentials of a sound financial plan, Importance, Need, Problems in Corporate Financial Planning - Overtrading and Undertrading: Meaning, Causes, Symptoms, Consequences and remedies - Over and Under Capitalization: Meaning, Causes, Consequences & Remedies, Comparison of over and under capitalization.	20	CO2
III	Corporate Restructuring – Meaning, Reasons for corporate restructuring, Types of corporate restructuring: Stock swaps, Merger & its types, Shell company, Acquisitions including Cross-border Acquisitions, Joint venture, Strategic Alliance, Disinvestment, Spin-off, Demerger, Slump sale, Franchising, Takeovers, Divestiture - Anti-takeover strategies: Greenmail, Golden Parachute, White Knight, Poison Pills, Macaroni Defense, Shark repellents, People Poison Pill – Corporate failures	20	CO3
IV	Financial Restructuring - Meaning, Reasons, Components - Stock Split: Meaning, Objectives, Advantages and Disadvantages - Debt Consolidation and Corporate Debt Restructuring (CDR): Meaning, Differences and Similarities - Cancellation of Paid-up Capital - Leveraged Buyouts: Meaning, Characteristics, Types, Advantages and Disadvantages	10	CO4
V	International Finance - Basic concepts of International Money Market – International Currency Markets - International Credit Markets – Foreign Bonds & Eurobonds – Features - FCCBs, FRNs issued by Indian Companies, International Equities: FIIs, FDIs, ADR, GDR	20	CO5

REFERENCE BOOKS:

1. Angelo Corelli. (2018). *Analytical Corporate Finance*. Berlin, Germany: Springer International Publishing
2. Richard, A. B., Stewart, C. M., Franklin, A. & Pitabas, M. (2018). *Principles of Corporate Finance*. New Delhi, India: McGraw-Hill Education.
3. Pilbeam, Keith. (2013). *International Finance*. London, UK: Palgrave Macmillan
4. Shapiro, A.C & Hanouna, P. (2019). *Multinational Financial Management*. New Delhi, India: Wiley India Private Limited
5. Apte, P.G. (2006). *International Financial Management*, New Delhi, India: McGraw Hill (India) Pvt. Ltd.
6. Berk, J. & DeMarzo, P. (2019). *Corporate Finance*. London, UK: Pearson Education
7. Ross, S. A. (2018). *Fundamentals of Corporate Finance*. New York, USA: McGraw-Hill Education
8. Apte, P.G. (2020). *International Financial Management*. New Delhi, India: McGraw Hill (India) Pvt. Ltd

Note: Latest Edition of the Reading to be used.

WEB RESOURCES

1. <https://www.pdfdrive.com/corporate-finance-corporate-finance-theory-and-practice-e158788603.html>
2. <https://www.pdfdrive.com/corporate-finance-principles-practice-e16763353.html>

Course Title: CORE XVIII: COSTING METHODS AND TECHNIQUES

Course Code : 45621	Credits : 4
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course the student will be able to understand the costing procedures in various industries like job, process, contract and service and gain knowledge on the emerging trends in cost management and its applications.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the job costing procedures and determine the economic batch quantity
CO2	Identify the operating costing procedures in various service industries and Apply the operating cost techniques
CO3	Analyze the various industries using a process costing and prepare process accounts
CO4	Understand the contract costing system and ascertain notional profits for various contracts
CO5	Build knowledge regarding new costing techniques and apply those techniques for effective cost management

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	1	2	2	3	-	2	1	2	2	3	2	2
CO2	2	3	3	3	1	2	1	3	2	3	3	2
CO3	1	2	2	3	1	3	2	2	1	2	1	2

CO4	2	2	3	3	1	2	1	3	2	2	1	1
CO5	2	2	1	1	2	1	1	3	2	3	2	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	Job & Batch Costing Job Costing: Meaning, Definition of job, Features, Objectives, Merits & demerits – Job Costing Procedures - Batch Costing: Meaning, Determination of Economic Batch Quantity (EBQ)	15	CO1
II	Operating Costing: Meaning, Application of operating costing method, Operating cost units – Operating costing in Transport, Power Supply, Cinema Theatre, Hospital and Lodging house.	15	CO2
III	Process Costing: Meaning of Process costing, Characteristic features, Types of industries using process costing, Advantages of process costing, Disadvantages of process costing–Difference between process costing & job costing - Important aspects of process costing – Process Losses-Normal, Abnormal loss & gain - Process a/c's involving two or three accounts - Scrap value (Excluding inter-process profits and equivalent production)	20	CO3
IV	Contract costing: Characteristic features of contracts and contract costing, System of contract costing - Recording of costs of a contract – Recording of value and profit on contracts – Profit/loss on contracts - Meaning of Notional profit, Computing notional profit based on different phases of completion-Meaning of escalation clause - Need and Importance	25	CO4
V	Emerging trends in cost accounting (Theory only): Target costing: Features, Advantages, Methodology, Methods of establishment of target costs – Activity Based Costing–Problems with traditional costing, concept and usefulness of activity based, cost allocation and stages under ABC - Life cycle: Meaning of life cycle, Characteristics of life cycle, Importance and benefits, Product life cycle costing concept	15	CO5

PROPORTION OF THEORY WILL BE 20% AND PRACTICAL 80%

TEXT BOOK:

1. Khan, M.Y. & Jain, P.K. (2017). *Cost Accounting*. New Delhi, India: McGraw Hill (India) Pvt. Ltd.
2. Maheswari, S.N. & Mittal, S.N (2021). *Cost Accounting Principles and Practice*. New Delhi, India: Shree Mahavir Book Depot
3. Lal, J. & Srivastava, S. (2020). *Cost Accounting*. New Delhi, India: McGraw Hill (India) Pvt. Ltd.

REFERENCE BOOKS:

1. Reddy, T.S. & Hariprasad Reddy, Y.T. (2020). *Cost Accounting*, Chennai, India: Margham Publications
2. Jain, S.P & Narang, K. L. (2019). *Cost Accounting*. New Delhi, India: Kalyani Publications
3. Singh, M. & Chauhan, M. (2020). *Cost Accounting*. Mumbai, India: Himalaya Publishing House.
4. Dr. Gupta, S., Dr. Reeta & Dr. Rao, R.P. (2020). *Cost Accounting*. New Delhi: India: Sultan Chand & Sons

Note: Latest Edition of the reading to be used.

WEB RESOURCES

1. www.cost-accounting-info.com
2. www.introtocost.info
3. <https://fasab.gov/resources/managerial-cost-accounting-resources>

Course Title: ELECTIVE II: (A) INVESTMENT MANAGEMENT

Course Code : 45623 (A)	Credits : 5
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able to gain knowledge about the key investment concepts, various investment alternatives, capital markets and SEBI and kindle their interest to trade in stock market securities

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the differences between Investment and Speculation, list out the essentials of a good investment programme, analyze the relationship between risk & return and determine the methods for minimizing risk
CO2	Identify the various investment alternatives available and understand the advantages and disadvantages of these investment alternatives
CO3	Improve their knowledge relating capital markets and the role of regulatory authorities in capital market
CO4	Analyze the factors determining the suitability of an investment.
CO5	Understand the concept of mutual fund and insurance, various mutual funds and insurance schemes and its advantages and disadvantages

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	-	2	3	3	2	2	2	1	3	3	2	3
CO2	-	3	2	3	3	2	2	3	3	3	2	1
CO3	-	2	3	3	2	3	2	3	2	1	2	1
CO4	-	3	3	2	2	2	2	3	1	2	1	1
CO5	-	2	3	3	2	3	2	3	1	3	1	2

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to Investments: Investments: Introduction, Objectives – Savings, Investments and Speculation, Gambling & investment - Features of a Good Investment Programme – Investment Process - Attributes for evaluating Investment – Risk and Return – Concept, Trade-off between Return and Risk – Relationship between Risk & Return – Risk & Return of Various Securities - Systematic & Unsystematic Risks	20	CO1
II	Investment Environment: Types of Investments - Commodities, Real Estate and Financial Assets – Equity, Fixed Income Securities, Deposits, Mutual funds, Equity oriented mutual funds, Bonds, Insurance Investments, Derivatives, Bank deposits, Post office deposits, PPF, Tax Saving Instruments	10	CO2
III	The Stock Markets in India: Nature and Functions of the Stock Market, OTCEI & BSE, NSE, MCX & Role of Depositories, Security Market Indices – Differences - Trading system – Dematerialization-Role of Primary Market - New Issues Market - IPO - FPO - Rights issue - Bonus Issue - Procedures for Buying and Selling Shares – Tax consideration in Investment Management - Listing of securities – Merits, Qualification, Procedure – Secondary Market-Meaning, Nature and Functions – Role of SEBI and stock exchanges in Investor protection - Investor grievances and their Redressal System - Insider Trading – Recent trends in Stock Markets	20	CO3
IV	Investment Analysis: Fundamental Security Analysis – Economic analysis, Industry Analysis, Company Analysis - Technical Security Analysis – Dow Theory - Random Walk Theory – Markowitz Theory - Efficient Market Theory – Capital Asset Pricing Theory – Portfolio management – Process –Planning - Evaluation Analysis.	20	CO4

V	<p>Investments in Mutual Funds: Meaning, Need and advantages of investing in Mutual Funds - Concept of Net Asset Value (NAV), Types of Mutual funds: Open ended, closed ended, equity, debt, hybrid, Growth Funds, Income Funds, Balanced Funds, money market funds, Load vs non- load funds, Large-cap, Mid-cap, Small-cap funds, Index Funds, Exchange Traded Funds, Gilt Funds - Factors affecting choice of mutual funds - CRISIL Mutual Fund Ranking and its Usage</p> <p>Investments in Insurance</p> <p>Meaning – Nature, Need, Principles, Types, Benefits of insurance – Role of insurance in economic development – Insurance sector in India - Indian insurance market - Insurance Regulatory and Development Authority of India (IRDAI)</p>	20	CO5
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TEXT BOOKS:

1. Natarajan, L. (2019). *Investment Management*. Chennai, India: Margham Publishers
2. ChandraP. (2017). *Investment Analysis and Portfolio Management*. New Delhi, India: McGraw- Hill (India) Pvt. Ltd.
3. Bhalla, V.K. (2008). *Investment Management*. New Delhi, Delhi : S Chand &Company

REFERENCE BOOKS:

1. Agarwal, O.P. (2019). *Security Analysis & Investment Management*. Mumbai, India: Himalaya Publishing House Pvt. Ltd.
2. Rustagi, R.P. (2013). *Investment Analysis & Portfolio Management*. New Delhi, India: Sultan Chand & Sons
3. Pandya, F.H. (2013). *Security Analysis & Portfolio Management*. Mumbai, India: Jaico Publishing House
4. Dr. Tripathi, V. (2020). *Fundamentals of Investments*. New Delhi, India: Taxmann Publications
5. Ranganatham, M &Madhumati, R. (2012). *Security Analysis & Portfolio Management*. Chennai, India: Pearson India Education Services
6. Bhalla, V.K. (2008). *Investment Management*. New Delhi, India: S Chand & Co.

Note: Latest Edition of the Reading to be used.

WEB RESOURCES

1. <https://www.pdfdrive.com/security-analysis-and-portfolio-management-e124443201.html>
2. <https://www.pdfdrive.com/investment-analysis-portfolio-management-e58032995.html>
3. <https://www.pdfdrive.com/security-analysis-and-portfolio-management-e33409517.html>
<https://www.pdfdrive.com/investment-analysis-and-portfolio-management-e158760799.html>

Course Title: ELECTIVE II: (C) CORPORATE GOVERNANCE AND ETHICS

Course Code : 45623 (C)	Credits : 5
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be exposed to a theoretical perspective and framework of corporate governance, corporate social responsibility and the ethical, environmental and social dilemma, develop the good corporate governance skills to become a successful executive and a good leader in one's future business life, identify and manage corporate governance issues and implement and control corporate governance procedures within their organizations

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the concept of business ethics and its relevance in management and business
CO2	Understand the concept of corporate Governance, the disclosure practices and its connection with globalization
CO3	Develop knowledge about corporate governance reforms
CO4	Introduce and understand the concept of corporate social responsibility and managing ethical dilemma
CO5	Explain the contemporary practices in corporate governance

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	2	2	1	1	3	2	3	3	2	1	2	3
CO2	3	2	1	2	2	2	2	2	2	1	1	1

CO3	2	2	1	1	1	1	1	2	2	1	1	1
CO4	3	3	1	2	2	2	2	3	3	1	2	1
CO5	2	2	1	1	2	1	3	1	2	1	1	1

MODULE	CONTENTS OF MODULE	Hours	COs
I	Governance And Business Ethics - Introduction – Definition - Nature of Business Ethics – Characteristics - Causes of Unethical Behaviour - Work Ethics - Code of Conduct - Ethics in Indian business - Major Ethical Issues in Business - Ethics of Market-and Price - Ethics of Environmental, Consumer and Employee Issues - Human Values & Management Education - Relevance of values for management and in management of business.	15	CO1
II	Corporate Governance - Concept - Structure and Principles - Corporate Governance in India - Initiatives and present position - Issues and Problems in Corporate Governance - Disclosure Practices - Globalization and Corporate Governance	12	CO2
III	Corporate Governance Reforms - Organizational Structure - Board of Directors - Composition and their Role - Powers and Responsibilities - Board Meetings - Board Committees and their functions - Independent Director.	15	CO3
IV	Corporate Social Responsibility (CSR) - Business Perspective on Social change and human values in the area of globalization – Concept - Need and importance of CSR - CSR Principles and Strategies for organization - Best practices in CSR. Managing Ethical dilemma - Holistic Approach for Managers in decision making.	16	CO4
V	Contemporary Practices and Emerging Perspective on Corporate Governance - Stakeholders management- Corporate management structure for corporate governance – Decision making by boards - Board Objectives and strategies - Responsibilities of board and their informational requirements – Building Responsive Boards - Issues and challenges.	17	CO5

TEXT BOOK:

1. Fernando, A.C. (2013). *Business Ethics – An Indian Perspective*. New Delhi, India: Pearson

India Education Services

2. Saraf, C.U. (2018). *Corporate Social Responsibility (CSR), Corporate Governance, Sustainable Development and Corporate Ethics/Business Ethics*. Mumbai, India: Himalaya Publishing House
3. Sharma, J.P. (2016). *Corporate Governance, Business Ethics, and CSR*. New Delhi, India: Ane Books Pvt. Ltd.

4. Murthy, C.S.V. (2019). *Business Ethics & Corporate Governance*. Mumbai, India: Himalaya Publishing House

REFERENCE BOOKS:

1. Kumar, S. & Rajan, S. (2019). *Business Ethics & Values*. Mumbai, India: Himalaya Publishing House
2. Mallin, C. (2019). *Corporate Governance (Indian Edition)*, New Delhi, India: Oxford University Press.
3. Tricker, B. (2018). *Corporate Governance-Principles, Policies, and Practice*, New Delhi, India: Oxford University Press
4. Jyotsna, G.B. & Joshi, R.C. (2019). *Business Ethics & Corporate Governance*. New Delhi, India: McGraw Hill India Pvt. Ltd.

Course Title: ELECTIVE III: (A) ENTREPRENEURIAL DEVELOPMENT AND START UP

Course Code : 45624 (A)	Credits : 5
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able to understand the concept of entrepreneurship, identify significant changes and trends which create business opportunities, analyze the environment for potential business opportunities and provide conceptual exposure on converting idea to an entrepreneurial firm

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the basic concepts of entrepreneurship
CO2	Develop a B-Plan by the evaluation of business ideas and conduct of feasibility study
CO3	Understand the various institutions providing support to entrepreneurial ventures
CO4	Analyze the favorable environment required to run the venture successfully and the role of the government
CO5	Criticize the challenges faced by women and rural entrepreneurs

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	2	2	3	3	3	2	1	1	1	2	1	3
CO2	2	2	3	3	3	2	2	1	-	1	2	3
CO3	1	2	1	1	2	2	1	1	1	-	2	3
CO4	1	2	3	2	3	3	1	1	3	2	1	3
CO5	1	2	3	2	3	2	1	1	1	1	-	3

MODULE	CONTENTS OF MODULE	Hours	COs
I	Concept of Entrepreneurship: Entrepreneur - Meaning - Evolution - Functions of an entrepreneur - Traits of an Entrepreneur - Classification of Entrepreneurs – Myths on entrepreneurs – Concept of Intrapreneur – Entrepreneur Vs Intrapreneur - Concept of entrepreneurship – Factors promoting Entrepreneurship – Factors affecting entrepreneurial growth - Reasons for promoting Entrepreneurship - Barriers to entrepreneurship - Reasons of failure	15	CO1
II	Start Up - An Overview: Business Model - Generation of Ideas - Sources of New Ideas - Methods of Generating Ideas, Opportunity Recognition – Feasibility Study: Market, Technical/Operational, Financial, Legal & Social - Opportunity Assessment–Developing an effective Business Plan-Execution of Business Plan - Student Start-up Policy – Government Schemes to support start-ups – Coworking Spaces – Business Accelerators	20	CO2
III	Resource Mobilization & Institutional Support: Angel investors – Crowd-funding - Venture Capital Funds – Stock Market – Supply Chain Finance - Institutional support to entrepreneurs – Need - DIC, TANSIM, NSIC, MSMEDI, SSIC, SIDCO, SIPCOT, IIC, KVIC - Entrepreneurial Development Programs (EDP)– Objective, Need and Relevance of EDPs – Problems of EDPs	15	CO3
IV	Managing Environments: Economic, Technological and Social Environment – Business Cycles – Industry Cycles - Role of Government in promoting entrepreneurship – Policies and Schemes for promotion of MSME in India – Incentives, subsidies & tax concessions – Supporting institutions -Failure, Causes and Preventive Measures – Turnaround Strategies.	20	CO4

V	Development of Women Entrepreneurship & Rural Entrepreneurship: Women Entrepreneurs – Concept –Growth – Challenges in the path of women entrepreneurship – Development of women entrepreneurship – Opportunities to Women Entrepreneurs – Initiatives, policies & schemes for women entrepreneurs – Grassroot entrepreneurship through Self- Help Groups (SHGs) - Rural entrepreneurship – Need, Importance, Types – Rural Industrialization: Advantages & types – Opportunities for rural entrepreneurs – Risks and problems faced by rural entrepreneurs	20	CO5
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TEXT BOOK:

1. Charantimath, P.M. (2019). *Entrepreneurship Development and Small Business Enterprises*. New Delhi: India. Pearson India Education Services
2. Desai, V. (2019). *Dynamics of Entrepreneurial Development and Management*, Mumbai: India. Himalaya Publishing House.
3. Gordon, E & Natarajan, K. (2020). *Entrepreneurship Development*. Mumbai, India: Himalaya Publishing House Pvt. Ltd.

REFERENCE BOOKS:

1. Fisher, S. & Duane, J. (2016). *The Startup Equation: A Visual Guidebook To Building Your Startup*. New Delhi, India: McGraw Hill (India) Pvt. Ltd.
2. Barringer, B.R. & Ireland, D.R. (2020). *Entrepreneurship: Successfully Launching Ventures*. New Delhi, India: Pearson Education
3. Holt, D.H. (2016). *Entrepreneurship*. New Delhi, India. Pearson Education

Note: Latest Edition of the reading to be used

WEB RESOURCES

1. <https://openstax.org/details/books/entrepreneurship>
2. <https://www.entrepreneur.com/>
3. <https://openpress.usask.ca/entrepreneurshipandinnovationtoolkit/chapter/chapter-1-introduction-to-entrepreneurship/>
4. <https://vtechworks.lib.vt.edu/bitstream/handle/10919/70961/Chapter%206%20Entrepreneurship%20-%20Starting%20a%20Business.pdf?sequence=11&isAllowed=y>

ELECTIVE III: (B) MARKETING MANAGEMENT

Course Code : 45624 (B)	Credits : 5
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

On taking this course, the student will be able to understand the concepts of marketing and consumer behaviour and gain knowledge on the currently prevalent marketing environment.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the concepts and approaches in marketing and analyze the role of marketing in economic development
CO2	Identify the various factors influence consumer behaviour and locate Market Information system
CO3	Determine the elements of marketing mix and develop a new product plan
CO4	Apply different methods of pricing and create a channel of distribution
CO5	Recognize the E-marketing tools and evaluate the impact of social media marketing

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	3	3	2	2	3	2	2	2	3	-	1	3
CO2	3	3	3	2	3	1	1	3	2	3	-	3
CO3	3	2	3	3	2	2	2	2	1	2	1	3
CO4	2	2	3	2	1	3	1	3	2	1	2	2
CO5	3	2	3	2	3	1	2	3	2	1	2	3

MODULE	CONTENTS OF MODULE	Hours	COs
I	Introduction to Marketing : Marketing: Definition, Nature, Scope and Features of Marketing, Importance of Marketing - Concepts and Approaches to Marketing - Product vs. Service Marketing – Market: Classification of market - Role of Marketing in Economic Development - Innovations in Marketing - Meta marketing.	15	CO1
II	Consumer Behaviour: Definition of Consumer behavior, An overview of consumer behavior, Significance - Buying motives - Determinants of consumer behavior – Decision-making process - Market Segmentation, Bases of segmentation - Marketing Research, Process – MIS, Need for Marketing Information System.	20	CO2
III	Product & Marketing Mix strategies: Product, Features of a product – Classification of goods – Service product - Elements of marketing mix (7P’s) - Product Line – Product positioning - Product differentiation - New product Development – Product Life cycle stages and strategies – Product Portfolio Management Framework – BCG Matrix, Ansoff Matrix - Branding - Packaging and labeling.	20	CO3
IV	Value design - Pricing, Place & Promotional strategies: Pricing: Objectives, Factors influencing pricing decisions, Kinds of pricing, Methods of pricing - New product pricing strategy- Channels of Distribution, Importance, Levels, Channel Members –Promotion – Communication Mix – Basics of Advertising, Sales Promotion and Personal Selling.	20	CO4
V	Development & Issues in Marketing: E-commerce: Significance of E-Commerce – e-Marketing, Tools of e- marketing, e-Tailing, Types of E-Tailers, Advantages of e-tailing - Shopping malls – Social Media Marketing, Importance of Social Media, Advantages and Disadvantages - Services Marketing – Intrusive Marketing - Green Marketing - Rural marketing – Direct Marketing – B2B & D2C marketing - Consumer Protection – Consumerism in India.	15	CO5

TEXT BOOK:

1. Kotler, P (2016). *Marketing Management*. New Delhi, India: Pearson Education
2. Pillai, R.S.N. & Bagavathi. (2018). *Modern Marketing Principles*. New Delhi, India: S.Chand & Co.

REFERENCE BOOKS:

1. Sontakki, C.N. (2018). *Marketing Management*. New Delhi, India: Kalyani Publishers
2. Dr. Jayasankar, J. (2013). *Marketing*. Chennai, India: Margham Publications
3. Karunakaran. K. (2017). *Marketing Management Text and cases in Indian context*. India: Himalaya Publishing House.
4. Sherlekar, S.A & Krishnamoorthy, R. (2018). *Marketing Management Concepts and Cases*. Mumbai, India: Himalaya Publishing House.

Note: Latest edition of the reading to be used

Mumbai WEB RESOURCES

1. www.learnmarketing.net
2. www.marketingprofs.com
3. www.marketmotive.com
4. www.marketing91.com

Course Title: ELECTIVE III: (C) HUMAN RESOURCE MANAGEMENT

Course Code : 45624 (C)	Credits : 5
L:T:P:S : 6:0:0:0	CIA Marks : 50
Exam Hours : 03	ESE Marks : 50

Learning Objectives:

This course will facilitate the student to gain knowledge on the concept of human resources and methods to make optimum use of human capital and also explore the knowledge of recent trends such as E HRM, Human Resource Audit and their contemporary issues.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Understand the basic concept of human resource management and its evolution and challenges
CO2	Articulate human resource planning using quantitative and qualitative dimensions
CO3	List the methods of training and explain its role towards human resource development
CO4	Explain performance appraisal methods and their link with compensation.
CO5	Understand the concept of employee health, safety, digital HRM and the welfare measures of the employees.

Mapping of Course Outcomes to Program Outcomes:

CO/PO/PSO	PO							PSO				
	1	2	3	4	5	6	7	1	2	3	4	5
CO1	1	1	1	1	1	1	1	2	3	-	1	3
CO2	3	1	1	1	1	3	1	3	2	3	-	3
CO3	3	1	1	1	2	3	3	2	1	2	1	3
CO4	3	1	1	1	2	3	3	3	2	1	2	2
CO5	3	2	2	2	2	3	3	3	2	3	3	3

MODULE	CONTENTS OF MODULE	Hours	COs
I	Human Resource Management - Concept and functions, Role, Status and competencies of HR manager, HR policies, Evolution of HRM, Emerging challenges of Human Resource Management - Workforce diversity, Empowerment, Downsizing, VRS, Work Life Balance	15	CO1
II	Human Resource Planning - Quantitative and qualitative dimensions, Job analysis – Job description & job specification – Recruitment, concept & sources – Selection, concept & process - Test & interview – Placement - Induction & socialization, Retention - Artificial Intelligence in Talent Acquisition: Meaning, Role, Benefits, Application and Challenges of AI based Recruitment.	15	CO2
III	Training and Development - Concept and importance, Role specific and competency-based training, Training and development methods: Apprenticeship, Understudy, Job Rotation, Vestibule Training, Case Study, Role Playing, Sensitivity Training, In-basket, Management Games, Conferences and Seminars, Coaching and Mentoring, Management Development Programs, Training Process Outsourcing	20	CO3
IV	Performance appraisal & Employee Engagement Performance appraisal: Nature, objectives and process, Performance management, Methods of Performance Appraisal, Potential appraisal, Employee counseling, Job changes - Transfers and promotions - Human Resource Audit – Compensation, Concept and policies, Base & supplementary compensation, Individual, group & organization incentive plans, Fringe benefits, Performance linked compensation, Employee Stock Option, Pay Band Compensation System, Job Evaluation Employee Engagement: Meaning, Definition, Types, Importance, Factors; Benefits, Impact on performance, Methods to promote employee engagement.	20	CO4
V	Employee Health and Safety; - Employee welfare - Social Security (excluding legal provisions) - Employer-employee relations: An overview, Grievance handling & redressal - Industrial disputes, Causes & Settlement machinery - Digital HRM – Digital Workforce - Human Resource Information System & Digital HRM – Artificial Intelligence in Talent Acquisition - Impact of HRM practices on organizational performance - HR Audit, Contemporary issues in Human Resource Management	20	CO5

TEXT BOOK:

1. Khanka, S.S. (2019). *Human Resource Management – Text and Cases*. New Delhi, India: S. Chand Publishing.
2. Durai, P. (2020). *Human Resource Management* New Delhi, India: Pearson India Education Services.
3. Dr. Jayashankar, J. (2013). *Human Resource Management*, Chennai:India, Margham Publications.

REFERENCE BOOKS

1. Rao, V.S.P. (2020). *Human Resource Management*. Chennai, India: Taxmann Publications
2. Aswathappa, K. (2017). *Human Resource Management Text and Case*. New Delhi, India: McGraw Hill (India) Pvt. Ltd
3. Gupta, S.K. & Joshi, R. (2020). *Fundamentals of Human Resource Management*. Chennai, India: Kalyani Publishers.

Note: Latest Edition of the reading to be

used WEB RESOURCES

1. https://www.researchgate.net/publication/305954894_Human_Resource_Management_Theory_and_Practice/link/57a740ce08aee07544c130bd/download
2. http://www.opentextbooks.org.hk/system/files/export/32/32088/pdf/Human_Resource_Management_32088.pdf
3. <https://brauss.in/hrm-basic-notes.pdf>



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Curricula developed and implemented with relevance to the global developmental needs

ALLIED IV – FORENSIC PSYCHOLOGY

COURSE OUTCOMES

- CO1 –To demonstrate understanding of the major concepts, theoretical perspectives, and empirical findings historical and current trends in forensic psychology.
- CO2 –To summarize the techniques of criminal investigation.
- CO3 –To critically analyse the development of habitual criminal behaviour.
- CO4 –To understand the treatment and management of sexual offenders.

CORE PAPER – VI SOCIAL PSYCHOLOGY I

COURSE OUTCOMES

- CO1 - To Outline the nature, history, principles and scope of social psychology and methods used in social psychology research
- CO2 – To understand social cognition and its potential sources of error
- CO3 – To describe the strategies used to form and maintain positive impression.
- CO4 – To elucidate the ways to resist persuasion
- CO5 – To analyze the causes of marital happiness and relationship failure.

ALLIED II – CROSS CULTURAL PSYCHOLOGY

COURSE OUTCOMES

- CO1 - To describe and discuss the various theoretical orientations/paradigms that describe cultural differences
- CO2 - To analyse and discuss the ways in which different cultures influence human responses
- CO3 - To discuss and evaluate the differing methods used to ensure culture free evaluations of human beings
- CO4 - To identify and evaluate the different methods and issues involved with studying humans across culture.

ALLIED III - STATISTICS IN PSYCHOLOGY

COURSE OUTCOMES

- CO1 –To interpret and classify a great deal of information.
- CO2 – To describe the information in the form of visual representation
- CO3 --To infer different elements of a sample or population.
- CO4 -- To summarize what already exists in a given population
- CO5 -- To compute, predict and prepare the results of a study
-



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CO2 Relate culture as a social institution

CO3 Examine the relationship between culture and politics

CO4 Study the relationship between culture and Economics

CO5 Recount the significance of culture in freedom of expression

CO6 Analyse the role of culture in solving social problem and transmitting values



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PG DEPARTMENT OF JOURNALISM AND COMMUNICATION

1.1 CURRICULUM DESIGN & DEVELOPMENT

Curricula developed and implemented have relevance to the GLOBAL developmental needs

Programme Name & Code – MA Journalism and Communication 48

Academic Year 2022-2023

	Course Title	COs of all Courses
1.	Human Communication	CO1: Understand the definition, need and importance of communication as expression and skill. CO2: Trace the importance of communication in human development. CO3: Learning communication patterns and its need in an organization. CO4: Gain adequate knowledge on public communication system. CO5: Apply knowledge of the theories of communication to practice.
2.	Reporting and Writing Skills	CO1: Evaluate newsworthiness of information and understanding the structure of news flow. CO2: Demonstrate an understanding of story idea creation and alternative story forms in journalism CO3: Comprehend the basic structure and format of a hard/soft news story (lead, body, and conclusion). CO4: Produce Content for Print, Broadcast and blogs and websites CO5: Demonstrate an understanding of journalism ethics.
3.	Editing Skills	CO1: Understand the Duties and Responsibilities of an Editor in a newspaper industry.



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		<p>CO2: Analyse the concepts and techniques behind news editing.</p> <p>CO3: Comprehend the basics of editing.</p> <p>CO4: Understanding of different types of fonts and type.</p> <p>CO5: Demonstrate an understanding of news editorials.</p>
4.	Information and Communication Technology	<p>CO1: Understand the Components of information & Communication</p> <p>CO2: Enable students to understand the basics of broadcasting and broadcasting agencies.</p> <p>CO3: Gain Knowledge of accountability in news production in digital scenario.</p> <p>CO4: Study the impact of Communication in Development</p> <p>CO5: Grasp elements of Communication in Development</p>
5.	Travel Photography	<p>CO1: Learn how to use the fundamental elements of photography in ways that convey a sense of place</p> <p>CO2: Deepen your understanding of the fundamental tools of travel photography</p> <p>CO3: Create expressive photographs that reveal your unique impression of a destination</p> <p>CO4: Reinforce the ongoing creation of travel photography both around the corner and around the world</p> <p>CO5: Develop the concept of digital output and producing the final product</p>
6.	Photo journalism	<p>CO1: Learn how to use the fundamental elements of photography in ways that convey a sense of place</p> <p>CO2: Deepen your understanding on analyzing and creating effective photographs</p> <p>CO3: Create expressive photographs that reveal your unique impression of a destination</p> <p>CO4: Understand and write text to accompany photography</p> <p>CO5: Develop the concept using photo editing and build visual sequences.</p>
7.	Media Skills	<p>CO1: Learn the elements and principles of composition</p>



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		<p>CO2: Deepen understanding to use different coloring technique and its practical applications in design.</p> <p>CO3: Understand multiple image types and to select best application of each for graphic design, print and the photography</p> <p>CO4: Utilize effectively multiple methods of manipulating the existing artwork and workspace</p> <p>CO5: Develop the concept of digital output and producing the final product</p>
8.	Online Journalism and Web Management	<p>CO1: Enable the students to understand the distinct characteristics of online journalism</p> <p>CO2: To develop skills to encourage the production of media messages using variety of digital tools.</p> <p>CO3: To encourage students to appreciate and participate in Digital Media content writing</p> <p>CO4: To help students to generate contents for each social media platforms and acquire the skills</p> <p>CO5: To help students create content with credibility and authenticity</p>
9.	Mass Communication Theories	<p>CO1: Analyse the determinants of communication theories</p> <p>CO2: Discuss the importance of studying theory</p> <p>CO3: Illustrate the evolution of mass media theories.</p> <p>CO4: Relate media society relationship from a political perspective.</p> <p>CO5: Categorize and relate various events in the society to mass communication theories.</p>
10.	Media, Culture and Society	<p>CO1: Understand the relationship between the state, media and the public.</p> <p>CO2: Critique the media content from the audience perspective</p> <p>CO3: Acquire deep knowledge on the functions and influence of Media in Culture and Society</p> <p>CO4: Analyze media performance and content from a gender perspective</p>



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		CO5: Evaluate the popular culture and its characteristics from a culture perspective.
11.	Communication Research Methods	CO1: Understand the basics of communication research CO2: Outline the basic framework of research process CO3: Explore several different kinds of samples and sampling techniques used in mass communication research. CO4: Understanding the basic conceptualisation behind perfect data collection CO5: Critically analyse research methods and develop the skills for writing a thesis.
12.	Digital Marketing	CO1: To understand the basic Concepts of Digital marketing and the road map for successful Digital marketing strategies. CO2: Creating market Positioning with respect to the Digital marketing CO3: Understanding the importance of Social media Platforms importance in Digital Marketing CO4: Collecting, analyzing, enabling and optimizing organization's digital ecosystem in the making of data-informed decisions. CO5: To understand the technological importance of digital marketing
13.	Human Interest Stories	CO1: To develop the ability to frame Human Interest stories which relates to current events and help people to evaluate the impact of such events CO2: To be able to write Human Interest stories to evoke the emotion of reader/viewer and raise awareness of worthy causes CO3: To create stories without losing the value of Human Interest Journalism CO4: Reinforce the ongoing creation of travel photography both around the corner and around the world CO5: Develop the concept of digital output and producing the final product



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14.	Cultural Journalism	<p>CO1: To write stories on arts and creative work, and on the individuals, institutions and policies that make or enable the creative work.</p> <p>CO2: To develop the aesthetic sense in the art and cultural coverage.</p> <p>CO3: To distinguish culturally valuable works from their lesser counterparts.</p> <p>CO4: To deduce the increased interconnectedness of economic and cultural processes.</p> <p>CO5: Develop the concept of digital output and producing the final product</p>
15.	Mobile Journalism	<p>CO1: To study the Socio-cultural implications of mobile phone communication and its contribution to information explosion.</p> <p>CO2: To understand the need, benefits and significance of mobile journalism.</p> <p>CO3: To learn the origins and characteristics of mobile journalism, differences and similarities with conventional journalism, and the applications of mobile journalism.</p> <p>CO4: To practically understand the usage of mobile phones as a reporting tool.</p> <p>CO5: To apply Mobile journalism techniques for different modes of news gathering and news processing, using open source voice, text and video.</p>
16.	News Production	<p>CO1: To understand the basic concepts of Broadcast Journalism</p> <p>CO2: To acquaint students with different modes of writings based on the technology and transmission.</p> <p>CO3: To identify and write record, produce and edit several formats of radio programmes including news stories, and features.</p> <p>CO4: To illustrate the basics of broadcast genres and essentials of journalism.</p> <p>CO5: To put theory to practice and produce digital outputs</p>
17.	Media Management	<p>CO1: To familiarize students to Indian media organization and their management practices.</p>



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		<p>CO2: To introduce students to principles of Media business management</p> <p>CO3: Understand Commercials and sponsorship in electronic media</p> <p>CO4: Evaluate the different Organizations roles and perform a career-oriented approach</p> <p>CO5: To create programs with credibility and accountability according to the uprising trending technologies</p>
18.	Advertising	<p>CO1: Analyse the different types of advertising& advertising agencies</p> <p>CO2: Understand the components of a brand image</p> <p>CO3: Learn the Elements of ad copy in advertisement</p> <p>CO4: To understand the Elements of media budgeting, planning and buying.</p> <p>CO5: Acquire knowledge on campaigning advertisement</p>
19.	Public Relation & Corporate Communication	<p>CO1: To learn the basic concepts of Public relation and its tools.</p> <p>CO2: Explore the role and importance of corporate communications</p> <p>CO3: Learn to conduct public relation campaigns</p> <p>CO4: To understand the techniques involved in maintaining the brand and organisational image</p> <p>CO5: To enhance their skills for organizing public relation campaigns and press releases</p>
20.	Dissertation	<p>CO1: To display the knowledge and capability required for independent work.</p> <p>CO2: To create, analyze and critically evaluate different technical/research solutions</p> <p>CO3: To clearly present and discuss the conclusions as well as the knowledge and arguments that form the basis for these findings</p> <p>CO4: To identify the issues that must be addressed within the framework of the specific dissertation in order to take into consideration</p>



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		CO5: To facilitate student to carry out extensive research and development project or technical project at place of work through problem and gap identification, development of methodology for problem solving, interpretation of findings, presentation of results and discussion of findings in context of national and international research.
21.	Documentary Production	CO1: To identify content from real life, books and print materials. CO2: To improve the data collection and research skills for documentary. CO3: To strengthen the script writing ability of the student. CO4: To draft a formal documentary proposal. CO5: To make a socially responsible documentary.
22.	Deprivation Coverage	CO1: To understand the concept of deprivation and its effect in society CO2: To explore and identify areas of deprivation. CO3: To improve the communication, questioning, listening, writing and news gathering skills. CO4: To incorporate human interest angle in the news stories. CO5: To write a factual news story on the deprivation.
22.	Event Management	CO1: To enables students to plan, execute and comprehend various events with relevant skills for each event. CO2: Acquire and apply the skills required to plan an event CO3: Enhance their innovativeness in managing the media CO4: Plan an event with the knack of organizational skill CO5: Demonstrate a planned event displaying promotional skills
23.	Developmental Communication	CO1: Aware of the problems related to the concept of Development



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		<p>CO2: Critically evaluate government policies related to Development and its impact</p> <p>CO3: Analyse the role of International Agencies towards Development</p> <p>CO4: Create content suitable for different formats</p> <p>CO5: Approach the issue in various angles. Examine the reach of Development policies</p>
24.	Health Communication	<p>CO1: Understand the role of communication and its affect in promoting and maintaining health and wellness for all individuals</p> <p>CO2: Develop effective health messages for individuals and publics by understanding how the media, literacy and policy affect the perceptions of health.</p> <p>CO3: Create a content in social media- based on agriculture, health, education, population planning, sanitation, environment protection and socio-economic development.</p> <p>CO4: Create photo stories which assess the factors that affect health literacy.</p> <p>CO5: Writing essay for health stories in effective manner</p>
25.	Media Laws and Ethics	<p>CO1: To learn the basic structure of Indian Constitution.</p> <p>CO2: Examines the various media laws, policy and regulatory frameworks in India</p> <p>CO3: Explore the legalistic perspective of IPR in media laws</p> <p>CO4: Apply knowledge of self-regulation and other ethical practices in profession</p> <p>CO5: Comprehend media constitutional laws and ways to solve simple media law cases.</p>
26.	Film Studies and Appreciation	<p>CO1: To understand various theoretical, historical, and critical approaches to films.</p> <p>CO2: Acquire knowledge on history of Cinema, cinema movements</p> <p>CO3: To facilitate exploration of the history of cinema and also critically analyze movies that are being screened.</p> <p>CO4: To understand how film reflects societal concerns.</p>



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		CO5: Analyse structures of power, economics, and ideology and Film Genres
27.	Digital Story Telling	CO1: To understand various techniques behind history, culture, traditions, and craft of digital storytelling. CO2: To understand digital media and its effective use as a form of communication. CO3: To communicate ideas effectively in written, oral, and visual form to a range of audiences. CO4: To demonstrate mastery of the concepts, techniques, and tools in one or more digital media specialties. CO5: To develop professional quality digital media productions by promptly applying knowledge and skills including best practices and standards.
28.	Internship	CO1: To extend the skills and knowledge they acquired from relevant theory components CO2: To create, analyze and critically evaluate experiential learning. CO3: To engage in continuous learning and development of new skills appropriate for their field CO4: To build professional portfolio. CO5: To facilitate students’ opportunity to work and experience actual operations in the real business world

Syllabus

Core Paper 1- Human Communication

Nature and Scope of Human Communication: Communication Definition – Nature and Scope – Intention and communication Need for and the Importance of Human Communication, Communication as expression, skill and process.

Unit 2



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Interpersonal communication: Theories and Models – Transactional analysis, Interactive Model etc. Theories of Message Selection--Cognitive Theories, Theories of Planning, Action, Message Selection and Message Design, Interpersonal Deception theory, Relational Communication Theory

Unit 3

Group communication: Theories and Models- Group-think, Decision Making Process, leadership, team work communication patterns in group context, functional. Interactional and Structural Tradition. Communication and Organization: Classical Position. Likert's four Systems Model,

Unit 4

Public communication: Rhetoric Model, Persuasion Models, hint, of Persuasion, Ethical issues in Persuasion, Theories of Message Reception and Processing – Osgood' Meaning Theory, Attribution theory, Social Judgement Theory, Elaboration Likelihood Model, Non-verbal Communication. Theories and Models, Type, of non-verbal behavior, Kinesics.

Unit 5

Exercises on Public speaking and mime, listening competencies, interview of a celebrity from any field.

References

Littlejohn, Stephen W. Theories of Human communication Wadsworth, 2002

Wood, Julia T. Communication Mosaics: An Introduction to the Field of Communication, 2001, Wadsworth

Larson, Charles U; Persuasion – Reception and Responsibility. Wadsworth, 2001

Core Paper-2 -Reporting and Writing Skills

Max. Marks: 100

Unit 1

Fundamentals of Journalism: Definition of News, Types of News, Formats, personal attributes of journalism, rights and responsibilities, organization of news room, news values. News organization and structure. Purpose and meaning of news.

Unit 2



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Reporting: Sources of News – primary and secondary sources, Reporters responsibilities, Interviewing skills, structure of news reports, report writing – formats, structures, language, style and grammar. Beats: crime, courts, political, local government.

Unit 3

Specialised Reporting: Reporting speeches, reporting public opinion polls, and show business, reporting human interest stories, Follow-ups and eye-witness reporting, Investigative reporting, computer-assisted reporting.

Unit 4

Feature Writing and Soft News: Basic grammar and common errors in writing news-stories – presentation construction, ensuring copy-flow, Feature writing, interviews and profiles, New journalism writing style, writing reviews, and other special interest columns, introduction to photojournalism, managing news flow, freelancing, rewriting skills.

Unit 5

Journalistic Ethics: Journalism ethics, code of conduct, social responsibility.

References

Herbert, John (2000) Journalism in the Digital Age; Theory and Practice for broadcast, print and on-line media

Breen, M (Ed) (1998). Journalism -Theory and Practice. Macleay Press
Granato, L (Ed) (1998) Newsgathering on the Net Macmillan
Hennessy, B (1997) Writing Feature Articles. Focal Press

E, Hilard (2000): Writing for TV, Radio and New Media, Thomson Learning
Mencher; Basic News Writing, 3rd Edition

Kessler, E (2000): When Words Collide A Writers guide to Grammar and Style, Thomson Learning
Rich, E (2000): Writing and Reporting News: A Coaching Methods. Thomson Learning

Dtrent: News Reporters and News Sources: Accomplices n Shaping and Misshaping. 2nd Edition. Prentice-Hall India

Chicago Manual of Style The Essential Guide for writers, editors and Publishers 14th Edition
University of Chicago Press. Prentice-Hail India

Core Paper - 3: Editing Skills



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Max. Marks: 100

Unit 1

Structure and function of a newspaper industry. Role and responsibilities of Editor and sub-editors – accuracy and fact checking, traditional editing skills (editor’s marks, proof reading etc.)

Unit 2

Fundamentals of Newspaper and magazine editing – balance, quality, leads grammar, spelling, punctuation, headlining. Principles of editing and editing to save space.

Unit 3

Writing headlines, types of headlines. Following style-book, page layout and design, news agency copy editing, working with picture editor.

Unit 4

Typography – font type, size. Layout and pagination.

Unit 5

Critical analyses of the editorial page – content and style of writing, comparison of national and vernacular press.

References:

Hodgson, F.W (1998),..News Sub-editing. Focal Press Davis, A (1998) Magazine Journalism Today. Focal Press

Chicago Manual of Style The Essential Guide for writers, editors and Publishers 14th Edition University of Chicago Press. Prentice-Hall India

Bowles, E (2000). Creative Editing. Thomson Learning

Hodgson, F.W (1998) News sub-editing- Apple Mac, Quark-Xpress and After. Focal Press Giles, V and Hodgson, F W (1996) Creative newspaper Design Focal Press

Westley,H Bruce, News Editing,3rd Edition,Oxford&IBH Publishing Company.



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Core Paper-4: Information and Communication Technology

Max. Marks :100

Unit 1

Communication History: The notion of communication revolution. Perspectives on Communication Revolution. Communication in History: Early Means of communications: Oral Vs Written Tradition.

Evolution of Printing and Publication Media: Origin and Growth of Print media, Print-Capitalism, Print and National movement in India: From formative period to contemporary press.

Unit 2

Radio & TV: History of Radio and TV – world and Indian perspective. Direct Broadcasting Satellite Channels in India Origin growth and recent developments Policy Issues in Electronic Media. Pressure Barathietc

Unit 3

Internet and New Media: Brief History of Computers and computing (Computer-media Communication) origin and growth of the Internet. Emerging trends. Early communication tools: Telegraph and Telephony – their Evolution in the west and India. Overview of telecommunication in India today Rural • Telecommunications in India.

Unit 4

Role of Communication in Development: Historical and International Perspective Nature and Scope. Theories of Development and Underdevelopment. Dominant Paradigm and Alternate Paradigm. Communication Strategy' for empowerment.

Unit 5

Communication for Development: History of developmental effort in India. Designing Messages: Planning Strategy and logistics, Research in development context. Campaign / Project Evaluation Participatory Research Approaches (PRAs). Case Studies in Participatory / development communication. Communication for development in different context (Health, Agriculture, AIDS awareness, Family Planning etc.). Role of NGOs in development Prospects and problems. Role of ICT in education, (primary/secondary), tourism and other sectors apart from health and development communication Role of ICT in development communication with case studies.



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References

Singhal, Arvind and Rogers, Everett M., India's Communication revolution from Bullock Carts to Cyber Marts. Sage Publications

Singhal, Arvind and Rogers, Everett M., India's information revolution. Sage Publications
Winston, Brian. 1999 Media Technology and Society, A History Front Telegraph to the Internet

Sussman, Gerald. 1999 Communication, Technology and politics in information Age Sage Publications

Page, David and Crawley, William (2000) Satellites Over South Asia Broadcasting Culture, and the Public Interest.

Narula, Development Communication: Theory and Practice

Melkote, Communication for Development in Third World: Theory and Practice for Empowerment-2nd Edition

Nair and White Perspectives on Development Communication

Mody Designing Messages for Development Communication An audience participation based approach

Servaes, Jacobson and White Participatory communication for social change Singhal and Rogers. India' Information Revolution

Elective Paper-1-Travel Photography or Photojournalism

Practical

Max. Marks: 100

Photojournalism

- Photo Journalism – 15 topics- 3 each in Political, Cultural, Social, Event, Crime
- Photo feature – 3 topics

Travel Photography

Travelogue – 1 trip – Photographs and write up about the aesthetics of the place from tourist spots to eateries to boarding places.



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Aspects of Aesthetics of Lighting will be common for both the courses.

Elective Paper 2 - Media Skills / Online Journalism and Web Management Practical

Max. Marks: 100

Media Skills

In design Software – Layout and Pagination of a Journal and publication of a journal

Online Journalism and Web Management

This paper will strengthen the on line writing and production skills of the students. Their creative writing, technical writing and content writing abilities will be improved. They will upload their production. They will a you tube channel and link it social media.

Unit 1: Using on-line resources - search strategies

Unit 2: Tools and Techniques for Online Journalism (linking audio-video etc.)

Unit 3: Writing for Online Media

Unit 4: Flash for Journalists, Multimedia News Presentation

Unit 5: Blogs for Journalists, Using Social Media and Social Networking

Semester II

Core Paper -5: Mass Communication Theories

Marks Max: 100

Unit 1

Models of Communication: Linear Models of Communication and their subsequent evolution (Shannon-Weaver Model, Lasswell etc.) Non-linear Models of Communication: Sociological Model (Primary and Secondary Groups etc.), Two-step flow model etc. Westley and Maclean Model. Interpersonal and Mass communication, Systems Theory. Information theory (Source Variable, Message Variable, Channel Variable and Receiver Variables), Cybernetic Theory, Dynamic Social Impact Theory

Unit 2



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Normative Theories of Press/ Media Performance: Why study theory? Nature and Scope of Mass Communication Theories, Media-Society Relationships, Power of the Media, Evolution of normative theories.

Unit 3

Theories of News and News Analysis: Theories of News flow, sources, and News diffusion White's Gate Keeping Model, Selective Gate keeping News flow and news values, McNelly's Model. Mass Communicator-Public Relationship Determinants of News and content. Agenda Setting Model, Spiral of Silence, Social meaning of news Definition and Theories of Public Opinion.

Unit 4

Political Communication and Public opinion: Elements of political communication. Strategies, propaganda. Public opinion, popular Culture, Opinion Leaders - their role and significance.

Unit 5

Case Studies and Ethical Issues Free_ Market Model and Public Sphere, Media and Democracy, New World Information and Communications Order (NWICO) Debate, Cultural Imperialism Thesis Women and Media. Media ethics.

References

McQuail, Denis (2000) Mass Communication Theory 4th Edition. Sage Publication Kuncik, Michael(1993) Communication and Social Change. Friedrich Ebert Stifling

McQuail, Denis and Windahl, Seve (1984).Communication Models: For the Study of Communications. Longman

Dissanayake, Wimal (1988). Communication Theory: The Asian Perspective. An AMIC Compialation AMIC

DeFleur, M L., & Ball Rokeach, S (1989). Theories of mass communication (5th ed). New York: Longman

Asa, Berger (2000). Essentials of Mass Communication.Sage Publication Silverstone, Roger (1999) why study the Media? Sage Publication.

Mattelart, Armanda and Matttleart, `Michele (1998) Theories of Communication: A Short Introduction Sage Publications

Core Paper-6: Media, Culture and Society



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Max. Marks: 100

Unit 1

Why study media? Understanding mass media. Characteristics of mass media. Effects of mass media on individual, society and culture – basic issues. Power of mass media. Media in Indian society. Definition, nature and scope. Function of mass media.

Unit 2

Media Audience analysis (mass, segmentation, product, social uses). Audience making. Active Vs Passive audience: Some theories of audience - Uses and Gratification, Uses and Effects, etc.

Unit 3

Media as text. Approaches to media analysis - Marxist, Semiotics, Sociology, Psychoanalysis. Media and realism (class, gender, race, age, minorities, children, etc.)

Unit 4

Media as consciousness Industry. Social construction of reality by media. Rhetoric of the image, narrative, etc. Media myths (representation, stereotypes, etc.) -- Cultural Studies approach to media, influence of caste on the media content and industry audience as textual determinant, audience as readers, audience positioning, establishing critical autonomy. Feminism.

Unit 5

Media and Popular culture – commodities, culture and sub-culture, popular texts, popular discrimination, politics and popular culture, popular culture Vs people’s culture, celebrity industry- personality as brand name, hero-worship, etc. Acquisition and transformation of popular culture

References

Silverstone, Rogers (1999). Why Study Media? Sage Publications Potter, James W (1998). Media Literacy. Sage Publications

Grossberg, Lawrence et al (1998). Media-Making: Mass Media in a Popular Culture. Sage Publications

Evans, Lewis and hall, Stuart (2000). Visual Culture: The Reader. Sage Publications Berger, Asa (1998). Media Analysis Techniques. Sage Publications



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Core Paper -7: Communication Research Methods

Unit 1

Foundations of Communication Research: Definition, Nature and scope of communication research. Elements of research-epistemology, theoretical framework. Process and types of research. Significance of research.

Unit 2

Types of research design. Hypothesis. Concepts in research. Variables, units of analysis. Validity, Reliability, error factor.

Unit 3

Sampling. Types of sample. Probability and Non- probability. Sampling problems. Sample error. Choosing a sample design. Data Analysis.

Unit 4

Data Collection methods. Primary data and secondary data. Types of secondary data. Survey data, observation data. Questionnaire method. Structured and non- structured. Telephone and personal interviews. Questionnaire construction methods.

Unit 5

Research Application: print media, electronic media, advertising, public relation and new media. Research institutions. Scope in media research; funding agencies. Writing a research report and evaluation of research. Legal and ethical issues.

References:

Wimmer, Rogar D and Dommick, Joseph R(1994). Mass Media Research: An Introduction

(Fourth Edition Wadsworth Publishing Company)

Berger, Arthur Berger (2000). Media and Communication Research Methods. An Introduction to Qualitative and Quantitative Approaches. Sage Publications

Priest, Susama Horning (1996): Doing Media Research: An Introduction (Sage Publications)

Lewis-Beck, Michael S (ed) (1994) Experimental Design Methods. International handbook of Quantitative Applications in the Social Sciences (Sage Publications)

Kumar, Ranjit. Research Methodology: A Step by Step Guide for Beginners (Sage Publications)



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Blaxter, Loraine. Huges, Christina and Tight, Malcolm (1996) How to research (Open University Publications)

May, Tim: Social Research Issues, Methods and Process (2nd edition, Open University Publication)

Crotty, Foundations of Social Science Research (Sage Publications)

Smith, Mark .J, Social Science in Question Towards a Post-disciplinary Framework (Sage Publications)

Hammersley, Martyn. The Politics of Social Research (Sage Publications)

Miller, Delbert C (1983) Handbook of Research Design and Social Measurement, (Fourth Edition Longman)

De Vaus, D.A (1986) Surveys in Social Research (Sage Publications)

Young, Pauline V (1966) Scientific Social Surveys and Research (Printice-Hall, India, 4th edition)

Krishnaswami, O R, (1993) Methodology of Research in Social Sciences (Hamalaya Publishing House)

Silverman David; Qualitative methodology and sociology. Describing the social world(Gower Publication 1985)

Denzin, Norman and Lincoln, Yvonna (Ed) Handbook of qualitative research chapter 8,11,15,16,17,35. (Sage Publication 1994)

Lindof, Thomas R(1995) Qualitative Communication Research Methods

Core Paper - 8: Digital Marketing

Objective: Students will be able to identify the importance of the digital marketing for marketing success, to manage customer relationships across all digital channels and build better customer relationships, to create a digital marketing plan, and defining a target group, then identifying digital channels, their advantages and limitations, to perceiving ways of their integration taking into consideration the available budget.

UNIT 1

Introduction to Digital Marketing, Evolution of Digital Marketing from traditional to modern era, Role of Internet; Current tools and trends, Infographics, Implications for business &



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society; Emergence of digital marketing as a tool, P.O.E.M. framework, Digital landscape, Digital Marketing Budgeting, Importance of CRM

UNIT 2

Internet Marketing, opportunities, and challenges; Digital marketing framework; Digital Marketing mix, Impact of digital channels on IMC, Digital marketing plan and models, Target Group Analysis; Content management; Search Engine Advertising, E-mail marketing and plan, E-Mail campaign analysis, Website Designing, Case studies related the unit contents

UNIT 3

Introduction to Social media marketing, platforms, penetration & characteristics; Building a successful social media marketing strategy, Marketing in Facebook, LinkedIn, Twitter, Instagram, YouTube and Other platforms, Introduction to social media metrics, Digital Ad Campaigns in different social media platforms, Case studies related to Social Media Marketing

UNIT 4

Introduction to SEO, SEM, Web Analytics, Mobile Marketing, Trends in Digital Advertising, Blogging, Usage of internet & search engines; search engine and its working pattern, Google Analytics & Google AdWords; data collection for web analytics, Case studies

UNIT 5

Application in project works:

Students must work on

- Creating an advertising campaign through any form of digital marketing viz: Mobile Marketing, Twitter Marketing, Facebook Marketing, LinkedIn Marketing, Instagram or YouTube Marketing.
- Creating web sites
- Google AdWords
- Making a Facebook page, Business tools on LinkedIn, YouTube Advertising (Promoting the campaigns and content)
- Blogging
- Email Marketing on campaigns

Reference Books:

1. Seema Gupta Digital Marketing Mc-Graw Hill 1 st Edition - 2017



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2. Ian Dodson The Art of Digital Marketing Wiley Latest Edition
3. Puneet Singh Bhatia Fundamentals of Digital Marketing Pearson 1 st Edition - 2017
4. VandanaAhuja Digital Marketing Oxford University Press Latest Edition
5. Philip Kotler Marketing 4.0: – Moving from Traditional to Digital Wiley 2017
6. Melissa S. Barker | Donald I. Barker | Nicholas F. Bormann | Debra Zahay | Mary Lou Roberts Social Media Marketing: A Strategic Approach Cengage Latest Edition
7. Ward Hanson , KirthiKalyanam Internet Marketing & e-Commerce Cengage Latest Edition
8. Roberts and Zahay Internet Marketing: Integrating Online & Offline Strategies Cengage Latest Edition
9. Dr.Ragavendra K. and Shruthi P. Digital Marketing Himalaya Publishing House Pvt. Ltd. Latest Edition
10. Prof. Nitin C. Kamat, Mr.ChinmayNitinKamat Digital Social Media Marketing Himalaya Publishing House Pvt. Ltd.

List of Journals / Magazines / Periodicals / Newspapers / e-resources, etc.

- <https://learndigital.withgoogle.com/digitalunlocked/>
- <https://digitalskills.fb.com/en-in/>
- <https://www.hubspot.com/digital-marketing>
- <http://www.afaqs.com/>
- <https://www.linkedin.com/learning/>
- Journal of Marketing

Elective Paper - 3: Human Interest Stories or Cultural Journalism

Human Interest Stories

Practical

Max. Marks: 100

Objectives:

- To develop the ability to frame Human Interest stories which relates to current events and help people to evaluate the impact of such events



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- To be able to write Human Interest stories to evoke the emotion of reader/viewer and raise awareness of worthy causes
- To create stories without losing the value of Human Interest Journalism

Students will write 10 Human Interest stories on current affairs for different media including newspaper, magazine, television and websites.

UNIT: 1

Why Take Pictures? - Photography and its importance in creating human interest.

Composition: the rule of thirds, foreground, middle ground, background

UNIT 2

Internet Marketing, opportunities, and challenges; Digital marketing framework; Digital Marketing mix, Impact of digital channels on IMC, Digital marketing plan and models, Target Group Analysis; Content management; Search Engine Advertising, E-mail marketing and plan, E-Mail campaign analysis, Website Designing, Case studies related the unit contents

UNIT 3

Introduction to Social media marketing, platforms, penetration & characteristics; Building a successful social media marketing strategy, Marketing in Facebook, LinkedIn, Twitter, Instagram, YouTube and Other platforms, Introduction to social media metrics, Digital Ad Campaigns in different social media platforms, Case studies related to Social Media Marketing

UNIT 4

Introduction to SEO, SEM, Web Analytics, Mobile Marketing, Trends in Digital Advertising, Blogging, Usage of internet & search engines; search engine and its working pattern, Google Analytics & Google AdWords; data collection for web analytics, Case studies

UNIT 5

Application in project works:

Students must work on

- Creating an advertising campaign through any form of digital marketing viz: Mobile Marketing, Twitter Marketing, Facebook Marketing, LinkedIn Marketing, Instagram or YouTube Marketing.
- Creating web sites
- Google AdWords



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- Making a Facebook page, Business tools on LinkedIn, YouTube Advertising (Promoting the campaigns and content)
- Blogging
- Email Marketing on campaigns

Reference Books:

1. Seema Gupta Digital Marketing Mc-Graw Hill 1 st Edition - 2017
2. Ian Dodson The Art of Digital Marketing Wiley Latest Edition
3. Puneet Singh Bhatia Fundamentals of Digital Marketing Pearson 1 st Edition - 2017
4. VandanaAhuja Digital Marketing Oxford University Press Latest Edition
5. Philip Kotler Marketing 4.0: – Moving from Traditional to Digital Wiley 2017
6. Melissa S. Barker | Donald I. Barker | Nicholas F. Bormann | Debra Zahay | Mary Lou Roberts Social Media Marketing: A Strategic Approach Cengage Latest Edition
7. Ward Hanson , KirthiKalyanam Internet Marketing & e-Commerce Cengage Latest Edition
8. Roberts and Zahay Internet Marketing: Integrating Online & Offline Strategies Cengage Latest Edition
9. Dr.Ragavendra K. and Shruthi P. Digital Marketing Himalaya Publishing House Pvt. Ltd. Latest Edition
10. Prof. Nitin C. Kamat, Mr.ChinmayNitinKamat Digital Social Media Marketing Himalaya Publishing House Pvt. Ltd.

List of Journals / Magazines / Periodicals / Newspapers / e-resources, etc.

1. <https://learndigital.withgoogle.com/digitalunlocked/>
2. <https://digitalskills.fb.com/en-in/>
3. <https://www.hubspot.com/digital-marketing>
4. <http://www.afaqs.com/>
5. <https://www.linkedin.com/learning/>
6. Journal of Market



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Cultural Journalism

Practical

Max. Marks: 100

Objectives:

- To write stories on arts and creative work, and on the individuals, institutions and policies that make or enable the creative work.
- To develop the aesthetic sense in the art and cultural coverage
- To distinguish culturally valuable works from their lesser counterparts.
- To deduce the increased interconnectedness of economic and cultural processes

Students will write 10 stories including popular culture, traditional culture and on variety of social groups and their lives.

Elective Paper – 4: Mobile Journalism or News Production Practical

Mobile Journalism

Objectives

- To study the Socio-cultural implications of mobile phone communication and its contribution to information explosion.
- To understand the need, benefits and significance of mobile journalism .
- To learn the origins and characteristics of mobile journalism, differences and similarities with conventional journalism, and the applications of mobile journalism.
- To practically understand the usage of mobile phones as a reporting tool.
- To apply Mobile journalism techniques for different modes of news gathering and news processing, using open source voice, text and video.

Unit 1

Origins and characteristics of mobile phone communication, Socio-cultural implications of mobile phone communication, Introduction to Mobile Journalism

Unit 2



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The need and importance of Mobile journalism, Mobile Journalism and the main stream media. The significance of mobile journalism during unforeseen circumstances like natural disasters, calamities and epidemics/pandemics.

Unit 3

Mobile field reporting Activities Using mobile phones to report events , with students acting as a MOJO. Rewriting /translating stories from the newspaper for MOJO news.

Unit 4

Planning and producing a MOJO news interview. Scripting and executing an interview, completely with the mobile phone as a tool.

Unit 5

Planning and Producing a News feature/News cast for 5 minutes, completely shot and produced using mobile phone for recording audio and video. (Editing using mobile phones is recommended).

References

1. Baym, Nancy (2010) Personal Connections in the Digital Age, Polity.
2. Castells, Manuel et.al (2009) Mobile Communication and Society: A Global Perspective (Information Revolution and Global Politics), MIT Press.
3. Dominick, Joseph (2012) The Dynamics of Mass Communication: Media in Transition, McGrawHill.
4. Jenkins, Henry (2008) Convergence Cultures: Where Old and New Media Collide, NYU Press.
5. Katz, James (2008) Handbook of Mobile Communication Studies, MIT
6. Ling, Rich and Donner, Jonathan (2009) Mobile Phones and Mobile Communication, Polity.
7. Quinn, Stephen (2009) MOJO – Mobile Journalism in the Asian Region, Konrad-Adenauer Shifting.

News Production



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Unit 1

Basics of Electronic Media Programming: Basics of Broadcast Journalism, News Values, Kinds of News Reporting, Reporting Skills, News agencies. Social Media as a source of news.

Unit 2

Understanding Radio and TV Production: Structure of Radio and Television, Electronic News Gathering (ENG) – Production features, Style and Language, Microphone and Camera Techniques, Elements of News editing, Live Reporting and Presentation skills. News casting.

Unit 3

Radio and TV News Programme Production: Writing for Radio & TV: Formats – news, panel discussion, interviews.

Unit 4

Technology and News: Split screen, multi- camera set up, Flash news, Scroll. Live telecast.

Unit 5

Production of a special news feature for TV on a current issue. Time limit: 5 minutes.

References

M.S. Sharma, “Journalism for students”, Mohit Publications, New Delhi-110 002, 2008.

S.R. Sharma, “Elements of Modern Journalism”, S.S. Publication, Delhi, 1999.

Andrew Boyd, “Broadcast Journalism: Techniques of Radio and TV News”. Focal Press, Oxford, 1997.

Herbert, John (2000) Journalism in the Digital Age; Theory and Practice for broadcast, print and on-line media

E, Hilard (2000): Writing for TV, Radio and New Media, Thomson Learning

II-Year

Semester III

Core Paper 9 - Media Management

Max. Marks: 100



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UNIT 1

Media organization and design: some conceptual issues, media management goals, media as business and social institution, media production versus manufacturing process, nature and structure of media organizations, individuals in mass media organizations, task allocation and functions of various departments, media ownership and issues of monopoly, oligopoly, cross media ownership etc., multinational media ownership and control, conglomerate and modern media companies.

UNIT 2

Media entrepreneurship, managing creativity, Greiner’s Development Model of a company: Five stages of growth model, behavior in media organization and organizational behaviour, policy versus practice and performance, relationship with internal and external environment, managing the new media, content and skills management, changing nature of management, state of the industry today, employment opportunities in Indian media industry.

UNIT 3

Economics of media: relationship between supplier and buyer, key economic characteristics, selling time and cable economics, diversity of broadcasting- economic view of programming, media diversity and business opportunity, media organization with and without other commercial interests, economic forces, managing revenue, rate structure and packaging.

UNIT 4

Project management in media, managing project and creativity, production project cycle, fundamentals of film production, management themes and production process, project planning, production strategies, sources of funds, budgeting, project responsibility, case study.

UNIT 5

Programming strategies, audience rating, analyzing audience, understanding duality of audience, marketing programs, selling space and time, project management, understanding and using ratings, strategic management, case study.

REFERENCE:

Craft, Leigh and Godfrey: Electronic Media. Kohli, Vanita: The Indian Media Business. Media Management in India.

Chiranjeev, Avinash: Electronic Media Management.



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Core Paper 10 – Advertising

Max. Marks: 100 Unit Unit 1

Fundamentals of Advertising/ Advertising Organization/ Media & Advertising: Definition, Nature & Scope of advertising. Roles of Advertising, Societal Communication, Marketing & Economic. Functions of advertising. Need for advertising, Effects of advertising. Legal & Ethical issues in advertising, Components -Advertiser, Advertising agency & Media. Ad agency- structure & Function -structure of small, medium & big agencies, Types of agencies, In House, independent, Full-service & Specialized Multinational accounts and global advertising.

Unit 2

Brand Communication Strategies: Brand Management _ Positioning, Brand Personality, brand image, brand equity case studies

Unit 3

Creative Strategies and Copy Writing: Client Brief, Account Planning, Creative Strategy and Brief, Communication Plan. Target audience, Geographic area, Media & Purpose

Unit 4

Media Planning, Budgeting and Buying: Media research. planning and budgeting, Media buying, creative media options and media vehicles Rural Communication – Alternative media options, below-the-line activities and low-budget advertising. Advertising Management

Unit 5

Presentation of Ad Campaign

References

Sandage, Fryburger and Rotzoll (1996) Advertising Theory and Practice AAITBS Publishers
Stansfield, Richard, Advertising Managers Handbook UBBSPD Publications Third Edition
Advertising Handbook: A Reference Annual on Press TV , Radio and Outdoor Advertising_ Different Years ATLANTIS Publications

Bruce G Vanenbergli'and Helen Katez_ Advertising Principles. NTC Business Books Jones,
Philip Jones: Advertising Business Sage Publications

Valladerez_ June A: The Craft of Copy -writing_ Response Books

Jones_ John Philip (1997)- What's in a Brand? Building Brand Equity through Advertising. Tata McGraw- Hill Jones,



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John Philip (1997) Behind Powerful Brands from Strategy to Campaign- Tata McGraw- Hill
Mohan_ Advertising Management. Concepts and Cases Tata McGraw- Hill

Sharps' Commercial TV Manual of Advertising and Production Techniques ParagDsiwan
Advertising Management

Core Paper 11 – Public Relations and Corporate Communication Max. Marks :100

Unit 1: Nature and Scope of Public Relations

Definition, nature and scope. Public Relations Corporate Communications. Marketing
Communication Integrated marketing communication Differences and Similarities.

Unit 2: Corporate communications

Corporate Communication, tools & Target Publics, structure & function of a PR/Corporate
communication department or an agency. Public Sector Vs Private Sector PR, Corporate
Communications including Management of Financial services (investor relations etc.) and
software firms. PR communication in the emerging converging – Internet as PR Tool, video
conferencing etc.

Unit 3: PR/CC Campaigns

PR research- Fact finding exercises, surveys and image audits, different models of PR /CC
Campaigns. Framework for PR campaign evaluation Organizing and Implementing a PR
campaign Practical issues

Unit 4: PR/CC Practice

Crisis Management Image Management Event Management – planning Coordinating,
implementing and post-event assessment

Unit 5: Skills and Techniques

Corporate Media Relations – Organizing Press Conferences. Open house, press visits PR
Skills – Preparing PR material, Presentation skits, preparing documents, writing skills,
preparing press releases for different context

References

Jefkins, Frank (1997) Planned Press Anti Public Relations international textbook Company
Hebert and Peter Lloyd. Public Relations



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Black, Sam Practical Public Relations. Universal Book Stall Balan, K.R. Lectures on Applied Public Relations

Newssom, E (2000) This is PR. Realities of Public Relations Thomson Learning Newssom, E (1998) Public Relations Writing. Form and Writing Style. Thomson Learning

Core Paper 12 - Dissertation

Practical

Max. Marks: 100

The project will focus on providing students with an ability to independently working a research project. It will emphasis literature renew, theory building skills, matching theory to methods and developing appropriate instruments it will provide an orientation to database search techniques and also using Internet effectively for research. Students will work on any area of their choice within the broad field of electronic media and communications subjected to approval of their supervisor The objective of the course is provide students a comprehensive grounding in communication research They are expected to undertake a thorough study/research of the chosen subject, systematically and rigorously. They are expected to read relevant journals (some available on-line and of line) and books as such, study paper should have a clear objective and a will developed method_ Students should consult the respective supervisor at every stage of the research work. At the end of summer holidays, students are expected to submit a research proposal containing the following: Topic, Complete Literature Review, Research Design- Hypothesis Research Questions, Unit of Analysis, Variables/Issues to be Studied/ Methods, Sampling Design, Data Analysis Techniques, Questionnaire/Instrument to be used for analysis, Students can also carry out the field work. Students are expected to consult their supervisors at every stage of the research project The project will have to be submitted at the end of Third semester

Elective Paper - 5: Documentary Production (Interdisciplinary)

Practical

Max. Mark: 100

Objectives

- To identify content from real life, books and print materials.
- To improve the data collection and research skills for documentary. To strengthen the script writing ability of the student.



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- To draft a formal documentary proposal.
- To make a socially responsible documentary.

Unit 1

Researching the topic - plot, treatment - writing the Proposal - writing the treatment - setting the budget.

Unit 2

Budgeting and Scripting - Finalising the budget and the script.

Unit 3

Structuring the programme - Storyboard and script designing. - Script layout.

Unit 4

Editing - Adding Animation etc.

Unit 5

Dubbing and translation - Adding titles - Distribution process.- Adobe Premiere pro

Activity

Topic identification Research and data collection

Drafting a documentary proposal with factual information Developing a shooting script.

Filming the documentary

Elective Paper – 6: Deprivation Coverage or Event Management

Deprivation Coverage

Practical

Max. Mark: 100

Objectives

- To explore and identify areas of deprivation.



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- To improve the communication, questioning, listening, writing and news gathering skills. To incorporate human interest angle in the news stories.
- To write a factual news story on the deprivation.

UNITS: 1-5

Identify the area of Deprivation - Field visit and interaction with the community Interviews with the stakeholders - Compiling the news story on Deprivation

Activity

Identify the area of Deprivation

Field visit and interaction with the community Interviews with the stakeholders

Compiling the news story on Deprivation

Event Management

Practical

Max. Mark: 100

Objective

- To help the students to develop skills to design, plan, create, implement, manage, and market event.
- The Students will examine the scope of the events industry.
- The students will learn how to manage events in a sustainable manner, evaluate event outcomes.

Unit I

Introduction to event Management,

Size & type of event, Event Team, Code of ethics

Unit II

Principles of event Management, Skills to organise an event.

Unit III

Concept & designing.



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Analysis of concept, Logistics of concept.

Unit IV

Feasibility, Keys to success

Unit V

SWOT Analysis

Elective Paper – 7: Developmental Communication or Health Communication Practical

Development Communication

Max. Marks: 100

Course Objectives:

- This course will have an understanding of the various aspects of our society, its place in the world, its major development issues and how communication can help.
- This course will trace the theory and the research in the development communication and will highlight the present and future trends in the area

UNIT: 1

Development Communication: Problems and issues of the development - Development Goals and effectiveness

UNIT 2

Rural India: Understanding the rural India and its problems.

UNIT: 3

Models of Development: capitalist model, neo-liberal model, socialist model -Alternative models

UNIT: 4

Use of media in development communication: Role of Government - Other agencies in development communication -Issues related to Women, child, health & family structure in India - Use of Traditional media and New media in development communication

UNIT: 5



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Practical exercises: Students will write 5 articles of Development issues from the broad area of human development, education, health, nutrition, population, environment, gender issues, problems faced by Dalits and Tribals in different formats like articles, reports, interviews and features.

Health Communication Course

Practical

Max. Marks: 100

Objectives:

- This will prepare the students to enter a local health department, community organization or government agency, and contribute to health communication research.
- Develop effective health messages for individuals and publics by understanding how the media, literacy and policy affect the perceptions of health.
- Understand the role of communication and its affect in promoting and maintaining health and wellness for all individuals

Course Outcome:

- Create a content in social media- based on agriculture, health, education, population planning, sanitation, environment protection and socio-economic development. Use any platforms or tools you want.
- Creating journal with the collected information on the specific topic
- Create photo stories which assess the factors that affect health literacy

Unit-1: Introduction to health communication which deals with the study of people wellness and government policies

Unit-2: Introduction to health communication- provide students the competencies in health communication, health psychology and health informatics

Unit-3: Knowing how to effectively frame communication, select media, and construct health campaigns

Unit-4: Compare different media strategies for popularization, advocacy, and intervention in relation to public health

Unit-5: Developing written or photo journal for the health sector which influence people



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Semester IV

Core Paper 13 – Media Laws and Ethics

Marks Max :100

Unit 1

Introduction to Constitution Legal Systems in India: Nature and Scope of Indian constitution fundamentals rights: Scope and limitations Specific Provisions of Indian Constitution relating to mass media, Citizenship functions of Executive, Judiciary, Legislature, Directive Principles.

Unit 2

Media Laws in India: Press as Forth Estate Freedom of Press freedom of Expression Rights, Privileges and liabilities of the press, Censorship, Right to information. Laws and Constitutional, Provisions pertaining to Human Rights in India. Libel and Slander, Defamation. Case laws relating to press and media in India

Unit 3

Intellectual Property's Rights: Important acts relating to mass media: Indian Penal Code, PRB Act, Official Secrets Act Copyright Act, Trademark Acts, MRTP, Parliamentary privileges, Contempt of Court, Working Journalist Act.

Unit 4

Privacy and Data Protection: The need for cyber-laws, nature and scope of cyber laws, Approaches to cyber laws cyber-crimes, obscenity, digital signature, IPR, Piracy, Privacy. Domain Name Registration Issues, Role and Responsibilities of ICANN, etc. Convergence Bill

Unit 5

Case Studies and Ethical Issues: Themes and issues in Media Ethics, Code of conduct Case Studies in media ethics. Role and Responsibilities of Professional Bodies (Press Council etc.)

References

Basu, Law of the Press in India. Prentice-Hall India

Basu. Introduction to Indian Constitution Prentice-Hall India

Zelezny, E (1997): Communication Law: Liberties restraints and the modern media Thomson Learning

Basu Shorter Constitution of India. Prentice-Hall India



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Gillmor, E (1998) Mass communication laws Cases and Comments. Thomson Learning
Gillmor (1996) Fundamentals of Mass Communication laws Thomson Learning

Na. Vijayshankar. Cyber-laws in India, guide

Hameling, Cess (2001) Ethics of Cyber -Space Sage Publications

Day, E (2000). Ethics in Media Communications, cases and Controversies Thomson Learning

Leslie (2000). Mass Communication Ethics Thomson Learning

Belsey, A and Chadwick, R (1902). Ethical issues in Journalism and the media

Core Paper 14 – Film Studies and Appreciation

Practicals

Max Marks : 100

Unit 1: Film Theories – Auteur Theory, Structuralist Film Theory, Marxist Theory on Films, Feminist Film Theory, Post-modernism in Films, Psychological film Theory, Post-Colonial theory. Film Aesthetics, Mis -en-Scene and Film Genres

Unit 2: Major Film Movements -German Expressionism, French New Wave, Italian Neo Realism, Indian New wave and Soviet Montage. New world Cinema, Iranian films, South East Asian Films. Avant-Garde movement, Art Films, Cult Films and Diasporic Cinema

Unit 3: History of Early Cinema with Special Reference to India. Hollywood Studio system, Silent movies, Pioneers in Cinema- D.W. Griffith, George Melies, Edwin Porter, Charlie Chaplin, Sergei Eisenstein. Early Indian Cinema and Dada SahebPhalke, Satyajit Ray's Contribution to Indian Cinema, Regional Indian Cinema and Parallel Cinema movement.

Unit4: History of Political Cinema and the Dynamics of cinema-society interface in Tamilnadu, Dravidian Movement and Cinema, Hero Worship, Film Exhibition and viewership, trends in Tamil cinema.

Unit 5: Film Appreciation

Critical analysis and appreciation of films.

References

Thoraval, Yvs(2000) The Cinema of India(1896-2000)

Hope, Anthony East(Eds) Contemporary Film theory Longman Critical Readers Roberge, Gaston. theSubject.of Cinema

Roberge, Gaston (1977) Films for an -ecology of Mind



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Nicholas, Bill (Eds)(1990) Movies and Methods', An Anthology, Volume I and II

Wilson, David (Eds) Cahiers du Cinema (1973-78). History, Ideology and Cultural Struggle. Routledge Vol. 4

Agnihotri: Film Stars in Indian politics

M.S.S. Pandian: Image Trap. Sage Publications Halliwell,, The Filmgoers Companion 6th - Edition Arora. Encyclopedia of Indian Cinema

Singh, Gokul, and Wimala Dissanayake, Indian Popular Cinema Orient Longman

Mitra, Anand- India through the Western Lens Creating National images in Film Sage

Core Paper 15 -Digital Story Telling

Practical

Max Marks 100

Course Objective

- This course is designed to provide students a new skill set in digital storytelling ideas, production, and analysis.
- In this course students will develop skills to produce creative online stories that will reverberate with the widest audience possible.
- Creating impactful stories will require a new understanding and thought process of how digital stories differ from those in print, radio and television
- Digital Storytelling will include aspects of advertising, journalism and public relations to better understand online trends and viral content.
- It will further help students learn how to tailor their messages to reach audiences in new ways that will stick in the minds of the targeted audience.

Unit I: Introduction to Digital Storytelling- Digital Storytelling takes the traditional craft and attributes of telling stories and merges them with new techniques.

Unit II: Digital Storytelling will include aspects of advertising, journalism and public relations to understand online trends and viral content.

Unit III: To Analyze the changing roles of storytellers for news, businesses and nonprofit organizations.

Unit IV: To incorporate a mixture of images, text, sound, audio narration, video and/or music to tell a story.



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Unit V: To create unique content and post in the desired online medium- Increase ability to come up with big, original ideas and creatively tell them to reach the broadest audience.

Internship Specialization

Practical

Max. Marks: 100

The students are to undergo an internship for 12 weeks in a field of Mass Communication as their specialization.

UNIT: 1-5

To work and experience actual operations in the real business world

Students will have to undergo an internship in any media institution of their choice for a minimum period of 1 month.

Students have to submit a report on their involvement with the organization/firm interned with. This report will be the final submission record for evaluation. The project will have to be submitted at the end of Third semester.


Signature of the HOD

Signature of the Principal



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PG DEPARTMENT OF JOURNALISM AND COMMUNICATION

1.1 CURRICULUM DESIGN & DEVELOPMENT

Curricula developed and implemented have relevance to the GLOBAL developmental needs

Programme Name & Code – BA Journalism 61

Academic Year 2022-2023

	Course Title	COs of all courses
1.	Reporting for Media – I	CO1: Evaluate newsworthiness of information and understanding the structure of news flow. CO2: Demonstrate an understanding of story idea creation and alternative story forms in journalism CO3: Comprehend the basic structure and format of a hard/soft news story (lead, body, and conclusion). CO4: Produce Content for Print, Broadcast and blogs and websites CO5: Demonstrate an understanding of journalism ethics.
2.	History of Media in India	CO1: Students would be able to acquaint themselves with the glorious journey of journalism. CO2: Students would be able to enhance understanding of the origin and of the print, electronic and web media. Electronic and web media CO3: Students would be able to inculcate the knowledge of growth of print, electronic and web media 3.CO4: Students would be able to acquaint themselves with technological advancements in print, electronic and web media. CO5: Students would be able to throw light on the present status of various mass media.
3.	Designing: Photoshop, Illustrator and In Design	CO1: Gain knowledge about Visual Communication and its concepts. CO2: Acquire an insight of Communication Elements and its Process. CO3: Obtain familiar with Design Concept, Color Theory and the fundamentals of Graphic Design. CO4: Apply acquired communication skills effectively.



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		CO5: Apply the Models, Design, Color Concept and the Graphic Design in the media industry.
4.	Digital Storytelling	CO1: To understand various techniques behind history, culture, traditions, and craft of digital storytelling. CO2: To understand digital media and its effective use as a form of communication. CO3: To communicate ideas effectively in written, oral, and visual form to a range of audiences. CO4: To demonstrate mastery of the concepts, techniques, and tools in one or more digital media specialties. CO5: To develop professional quality digital media productions by promptly applying knowledge and skills including best practices and standards.
	Writing for Media – II	CO1: Understand the copy flow in a newspaper industry. CO2: Analyse the concepts and techniques behind newspaper writing. CO3: Comprehend the need for public relations. CO4: Understanding of different types of web writing. CO5: Understanding of news blogging and microblogging.
5.	Social, Economic and Political Issues in India	CO1: Assess social issues in India. Evaluate on various causes for social problems. CO2: Review on various social problems and its implications. CO3: Explain various forms in which Economic problems occur. CO4: Create news reports on political issues. CO5: Discuss environmental problem and its complexities while writing news stories.
6.	Broadcast Journalism	CO1: Explain the unique features of broad cast media and create particular content. CO2: Create news suitable for broadcast media CO3: Assess the writing trends based on genres of broadcast journalism. CO4: Apply ethical values and legal procedures while creating live reporting from the field. CO5: Engage in team work to produce appropriate content for media.



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7.	Copywriting and Editing	<p>CO1: Understand the essential communication tool for print and broadcast journalists, public relation professionals.</p> <p>CO2: Understand the nuances of writing for media</p> <p>CO3: Comprehend and create Feature Stories, Obituaries, Rewrites and Roundups.</p> <p>CO4: Write effective articles for newsletters, prepare fliers and brochures and news releases.</p> <p>CO5: Analyse the role of translation in writing for the digital media</p>
8.	Broadcast Journalism	<p>CO1: Explain the unique features of broad cast media.</p> <p>CO2: Create news suitable for broadcast media.</p> <p>CO3: Assess the future trends in broadcast journalism</p> <p>CO4: Apply ethical values and legal procedures while creating live reporting from the field</p> <p>CO5: Make use of editing skills in constructing news for Television and Radio</p>
9.	Political issues in India	<p>CO1: Outline the evolution of political thoughts in India</p> <p>CO2: Analyse the democratic process and organization of political system in India</p> <p>CO3: Interpret the issues of governance and governability</p> <p>CO4: Evaluate marketing politics, themes and issues</p> <p>CO5: Relate media and politics</p>
10.	Photo journalism	<p>CO1: Make use of the knowledge of lighting while shooting indoor and outdoor photography.</p> <p>CO2: Create photo essay and photo feature for specific themes.</p> <p>CO3: Apply the technical knowledge while operating camera for the desired result.</p> <p>CO4: Construct a suitable composition in photograph to convey the intended message.</p> <p>CO5: Apply the principles of photography to create appealing photographs.</p>
11.	Economic issues in India	<p>CO1: Sketch the development of Indian Economy.</p> <p>CO2: Evaluate on various economic issues and its implications.</p> <p>CO3: Elaborate on various causes for economic problems.</p>



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		CO4: Analyse liberalisation, globalisation and its consequences on Indian CO5: Create news stories on economic issues. society.
12.	Indian Constitution and Legal System	CO1: Outline the historical evolution of Indian Constitution. CO2: Appraise the special provision of Indian constitution relating to mass media. CO3: Analyse various constitutional amendments. CO4: Explain the judicial process, procedure and structure. CO5: Identify the need for reforming constitution.
13.	Film Appreciation	CO1: Appraise the technical, creative and aesthetic aspects of film Production CO2: Recognise the film language CO3: Appraise films in terms of style and mise-en-scene. CO4: Evaluate films in their historical context. CO5: Examine motion pictures as a technology, business, cultural, product, entertainment medium and industrial art form.
14.	Human Rights Reporting	CO1: Inculcate human rights approach in their Journalistic pursuits. CO2: Relate provisions in Indian Constitution for human rights issues. CO3: Evaluate the role of Human rights activist. CO4: Recognise various forms of Human rights issues. CO5: Aware of Civil, Political, Economic and social rights of the citizen.
15.	Press Laws and Ethics	CO1: Outline historical evolution of laws relating to press in India. CO2: Remember the important acts relating to mass media. CO3: Analyse the ethical issues in media. CO4: Explain the laws and constitutional provisions pertaining to human rights in India. CO5: Agree on the need for ethical practices while carrying out Journalistic duties.
16.	Online Journalism	CO1: Recognize the distinct characters of online Journalism. CO2: Familiarize with MOJO and Data Journalism. CO3: Trace the development of internet and online Journalism. Identify writing styles suitable for online Journalism.



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		CO4: Distinguish different tools to interact with audience. Use multimodality and interactivity while creating content for online Journalism. CO5: Recognize the distinct characters of online Journalism.
17.	Internship	CO1: Evaluate news sources for their credibility. CO2: Select and organise the news according to news values. CO3: Meet the deadline pressures. CO4: Adopt reporting, writing and editing skills for news creation. CO5: Acquire technical skills in producing the news.
18.	Writing for Media (Interdisciplinary Elective)	CO1: Analyse the structure of news reports. CO2: Make use of language proficiency in writing reports. CO3: Adopt good writing skills and create news reports. CO4: Acquaint with different writing styles for different formats of news. CO5: Familiarise different writing styles and applying creativity in writing for the media.
19.	Documentary	CO1: Acquire technical skills to produce a documentary. CO2: Employ creativity in producing a documentary. CO3: Realise the importance of team work. Choose topic which is relevant and select an inspiring angle. CO4: Adopt good writing skills in narrating the story. CO5: Conceptualise the topic to suit the target audience.
20.	News Production	CO1: Acquire the technical skills to produce news for broadcast media CO2: Organize the news according to news values for broadcasting CO3: Realise the need for accuracy. CO4: Acquire good writing skills while writing for news bulletins CO5: Employ ethical values in fact checking to produce the content of the news story
21.	Mass Communication Theories	CO1: Analyse the determinants of news content. CO2: Create news stories knowing the power and reach of media. CO3: Relate media society relationship.



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		CO4: Illustrate the evolution of mass media theories. CO5: Categorize and relate various events in the society to mass communication theories.
22.	Media Organization	CO1: Assess the conceptual issues in media organization. CO2: Interpret media as business and social institution. CO3: Examine the behaviour in media organization and organizational behaviour. CO4: Discuss organizational structures and functions of different departments in printing and publishing industry. CO5: Discuss the economics of media.
23.	Web Magazine	CO1: Acquire technical skills to produce Tabloid.
24.	Tabloid	CO2: Employ creativity in producing the Tabloid. CO3: Create contents suitable for different formats. CO4: Adopt ethical values in selecting and disseminating news. CO5: Discuss various perspectives of the news story before writing for publication.
25.	Environmental Journalism	CO1: Aware of the laws related to Environment. CO2: Realise the need to disseminate information about the current state of environment in order to protect it. CO3: Create contents suitable for different formats. CO4: Employ language proficiency in writing articles to create awareness about conservation. CO5: Follow ethical guidelines in reporting human-environment interactions.
26.	Advocacy Journalism	CO1: Distinguish Advocacy Journalism from Opinionated Journalism CO2: Follow Journalistic Standards and ethics while reporting CO3: Analyse the effectiveness and reach of Government policies. CO4: Relate to historical context while addressing an issue. CO5: Aware of contemporary issues in the society.
27.	Development Journalism	CO1: Aware of the problems related to the concept of Development. CO2: Critically evaluate government policies related to Development and its impact.



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		CO3: Analyse the role of International Agencies towards Development. CO4: Create content and approach the issue in various angles. CO5: Examine the reach of Development policies.
28.	Cultural Journalism	CO1: Analyse the impact of technology on Culture and relate culture as a social institution CO2: Examine the relationship between culture and politics. CO3: Study the relationship between culture and Economics. CO4: Recount the significance of culture in freedom of expression. CO5: Analyse the role of culture in solving social problem and transmitting values.

Syllabus

I B.A

SEMESTER – I

For those who joined in 2022 onwards

Semester	I
Subject	Allied I- Reporting for Media – I (T)
Maximum Marks	CIA- 50 Marks ESE-50 Marks
Credits/Instructional Hours	4 Credits / 90 Hours
Exam Duration	3 Hours

Objective

This course provides an introduction to the fundamentals of reporting and writing and explores the basics of journalism.



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Unit -1 : Basics of Journalism and communication:

news, types of news, beats, news values, news organization structure and phases of news processing- gathering, editing and publishing. Define communication and types of communication.

Unit-II : Roles and responsibilities :

Editor, reporter, stringer, freelancer. Bias and ethics in journalism. Kinds of reporting. Professionalism, constraints on objectivity. Communication for reporter and editor.

Unit-III : Source :

Types. news Judgment, Interview and its techniques, Data collection, online news source, influence of PR and spin doctors. press release and government orders. Field observation.

Unit-IV :

Reporting Covering crime, courts, fire, press conferences, reporting public speeches, exit polls and public opinion, accidents and disasters, Civic, education, environment, health and sports. Reporting politics, business, local government and show business, reporting human interest stories, Follow-ups and eye-witness reporting

Unit V:

How to find and analyses government Data, Assembly questions and answer, Editorial analysis. Apply RTI

Course Outcome:

Evaluate newsworthiness of information and understanding the structure of news flow.



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Demonstrate an understanding of story idea creation and alternative story forms in journalism

Comprehend the basic structure and format of a hard/soft news story (lead, body, and conclusion).

Produce Content for Print, Broadcast and blogs and websites

Demonstrate an understanding of journalism ethics.

CO/PO/P SO	PO							PSO						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
CO 1	1	1	1	3	3	2	1	3	2	2	2	2	2	2
CO 2	1	1	3	2	2	1	1	3	3	2	3	2	2	3
CO 3	3	2	3	3	1	3	2	3	3	2	3	2	3	3
CO 4	2	2	2	3	2	1	1	3	3	3	3	2	2	3
CO 5	2	3	1	1	3	1	1	3	3	2	3	2	2	3
CO 6	3	3	3	1	3	2	2	3	3	3	3	3	3	3

CORE PAPER II

Semester	I
Subject	CORE I – HISTORY OF MEDIA IN INDIA
Maximum Marks	CIA- 50 Marks ESE-50 Marks
Credits/Instructional Hours	5 Credits / 90 Hours
Exam Duration	3 Hours

Objective



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This course acquaints students with the glorious journey of journalism and also enhances the understanding of the origin of the traditional print, electronic and web media. The course of History of Media in India inculcates the knowledge of technological advancements in print, electronic and web media.

Unit -I: History of press in India: Before and after independence. Media during the Indian emergency. Press for freedom. Introduction and growth of Press Agencies in India. Press During Border Conflict.

Unit-II: History of Radio in India: Before and after independence: AIR, FM-government and private owned and Community radio and Ham radio

Unit-III: History of Television in India: Before and after independence: Doordharshan, Evolution and growth of private media channels. Partisan Television in India.

Unit-IV: History of digital media in India: Development of social networking sites in India. News websites, Applications and podcasting. Internet Radio. Independent broadcasting- growth of YouTube Channels.

Unit V: History of Tamil Journalism: Before and after independence. Old Tamil newspapers and its history, Bharathiyar, Ayothi Dasa Pandithar Va.Vu .Si., Adithanar, Kaasturi Rangan, Cho Ramasamy, SS Vasan, Annamalai Parthasarathy, Dravidian Journalism, Partisan media.

Course Outcomes:

This course will help in understanding the basics to designing for a newspaper, magazine and a website.



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CO1 Students would be able to acquaint themselves with the glorious journey of journalism.

CO2 Students would be able to enhance understanding of the origin and of the print, electronic and web media. Electronic and web media.

CO3 Students would be able to inculcate the knowledge of growth of print, electronic and web media.

CO4 Students would be able to acquaint themselves with technological advancements in print, electronic and web media.

CO5 Students would be able to throw light on the present status of various mass media.

CO/PO/P SO	PO					PSO								
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
CO 1	3	1	2	1	2	1	3	3	2	2	2	2	2	2
CO 2	3	1	2	1	2	1	1	3	2	2	3	2	2	2
CO 3	3	1	2	1	2	1	2	3	2	3	3	2	2	2
CO 4	3	1	2	1	2	1	1	3	2	2	3	2	2	2
CO 5	3	1	2	1	2	1	1	3	2	3	3	2	2	2
CO 6	3	3	3	1	3	2	2	3	2	3	3	3	2	2

ALLIED PAPER

Semester	I
Subject	Allied - II- Designing: Photoshop, Illustrator and InDesign (P)
Maximum Marks	CIA- 50 Marks ESE-50 Marks



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Credits/Instructional Hours	4 Credits / 90 Hours
Exam Duration	3 Hours

Objectives:

The Objective of this course is to provide the students with a basic knowledge on how designing works for the newspaper, magazines and website.

Outcomes

This course will help in understanding the basics to designing for a newspaper, magazine and a website.

Unit I: Prominence of Designing: Importance of Designing in a newspaper, advertisements, websites, applications, magazines. Types of Newspaper Layouts, style sheet, typo Importance of Design Editing in a Newspaper, structure of a newspaper design, Structure of a magazine and website design. Contrast, balance, emphasis, proportion, hierarchy, repetition, rhythm, pattern, white space, movement, variety, and unity.

Unit II: Principles of Designing: contrast, balance, emphasis, proportion, hierarchy, repetition, rhythm, pattern, white space, movement, variety, and unity.

Unit III: Editing with Photoshop: Image Editing, Poster making, Newspaper pagination with Photoshop, designing a magazine. Design an A5 size, 2 sheets, 4 sides Magazine using Photoshop.

Unit IV: Editing with Coral Draw: Image editing with coral draw, pagination.



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Unit V: Editing with InDesign: Newspaper Pagination

Paginate and design an A3 size Broadsheet, 2 sides using InDesign

Course Outcomes:

Gain knowledge about Visual Communication and its concepts.

Acquire an insight of Communication Elements and its Process.

Obtain familiar with Design Concept, Color Theory and the fundamentals of Graphic Design.

Apply acquired communication skills effectively.

Apply the Models, Design, Color Concept and the Graphic Design in the media industry.

CO/PO/PSO	PO					PSO									
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	
CO 1	3	2	1	2	2	1	3	3	2	3	3	2	3	3	
CO 2	3	2	1	2	2	1	3	3	2	3	3	2	3	3	
CO 3	3	2	1	1	2	1	3	3	2	3	3	2	3	3	
CO 4	3	2	3	1	1	2	3	3	2	3	3	2	3	3	
CO 5	3	1	3	3	3	2	3	3	2	3	3	2	3	3	
CO 6	3	3	3	3	3	3	3	3	2	3	3	2	3	3	

Semester	I
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Subject	NME- I Digital Storytelling (T)
Maximum Marks	CIA- 50 Marks ESE-50 Marks
Credits/Instructional Hours	4 Credits / 90 Hours
Exam Duration	3 Hours

Objectives:

The Objective of this course is to provide the students with a basic knowledge on how designing works for the newspaper, magazines and website.

Outcomes

This course will help in understanding the basics to designing for a newspaper, magazine and a website.

Unit I: Introduction to Digital Storytelling- Digital Storytelling takes the traditional craft and attributes of telling stories and merges them with new techniques.

Unit II: Digital Storytelling will include aspects of advertising, journalism and public relations to understand online trends and viral content.

Unit III: To Analyse the changing roles of storytellers for news, businesses and non-profit organization.

Unit IV: To incorporate a mixture of images, text, sound, audio narration, video and/or music to tell a story.



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Unit V: To create unique content and post in the desired online medium-
Increase ability to come up with big, original ideas and creatively tell them to reach the broadest audience.

Course Outcomes:

To understand various techniques behind history, culture, traditions, and craft of digital storytelling.

To understand digital media and its effective use as a form of communication.

To communicate ideas effectively in written, oral, and visual form to a range of audiences.

To demonstrate mastery of the concepts, techniques, and tools in one or more digital media specialties.

To develop professional quality digital media productions by promptly applying knowledge and skills including best practices and standards.

CO/PO /PSO	PO				PSO														
	1	2	3	4	5	6	7	1	2	3	4	5	6	7					
CO 1	3	2	1	2	2	1	3	3	2	3	3	2	3	3					
CO 2	3	2	1	2	2	1	3	3	2	3	3	2	3	3					
CO 3	3	2	1	1	2	1	3	3	2	3	3	2	3	3					
CO 4	3	2	3	1	1	2	3	3	2	3	3	2	3	3					
CO 5	3	1	3	3	3	2	3	3	2	3	3	2	3	3					
CO 6	3	3	3	3	3	3	3	3	2	3	3	2	3	3					



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I B.A

SEMESTER – II

Semester	II
Subject	CORE III Writing for Media - II (P)
Maximum Marks	CIA- 50 Marks ESE-50 Marks
Credits/Instructional Hours	5 Credits / 75 Hours
Exam Duration	3 Hours

Unit 1: Audience and the writer: Understanding the audience. Encoding and Decoding. Writing for different medium: Print, TV, radio, Digital Medium and Film & Advertising Information, persuasion and storytelling Process of Writing: Idea generation, research, developing and structuring, Clear, Concise and Complete. Appealing to the senses Feature Stories: Function, Structure, Style, and Researching for a story

Unit 2: Advertising: The functions of advertising: informing and Convincing, Planning and writing for Ads, Using Text and image

Unit 3: Public Relations: Functions of public relations writing, Textual tools: press releases, invitations, newsletters, fact sheets, backgrounders, photo and caption, audiovisual, NGO and public service announcements

Unit 4: Writing for the Web: Characteristics of good and bad writing, Traditional and web writing: similarities and differences Audience expectations in traditional and web writing, Writing formats, SEO, Blog posts How to write: Styles of news story, Fundamentals of journalistic writing, Grammar, Punctuation, Quotation, Attribution, Editing and revising. Feature writing. Writing news for radio and television. Copy editing and its symbols, plagiarism

Unit 5: Writing for digital platform: News briefs- Writing for microblogging and Social-networking sites, fake news. Post truth and AI in reporting and writing



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Course Outcomes:

Understand the copy flow in a newspaper industry.

Analyse the concepts and techniques behind newspaper writing.

Comprehend the need for public relations.

Understanding of different types of web writing.

Understanding of news blogging and microblogging.

CO/PO /PSO	PO				PSO														
	1	2	3	4	5	6	7	1	2	3	4	5	6	7					
CO 1	3	3	3	3	3	3	3	3	2	3	2	1	3	3					
CO 2	3	2	2	3	3	2	3	3	2	3	2	1	3	3					
CO 3	3	1	2	2	3	1	3	3	2	3	2	1	3	3					
CO 4	3	2	2	2	2	1	3	3	2	3	2	1	3	3					
CO 5	3	2	1	2	2	1	3	3	2	3	2	1	3	3					
CO 6	3	3	1	3	2	2	3	3	2	3	3	1	3	3					

Semester	II
Subject	ALLIED II – Social, Economic and Political Issues in India (T)



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Maximum Marks	CIA- 50 Marks ESE-50 Marks
Credits/Instructional Hours	4 Credits/ 75 Hours
Exam Duration	3 Hours

Objectives:

This course provides a broad scope for analysing the different social problems and its causes and repercussions on society. Also, this course trains the students to create news stories and bring out the various dimensions of the problem.

Unit -I: Social stratification, Caste and community, Secularism and religion, Poverty and exploitation, Migration and unemployment, Population

Unit - II: Reservation in education and workforce, Globalization and Urbanisation. Tribes and Scheduled caste. Refugee. Language and regionalism. Community health issues. Pandemic. Climate change and environment issues.

Unit - III: Economic Issues: Economy before and after independence. Reforms and policy for development. Agriculture. Privatization and modernisation.

Unit - IV: Political Issues: Caste politics. Election. Democracy. Campaign and propaganda.

Unit – V: Environmental issues - Conservation, Pollution etc.

Course Outcomes:



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CO 5	1	3	3	1	1	1	3	3	3	3	3	3	2	2
CO 6	3	3	3	3	3	3	3	3	3	3	3	3	2	2

Semester	II
Subject	CORE IV BROADCAST JOURNALISM
Maximum Marks	CIA- 50 Marks ESE-50 Marks
Credits/Instructional Hours	5 Credits / 75 Hours
Exam Duration	3 Hours

Objectives:

This course aims to inculcate the skills of reporting and writing for television and radio. It also enables the students to produce live reporting and news casting. It gives awareness on techniques involved in news production

Unit 1:

Basics of Journalism and Law, Legal Rights and Responsibility of Journalists, Kinds of News Reporting, Reporting Skills, News agencies.

Unit 2:

Getting the Story, collection of facts, Selection of News, News story structure and Components, Different types of News – Emergencies, Politics, Crime, Local and National Government, Planning and Development, Conflict and Controversy, Industry, Health, Human Interest, Personalities, Sports, Seasonal News special, Local Interest, Weather and Traffic.



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Unit 3:

Writing for Broadcast Journalism –Radio and Television, Electronic News Gathering (ENG) – Production features, Style and Language, Microphone and Camera Techniques, Elements of News editing, Live Reporting and Presentation skills. News casting.

Unit 4:

News manipulation, sensationalism and ethics, Regulations and Press freedom. Basic Studio structure; studio sets and equipment's, OB van and its accessories, Television Broadcasting System – Terrestrial transmission, Satellite Transmission; cable television; CAS (Conditional Access System), Set Top Box, DTH, IPTV, etc., Different genre in Studio production – Interview, Educational Shows, Drama, PSA, Game Shows etc. Anchor, News Reader. Grammar of Outdoor Production – Location, ENG (Electronic News Gathering), Montage, Documentary production etc.

Unit 5:

Citizen Journalism, Narrative Journalism, Investigative Journalism, Duties of reporters and stringers, pressure on Press, Journalistic issues- bias, accuracy and fairness.

Course Outcomes:

At the end of the Course, the Student will be able to:

CO1 Explain the unique features of broad cast media.

CO2 Create news suitable for broadcast media.

CO3 Assess the future trends in broadcast journalism.

CO4 Apply ethical values and legal procedures while creating live reporting from the field.

CO5 Make use of editing skills in constructing news for Television and Radio.



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CO6 Engage in team work to produce appropriate content for media.

References:

M.S. Sharma, “Journalism for students”, Mohit Publications, News Delhi-110 002, 2008.

S.R. Sharma, “Elements of Modern Journalism”, S.S. Publication, Delhi, 1999.

Andrew Boyd, “Broadcast Journalism: Techniques of Radio and TV News”, Focal Press, Oxford, 1997.

CO/PO/PSO	PO					PSO								
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
CO 1	3	3	3	3	3	3	3	3	2	3	2	1	3	3
CO 2	3	2	2	3	3	2	3	3	2	3	2	1	3	3
CO 3	3	1	2	2	3	1	3	3	2	3	2	1	3	3
CO 4	3	2	2	2	2	1	3	3	2	3	2	1	3	3
CO 5	3	2	1	2	2	1	3	3	2	3	2	1	3	3
CO 6	3	3	1	3	2	2	3	3	2	3	3	1	3	3



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Semester	I
Subject	NME- II Copywriting and Editing (T)
Maximum Marks	CIA- 50 Marks ESE-50 Marks
Credits/Instructional Hours	4 Credits / 90 Hours
Exam Duration	3 Hours

Objectives:

The Objective of this course is to provide the students with a basic knowledge on how designing works for the newspaper, magazines and website.

Outcomes

This course will help in understanding the basics to designing for a newspaper, magazine and a website.

Unit 1: The Basics of Writing and Types of Writing: The basics of writing mechanics – Grammar, Vocabulary, phrases and clauses. How to write – construction of clear, simple and precise Sentences. Writing for the reader – Role of reader and broadening the Reader –Response theory.

Different kinds of journalistic writing.

Unit 2: Exploring the New Avenues for Writing. Differences between traditional print writing (Newspapers,

Magazines, books etc.) And writing in the age of the internet – need to adapt to change. Different forms of media – Print, social media websites, blogs, online platforms etc. Understanding writing for different media through examples.



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Unit 3: Customizing Online Writing Based on The Online Platform. Customizing Online Writing Based on the Online Platform. Photo and Video writing – language, writing style, content, vocabulary, focus, caption, introduction and conclusion, synchronizing content –Video logging, photo blogging etc. Journalistic and Ad Writing.

Unit 4: Journalistic and Ad Writing Comparing Print and online writing – for newspapers, magazines, journals. Understanding the evolving dynamics of the ad-space - including pop up ads, scrolls, flash ads-change in language, font, style and incorporating doodling with ad writing

Unit 5: Writing and Publishing (Internship): Students must undergo hands-on –training from a recognized Print/digital media for 20 days. (or) Publish an article in an an newspaper/magazine/blog.

Course Outcomes:

Understand the essential communication tool for print and broadcast journalists, public relation professionals.

Understand the nuances of writing for media

Comprehend and create Feature Stories, Obituaries, Rewrites and Roundups.

Write effective articles for newsletters, prepare fliers and brochures and news releases.

Analyse the role of translation in writing for the digital media

CO/PO /PSO	PO				PSO									
	1	1	2	2	1	1	1	3	3	1	1	1	1	1
CO 1	1	1	2	1	1	3	2	3	3	1	1	1	1	1
CO 2	2	2	2	1	1	1	2	3	3	1	1	1	1	1



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CO 3	1	1	2	1	1	3	2	3	3	1	1	1	1	1
CO 4	1	1	1	2	2	1	1	3	3	1	1	1	1	1
CO 5	1	1	1	1	1	3	2	3	3	1	1	1	1	1
CO 6	1	1	2	2	1	1	1	3	3	1	1	1	1	1

Semester	III		
Subject	CORE IV BROADCAST JOURNALISM		
Maximum Marks	CIA- 40 Marks	ESE-100 Marks	
Credits/Instructional Hours	5 Credits / 75 Hours		
Exam Duration	3 Hours		

Objectives:

This course aims to inculcate the skills of reporting and writing for television and radio. It also enable the students to produce live reporting and news casting. It gives awareness on techniques involved in news production.

Unit 1:

Basics of Journalism and Law, Legal Rights and Responsibility of Journalists, Kinds of News Reporting, Reporting Skills, News agencies.

Unit 2:

Getting the Story, collection of facts, Selection of News, News story structure and Components, Different types of News – Emergencies, Politics, Crime, Local and National Government, Planning and Development, Conflict and



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Controversy, Industry, Health, Human Interest, Personalities, Sports, Seasonal News special, Local Interest, Weather and Traffic.

Unit 3:

Writing for Broadcast Journalism –Radio and Television, Electronic News Gathering (ENG)– Production features, Style and Language, Microphone and Camera Techniques, Elements of News editing, Live Reporting and Presentation skills. News casting.

Unit 4:

News manipulation, sensationalism and ethics, Regulations and Press freedom. Basic Studio structure; studio sets and equipment's, OB van and its accessories, Television Broadcasting System – Terrestrial transmission, Satellite Transmission; cable television; CAS (Conditional

Access System), Set Top Box, DTH, IPTV, etc., Different genre in Studio production – Interview, Educational Shows, Drama, PSA, Game Shows etc. Anchor, News Reader. Grammar of Out-door Production – Location, ENG (Electronic News Gathering), Montage, Documentary production etc.

Unit 5:

Citizen Journalism, Narrative Journalism, Investigative Journalism, Duties of reporters and stringers, pressure on Press, Journalistic issues- bias, accuracy and fairness.

Course Outcomes:

At the end of the Course, the Student will be able to: CO1 Exoplain the unique features of broad cast media.



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CO2 Create news suitable for broadcast media.

CO3 Assess the future trends in broadcast journalism.

CO4 Apply ethical values and legal procedures while creating live reporting from the field. CO5 Make use of editing skills in constructing news for Television and Radio.

CO6 Engage in team work to produce appropriate content for media.

References:

1. M.S. Sharma, “Journalism for students”, Mohit Publications, News Delhi-110 002, 2008.
2. S.R. Sharma, “Elements of Modern Journalism”, S.S. Publication, Delhi, 1999.
3. Andrew Boyd, “Broadcast Journalism: Techniques of Radio and TV News”, Focal Press, Oxford, 1997.

Semester	III	
Subject	CORE V – POLITICAL ISSUES IN INDIA	
Maximum Marks	CIA- 40 Marks	ESE-100 Marks
Credits/Instructional Hours	5 Credits / 75 Hours	
Exam Duration	3 Hours	

Objectives:

This course provides a broad scope for introducing different political ideologies, organization of political system in India and the functioning of Public administrative system. It also throws light on the issues of governance and governability.

Unit – I:



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Evolution of Political Thoughts in India, Nationalism, Nation and the Nation-state, Democracy and Indian Politics, State and the national Politics – conflicts.

Unit – II:

Democratic Process - Organization of political system in India, Party System, Elections Process, Reforms etc. Issues of governance and Governability.

Unit – III:

Public Administrative System in India, People’s Participation in Administration, Local Bodies, Panchayat Raj, Public Distribution System.

Unit – IV:

Marketing Politics - themes and issues.

Unit – V:

Media and politics, Public Opinion, Theories of Politics and Media.

Course Outcomes:

At the end of the Course, the Student will be able to: CO1 Outline the evolution of political thoughts in India

CO2 Analyse the democratic process and organization of political system in India CO3 Interpret the issues of governance and governability

CO4 Evaluate marketing politics, themes and issues CO5 Relate media and politics

CO6 Make use of ethics and values in understanding the formation of public opinion and its implications

References:

1. India: Economic, Political and Social Issues by Urlah B. Nissam – 2009.



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2. Indian Politics: Contemporary Issues and Concerns by Singh & Saxena – 2008.
3. Indian Government and Politics by Bidyut Chakrabarty, Rajendra Kumar Pandey – 2008/
4. Indian Democracy: Problems and Prospects by M. Manisha, Sharmila Mitra Deb – 2009.
5. Political Violence and the Police in India by K S Subramanian – 2007.
6. Contemporary India: political, economic and social issues by Dietmar Rothermund – 2013.

Semester	III
Subject	ALLIED IV – PHOTO JOURNALISM
Maximum Marks	ESE-100 Marks
Credits/Instructional Hours	4 Credits / 90 Hours
Exam Duration	3 Hours

Objectives:

This course aims to instil technical knowledge to take photographs with the intended result.

Also it teaches to apply the principles of photography to get appealing photographs with Striking composition.

Unit 1:

Nature and Scope Photography – Definition — Elements and Principles – Subject and Light– How to take Aesthetically Pleasing Photographs.

Unit 2:

Introducing Camera – Types of Camera, Digital SLR and Various Digital Cameras – Parts of the Camera – Types of Lenses – Filters – Lighting Devices.



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Unit 3:

Learning techniques of Photography – Understanding ISO, Shutter speed, Aperture and Depth of Field – Concept of Exposure –Creative use of Exposure – Attributes of a Good Picture – Composing Different Types of Subjects such as Portrait, Still, Landscape and Action– Digital Photography.

Unit 4:

Practicing different types of Photography – Nature, Architecture, Life, Landscape, Sports, Environment, Candid, Press Photography, Social Photography.

Unit 5:

Professionalism in Photography – Photo Journalist, News Photographs – Photo Agencies – Photo Editing –Photo Features – Computerised Photography – understanding. Legal and Ethical Aspects of Photography – Practical Assignments in Photography, Photographing News Events. Cultural Events. Human Interest Stories.

Photography record should contain at least 30 photographs. In addition to this each student is expected to work on a Photo-feature (Themes, Details, Captions etc. should be included). Each exercise should include all the necessary details (colour, exposure time, lens type etc.). This course will enable the students to experiment with speed, aperture and depth of field and also understand lighting in various situations. Also they will learn to use elements of design to create an appealing composition.

Exercises would cover:

1. Human interest stories
2. Sports Photography
3. Single picture story



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4. Portraits
5. Documentary Photography
6. Photo essay
7. Photo feature
8. Experiments with shutter speed and aperture

Course Outcomes:

At the end of the Course, the Student will be able to:

CO1 Make use of the knowledge of lighting while shooting indoor and outdoor photography.

CO2 Create photo essay and photo feature for specific themes.

CO3 Apply the technical knowledge while operating camera for the desired result.

CO4 Construct a suitable composition in photograph to convey the intended message.

CO5 Apply the principles of photography to create appealing photographs.

CO6 Relate ethical values in taking news photographs for publication.

Semester	IV	
Subject	CORE VI – ECONOMIC ISSUES IN INDIA	
Maximum Marks	CIA- 40 Marks	ESE-100 Marks
Credits/ Instructional Hours	6 Credits / 90 Hours	
Exam Duration	3 Hours	

Objectives:



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This course provides a broad scope for learning economic issues, its causes and implications on the society. Also it gives opportunity to evaluate various reform policies and global policies and its impact.

Unit I:

Development of Indian Economy, Population Problem, Poverty in India, Economic Inequalities, Regional disparities, Poverty Reduction Programs.

Unit II:

Problem of unemployment, Human Resource Development in India, Energy Crisis.

Unit III:

Agriculture related Problems, Modernization, Green Revolution and its consequences, Agriculture and Growth.

Unit IV:

Industrial Policy, Public Sector Enterprises, Price Control, Capital Scarcity, Low Productivity, Community Development Program.

UNIT V:

Economic Reform, Liberalization, Globalization and its Consequences.

Course Outcomes:

At the end of the Course, the Student will be able to:

CO1 Sketch the development of Indian Economy.

CO2 Evaluate on various economic issues and its implications.

CO3 Elaborate on various causes for economic problems.



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CO4 Analyse liberalisation, globalisation and its consequences on Indian society.

CO5 Create news stories on economic issues.

CO6 Evaluate economic reform policies and its success rate.

References:

1. India: Economic, Political and Social Issues by Urlah B. Nissam – 2009.
2. India's Economic Resurgence by C B Rao – 2018.
3. Changing the Indian Economy: Renewal, Reform and Revival by Rama P. Kanungo, Chris Rowley ,Anurag N. Banerjee – 2018.
4. The Indian Economy Since 1991: Economic Reforms by B. A. Prakash – 2011.
5. Strategic Consequences of India's Economic Performance by Sanjaya Baru – 2007.
6. India's Economic Development Since 1947 by Uma Kapila – 2009.

Semester	IV	
Subject	ALLIED V – INDIAN CONSTITUTION AND LEGAL SYSTEM	
Maximum Marks	CIA- 40 Marks	ESE-100 Marks
Credits/ Instructional Hours	4 Credits / 90 Hours	
Exam Duration	3 Hours	

Objectives:

This course provides an overview of legal system in India. It gives a basic knowledge on Indian Constitution and provisions. It gives scope to discuss various issues related to Judicial process and the need for reform.

Unit – I



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Nature and Scope of Indian constitution - Historical Evolution. Scope and limitations. Specific Provisions of Indian Constitution relating to mass media.

Unit – II

Fundamental Rights: Citizenship, Functions of Executive, Judiciary, Legislature, Directive Principles.

Unit – III

Various Constitutional Amendments.

Unit – IV

Legal System in India - Judicial Process and Structure, Procedures.

Unit – V

Issues - Judicial Activism, Issues: Reforming constitution – Discussing its need.

Course Outcomes:

At the end of the Course, the Student will be able to: CO1 Outline the historical evolution of Indian Constitution.

CO2 Appraise the special provision of Indian constitution relating to mass media. CO3 Analyse various constitutional amendments.

CO4 Explain the judicial process, procedure and structure. CO5 Identify the need for reforming constitution.

CO6 Discuss judicial activism and its implications.

References:

1. India's Legal System (R/J): Can it be Saved? By Fali S Nariman – 2017
2. The Constitution of India: A Contextual Analysis by Arun K Thiruvengadam – 2017
3. A People's Constitution: The Everyday Life of Law by Rohit De – 2018



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4. THE CONSTITUTION OF INDIA A Politico-Legal Study by J. C. Johari – 2007
5. Balanced Constitutionalism: Courts and Legislatures in India by Chintan Chandrachud – 2017
6. Inside India by Praveen Kumar - 2017



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Semester	IV	
Subject	ELECTIVE I FILM APPRECIATION/HUMAN RIGHTS REPORTING (P)	
Maximum Marks	CIA- 40 Marks	ESE-100 Marks
Credits/Instructional Hours	3 Credits / 60 Hours	
Exam Duration	3 Hours	

FILM APPRECIATION

Objectives:

This course gives insight into both technical aspects of film production and the creative and artistic application of those techniques. It also develops a critical sense of film appreciation.

Introduction to Film production, Distribution and Exhibition – Different production roles- mise-en-scene-style-form-genre-reviewing a film – writing a film review

For Practical work Students will write 5 Film appreciation articles on different genres of films.

Course Outcomes:

At the end of the Course, the Student will be able to:

CO1 Appraise the technical, creative and aesthetic aspects of film production

CO2 Recognise the film language

CO3 Appraise films in terms of style and mise-en-scene.

CO4 Evaluate films in their historical context.



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CO5 Examine motion pictures as a technology, business, cultural product, entertainment medium and industrial art form.

CO6 Recognise film forms, narratives and genres

HUMAN RIGHTS REPORTING

Objectives:

This course will introduce the students to the basic themes in Human Rights and media's role in promoting and protecting them. Also it will enable the students to relate Human rights and Indian Constitution, and Judiciary.

Human rights - Concept - Meaning - Evolution-Kinds of human rights - Civil and political rights - Economic, social and cultural rights-UN Declaration; Human Rights and Indian Constitution - Human Rights of Domestic workers, Minorities, Refugees, Construction workers, Armed Forces, Child Labour - Human Rights Violation and Activism; Court Interventions; Recent Policy Formulation and Welfare Schemes.

Students will write 10 articles from the broad area of Human Rights including civil, political, economic, social and cultural issues.

Course Outcomes:

At the end of the Course, the Student will be able to:

CO1 Inculcate human rights approach in their Journalistic pursuits.

CO2 Relate provisions in Indian Constitution for human rights issues.

CO3 Evaluate the role of Human rights activist.

CO4 Recognise various forms of Human rights issues.

CO5 Aware of Civil, Political, Economic and social rights of the citizen. CO6 Create articles on Human Rights Issues.

Semester	V
Subject	CORE VII – PRESS LAWS AND ETHICS



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Maximum Marks	CIA- 40 Marks	ESE-100 Marks
Credits/Instructional Hours	5 Credits / 90 Hours	
Exam Duration	3 Hours	

Objectives:

This course will enable the students to learn the laws relating to press in India. Also the course will throw light on various ethical issues in Media.

Unit I:

Historical Evolution of Laws relating to Press in India - Important Acts relating to mass

media: Indian Penal Code, PRB Act, Official, Secret Act, Copyright, Trademark Acts, MRTP, Parliamentary privileges, Contempt of Court, Working Journalist Act. Defamation.

Unit II:

Press and the New Media - The need for cyber-laws, nature and scope of cyber laws, Approaches to Cyber-laws cybercrimes, obscenity, digital signature, IPR, piracy, privacy Domain Name Registration Issues, Role and Responsibilities of ICANN, etc.

Unit III:

Ethics-an Introduction Ethics-Definition, Media Ethics-Social responsibility of media, law and ethics, Need for media ethics, Professionalism, Code of ethics, institutional code, Press council, economic pressures and social responsibility, basic components of media ethics-truth- telling, credibility, accountability, justice, fairness, freedom.

Unit IV:

Ethical Issues in Media, Objectivity, Bias, Privacy and Public Interest, truth and honesty- truth in journalism, Public Relations, Advertising; Conflicts of interest,



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media and anti-social behavior, Morally offensive content-pornography, shocking visuals, offensive speech. Media and children, stereotypes in media.

Unit – V:

Laws and Constitutional Provisions Pertaining to Human Rights in India - Right to Information.

Course Outcomes:

At the end of the Course, the Student will be able to:

CO1 Outline historical evolution of laws relating to press in India.

CO2 Remember the important acts relating to mass media.

CO3 Analyse the ethical issues in media.

CO4 Explain the laws and constitutional provisions pertaining to human rights in India.

CO5 Agree on the need for ethical practices while carrying out Journalistic duties.

CO6 Analyse the state of implementation of press laws.

References:

1. Press Laws and Ethics of Journalism by P. K. Ravindranath – 2004.
2. Press Laws and Media Ethics by Anil K. Dixit – 2006.
3. Holding the Media Accountable: Citizens, Ethics, and the Law by David Hemmings Pritchard, Edited by David Pritchard – 2010.
4. Journalism Ethics by Fred Brown – 2010.
5. Law and Ethics for Today's Journalist: A Concise Guide by Joe Mathewson – 2014.



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6. Journalism Ethics and Law: Stories of Media Practice by Janine Little – 2013.

Pattern for End Semester Examination

Semester	V	
Subject	CORE VIII ONLINE JOURNALISM	
Maximum Marks	CIA- 40 Marks	ESE-100 Marks
Credits/Instructional Hours	5 Credits /90 Hours	
Exam Duration	3 Hours	

Objectives:

This course will enable the students to understand the distinct characteristics of online journalism. Also it will help them to learn the basics of computer assisted journalism (CAJ) and computer assisted reporting (CAR).

Unit 1:

Networked society, Development of internet and online journalism – web 1.0, web 2.0,

web 3.0, semantic web and beyond , Interactivity, Crowdsourcing, RSS, Mashups, Widgets, Folksonomy, Social bookmarking, CC, Metrics, Analytics, passive democratic fundraising (A/B testing) tactics, new concepts.

Unit 2:

CAR/CAJ, Mobile journalism, Newsroom for online journalism.

Unit 3:

Backpack Journalism, Non-linear storytelling, New Styles for writing -visual language, micro-content, narrative journalism.

Unit 4:



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Marketing for the web – SEO, AdSense, Ad Words, PPC, Pops, Ad-blocks, Direct mail, new techniques, Journalism as conversation – Audience development, Social media, Blogs, Comments, Feedbacks, Opinion polls, Message boards, Messenger, Chat rooms, Games, Quiz, Ethical practices involving the Internet and social media.

Unit 5:

Mobile Journalism , Photos for web – forms and format, still, gallery, slideshow , Audio for web –forms and format, Internet Radio, Audio boo, Sound cloud, Podcasts, Broadcast yourself, Video for web –forms and format, Narrowcasting, Personal casting, Internet Television, Broadcast yourself, live streaming , Data journalism – forms and format, data mine.

Course Outcomes:

At the end of the Course, the Student will be able to:

- CO1 Recognize the distinct characters of online Journalism.
- CO2 Familiarize with MOJO and Data Journalism.
- CO3 Trace the development of internet and online Journalism.
- CO4 Identify writing styles suitable for online Journalism.
- CO5 Distinguish different tools to interact with audience.
- CO6 Use multimediality and interactivity while creating content for online Journalism.

References:

1. Introduction to Online Journalism: Publishing News and Information by Ronald De Walk.



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2. Web Journalism: Practice and Promise of a New Medium by James Glen.
3. Online Journalism: Principles and Practices of News for the Web by James C. Frost.
4. Digitizing the News: Innovation in Online Newspapers.
5. Online news: Journalism and Internet by Stuart Allen.

Semester	V	
Subject	CORE IX INTERNSHIP	
Maximum Marks	CIA- 40 Marks	ESE-100 Marks
Credits	5 Credits	
Exam Duration	3 Hours	

Objectives:

This course will enable the students to acquire hands-on training in the industry. Also this course encourages to form network with media professionals.

Students will undergo internship in any one of the media organisation continuously for a period of 4 weeks and will appear for viva –voce.

Course Outcomes:

At the end of the Course, the Student will be able to:

- CO1 Evaluate news sources for their credibility.
- CO2 Select and organise the news according to news values.
- CO3 Meet the deadline pressures.
- CO4 Adopt reporting, writing and editing skills for news creation.
- CO5 Acquire technical skills in producing the news.
- CO6 Realise the value of team work to get desirable outcomes.



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Semester	V	
Subject	ELECTIVE II Writing for Media (Interdisciplinary Elective)	
Maximum Marks	CIA- 40 Marks	ESE-100 Marks
Credits/Instructional Hours	3 Credits / 75 Hours	
Exam Duration	3 Hours	

Objectives:

This course will impart writing skills suitable for different media. Also it introduces different writing styles for different formats of programmes.

Unit-1:

Basic principles of good writing, News article Structure, common errors, basic grammar, Writing press release, statements

Unit-2:

Writing for Print- Writing for newspapers news- lead- body. Headline techniques. Writing features- types- techniques- finer aspects of magazine writing- style- interviews. Reviews and criticism. Editorial writing- writing opinion pieces.

Unit-3:

Writing for radio-news. Writing for radio features. Writing for radio documentaries. Special audience programmes.

Unit-4:

TV scripts- types- format. TV news. Features- documentaries- interview stories. Creativity in writing for television.

Unit-5:

Writing for New Media - Writing guidelines for new media-Online news writing: structure and characteristics. Blogs. Technical writing.



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Course Outcomes:

At the end of the Course, the Student will be able to:

- CO1 Analyse the structure of news reports.
- CO2 Make use of language proficiency in writing reports.
- CO3 Adopt good writing skills and create news reports.
- CO4 Acquaint with different writing styles for different formats of news.
- CO5 Familiarise different writing styles for different media.
- CO6 Apply creativity in writing for the media.

References:

1. Writing for Journalists by Wynford Hicks, Adams Sally ,Harriett Gilbert – 2016.
- 2 Report Writing Skills Training Course by Margaret Greenhall – 2010.
- 3 Reporting and Writing: Basics for the 21st Century by Christopher Scanlan – 2000.
- 4 Journalism: The Essentials of Writing and Reporting by James Morrison – 2015.
5. A Practical Course for Developing Writing Skills by J. K. GANGAL – 2011.

Semester	V
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Subject	ELECTIVE III DOCUMENTARY/NEWS PRODUCTION (P)	
Maximum Marks	CIA- 40 Marks	ESE-100 Marks
Credits/Instructional Hours	3 Credits / 75 Hours	
Exam Duration	3 Hours	

DOCUMENTARY

Objectives:

This course will enable the students to acquire technical and storytelling skills needed to produce documentaries that will have impact.

Different stages in the production of a documentary, ethical concerns, Building a documentary narrative, experimental approaches, directing a documentary, cinematography for documentary, editing a documentary

Students will make a documentary on any social issue for the duration of 10 minutes. (Group work).

Course Outcomes:

At the end of the Course, the Student will be able to:

CO1 Acquire technical skills to produce a documentary.

CO2 Employ creativity in producing a documentary.

CO3 Realise the importance of team work.

CO4 Choose topic which is relevant and select an inspiring angle.

CO5 Adopt good writing skills in narrating the story.

CO6 Conceptualise the topic to suit the target audience.



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NEWS PRODUCTION FOR TELEVISION/RADIO

Objectives:

This course will empower the students with technical skills to produce news for broadcast media. Also students will acquire skills to organize the news and to write for broadcast media. To develop necessary skill sets for television news reporting.

Process involved in the production of television/radio news packages- Skill sets for television/radio news reporting, difference between reporting for television and radio - Visual storytelling, using graphics, sound design, color grading, optimum outputs for different kinds of screening platforms- The art and craft of editing, DSLR and camcorder work flows, video crews, role of a producer.

Students will produce a news bulletin for 7 minutes. (Group work).

Course Outcomes:

At the end of the Course, the Student will be able to:

- CO1 Acquire the technical skills to produce news for broadcast media
- CO2 Organize the news according to news values for broadcasting
- CO3 Realise the need for accuracy
- CO4 Acquire good writing skills while writing for news bulletins
- CO5 Employ ethical values in fact checking to produce the content of the news story
- CO6 Meet deadline pressures



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Semester	VI	
Subject	CORE X – MASS COMMUNICATION THEORIES	
Maximum Marks	CIA- 40 Marks	ESE-100 Marks
Credits/Instructional Hours	5 Credits / 90 Hours	
Exam Duration	3 Hours	

Objectives:

This course enable the students to develop a critical perspective for analyzing and understanding media texts and to relate media society relationships.

Unit-I:

Why study theory? Nature and Scope of Mass Communication Theories, Media-Society Relationships, Power of the Media, Evolution of mass media theories (different phases).

Unit-II:

Approaches to media--Mass Society, Propaganda Model, Functionalist Approach, Technological Determinism (McLuhan et al) - Political Economy Approach (Marxist incl.), Powerful Media Thesis and Limited Effects Tradition and Their evolution.

Unit-III:

Process of Selection, Cognitive Dissonance, Personal-Influence Models, Dependency Model (Ball-Rokeach), Uses and Gratification and, Knowledge Gap Hypothesis.

Unit-IV:

Theories of News flow, sources, and News diffusion White's Gate Keeping Model, Selective Gate keeping News flow and news values. McNally's Model. Mass Communicator- Public Relationship. Determinants of News and content. Agenda



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Setting Model, Spiral of Silence, Social meaning of news. Definition and Theories of Public Opinion.

Unit-V:

Critical Themes and Issues - Free Market Model and Public Sphere, Normative Theories of the Press, Media and Democracy, New World Information and Communications Order (NWICO) Debate.

Course Outcomes:

At the end of the Course, the Student will be able to:

CO1 Analyse the determinants of news content.

CO2 Create news stories knowing the power and reach of media.

CO3 Relate media society relationship.

CO4 Discuss the importance of studying theory.

CO5 Illustrate the evolution of mass media theories.

CO6 Categorize and relate various events in the society to mass communication theories.

References:

1. Mass Communication Theories: Explaining Origins, Processes by Melvin L. DeFleur, Margaret H. DeFleur – 2016.

2. The Handbook of Media and Mass Communication Theory by Robert S. Fortner,

P. Mark Fackler – 2014.

3. McQuail's Mass Communication Theory by Denis McQuail – 2010.

4. Mass Communication Theory: Foundations, Ferment, and Future by Stanley J. Baran, Dennis K. Davis – 2003.



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5. Advances in Foundational Mass Communication Theories by Ran Wei – 2018.
6. Communication Theories: Origins, Methods, and Uses by Werner Joseph Severin, James W.

Semester	VI	
Subject	CORE XI – MEDIA ORGANISATION	
Maximum Marks	CIA- 40 Marks	ESE-100 Marks
Credits/Instructional Hours	5 Credits/90 Hours	
Exam Duration	3 Hours	

Objectives:

This course will give an overview of media as a social and business institution. Also it enable the students to learn economics of media and organizational behavior.

Unit I:

Media Organization and Design: Some Conceptual Issues. Media as Business and Social Institution, Greiner’s Development Model of a company.

Unit II:

Behaviour in media Organization and Organizational Behaviour. Nature and Structure of different News Media Organizations - employment opportunities in Indian News Media Industry, Group Behaviour, Innovation and Creativity, Culture of organization.

Unit III:



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Economics of Media - Relationship between supplier and buyer, Readership- Advertisement Factors, Cost Factors, Revenue Models, Market Factors, State of the Industry today.

Unit IV:

Departments in Newspaper, Circulation Management, Editorial Management - Work flow in News Media, Advertisement Management.

Unit – V:

Printing and Publishing (Technologies and Processes), Organizational Structures and Functions, Newspaper Economics, Financial management, Editorial Management, Human Resources Management etc. Emerging Trends. Using Readership Survey. Magazine Publishing. Selling Space.

Course Outcomes:

At the end of the Course, the Student will be able to:

CO1 Assess the conceptual issues in media organization.

CO2 Interpret media as business and social institution.

CO3 Examine the behaviour in media organization and organizational behaviour.

CO4 Explain the work flow in news media.

CO5 Discuss organizational structures and functions of different departments in printing and publishing industry.

CO6 Discuss the economics of media.

References:

1. Media Organization and Production by Simon Cottle – 2003.



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2. Media Organization Management Second Edition by James Redmond – 2004.
3. Organizations and the Media: Organizing in a Mediatized World by Josef Pallas, Lars Strannegård ,Stefan Jonsson – 2014.
4. Media Organisations in Society by James Curran – 2000.
5. Understanding the Media by Eoin Devereux – 2013.
6. Alternative and Mainstream Media: The converging spectrum by Linda Jean Kenix – 2011.

Semester	VI	
Subject	PRACTICAL WEB MAGAZINE / TABLOID	
Maximum Marks	CIA- 40 Marks	ESE-100 Marks
Credits/Instructional Hours	5 Credits / 90 Hours	
Exam Duration	3 Hours	

Objectives:

This course is meant to provide a platform for students to practice and sharpen their Journalistic and writing skills. It also provides an opportunity for students to fine-tune their design and technical skills in the production and packaging of news.

Students will bring out a Tabloid/Web Magazine. (Group work)

TABLOID. Production of a complete, professional real-time tabloid for print. or

WEB MAGAZINE Production of a complete web magazine for online publication.

Course Outcomes:



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At the end of the course students will be able to:

CO1 Acquire technical skills to produce Tabloid/Web magazine. CO2 Employ creativity in producing the Tabloid/Web magazine.

CO3 Realise the importance of team work in meeting the dead line pressures.

CO4 Create contents suitable for different formats.

CO5 Adopt ethical values in selecting and disseminating news.

CO6 Discuss various perspectives of the news story before writing for publication.

Semester	VI	
Subject	ELECTIVE IV Environmental Journalism/Advocacy Journalism (P)	
Maximum Marks	CIA- 40 Marks	ESE-100 Marks
Credits/Instructional Hours	3 Credits / 90 Hours	
Exam Duration	3 Hours	

ENVIRONMENTAL JOURNALISM

Objectives:

This course will enable the students to identify key aspects of human environment interactions and to list key ethical guidelines in environmental journalism.

Natural Resources: Renewable and non-renewable resources- ecosystem- Biodiversity and its conservation-Threats to biodiversity: habitat loss, poaching of wildlife-man-wildlife conflicts. Endangered and endemic species of India. Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity- Environmental Pollution: Definition , Cause, effects and control measures of :- a. Air pollution b. Water pollution c. Soil pollution d. Marine pollution e. Noise pollution f. Thermal pollution g. Nuclear hazards-Social Issues and the Environment: From Unsustainable to Sustainable development. Urban problems related to energy-laws related to environment-usage of info graphics.

Students will write 5 articles on environmental issues after doing field work.



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Course Outcomes:

At the end of the Course, the Student will be able to:

CO1 Aware of the laws related to Environment.

CO2 Realise the need to disseminate information about the current state of environment in order to protect it.

CO3 Employ language proficiency in writing articles to create awareness about conservation.

CO4 Follow ethical guidelines in reporting human-environment interactions.

CO5 Do fact checking.

CO6 Make use of info graphics to present the data collected.

ADVOCACY JOURNALISM

Objectives:

This course will enable the students to distinguish Advocacy Journalism from Opinionated Journalism and Propaganda. Also it will encourage the students to write articles with transparency and allow their biases to be explicit and follow Journalistic standards.

Awareness of the differences between Advocacy Journalism and other genres of Journalism, Need to follow Journalistic standards and ethics while writing articles-use of journalism techniques to promote a specific political or social cause- writing evidence based and transparent articles coupled with a stand point.

Students will write 5 articles on Advocacy Journalism from current affairs on socio- political issues and government policies.

Course Outcomes:

At the end of the Course, the Student will be able to:



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CO1 Distinguish Advocacy Journalism from Opinionated Journalism

CO2 Write articles knowing their bias

CO3 Follow Journalistic Standards and ethics while reporting

CO4 Analyse the effectiveness and reach of Government policies

CO5 Relate to historical context while addressing an issue

CO6 Aware of contemporary issues in the society

Semester	VI	
Subject	ELECTIVE V DEVELOPMENT JOURNALISM/CULTURAL JOURNALISM (P)	
Maximum Marks	CIA- 40 Marks	ESE-100 Marks
Credits/Instructional Hours	3 Credits / 90 Hours	
Exam Duration	3 Hours	

DEVELOPMENT JOURNALISM

Objectives:

This course will allow the students to examine the efforts made by the government towards development goals and its effectiveness. Also students will be able to recognize the role of international agencies like UN, UNESCO, UNICEF, WHO towards Development.

Problems and issues of the development-Understanding the rural India and its problems- Models of development : capitalist model, neo-liberal model, socialist model -Alternative models- Use of media in development communication - Role of Government - Other agencies in development communication -Issues related to Women, child, health & family structure in India

- Writing for development communication - Use of Traditional media and New media in development communication

Students will write 5 articles of Development issues from the broad area of human development, education, health, nutrition, population, environment,



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gender issues, problems faced by Dalits and Tribals in different formats like articles, reports, interviews and features.

Course Outcomes:

At the end of the Course, the Student will be able to:

CO1 Aware of the problems related to the concept of Development

CO2 Critically evaluate government policies related to Development and its impact

CO3 Analyse the role of International Agencies towards Development

CO4 Create content suitable for different formats

CO5 Approach the issue in various angles

CO6 Examine the reach of Development policies

CULTURAL JOURNALISM

Objectives:

This course will enable the students to have an insight into culture as a social institution and to evaluate the role of mass media as vehicles of cultural communication.

Basic understanding of culture as a social institution - value systems - mass media as vehicles of cultural communication - Impact of technology on culture - Globalization effects on culture and communication - Mass media as a culture manufacturing industry - Culture, communication and folk media –Culture & Politics – Culture & Economics.

Students will write 10 stories including popular culture, traditional culture and on social groups and their lives.

Course Outcomes:

At the end of the Course, the Student will be able to:

CO1 Analyse the impact of technology on Culture



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1.1 CURRICULUM DESIGN & DEVELOPMENT

Curricula developed and implemented have relevance to the GLOBAL developmental needs

Programme Name & Code – BA Journalism 61

Academic Year 2022-2023

	Course Title	COs of all courses
1.	Reporting for Media – I	CO1: Evaluate newsworthiness of information and understanding the structure of news flow. CO2: Demonstrate an understanding of story idea creation and alternative story forms in journalism CO3: Comprehend the basic structure and format of a hard/soft news story (lead, body, and conclusion). CO4: Produce Content for Print, Broadcast and blogs and websites CO5: Demonstrate an understanding of journalism ethics.
2.	History of Media in India	CO1: Students would be able to acquaint themselves with the glorious journey of journalism. CO2: Students would be able to enhance understanding of the origin and of the print, electronic and web media. Electronic and web media CO3: Students would be able to inculcate the knowledge of growth of print, electronic and web media 3.CO4: Students would be able to acquaint themselves with technological advancements in print, electronic and web media. CO5: Students would be able to throw light on the present status of various mass media.
3.	Designing: Photoshop, Illustrator and In Design	CO1: Gain knowledge about Visual Communication and its concepts. CO2: Acquire an insight of Communication Elements and its Process. CO3: Obtain familiar with Design Concept, Color Theory and the fundamentals of Graphic Design. CO4: Apply acquired communication skills effectively.



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		CO5: Apply the Models, Design, Color Concept and the Graphic Design in the media industry.
4.	Digital Storytelling	CO1: To understand various techniques behind history, culture, traditions, and craft of digital storytelling. CO2: To understand digital media and its effective use as a form of communication. CO3: To communicate ideas effectively in written, oral, and visual form to a range of audiences. CO4: To demonstrate mastery of the concepts, techniques, and tools in one or more digital media specialties. CO5: To develop professional quality digital media productions by promptly applying knowledge and skills including best practices and standards.
	Writing for Media – II	CO1: Understand the copy flow in a newspaper industry. CO2: Analyse the concepts and techniques behind newspaper writing. CO3: Comprehend the need for public relations. CO4: Understanding of different types of web writing. CO5: Understanding of news blogging and microblogging.
5.	Social, Economic and Political Issues in India	CO1: Assess social issues in India. Evaluate on various causes for social problems. CO2: Review on various social problems and its implications. CO3: Explain various forms in which Economic problems occur. CO4: Create news reports on political issues. CO5: Discuss environmental problem and its complexities while writing news stories.
6.	Broadcast Journalism	CO1: Explain the unique features of broad cast media and create particular content. CO2: Create news suitable for broadcast media CO3: Assess the writing trends based on genres of broadcast journalism. CO4: Apply ethical values and legal procedures while creating live reporting from the field. CO5: Engage in team work to produce appropriate content for media.



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7.	Copywriting and Editing	<p>CO1: Understand the essential communication tool for print and broadcast journalists, public relation professionals.</p> <p>CO2: Understand the nuances of writing for media</p> <p>CO3: Comprehend and create Feature Stories, Obituaries, Rewrites and Roundups.</p> <p>CO4: Write effective articles for newsletters, prepare fliers and brochures and news releases.</p> <p>CO5: Analyse the role of translation in writing for the digital media</p>
8.	Broadcast Journalism	<p>CO1: Explain the unique features of broad cast media.</p> <p>CO2: Create news suitable for broadcast media.</p> <p>CO3: Assess the future trends in broadcast journalism</p> <p>CO4: Apply ethical values and legal procedures while creating live reporting from the field</p> <p>CO5: Make use of editing skills in constructing news for Television and Radio</p>
9.	Political issues in India	<p>CO1: Outline the evolution of political thoughts in India</p> <p>CO2: Analyse the democratic process and organization of political system in India</p> <p>CO3: Interpret the issues of governance and governability</p> <p>CO4: Evaluate marketing politics, themes and issues</p> <p>CO5: Relate media and politics</p>
10.	Photo journalism	<p>CO1: Make use of the knowledge of lighting while shooting indoor and outdoor photography.</p> <p>CO2: Create photo essay and photo feature for specific themes.</p> <p>CO3: Apply the technical knowledge while operating camera for the desired result.</p> <p>CO4: Construct a suitable composition in photograph to convey the intended message.</p> <p>CO5: Apply the principles of photography to create appealing photographs.</p>
11.	Economic issues in India	<p>CO1: Sketch the development of Indian Economy.</p> <p>CO2: Evaluate on various economic issues and its implications.</p> <p>CO3: Elaborate on various causes for economic problems.</p>



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		CO4: Analyse liberalisation, globalisation and its consequences on Indian CO5: Create news stories on economic issues. society.
12.	Indian Constitution and Legal System	CO1: Outline the historical evolution of Indian Constitution. CO2: Appraise the special provision of Indian constitution relating to mass media. CO3: Analyse various constitutional amendments. CO4: Explain the judicial process, procedure and structure. CO5: Identify the need for reforming constitution.
13.	Film Appreciation	CO1: Appraise the technical, creative and aesthetic aspects of film Production CO2: Recognise the film language CO3: Appraise films in terms of style and mise-en-scene. CO4: Evaluate films in their historical context. CO5: Examine motion pictures as a technology, business, cultural, product, entertainment medium and industrial art form.
14.	Human Rights Reporting	CO1: Inculcate human rights approach in their Journalistic pursuits. CO2: Relate provisions in Indian Constitution for human rights issues. CO3: Evaluate the role of Human rights activist. CO4: Recognise various forms of Human rights issues. CO5: Aware of Civil, Political, Economic and social rights of the citizen.
15.	Press Laws and Ethics	CO1: Outline historical evolution of laws relating to press in India. CO2: Remember the important acts relating to mass media. CO3: Analyse the ethical issues in media. CO4: Explain the laws and constitutional provisions pertaining to human rights in India. CO5: Agree on the need for ethical practices while carrying out Journalistic duties.
16.	Online Journalism	CO1: Recognize the distinct characters of online Journalism. CO2: Familiarize with MOJO and Data Journalism. CO3: Trace the development of internet and online Journalism. Identify writing styles suitable for online Journalism.



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		CO4: Distinguish different tools to interact with audience. Use multimodality and interactivity while creating content for online Journalism. CO5: Recognize the distinct characters of online Journalism.
17.	Internship	CO1: Evaluate news sources for their credibility. CO2: Select and organise the news according to news values. CO3: Meet the deadline pressures. CO4: Adopt reporting, writing and editing skills for news creation. CO5: Acquire technical skills in producing the news.
18.	Writing for Media (Interdisciplinary Elective)	CO1: Analyse the structure of news reports. CO2: Make use of language proficiency in writing reports. CO3: Adopt good writing skills and create news reports. CO4: Acquaint with different writing styles for different formats of news. CO5: Familiarise different writing styles and applying creativity in writing for the media.
19.	Documentary	CO1: Acquire technical skills to produce a documentary. CO2: Employ creativity in producing a documentary. CO3: Realise the importance of team work. Choose topic which is relevant and select an inspiring angle. CO4: Adopt good writing skills in narrating the story. CO5: Conceptualise the topic to suit the target audience.
20.	News Production	CO1: Acquire the technical skills to produce news for broadcast media CO2: Organize the news according to news values for broadcasting CO3: Realise the need for accuracy. CO4: Acquire good writing skills while writing for news bulletins CO5: Employ ethical values in fact checking to produce the content of the news story
21.	Mass Communication Theories	CO1: Analyse the determinants of news content. CO2: Create news stories knowing the power and reach of media. CO3: Relate media society relationship.



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		CO4: Illustrate the evolution of mass media theories. CO5: Categorize and relate various events in the society to mass communication theories.
22.	Media Organization	CO1: Assess the conceptual issues in media organization. CO2: Interpret media as business and social institution. CO3: Examine the behaviour in media organization and organizational behaviour. CO4: Discuss organizational structures and functions of different departments in printing and publishing industry. CO5: Discuss the economics of media.
23.	Web Magazine	CO1: Acquire technical skills to produce Tabloid.
24.	Tabloid	CO2: Employ creativity in producing the Tabloid. CO3: Create contents suitable for different formats. CO4: Adopt ethical values in selecting and disseminating news. CO5: Discuss various perspectives of the news story before writing for publication.
25.	Environmental Journalism	CO1: Aware of the laws related to Environment. CO2: Realise the need to disseminate information about the current state of environment in order to protect it. CO3: Create contents suitable for different formats. CO4: Employ language proficiency in writing articles to create awareness about conservation. CO5: Follow ethical guidelines in reporting human-environment interactions.
26.	Advocacy Journalism	CO1: Distinguish Advocacy Journalism from Opinionated Journalism CO2: Follow Journalistic Standards and ethics while reporting CO3: Analyse the effectiveness and reach of Government policies. CO4: Relate to historical context while addressing an issue. CO5: Aware of contemporary issues in the society.
27.	Development Journalism	CO1: Aware of the problems related to the concept of Development. CO2: Critically evaluate government policies related to Development and its impact.



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		CO3: Analyse the role of International Agencies towards Development. CO4: Create content and approach the issue in various angles. CO5: Examine the reach of Development policies.
28.	Cultural Journalism	CO1: Analyse the impact of technology on Culture and relate culture as a social institution CO2: Examine the relationship between culture and politics. CO3: Study the relationship between culture and Economics. CO4: Recount the significance of culture in freedom of expression. CO5: Analyse the role of culture in solving social problem and transmitting values.



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1.1 CURRICULUM DESIGN & DEVELOPMENT

Curricula developed and implemented have relevance to the GLOBAL developmental needs

Programme Name & Code – MA Journalism and Communication 48

Academic Year 2022-2023

	Course Title	COs of all Courses
1.	Human Communication	CO1: Understand the definition, need and importance of communication as expression and skill. CO2: Trace the importance of communication in human development. CO3: Learning communication patterns and its need in an organization. CO4: Gain adequate knowledge on public communication system. CO5: Apply knowledge of the theories of communication to practice.
2.	Reporting and Writing Skills	CO1: Evaluate newsworthiness of information and understanding the structure of news flow. CO2: Demonstrate an understanding of story idea creation and alternative story forms in journalism CO3: Comprehend the basic structure and format of a hard/soft news story (lead, body, and conclusion). CO4: Produce Content for Print, Broadcast and blogs and websites CO5: Demonstrate an understanding of journalism ethics.
3.	Editing Skills	CO1: Understand the Duties and Responsibilities of an Editor in a newspaper industry.



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		<p>CO2: Analyse the concepts and techniques behind news editing.</p> <p>CO3: Comprehend the basics of editing.</p> <p>CO4: Understanding of different types of fonts and type.</p> <p>CO5: Demonstrate an understanding of news editorials.</p>
4.	Information and Communication Technology	<p>CO1: Understand the Components of information & Communication</p> <p>CO2: Enable students to understand the basics of broadcasting and broadcasting agencies.</p> <p>CO3: Gain Knowledge of accountability in news production in digital scenario.</p> <p>CO4: Study the impact of Communication in Development</p> <p>CO5: Grasp elements of Communication in Development</p>
5.	Travel Photography	<p>CO1: Learn how to use the fundamental elements of photography in ways that convey a sense of place</p> <p>CO2: Deepen your understanding of the fundamental tools of travel photography</p> <p>CO3: Create expressive photographs that reveal your unique impression of a destination</p> <p>CO4: Reinforce the ongoing creation of travel photography both around the corner and around the world</p> <p>CO5: Develop the concept of digital output and producing the final product</p>
6.	Photo journalism	<p>CO1: Learn how to use the fundamental elements of photography in ways that convey a sense of place</p> <p>CO2: Deepen your understanding on analyzing and creating effective photographs</p> <p>CO3: Create expressive photographs that reveal your unique impression of a destination</p> <p>CO4: Understand and write text to accompany photography</p> <p>CO5: Develop the concept using photo editing and build visual sequences.</p>
7.	Media Skills	<p>CO1: Learn the elements and principles of composition</p>



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		<p>CO2: Deepen understanding to use different coloring technique and its practical applications in design.</p> <p>CO3: Understand multiple image types and to select best application of each for graphic design, print and the photography</p> <p>CO4: Utilize effectively multiple methods of manipulating the existing artwork and workspace</p> <p>CO5: Develop the concept of digital output and producing the final product</p>
8.	Online Journalism and Web Management	<p>CO1: Enable the students to understand the distinct characteristics of online journalism</p> <p>CO2: To develop skills to encourage the production of media messages using variety of digital tools.</p> <p>CO3: To encourage students to appreciate and participate in Digital Media content writing</p> <p>CO4: To help students to generate contents for each social media platforms and acquire the skills</p> <p>CO5: To help students create content with credibility and authenticity</p>
9.	Mass Communication Theories	<p>CO1: Analyse the determinants of communication theories</p> <p>CO2: Discuss the importance of studying theory</p> <p>CO3: Illustrate the evolution of mass media theories.</p> <p>CO4: Relate media society relationship from a political perspective.</p> <p>CO5: Categorize and relate various events in the society to mass communication theories.</p>
10.	Media, Culture and Society	<p>CO1: Understand the relationship between the state, media and the public.</p> <p>CO2: Critique the media content from the audience perspective</p> <p>CO3: Acquire deep knowledge on the functions and influence of Media in Culture and Society</p> <p>CO4: Analyze media performance and content from a gender perspective</p>



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		CO5: Evaluate the popular culture and its characteristics from a culture perspective.
11.	Communication Research Methods	CO1: Understand the basics of communication research CO2: Outline the basic framework of research process CO3: Explore several different kinds of samples and sampling techniques used in mass communication research. CO4: Understanding the basic conceptualisation behind perfect data collection CO5: Critically analyse research methods and develop the skills for writing a thesis.
12.	Digital Marketing	CO1: To understand the basic Concepts of Digital marketing and the road map for successful Digital marketing strategies. CO2: Creating market Positioning with respect to the Digital marketing CO3: Understanding the importance of Social media Platforms importance in Digital Marketing CO4: Collecting, analyzing, enabling and optimizing organization's digital ecosystem in the making of data-informed decisions. CO5: To understand the technological importance of digital marketing
13.	Human Interest Stories	CO1: To develop the ability to frame Human Interest stories which relates to current events and help people to evaluate the impact of such events CO2: To be able to write Human Interest stories to evoke the emotion of reader/viewer and raise awareness of worthy causes CO3: To create stories without losing the value of Human Interest Journalism CO4: Reinforce the ongoing creation of travel photography both around the corner and around the world CO5: Develop the concept of digital output and producing the final product



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14.	Cultural Journalism	CO1: To write stories on arts and creative work, and on the individuals, institutions and policies that make or enable the creative work. CO2: To develop the aesthetic sense in the art and cultural coverage. CO3: To distinguish culturally valuable works from their lesser counterparts. CO4: To deduce the increased interconnectedness of economic and cultural processes. CO5: Develop the concept of digital output and producing the final product
15.	Mobile Journalism	CO1: To study the Socio-cultural implications of mobile phone communication and its contribution to information explosion. CO2: To understand the need, benefits and significance of mobile journalism. CO3: To learn the origins and characteristics of mobile journalism, differences and similarities with conventional journalism, and the applications of mobile journalism. CO4: To practically understand the usage of mobile phones as a reporting tool. CO5: To apply Mobile journalism techniques for different modes of news gathering and news processing, using open source voice, text and video.
16.	News Production	CO1: To understand the basic concepts of Broadcast Journalism CO2: To acquaint students with different modes of writings based on the technology and transmission. CO3: To identify and write record, produce and edit several formats of radio programmes including news stories, and features. CO4: To illustrate the basics of broadcast genres and essentials of journalism. CO5: To put theory to practice and produce digital outputs
17.	Media Management	CO1: To familiarize students to Indian media organization and their management practices.



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		<p>CO2: To introduce students to principles of Media business management</p> <p>CO3: Understand Commercials and sponsorship in electronic media</p> <p>CO4: Evaluate the different Organizations roles and perform a career-oriented approach</p> <p>CO5: To create programs with credibility and accountability according to the uprising trending technologies</p>
18.	Advertising	<p>CO1: Analyse the different types of advertising& advertising agencies</p> <p>CO2: Understand the components of a brand image</p> <p>CO3: Learn the Elements of ad copy in advertisement</p> <p>CO4: To understand the Elements of media budgeting, planning and buying.</p> <p>CO5: Acquire knowledge on campaigning advertisement</p>
19.	Public Relation & Corporate Communication	<p>CO1: To learn the basic concepts of Public relation and its tools.</p> <p>CO2: Explore the role and importance of corporate communications</p> <p>CO3: Learn to conduct public relation campaigns</p> <p>CO4: To understand the techniques involved in maintaining the brand and organisational image</p> <p>CO5: To enhance their skills for organizing public relation campaigns and press releases</p>
20.	Dissertation	<p>CO1: To display the knowledge and capability required for independent work.</p> <p>CO2: To create, analyze and critically evaluate different technical/research solutions</p> <p>CO3: To clearly present and discuss the conclusions as well as the knowledge and arguments that form the basis for these findings</p> <p>CO4: To identify the issues that must be addressed within the framework of the specific dissertation in order to take into consideration</p>



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		CO5: To facilitate student to carry out extensive research and development project or technical project at place of work through problem and gap identification, development of methodology for problem solving, interpretation of findings, presentation of results and discussion of findings in context of national and international research.
21.	Documentary Production	CO1: To identify content from real life, books and print materials. CO2: To improve the data collection and research skills for documentary. CO3: To strengthen the script writing ability of the student. CO4: To draft a formal documentary proposal. CO5: To make a socially responsible documentary.
22.	Deprivation Coverage	CO1: To understand the concept of deprivation and its effect in society CO2: To explore and identify areas of deprivation. CO3: To improve the communication, questioning, listening, writing and news gathering skills. CO4: To incorporate human interest angle in the news stories. CO5: To write a factual news story on the deprivation.
22.	Event Management	CO1: To enables students to plan, execute and comprehend various events with relevant skills for each event. CO2: Acquire and apply the skills required to plan an event CO3: Enhance their innovativeness in managing the media CO4: Plan an event with the knack of organizational skill CO5: Demonstrate a planned event displaying promotional skills
23.	Developmental Communication	CO1: Aware of the problems related to the concept of Development



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		<p>CO2: Critically evaluate government policies related to Development and its impact</p> <p>CO3: Analyse the role of International Agencies towards Development</p> <p>CO4: Create content suitable for different formats</p> <p>CO5: Approach the issue in various angles. Examine the reach of Development policies</p>
24.	Health Communication	<p>CO1: Understand the role of communication and its affect in promoting and maintaining health and wellness for all individuals</p> <p>CO2: Develop effective health messages for individuals and publics by understanding how the media, literacy and policy affect the perceptions of health.</p> <p>CO3: Create a content in social media- based on agriculture, health, education, population planning, sanitation, environment protection and socio-economic development.</p> <p>CO4: Create photo stories which assess the factors that affect health literacy.</p> <p>CO5: Writing essay for health stories in effective manner</p>
25.	Media Laws and Ethics	<p>CO1: To learn the basic structure of Indian Constitution.</p> <p>CO2: Examines the various media laws, policy and regulatory frameworks in India</p> <p>CO3: Explore the legalistic perspective of IPR in media laws</p> <p>CO4: Apply knowledge of self-regulation and other ethical practices in profession</p> <p>CO5: Comprehend media constitutional laws and ways to solve simple media law cases.</p>
26.	Film Studies and Appreciation	<p>CO1: To understand various theoretical, historical, and critical approaches to films.</p> <p>CO2: Acquire knowledge on history of Cinema, cinema movements</p> <p>CO3: To facilitate exploration of the history of cinema and also critically analyze movies that are being screened.</p> <p>CO4: To understand how film reflects societal concerns.</p>



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		CO5: Analyse structures of power, economics, and ideology and Film Genres
27.	Digital Story Telling	CO1: To understand various techniques behind history, culture, traditions, and craft of digital storytelling. CO2: To understand digital media and its effective use as a form of communication. CO3: To communicate ideas effectively in written, oral, and visual form to a range of audiences. CO4: To demonstrate mastery of the concepts, techniques, and tools in one or more digital media specialties. CO5: To develop professional quality digital media productions by promptly applying knowledge and skills including best practices and standards.
28.	Internship	CO1: To extend the skills and knowledge they acquired from relevant theory components CO2: To create, analyze and critically evaluate experiential learning. CO3: To engage in continuous learning and development of new skills appropriate for their field CO4: To build professional portfolio. CO5: To facilitate students’ opportunity to work and experience actual operations in the real business world


Signature of the HOD

Signature of the Principal



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**DEPARTMENT
OF
B.COM (FINANCE AND TAXATION)**

Global Subjects

SYLLABUS

2022-2023

REVISED SYLLABUS 2022-2023

Semester	I
Subject	CORE PAPER I BUSINESS ACCOUNTING
Course Code	23/62101
Maximum Marks	CIA – 50 Marks ESE – 100 Marks
Credits/Instructional Hours	4 Credits / 5 Hours
Exam Duration	3 Hours
L:P:T:S	5:0:0:0

Mapping Course Outcomes with Program Outcomes

CO	PROGRAM OUTCOME						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	3	3	3	2	3	3
CO2	2	3	3	3	3	3	3
CO3	3	3	3	2	3	3	3
CO4	3	3	3	3	3	3	3
CO5	3	3	3	3	3	2	3

COURSE OUTCOME

S.no	Objectives	K Level
1.	To understand the meaning and scope of accounting, how to prepare financial statement, conceptual framework and qualitative characteristics.	K2
2.	To know about various source documents used in accounting, different type of transactions and accounting process.	K4
3.	To understand the preparation of financial accounts and adjustments involved.	K4
4.	To calculate the true profit and provide funds for replacement of fixed assets by using Depreciation methods.	K3
5.	To make financial statement analysis and interpreting it.	K2

CO	PROGRAM OUTCOME									
	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
CO1	3	3	3	3	3	3	3	2	3	3

CO2	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	2	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	2	3	3	3	3	3	3	3	3

Unit-I

Accounting-Meaning and scope of accounting -Financial Statements, meaning -purposes of financial statements for the users- main elements of financial reports - *conceptual framework - definitions of asset, liability, equity, income & expenses.

Qualitative characteristics of financial statements - Concepts of relevance, faithful presentation, materiality, substance over form, going concern, business entity, accruals, consistency, comparability, verifiability, understandability and timeliness.

Unit-II

Main data sources for accounting - different business documents such as sales order, purchase order, goods received note, quotation, goods dispatched note, invoice, credit & debit notes, receipt, remittance advice, cash vouchers - understand the double entry accounting & duality concept - types of transactions such as sales, purchases, payments & receipts.

Accounting Process-Recording into journals- ledger accounts- balancing of ledger accounts- *accounting for discounts, sales tax - recording cash transactions - errors & rectification - bank reconciliation statements.

Unit-III

Preparations of Final Accounts - Statements of profit or loss and other comprehensive income - balance sheet - events after reporting period. [Adjustments-

Closing Stock (accounting & valuation of inventories), Outstanding and Prepaid items (accruals & prepayments, receivables & payables), Depreciation, Provision for Bad Debts, Discount on Debtors (provisions & contingencies), Interest on Capital and Drawings, Loss of Stock by Fire].

Unit-IV

Tangible & Non-Tangible Assets - depreciation & amortization accounting - Meaning, Causes, Types - Straight-Line Method (SLM) - Written down Value method (WDV) - Sinking Fund Method.

Unit-V

Financial Statement Analysis - *uses of Interpretation of financial statements - Common size financial statements - Common base year financial statements - Financial Ratios - Liquidity, Leverage, Activity & Resource, Profitability, Market ratios.

*Self Study Portion

Pattern for End Semester Examination

End Semester Questions Pattern	Theory	Practical Problems	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section-A	6	6	12	10	2	20
Section-B	2	5	7	5	7	35
Section-C	1	4	5	3	15	45
Total Marks						100

Reference Books:

1. P.C.Tulsian- Financial Accounting-TATA McGraw Hill Publishers
2. Jain & Narang, Advanced Accounting, Kalyani Publishers
3. Paul D. Kimmel, Jerry J. Weygant, Donald E. Kieso, Financial Accounting: Tools for Business Decision Making, Wiley
4. Frank Wood, Business Accounting, Pearson Edition
5. Jill Collis, Andrew Holt, Business Accounting, TATA McGraw Hill
6. Manikandan S, Rakesh Shankar R, Financial Accounting, Sci Tech Publications

Note: Latest Edition of the book to be referred.

CORE PAPER II BUSINESSECONOMICS

Semester	I
Subject	COREPAPER IIBUSINESSECONOMICS
CourseCode	23/62102
MaximumMarks	CIA– 50 Marks ESE– 100Marks
Credits/InstructionalHours	4Credits /5Hours
ExamDuration	3Hours
L:P:T:S	5:0:0:0

COURSEOUTCOME

S.no	Objectives	K Level
1.	To understand the various views, definitions and concepts of economics,.	K2
2.	To enable the student to understand demand and supply function, demand forecasting and equilibrium.	K2
3.	To understand about consumer behaviour and indifference curve, production function and factors of production.	K3
4.	To learn about product pricing, objectives and methods.	K4
5.	To understand about national income accounts, models and economic indicators.	K4

Mapping Course Outcomes with Program Outcomes

CO	PROGRAM OUTCOME						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	3	3	3	3	3	3
CO2	2	3	3	3	2	3	3
CO3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	2	3	3	3	3	3	3

Mapping Course Outcomes with Program Specific Outcome

CO	PROGRAM OUTCOME									
	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	2	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	2	3	3	3

Introduction to Economics – Wealth, Welfare, Scarcity and Growth Views on Economics – ***Positive and Normative Economics** – **Scope and Importance of Managerial Economics**- Economic approach, Circular flow of activity, Nature of the firm, Forms of organizations, Objectives of firms.
Concepts: Production possibility frontiers – Opportunity Cost – Accounting Profit and Economic Profit – Incremental and Marginal Concepts.

Unit-II:

Demand Function – Meaning of Demand – Determinants and Distinctions of demand – Law of Demand – Slope & Elasticity of Demand – Shifts in the demand curve vs. movement along the demand curve - ***Demand Forecasting**. **Supply Function** – Meaning of Supply – Determinants of Supply – Law of Supply – Slope & Elasticity of Supply – shifts in the supply curve Vs. movement along the supply curve - Concept of Equilibrium.

Unit-III:

Consumer Behaviour - Indifference Curve – Definition, Properties and equilibrium - Law of Diminishing Marginal Utility – Equi-marginal utility – Consumer surplus and producer surplus
Production Function - Factors of Production: Law of Variable proportion – Laws of Returns to Scale – Costs of production - total cost, fixed cost, variable cost, average cost, marginal cost, short run and long run costs- Producer’s equilibrium – Economies of scale - Break Even Analysis.

Unit-IV:

Product pricing: price and output determination under perfect competition - profit maximization, monopoly- price discrimination, monopolistic competition, oligopoly-collusion and cartels- ***pricing objectives and methods**.

Unit-V:

Introduction to National Income Accounts – Model of National Income Determination – Economic Indicators; Technology and Employment – ***Issues and Challenges**.

**Self Study Portion*

Pattern for End Semester Examination

End Semester Questions Pattern	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section–A	12	10	2	20
Section–B	7	5	7	35
Section–C	5	3	15	45
Total Marks				100

Reference books:

1. P.L.Mehta, Managerial Economics-analysis, problems and cases–Sultan Chand Publishers, New Delhi.
2. C.M.Chandhary, business economics-RBSA Publishers, Jaipur
3. H.L.AHUJA, business economics, Sultan Chand Publishers, New Delhi
4. Maddala, G.S., and E.Miller. Microeconomics: Theory and Applications. McGraw-Hill International Ed.
5. Gupta GS, Managerial Economics-TATA McGraw Hill International

Note: Latest edition of the book to be referred.

Mapping Course Outcomes with Program Specific Outcomes

CO	PROGRAM OUTCOME									
	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
CO1	2	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	2	3	3	3	3
CO4	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3

Unit-I: WORD PROCESSING

Application of word processing - Menus & Tool Bars - Word processor – Creating – Entering - Saving & printing the document - Editing & Formatting Text - Mail Merge and Macros

Unit-II: SPREADSHEET

Application of worksheet/spreadsheet - Menus & Toolbars - Creating a worksheet - Entering and editing of numbers - Cell reference - Worksheet to analyze data with graphs & Charts. Advanced tools: Functions – Formulae – Formatting numbers - Macros – Sorting - Filtering - Validation & Consolidation of Data - Pivot Table Reports & Pivot Chart Reports - Importing/Exporting data - Multi-Dimensional Analysis of data - Dashboard Reporting using MS - Excel

Unit-III: POWERPOINT PRESENTATION

Application of Power Point Presentation – Menus & Toolbars – Creating presentations – Adding - Editing and deleting slides - Templates and manually – Slideshow – Saving - Opening and closing a Presentation – Types of slides - Slide Views - Formatting – Insertion of Objects and Charts in slides - Custom Animation and Transition

Unit-IV: MS ACCESS

Introduction to MS - Access - Working with Tables and Forms - Working with Queries and Reports.

Unit-V: ACCOUNTING PACKAGE

Introduction to Tally.ERP9 - Voucher Entry in Tally.ERP9 - Generating Reports in Tally.ERP9 - Financial Analysis Tools in Tally.ERP9 - E-filing Process in Tally ERP9.

Record- 40 Marks Practical -60 Marks

Reference books:

1. Alexis Leon & Mathews Leon, Fundamentals of Information Technology, SC Chand Publishing
2. V Rajaraman, Introduction to Information Technology, PHI Learning House
3. SK Bansal, Fundamentals of Information Technology, SCSP Publications
4. Guide to Tally, Tally Publications, Bengaluru

Evaluation Process

1. Records shall be evaluated jointly by Internal & External Examiners
2. Practical Examinations shall be conducted by External Examiner, duly co-ordinated by Internal Examiner.

UNIT	CONTENTS OF THE MODULE	CO
1	Introduction to Taxation–Income Tax Act–Basic Concepts–Income, Agricultural Income, Casual Income, Assessment Year, Previous Years, Gross Total Income, Total Income; Tax Evasion, Tax Avoidance, Tax Planning	1
2	Income Tax Act–Residential Status of Assessee–Individual	2
3	Different Heads of Income–Salary, House Property Income, Business or Profession, Capital Gains and Income from Other Sources	3
4	Computation of Total Income and Tax Liability of an Individual	3
5	Deductions–Tax Deducted at Source–Advance Payment of Tax	4

Pattern for End Semester Examination

End Semester Questions Pattern	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section–A	10	10	2	20
Section–B	5	5	6	30
Total Marks				50

*Equal weightage to be given to all 5 units

Weightage based on Bloom's Taxonomy (for End Semester Examinations–ESE)

Remember	Understand	Apply	Analyze	Evaluate	Create
40 %	40%	20%	-	-	-

Reference Books:

1. Gaur and Narang–Income Tax Law and Practice–Kalyani Publishers
2. Mehrotra H.C: Income Tax Law & Accounts; Sahitya Bhawan, Agra.
3. Dinker Pandey, Income Tax Law and Practice: Sultan Chand & Sons, New Delhi.

Note: Latest Editions of the books to be referred.

UNIT I:

Management-definition,importance,functions; *Nature-

asprofession,scienceandart,universalityofmanagement; *Levelsofmanagement - strategic, middle management & operational levels - managerial tasks and skills Classical School- contributionsof Taylor, Henry Fayol and Elton Mayo, Different schools of management thought – Approaches in Management - Behavioural,Scientific, Systems, and Contingency, Management thoughts in Indian Philosophy – An Overview.

UNIT II:

Planning-concept,importance, types, steps, premises, *Barriers to effectiveplanning and remedial measures. MBO - StrategicPlanning-concept.

Forecasting-concept–techniques.

Decisionmaking–Meaning,AdvantagesandDisadvantages,process,problemsinDecisionmaking.

UNITIII:

Organising - concept, importance, principles, different organization models - Line & Staff, Functional, Product, Matrix,Geographical, Virtual, Formal & Informal Organizations, Networks - Types of Network Organizations/Clusters OrganizationalDesignsforChangeand Innovation

*Departmentation – need, basis, principles - Delegation of Authority - elements – steps – barriers- Centralisation andDecentralizationofAuthority-SpanofManagement–concept-

typesandfactors.[RoleofdifferntfunctionswithinanorganisationsuchasR&D,sales,marketing,production,purchase,administration,finance&accounting,supportservices,andhumanresources– relationship between accounting and other business functions]

UNIT IV:

Motivation:concept,importance,contributionsofMcGregor,Maslow,andHerzberg.

Leadership:concept,importance,types,leadershiptraits-differenttypesofleadershipstyles–Approachestoleadershippreferring to theories of Adair, Fiedler, Bennis, Kotter & Heifetz, Ashridge, Blake & Mouton – managing teams.

Co-ordination:concept,significance,principles,andtechniques

Control:conceptandsteps,Control Techniques.

UNIT V:

LatesttrendsinManagement-Concept of Knowledge management,technology management,Employeeenergy management,Process&changemanagement-projectqualitystandards –sixsigma,CMM,CMMI,PCMM,ImpactofITquality managementsystems,learningorganizations.

* SelfStudyPortion

PatternforEndSemesterExamination

EndSemesterQuestions Pattern	TotalQuestions	ToAnswerQuestions	MarksPer Question	TotalMarks
Section–A	12	10	2	20
Section–B	7	5	7	35
Section–C	5	3	15	45
TotalMarks				100

ReferenceBooks:

1. Gupta.C.B,BusinessManagement,SultanChandPublishers,NewDelhi
2. KoontzHaroldandHeinzWehrich,EssentialsofManagement,TATAMcGrawHill
3. PrasadL.M.,Principles&Practiceofmanagement,SultanChandPublishers
4. Stoner.A.Fandfreeman.R.E.,Management,PrenticeHallofIndia
5. Chhabra,T.N.PrinciplesandPracticeofManagement.DhanpatRai&Co.,

Note:Latesteditionofthebookstobereferred.

CO4	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3

Mapping Course Outcomes with Program Specific Outcomes

CO	PROGRAM OUTCOME									
	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3

UNIT	CONTENTS OF THE MODULE	CO
1	The origins of the International Accounting Standards Board - International Financial Reporting Standards – Importance & relevance in global scenario – First time Adoption of International Financial Reporting Standards - The structure of the IFRS Foundation - Understand the role of the regulatory system including the roles of the IFRS Foundation - The IFRS Advisory Council - The IFRS Interpretations Committee - IFRS in India - The mapping of IndAS to IFRS	1
2	Accounting for Non-current assets and Impairments <ul style="list-style-type: none"> IAS 1 Presentation of Financial Statements IAS 16 Property, Plant and Equipment IAS 23 Borrowing Costs IAS 38 Intangible Assets IAS 36 Impairment of Assets <ul style="list-style-type: none"> IAS 2 Inventories 	2
3	Accounting for liabilities <ul style="list-style-type: none"> IAS 37 Provisions, Contingent Liabilities and Contingent Assets IAS 19 Employee Benefits IAS 12 Income Taxes IFRS 2 Share-based Payment 	3
4	Group accounting <ul style="list-style-type: none"> IFRS 10 Consolidated Financial Statements IAS 27 Separate Financial Statements <ul style="list-style-type: none"> IFRS 3 Business Combinations 	4

5	Disclosure and other Standards <ul style="list-style-type: none">• IAS7 Statement of Cash Flows• IFRS8 Operating Segments• IAS24 Related Party Disclosures• IAS33 Earnings Per Share• IAS10 Events after the Reporting Period• IFRS1 First-time Adoption of IFRS	5
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Pattern for End Semester Examination

End Semester Questions Pattern	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section–A	10	10	2	20
Section–B	10	5	7	35
Section–C	5	3	15	45
Total Marks				100

*Equal weightage to be given to all the 5 units

Weightage based on Bloom's Taxonomy (for End Semester Examinations–ESE)

Remember	Understand	Apply	Analyze	Evaluate	Create
20 %	30%	25%	15%	10%	-

Text Books:

1. CA Kamal Garg, Practical Guide to IFRS, Bharat Publishing House,
2. Abbas Ali Mizra, Practical Implementation Guide & Workbook for IFRS, Wiley

Reference Books:

1. Jagdish R Ralyani, IFRS and Indian Accounting Practices, Taxmann
2. Steven M Bragg, IFRS Guidebook, Accounting Tools Series.

Note: Latest edition of the books to be referred.

Unit-I:

Introduction to Insurance – Type of Insurance – Principles of Insurance.

Unit-II:

Salient features of IRDA Act – Administration of IRDA Act – Regulatory measures of IRDA.

Unit-III:

Life insurance products – Term, Whole life, Endowment.

Unit-IV:

Introduction to general Insurance – fire, marine and motor insurance.

Unit-V:

Government and insurance companies – LIC India – private players in Insurance in India.

**Self Study Portion*

Pattern for End Semester Examination

End Semester Questions Pattern	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section-A	12	10	2	20
Section-B	7	5	7	35
Section-C	5	3	15	45
Total Marks				100

Reference Books:

1. Dr.N.Premavathy–Elements of Insurance, Sri Vishnu Publications, Chennai.
2. Dr.A.Murthy–Elements of Insurance, Margham Publications, Chennai
3. M.N.Mishra –Insurance, Principles and practice, S.Chand & Co.Ltd., New Delhi
4. Nalini Prava Tripathy, Prabir Paal–Insurance Theory & Practice, Prentice Hall of India
5. Anand Ganguly–Insurance Management, New Age International Publishers.

Note: Latest Editions of the books to be referred.

CORE PAPER VI – ETHICS & CORPORATE GOVERNANCE

Semester	II
Subject	CORE PAPER VI – ETHICS & CORPORATE GOVERNANCE
Course Code	23/62207
Maximum Marks	CIA – 50 Marks ESE – 100 Marks
Credits / Instructional Hours	4 Credits / 5 Hours
Exam Duration	3 Hours
L:P:T:S	5:0:0:0

COURSE OUTCOME

S.no	Objectives	K Level
1.	To understand the basic concepts of ethics and ethics in Indian epics.	K2
2.	To become aware of ethical management and effects of corporate scam.	K2
3.	To be aware of corporate social responsibility and ethics in advertisement.	K3
4.	To understand the concepts in corporate governance and role and duty of board of directors	K4
5.	To learn about SEBI guidance for corporate governance and investor protection.	K4

Mapping Course Outcomes with Program Outcomes

CO	PROGRAM OUTCOME						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	3	3	3	3	3	3
CO2	2	3	3	3	2	3	3
CO3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	2	3	3	3	3	3	3

Mapping Course Outcomes with Program Specific Outcomes

CO	PROGRAM OUTCOME									
	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	2	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	2	3	3	3

Unit I:

Concept of ethics – sources – ethics and morals – justice – fairness – values – relevance of business ethics – arguments for and against – business values for 21st century – ethics in Indian business – **Ethics in Indian Epics (Mahabharatham, Arthasasthram) – an Overview.*

Unit II: (#-Unit for Compulsory Question)

Ethical management – strengthening of personal and organizational integrity – complexity and group dynamic – spiritual core of leadership – leaders and the value reference – **corporate scams and its effects* – law as an instrument of ethics.

Unit III:

Corporate social responsibility – meaning – promoting – stakeholders' satisfaction – corporate responsiveness –

managing socially responsible business – environment responsibility – ethics and ecology – **advertisement and information disclosure-* ethics at work place and professionalism.

Unit IV:

Corporate Governance – meaning, scope – transparency – disclosure – shareholders' welfare vs. stakeholders approach – Board of Directors – Role, duties, responsibilities – Independent Directors – Executive and compensation – Disclosure requirements – **Director's Responsibility Statement.*

Unit V: (#-Unit for Compulsory Question)

SEBI and corporate governance – Clause 49 A of SEBI listing agreement – Committees under Listing agreement – Governance committees – Audit committees – **Shareholders grievances committee – Investor protection – shareholders information* – Disclosure requirements – Role of Accountants and Auditors – accountability – professional Code & values.

**Self Study Portion*

Pattern for End Semester Examination

End Semester Questions Pattern	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section – A	12	10	2	20
Section – B	7	5	7	35
Section – C	5	3	15	45
Total Marks				100

Reference books:

1. Corporate Governance and business Ethics by All India Management Association – Excell Books
2. Riya Rupani, Business Ethics & Corporate Governance, Himalaya Publishing House
3. Subhash Chandra Das, Corporate Governance in India, PHI Publishing House
4. William H. Shaw, Business Ethics – Thomson Publications
5. N. Balasubramanian, Corporate boards and Governance – Sterling publishers
6. Reference on corporate governance and directors duties and responsibilities – publication of Institute of Company secretaries of India
7. Neville Bain & David Band – winning ways through corporate governance – Macmillan publishers

Note: Latest edition of the books to be referred.

CORE PAPER VIII – COST ACCOUNTING

Semester	III
Subject	CORE PAPER VIII – COST ACCOUNTING
Course Code	23/62312
Maximum Marks	CIA – 50 Marks ESE – 100 Marks
Credits/Instructional Hours	4 Credits / 5 Hours
Exam Duration	3 Hours

COURSE OUTCOME

S.no	Objectives	K Level
1.	To give a good understanding about cost accounting, cost concepts and elements of cost.	K2
2.	To understand the accounting for materials and its techniques.	K2
3.	To learn about labour cost and overhead costing.	K3
4.	To become familiar with costing system and valuation of work in progress.	K4
5.	To understand the use of budget and budgetary control & various concepts init.	K4

Mapping Course Outcomes with Program Outcomes

CO	PROGRAM OUTCOME						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	3	3	3	3	3	3
CO2	2	3	3	3	2	3	3
CO3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	2	3	3	3	3	3	3

Mapping Course Outcomes with Program Specific Outcomes

CO	PROGRAM OUTCOME									
	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	2	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	2	3	3	3

UnitI:

Introduction to Cost Accounting – Meaning - **Objectives and advantages of cost accounting, Relationship between cost accounting and financial accounting.*
Cost concepts and classifications - Cost centres and Cost units - cost behaviour with use of graphs Role of a cost accountant in an organization. **Elementsofcost**–Preparationofcostsheets–Tendersandquotations–Reconciliationof Cost & Financial Accounts. (Reference to Cost Accounting Standard (CAS)– 1)

UnitII:

Materials-Procurement procedures— Store procedures and documentation in respect of receipts and issue of stock, -Material/inventory control-concept and techniques-Techniques of fixing of minimum, maximum and reorder levels, EOQ, ABC classification; Stock taking and perpetual inventory.
 Accounting and control of purchases, storage and issue of materials. Methods of pricing of materials issues –FIFO, Weighted Average, Standard, Treatment of Material Losses. (Reference to CAS – 6)

UnitIII:

Labour cost – Attendance and payroll procedures, Overview of statutory requirements, Overtime, Idle time and – Labour turnover –Remunerations systems and incentive schemes (Reference to CAS –7).
 labour efficiency, capacity & volume ratios. **Overhead**–Classification– allocation, apportionment and absorption of overhead. Under and over-absorption – Machine Hour rate.

UnitIV:

Costing Systems - Process costing – Treatment of Normal, Abnormal losses and Gains – Valuation of Work-in-Progress, Statement of Equivalent Production.

UnitV:

Budgeting and budgetary control: Concept of budget and budgetary control - **objectives, merits, and limitations*, Functional budgets, Fixed and flexible budgets, Cash Budget - Zero base budget, – Variance Analysis – Material Variance only.

**Self Study Portion*

Pattern for End Semester Examination

End Semester Questions Pattern	Theory	Practical Problems	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section-A	6	6	12	10	2	20
Section-B	2	5	7	5	7	35
Section-C	1	4	5	3	15	45
Total Marks						100

Reference Books:

1. S.P.Jain and K.L.Narang, Cost Accounting, Kalyani Publishers.
2. Dr.S.N.Maheswari, Principles of Cost Accounting, Sultan Chand Publications
3. V.K.Saxena and C.D.Vashist, Cost Accounting, Sultan Chand Publications
4. S.P.Iyengar, Cost Accounting, Sultan Chand
5. T.S.Reddy and Y.Hari Prasad Reddy, Cost Accounting, Margham Publications

Note: Latest edition of the books to be referred.

ALLIED-III BUSINESS MATHEMATICS

Semester	III
Subject	ALLIED –III BUSINESS MATHEMATICS
Course Code	19-23/62313
Maximum Marks	CIA- 50 Marks ESE – 100 Marks
Credits/Instructional Hours	4 Credits /6 Hours
Exam Duration	3 Hours
L:P:T:S	2:4:0:0

COURSE OUTCOME

S.NO	OBJECTIVES	K Level
1.	To learn about matrices, matrices inversion and linear equation.	K2
2.	To understand algebra, permutation and combination	K2
3.	To get to know about interpolation.	K3
4.	To learn about average, percentage allegation and mixture.	K4
5.	To calculate interest by using simple, compound and annuity method.	K2

Mapping Course Outcomes with Program Outcomes

CO	PROGRAM OUTCOME						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	3	3	3	3	3	3

CO2	3	3	3	3	3	3	2	3
CO3	3	3	3	3	3	3	3	3
CO4	3	2	3	3	3	3	3	3
CO5	2	3	3	3	3	3	3	3

Mapping Course Outcomes with Program Specific Outcomes

CO	PROGRAM OUTCOME									
	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
CO1	2	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	2	3	3	3	3
CO4	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3

UNIT1 **Matrices: Matrices-Meaning and Operations, matrix inversion-Solution to linear equations.**

UNIT2 **Algebra: Permutation and Combination. Arithmetic, and Geometric Progressions**

UNIT3 **Interpolation: Newton's forward and backward formulae for interpolation (no proof) Lagrange's formula for interpolation (No Proof)-Simple problems.**

UNIT4 **Average - Percentage - Time & Work - Profit & Loss - Pipes & Cistern- Alligation or Mixture**

UNIT5 **Simple Interest, Compound Interest and Annuity-Discount on Bills**

Note: No Theory questions to be asked

Reference Books:

1. P.R.Vittal, *Business Mathematics*, Margham Publications, Chennai.
2. D.C.Sancheti & V.K.Kapoor, *Business Mathematics*, Sultan Chand Publication, New Delhi.
3. B.M.Agarwal, *Business Mathematics*, Kalyani Publishers.
4. R.S.Soni, *Business Mathematics*, Pitambar Publishing house.
5. Singh.J.K., *Business Mathematics*, Himalaya Publishing house.
6. Dr.R.S.Aggarwal, (2017) *Quantitative Aptitude*, S.Chand & Company Ltd., (Revised edition)

Note: Latest edition of the books to be referred.

COREPAPER IX – FINANCIAL REPORTING

Semester	IV
Subject	COREPAPER IX – FINANCIAL REPORTING
Course Code	23/62414
Maximum Marks	CIA – 50 Marks ESE – 100 Marks
Credits/Instructional Hours	4 Credits / 5 Hours
Exam Duration	3 Hours
L:P:T:S	5:0:0:0

COURSE OUTCOME

S.no	Objectives	K Level
1.	To understand about corporate financial reporting, concepts and benefit of it.	K2
2.	To learn about international standards related to income tax, cash flow and lease etc.	K2
3.	To get to know about insurance company accounting.	K3
4.	To understand integrated reporting and accounting for holding companies.	K4
5.	To learn about accounting for banking companies in India.	K4

Mapping Course Outcomes with Program Outcomes

CO	PROGRAM OUTCOME						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	3	3	3	3	3	3
CO2	2	3	3	3	2	3	3
CO3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	2	3	3	3	3	3	3

Mapping Course Outcomes with Program Specific Outcomes

CO	PROGRAM OUTCOME									
	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	2	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	2	3	3	3

Unit I:

Corporate Financial Reporting - Concept – objectives – Financial reporting and Financial Statements – objectives of Financial statements . Users in Financial reporting. Qualitative characteristics of financial reporting information

–BenefitsofFinancialreporting

UnitII:

International Standards related to Incomes Taxes, cash flows, Government Grants, effects of changes in foreignexchange rates, investments in associates & joint ventures, leases.

UnitIII:

Accounting for Insurance Companies – Life Assurance Fund – Valuation Balance Sheet & Treatment of Surplus - Revenue Account for Life & General insurance Companies – Balance Sheet (Simple Problems Only).

UnitIV:

Integrated reporting - Accounting for Holding Companies - Consolidated financial statements (excluding group cash flow statement) for a simple group with one subsidiary and one associate – computation of fair value of net assets, goodwill and Non-Controlling Interest (NCI) on date of acquisition - computation of group reserves on date of consolidation – fair value adjustments on consolidation – effects of intra-group trading on consolidation — consolidation of Balance Sheet – treatment of mutual Owings, contingent liabilities – unrealized profit – revaluation of assets – bonus issue and payment of dividend (intercompany holdings excluded) as per AS 21.

UnitV:

Accounting for Banking Companies in India – Non Performing Assets – prudential norms – Rebate on Bills discounted – profit and Loss account and Balance Sheet – (Revised Format).

* Self Study Portion

End Semester Questions Pattern	Theory	Practical Problems	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section–A	10	2	12	10	2	20
Section–B	4	3	7	5	7	35
Section–C	3	2	5	3	15	45
Total Marks						100

Reference Books

1. R.L.Gupta and M.Radhaswamy, Advanced Accounting, Sultan Chand & Sons, New Delhi
2. S.N.Maheswari Advanced Accounting, Sultan Chand & Sons, New Delhi
3. Jain & Narang, Advanced Accountancy, Kalyani Publishers
4. Bruce Mackenzie & Others, IFRS 2012: Interpretation and Application of International Financial Reporting Standards, Wiley
5. Loftus, Financial Reporting, Wiley

Note: Latest edition of the books to be referred.

CORE PAPER X – INTERNATIONAL MARKETING

Semester	IV
Subject	CORE PAPER X – INTERNATIONAL MARKETING
Course Code	23/62415
Maximum Marks	CIA – 50 Marks ESE – 100 Marks
Credits / Instructional Hours	4 Credits / 5 Hours
Exam Duration	3 Hours

COURSE OUTCOME

S.no	Objectives	K Level
1.	To give an introduction to international marketing and its environment.	K2
2.	To learn about international marketing mix and international promotion.	K2
3.	To understand the international market planning and assessing market opportunities.	K3

4.	To understand about global product management and pricing.	K4
5.	To know about global logistics management and distribution system.	K4

Mapping Course Outcomes with Program Outcomes

CO	PROGRAM OUTCOME						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	3	3	3	3	3	3
CO2	2	3	3	3	2	3	3
CO3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	2	3	3	3	3	3	3

Mapping Course Outcomes with Program Specific Outcomes

CO	PROGRAM OUTCOME									
	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	2	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	2	3	3	3

Unit-I:

Introduction to International Marketing – Meaning, Importance - Scope and challenges of international marketing - Recent trends and developments in international trade, protectionism, trade barriers, easing trade restrictions, role of the IMF and World Bank, WTO and TRIPS, TRIMS and liberalization of service industries.-
International Marketing Environment- Political and legal systems – **Culture and Business Customs.*

Unit-II:

International Marketing Mix-International Research and Segmentation-Developing Global Products and Pricing-
**International Promotion and Advertising*-International Distribution Systems.

Unit-III:

International Marketing Planning -Managing Systems for International Marketing- Reflection and Evaluation of the Endeavors - **Assessing international market opportunities* - marketing research – International marketing management - planning and organization - Market entry strategies - export, joint ventures and direct investments.

Unit-IV:

Global product management - **standardisation vs. differentiation* - Product planning and development - Marketing industrial products and services globally - Pricing for international markets.

Unit-V:

Global logistics management -International distribution systems -**Global advertising and promotional strategies* - Sales management - Developing marketing strategies and programs for international markets.

* *SelfStudyPortion*

PatternforEndSemesterExamination

EndSemesterQuestions Pattern	TotalQuestions	ToAnswerQuestions	MarksPer Question	TotalMarks
Section–A	12	10	2	20
Section–B	7	5	7	35
Section–C	5	3	15	45
TotalMarks				100

ReferenceBooks:

1. RSrinivasan,InternationalMarketing,PHIPublishingHouse
2. RLVarshney&BBhattacharya, InternationalMarketingManagement, SChand
3. PhilipR.CateoraandJohnL.Graham,InternationalMarketing,McGraw-Hill10thEdn
4. MichealR.CzinkotaandIlkkaA.Ronkainen:GlobalMarketing,TheDrydenPress
5. Terpstra&Sarathy:InternationalMarketing,ThomsonPress.
6. DanielsandRaderbaugh:InternationalBusiness/Globalisation and Business, Prentice-HallIndia,

Note:Latesteditionofthebookstobereferred.

COREPAPERXI –AUDIT ANDASSURANCE

Semester	III
Subject	COREPAPERXI–AUDITANDASSURANCE
CourseCode	23/62310
MaximumMarks	CIA– 50 Marks ESE – 100Marks
Credits/InstructionalHours	4Credits /5Hours
ExamDuration	3Hours
L:P:T:S	5:0:0:0

COURSEOUTCOME

S.no	Objectives	K Level
1.	To understand concepts of audit and assurance.	K2
2.	To know about audit planning and risk assessment and audit documentation.	K2
3.	To understand internal control system assessment and concept of materiality.	K3
4.	To know about audit evidence and methods of collecting it.	K4
5.	To understand audit reporting and latest trend in auditing.	K4

Mapping Course Outcomes with Program Outcomes

CO	PROGRAM OUTCOME						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	3	3	3	3	3	3
CO2	2	3	3	3	2	3	3
CO3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	2	3	3	3	3	3	3

Mapping Course Outcomes with Program Specific Outcomes

CO	PROGRAM OUTCOME									
	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	2	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	2	3	3	3

Unit-I: Audit framework & regulation

Concept of audit & assurance – professional ethics of an auditor – scope of internal & external audit – governance & audit.

Unit-II: Audit planning & risk assessment

Obtaining & planning for audit assignments – understanding the entity & its environment – assessing audit risk – fraud risk – interim audit and impact of work performed – audit planning & documentation – audit evidence, documentation, working papers.

Unit-III: Internal control & audit tests

Internal control system assessment – control environment, risk assessment procedures, monitoring of controls – evaluation of internal control system by auditor – test of control – communication on internal controls, Application of concept of materiality and audit risk, Concept of internal audit.

Unit-IV: Audit evidence

Techniques of collecting audit evidence such as inspection, observation, external confirmation, recalculation, analytical procedures, and enquiry – quality & quantity of audit evidence – audit sampling – computer assisted auditing techniques – review procedures including subsequent events, going concern, written representations.

Unit-V: Audit Report

Audit Report – Characteristics – types of opinion – preparation of reports and certificates, disclosures, *Latest Trends in Auditing – Information System Audit.

* Self Study Portion

Pattern for End Semester Examination

End Semester Questions Pattern	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section-A	12	10	2	20
Section-B	7	5	7	35
Section-C	5	3	15	45
Total Marks				100

Reference Books:

1. Karon.L.Hooks, Auditing & Assurance Services, Wiley
2. Alvin A. Arens & Others, Auditing & Assurance Services,
3. Yumpu, Principles of Auditing
4. Sharma T.R., Auditing Principles & Problems, Sahitya Bhawan, Agra
5. Kamal Gupta and Ashok Arora, Fundamentals of Auditing, Tata McGraw Hill Publishing Company

Note: Latest edition of the books to be referred.

CORE PAPER XII – INTERNATIONAL TAXATION & TECHNOLOGY

Semester	III
Subject	CORE PAPER XII – INTERNATIONAL TAXATION & TECHNOLOGY
Course Code	23/62417
Maximum Marks	CIA – 50 Marks ESE – 100 Marks
Credits / Instructional Hours	4 Credits / 5 Hours
Exam Duration	3 Hours
L:P:T:S	5:0:0:0

COURSE OUTCOME

S.no	Objectives	K Level
1.	To understand basic taxation system in US and GAAP.	K2
2.	To learn about individual taxation and concepts relating to it.	K2
3.	To know about the property transaction and how tax is calculated.	K3
4.	To learn how to tax a partnership business.	K4
5.	To understand C & S corporation business and how to tax it.	K4

Mapping Course Outcomes with Program Outcomes

CO	PROGRAM OUTCOME						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	3	3	3	3	3	3
CO2	2	3	3	3	2	3	3
CO3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	2	3	3	3	3	3	3

Mapping Course Outcomes with Program Specific Outcomes

CO	PROGRAM OUTCOME									
	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	2	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	2	3	3	3

Unit-I:

Federal Tax legislative process- IRS – Jurisdiction – Tax System – Types of Tax Payers. Overview of

US

GAAP – comparison.

Accounting methods- Recognition– valuation– long term contracts -Tax election types – Authoritative hierarchy–
Commutations with clients.

Unit-II:

Individual Taxation-Concept– Filing Status and Exemptions- Gross income- Capital gains and losses- Inclusions and
Exclusions - Adjustment and Itemized deductions - Passive activity losses- Loss limitations – Savings and retirement
plan benefits

Tax computation and credits – Alternative minimum tax – Income recognition for Foreign
Nationals Simulations - Filing Forms and schedules – due dates – extension – tax calculation

Unit-III:

Property Transactions- Types of assets– basis and holding periods– depreciation, depletion and amortization–

Sale and exchange (Taxable and nontaxable)- gains and losses– Netting process– Related party transactions. Estate and Gift
taxation- Transfers - Annual exclusion and deductions - determination – deduction

– unified credit. Simulations- Filing Forms and schedules – due dates – extension – tax calculation

Unit-IV:

Partnerships- determination of income / losses- Basis of partner interest and assets contribution to partnership

- Election– Transaction between partner and partnership- Liability treatment– Distribution of assets –
change in ownership - liquidation - termination

Simulations- Preparation of Forms and schedules – due dates – extension – tax calculation

Unit-V:

CCORPORATION- Determination – computation - earnings and profits- AMT- losses treatment –

Entity transactions- contribution and distribution – Consolidation

SCORPORATION- Eligibility and election – income determination – losses – other stated items – basis
of shareholder's interest - Entity transactions- contribution and distribution – Built in gains tax

Simulations- Preparation of Forms and schedules – due dates – extension – tax calculation

* Self Study Portion

Pattern for End Semester Examination

End Semester Questions Pattern	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section-A	12	10	2	20
Section-B	7	5	7	35
Section-C	5	3	15	45
Total Marks				100

Reference Books:

1. Jeffrey Helewiz, A Guide to Federal Taxation
2. Robert Hissey, Practical Guide to US Taxation, Wolters Kluwer
3. US Tax Masters Guide, Wolters Kluwer

Note: Latest edition of the books to be referred.

Unit 1	Introduction to Operations Research (OR) - Meaning & scope - *Characteristics – models in OR – Linear Programming Problem – formulation – graphical method
Unit 2	Transportation model – Balanced and unbalanced transportation problem - minimization and maximization - basic feasible solution – formulation, Solving Transportation using North West Corner Rule, Least Cost Method – Vogel’s Approximation method – MODI Method
Unit 3	Assignment models: Balanced and Unbalanced - Minimization and Maximization - restricted assignment problem - travelling salesman problem Game Theory: Two persons zero sum games, the Maximin - Minimax Principle, Saddle point and Value of the games Pure Strategy and Mixed Strategies – Dominance - Graphical method.
Unit 4	Sequencing problem: Processing of n jobs through 2 machines - Processing of n job through 3 machines - Processing of n job through m machines - Processing of 2 jobs through m machines.
Unit 5	Network Analysis: Network diagrams, Critical Path Method, Concept of slack and floats on network, Algorithm for PERT and CPM - Calculations. (no crashing) (Simple Problems only)

Pattern for End Semester Examination

End Semester Questions Pattern	Theory	Practical Problems	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section - A	6	6	12	10	2	20
Section - B	2	5	7	5	7	35
Section - C	1	4	5	3	15	45
Total Marks						100

Reference Books:

1. Pannervelam R, Operations Research, Prentice Hall of India - New Delhi
2. S.C. Gupta and V.K. Kapoor, Operations Research, S. Chand & Co.
3. Hamdy A. Taha, Operation Research - An Introduction, Prentice Hall of India - New Delhi
4. P.K. Gupta & Man Mohan, Problems in Operations Research - Sultan Chand & Sons - New Delhi
5. SP Gupta, Statistical Methods, Sultan Chand Publishers.

Note: Latest edition of the books to be referred.

Mapping Course Outcomes with Program Specific Outcomes

CO	PROGRAM OUTCOME									
	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	2	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	2	3	3	3

UnitI:

Risk—meaning—types -riskmanagementprocess –riskidentification—evaluation—riskmanagementtechniques –significance of risk management function within business organizations.

UnitII:

Insurance-Definition-Purpose&needofInsurance-Insuranceasrisktransfer&risksharingmechanism-Benefits& Cost of insurance to society - Insurance as contract- Essential elements, Fundamental principles of insurance-Utmost good faith - Insurable Interest- Indemnity - Proximate cause – Subrogation - Mitigation of loss.

UnitIII:

LifeInsurance –Meaning,Characteristics, Principles -Typesof Policies in Life andGeneral Insurance.Premium – Meaning-Typesofpremium-Factorsfordeterminationofpremium-Mortalitytable-Nominationandassignments,Claims Management - types of documents needed in various types of claims –Life Insurance Agents & Advisors – Regulations of IRDA for Agents.

UNITIV:

General Insurance (Fire, Marine and Health) – Meaning, Characteristics, Principles - Types of Policies. - Types of premium-Factorsfordeterminationofpremium-ClaimsManagement-typesofdocumentsneededinvarioustypesof claims.

CompositeInsurance Agents&Advisors –RegulationsofIRDAforAgents.

UNITV:

Insurance Underwriting - need for insurance underwriting, factors that affect the activities performed by theunderwriter, steps involved in the process of insurance underwriting, Introduction to Actuarial Science - Role ofActuaries in risk management.

**SelfStudyPortion*

PatternforEndSemesterExamination

EndSemesterQuestions Pattern	TotalQuestions	ToAnswerQuestions	MarksPer Question	TotalMarks
Section–A	12	10	2	20
Section–B	7	5	7	35
Section–C	5	3	15	45
TotalMarks				100

ReferenceBooks:

1. M.N.Mishra,Insurance–PrinciplesandPractices– S.Chand&Co.
2. SenguptaMrinalChandra,InsuranceFinance,ProgressivePublishers,NewDelhi
3. A.Murthy,PrinciplesandPracticeofInsurance,Margham Publications
4. Dorfman,—IntroductiontoRiskManagementandInsurance,PrenticeHall
5. Williams,Heins,—RiskManagementandInsuranceI,TATAMcGrawHillPublishers

Note:Latesteditionofthebookstobereferred.

MappingCourseOutcomeswithProgramSpecificOutcomes

CO	PROGRAMOUTCOME									
	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	2	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	2	3	3	3

UNIT	CONTENTS OFTHEMODULE	CO
1	Investment – A Conceptual Framework, Investment Process, Risks and Returns in Investment and Investment Management, Investment Environment, Financial Markets, Money Market and Capital Market Instruments and Financial Derivatives. The Relationship Between Risk and Return, Recent Developments in Stock Market	1
2	Fundamental Analysis, Economy Analysis, Industry Analysis and Company Analysis – SWOT Analysis, Technical Analysis and its Tools, Types of Charts, Price Patterns and Technical Indicators, Efficient Market Hypothesis and its Implications for Security Analysis and Portfolio Management	2
3	Behavioral Finance, Meaning of Behavioral Finance - Deals with When, How and Why Psychology Influences Investment Decisions, Valuation of Bonds and Shares, Elements of Investment, Features of Bonds, Call Provisions on Corporate Bonds, and Convertible Bonds, Valuation of Bonds	3
4	Concept of Portfolio and Portfolio Management - Types of Portfolio Management, Returns of Portfolio and Alternative Measures of Risk, Portfolio Selection, Portfolio Revision and Evaluation Portfolio Diversification, Markowitz Portfolio Selection Model, Concept of Portfolio Analysis and Diversification of Risk, Asset Classes, Asset Allocation Techniques, Asset Selection, International Portfolio Investments, Investment Avenues for Foreign Portfolio Investors.	4
5	Capital Asset Pricing Model (CAPM) – Assumptions, Sharpe - The Single Index Model, Treynor's and Jensen's Measure for Portfolios Performance, Lagrange Multiplier Theory, Factor Models and Arbitrage Pricing Theory, Comparison of Arbitrage Pricing Theory with the Capital Asset Pricing Model, Capital Market Line (CML) and Security Market Line (SML) – Evaluation of securities	5

End Semester Questions Pattern	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section–A	10	10	2	20
Section–B	10	5	7	35
Section–C	5	3	15	45
TotalMarks				100

*Equalweightagetobegiven toallthe5 units

WeightagebasedonBloom’sTaxonomy(forEndSemester Examinations–ESE)

Remember	Understand	Apply	Analyze	Evaluate	Create
20 %	35%	20%	15%	10%	-

TextBooks:

1. InvestmentAnalysisandPortfolioManagementbyPrasannaChandra
2. InvestmentsbyZviBodie,AlexKane,AlanMarcusandPitabasMohanty
3. SecurityAnalysisandPortfolioManagementbyDonaldFisher andRonaldJordan

ReferenceBooks:

1. InvestmentManagementbyDr.L.Natarajan,MarghamPublications
2. InvestmentAnalysis andPortfolioManagementbyReillyandBrown,CengageLearning,IndiaEd.

Note:Latest editionof thebooksto be referred.

CORE PAPER XVI-FINANCIAL MANAGEMENT

Semester	V
Subject	CORE PAPER XVI- FINANCIAL MANAGEMENT
Course Code	21-23/62522
Maximum Marks	CIA-50 Marks ESE-100 Marks
Credits/Instructional Hours	4 Credits/ 5 Hours
Exam Duration	3 Hours
L:P:T:S	5:0:0:0

Course Outcome: At the end of the course, the student will be able to:

SNo.	Objectives	KLevel
1	Set financial objective of a business organization.	K4
2	Explain what are the elements and composition of the working capital.	K4
3	Analyze the types of investment projects such as mutually exclusive projects and independent projects.	K4
4	Demonstrate the models of financial management.	K5
5	Study the financial risk management and factors affecting it.	K5

Mapping Course Outcomes with Program Outcomes

CO	PROGRAM OUTCOME						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	3	3	2	3	3	3

CO2	3	2	3	3	3	2	3
CO3	3	3	2	3	3	2	3
CO4	3	3	3	3	3	3	3
CO5	3	3	3	3	2	2	3

Mapping Course Outcomes with Program Specific Outcomes

CO	PROGRAM SPECIFIC OUTCOME									
	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
CO1	3	3	2	3	3	3	3	3	3	3
CO2	3	3	3	3	3	2	3	3	3	3
CO3	3	3	2	3	3	3	2	2	2	3
CO4	3	3	3	2	3	3	3	3	3	2
CO5	3	3	3	3	3	2	3	3	3	3

Unit- I:

Financial objective of a business organisation – shareholder value maximisation v/s profit maximisation, growth in earning per share, total shareholder return – possible conflict between stakeholder objectives and balancing them – linkage of financial objective with corporate strategy – financial & other objectives of a not-for-profit organisation. Macroeconomic environment of the business – role & impact of fiscal & monetary policies, interest rate & exchange rate policies – competition policies.

Unit- II:

Elements and composition of working capital – objective of working capital management through balancing of profitability v/s liquidity – cash operating cycle, factors influencing it and computation thereof – management of inventory through EOQ, inventory levels, availing bulk discounts, early payment discounts and Just-In-Time (JIT) techniques – management of receivables through credit policy, early settlement discounts, extending credit period, factoring & invoice discounting – managing accounts payable through bulk discounts, early payment discounts – managing cash using Baumol’s model and Millar-Orr model – working capital financing strategies

Unit - III:

Types of investment projects such as mutually exclusive projects & independent projects – Use of discounted cash flow (DCF) and non-DCF tools for investment appraisal – payback period & discounted payback – Return on Capital Employed (ROCE) – Net Present Value (NPV) and Internal rate of Return (IRR) – relative merits & demerits of these methods – project risk assessment through sensitivity analysis – lease v/s buy decision – replacement cycle decision – single period capital rationing – risk adjusted discount rates.

Unit- IV:

Models of Financial Management – Estimating cost of equity using dividend growth model (DGM), Capital Asset Pricing Model (CAPM), concept of systematic & unsystematic risk – estimating cost of debt (irredeemable & redeemable), convertible debt – estimating Weighted Average Cost of Capital (WACC) using book value and market value weightages – capital structure theories including traditional view and Modigliani-Millar view (without & with tax) – pecking order theory.

Unit- V:

Financial Risk Management - Sources of & factors influencing Foreign currency risks – types of currency risks such as transaction risk, translation risk, & economic risks – causes of currency rate fluctuations including balance of payments, purchasing power parity (PPP), interest rate parity (IRP), Fisher equation – tools of managing currency risks such as internal tools (currency of invoice, netting, leading & lagging) and external tools (forwards, futures, options & swaps, money market hedging) – Causes of interest rate fluctuations – managing interest rate risks through internal tools (matching and smoothing, asset & liability management, forward rate agreements (FRA)).

** Self Study Portion*

End Semester Questions Pattern	Theory	Practical Problems	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section-A	10	2	12	10	2	20
Section-B	5	2	7	5	7	35
Section-C	4	1	5	3	15	45
Total Marks						100

Reference Books:

1. A Murthy, Financial Management, Margham Publications.
2. M. Y. Khan and P. K. Jain – Basic Financial Management, TATA Mc Graw Hill Publications
3. I. M. Pandey financial management, Vikas Publications
4. Paul D. Kimmel, Jerry J. Weygandt, Financial Accounting: Tools for Business Decision Making, Wiley
5. Thomas J. O'Brien, Applied International Finance: Managing Foreign Exchange Risk and International Capital Budgeting, Business Expert Press.

Note: Latest edition of the book to be referred.

CO3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	2	3	3	3	3	3	3

Mapping Course Outcomes with Program Specific Outcomes

CO	PROGRAM OUTCOME									
	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	2	3	3
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	2	3	3	3

UnitI:

Basics of Project Management: Introduction, Need for Project Management, Project Management Knowledge Areas and Processes, The Project Life Cycle, The Project Manager (PM), **Phases of Project Management Life Cycle*, Project Management Processes, Impact of Delays in Project Completions, Essentials of Project Management Philosophy, Project Management Principles.

UnitII:

Project Identification, Selection and Planning: Introduction, Project Identification Process, Project Initiation, Pre-Feasibility Study, Feasibility Studies, **Project Break-even point*, Project Planning, Need of Project Planning, Project Planning Process, Work Breakdown Structure (WBS).

UnitIII:

Organizational Structure and Organizational Issues: Introduction, Concept of Organizational Structure, Roles and Responsibilities of Project Leader, **Relationship between Project Manager and Line Manager*, Leadership Styles for Project Managers, Conflict Resolution, Team Management and Diversity Management, Change management.

UnitIV:

Project Quality Management and Value Engineering and IS: Introduction, Quality, Quality Concepts, Value Engineering **Project Management Information System (PMIS)-importance*, Planning of PMIS, Design of PMIS.

UnitV:

Project Performance

Measurement and Evaluation: Introduction, **Performance Measurement*, Productivity, Project Performance Evaluation, Benefits and Challenges of Performance Measurement and Evaluation, Controlling the Projects.

* Self Study Portion

Pattern for End Semester Examination

End Semester Questions Pattern	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section-A	12	10	2	20
Section-B	7	5	7	35
Section-C	5	3	15	45
Total Marks				100

Reference Books:

1. A Guide to the Project Management Body of Knowledge: PMBOK® Guide
2. Gregory Horine, Project Management Absolute Beginner's Guide
3. Harold Kerzner, Project Management: A Systems Approach to Planning, Scheduling, and Controlling
4. Paul Roberts, Guide to Project Management: Getting it right and achieving lasting benefit
5. Stephen Barker and Rob Cole, Brilliant Project Management: What the best project managers know

Note: Latest edition of the books to be referred.

COREPAPERXVII-MANAGEMENTACCOUNTING

Semester	VI
Subject	COREPAPERXVII-MANAGEMENTACCOUNTING
CourseCode	23/62416
MaximumMarks	CIA – 40 Marks ESE– 100Marks
Credits/InstructionalHours	4Credits /75Hours
ExamDuration	3Hours
L:P:T:S	5:0:0:0

CourseOutcomes:AttheendoftheCourse,theStudentwillbeableto:

CO1	Understandingthescopeandimportanceoffinancialmanagement.	K1
CO2	Understanding CVPanalysis andbreakevenanalysis.	K2
CO3	Learnaboutbudgetarycontrolandstandardcosting.	K2,K3
CO4	Understandingperformanceanalysisanddecisionmaking.	K2
CO5	Tolookatthedivisionalperformanceand accountingforenvironmentcost.	K3

MappingCourseOutcomeswithProgramOutcomes

CO	PROGRAMOUTCOME						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	3	3	3	2	3	3
CO2	3	3	3	3	2	3	3
CO3	3	3	3	3	2	3	3

CO4	3	3	3	3	2	3	3
CO5	3	3	3	3	2	3	3

Mapping of Course Outcome to Program Specific Outcomes:

CO	PROGRAM SPECIFIC OUTCOMES									
	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10
CO1	3	3	3	3	2	3	3	3	2	3
CO2	3	3	3	3	2	3	3	3	2	3
CO3	3	3	3	3	2	3	3	3	2	3
CO4	3	3	3	3	2	3	3	3	2	3

Unit-I: SCOPE AND IMPORTANCE

Management accounting - meaning, nature scope and functions, need, importance and limitations- *management accounting vs cost accounting. Management accounting vs financial accounting.* Analysis and interpretation of financial statements - nature, objectives, essentials and tools. Methods- comparative statements, common size statement and trend analysis.

Unit - II: CVP ANALYSIS

Marginal costing- Break even analysis- Marginal Costing Vs Absorption costing- CVP Analysis- Decision making Areas - sales mix, Product mix, key factor, Merging of plant, make or Buy Decisions, acceptance of foreign orders, discontinuance of product line.

Unit- III: BUDGETARY CONTROL AND STANDARD COSTING

Budgetary systems in an organisation such as top-bottom, bottom-up, rolling, zero based, activity based, incremental budgets - preparation of flexible budgets - beyond budgeting model - employee participation in budgetary system - quantitative analysis using high-low method, applying learning curve model - advanced variance analysis with the help of material mix & yield variances, sales mix & quantity variances, planning & operational variances - performance analysis with variances.

Unit- IV: PERFORMANCE ANALYSIS

Understand & apply financial & non-financial performance indicators (KPIs) - using Norton's Balanced Scorecard model and Fitzgerald & Moon's Building Block model for performance measurement - using Value-for-money approach for not-for-profit organisations - economy, efficiency & effectiveness approach. Understand & apply the concept of relevant costs - determination of relevance with regard to a contextual decision - opportunity costs - cost-volume-profit (CVP) relationship - calculate & interpret break-even point and margin of safety - estimation of target profit in single & multi-product scenario - resource optimisation in light of limiting factors - single or multiple factors - make or buy decisions

Unit - V: DIVISIONAL PERFORMANCE

Mechanism for evaluating the performance of a business division and the divisional managers - tools such as Return on Investment (ROI), Residual Income (RI) - impact of transfer pricing on divisional performance - methods of setting transfer prices. Lifecycle costing - costs involved at different stages of life cycle - benefits & application of life cycle costing; Throughput accounting - theory of constraints - calculation & interpretation of Throughput Accounting Ratio (TPAR) - application in a multi-product entity; and environmental accounting - management of environmental costs - accounting for environment costs.

* Self Study Portion

Pattern for End Semester Examination

End Semester Questions Pattern	Theory	Practical Problems	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section-A	10	2	12	10	2	20
Section-B	5	2	7	5	7	35
Section-C	3	2	5	3	15	45
Total Marks						100

Reference Books:

1. Dr A Murthy and Dr S Gurusamy, Management Accounting, Tata McGraw Hill/Vijay Nicole Publishers
2. SN Maheswari, Management Accounting - Sultan Chand Publications
3. NPSrinivasan, Management Accounting, New Age Publishers
4. RSN Pillai & Bagavati, Management Accounting - S Chand & Co Ltd - New Delhi.
5. Horngren, Under Stratton, Introduction to Management Accounting - Pearson Education.

Note: Latest edition of the books to be referred.

MappingCourseOutcomeswithProgramOutcomes

CO	PROGRAMOUTCOME						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	3	3	3	2	3	3
CO2	3	3	3	3	2	3	3
CO3	3	3	3	3	2	3	3
CO4	3	3	3	3	2	3	3
CO5	3	3	3	3	2	3	3

MappingofCourseOutcomes toProgramOutcome:

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
CO1	3	3	2	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	2	3	3	3	3	2
CO4	3	3	3	3	3	3	3	3	2	2
CO5	3	3	3	3	3	3	3	3	3	3

UnitI:

FinancialServices-AnOverview-functions-financialservicesmarket-creditcards-concept-features, facilitiesand services - benefits and drawbacks – Credit card frauds – Credit Information Bureau (CIB) – **Debit Cards: Concept and mechanism – dangers and precautions in the use of debit cards.*

UnitII:

Credit rating – features and advantages – major issues – **credit rating agencies* – regulatory framework – major factors in credit rating – equity rating –

Commercial Bill Financing – meaning of commercial bills – features and advantages of commercial bill financing – precautions by a banker – steps in discounting and purchasing of bill.

Consumer finance - meaning – types – pricing of consumer finance – marketing of consumer finance – consumer credit scoring.

UnitIII:

Factoring - definition – mechanism – characteristics – types – advantages and disadvantages – players in factoring services – functions of a factor – factoring costs – factoring Vs bills discounting – cost-benefit analysis of factoring – Forfeiting (An Overview)

Leasing - Concept – characteristics – types – financial lease Vs Operating lease – tests for financial lease - leasing process – services of a lessor – advantages – limitations – Sale and Lease back – concepts – tax implications.

Unit-IV:

Merchant banking - definition – functions – code of conduct – regulatory framework.

Mutual funds - definition – products and schemes - working mechanism of mutual funds – regulatory structure of mutual funds in India - Asset Management Company (AMC) – SEBI requirements on AMC – functions of AMC – Association of Mutual Funds of India (AMFI).

Unit-V:

Securitisation - definition – pass through certificates – features – need – mechanism – purposes – asset characteristics – application – benefits – economic functions – limitations – Securitization as a risk management tool. **Book –building** - concept – characteristics – process – allocation procedure .

* Self Study Portion

Pattern for End Semester Examination

End Semester Questions Pattern	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section-A	12	10	2	20
Section-B	7	5	7	35
Section-C	5	3	15	45
Total Marks				100

ReferenceBooks:

1. GURUSAMY.SFinancialservices/MerchantBankingand Financial Services,TataMcGrawHill
2. KhanMYFinancialServices,TataMcGrawHill
3. Kothari,Vinod Leasefinancing&HirePurchaseincludingconsumercredit,Wadhwaandcompany
4. B.Santhanam,FinancialServices,MarghamPublications,Chennai
5. EGordon&KNatarajan, FinancialMarkets&Services,HimalayaPublishing House

Note:Latesteditionofthebookstobereferred.

UNIVERSITY OF MADRAS
BACHELOR OF COMMERCE DEGREE COURSE IN
MARKETING MANAGEMENT
Faculty of Commerce
 Choice Based Credit System (W.E.F.2022-2023)
DWARAKA DOSS GOVERDHAN DOSS VAISHNAV
COLLEGE (AUTONOMOUS)
SHIFT-II Regulations
 (As per Common Regulations framed by University of Madras)

Semester	I
Subject	CORE II – BUSINESS ECONOMICS
Maximum Marks	CIA- 40 Marks ESE-60 Marks
Credits/ Instruction Hours	4 Credits / 5 Hours(per week)
Exam Duration	3 Hours

Objectives

1. To facilitate the understanding of the relevance and need of the Economics in the Current Scenario.
2. To customize the importance of Business Economics and its relevance in market conditions.

Unit- I:

Introduction to Economics – Wealth, Welfare, Scarcity and Growth Views on Economics – ***Positive and Normative Economics – Scope and Importance of Managerial Economics**- Economic approach, Circular flow of activity, Nature of the firm, Forms of organizations, Objectives of firms.
 Concepts: Production possibility frontiers – Opportunity Cost – Accounting Profit and Economic Profit – Incremental and Marginal Concepts.

Unit-II:

Demand Function – Meaning of Demand – Determinants and Distinctions of demand – Law of Demand – Slope & Elasticity of Demand – Shifts in the demand curve vs. movement along the demand curve - ***Demand Forecasting. Supply Function** – Meaning of Supply – Determinants of Supply – Law of Supply – Slope & Elasticity of Supply – shifts in the supply curve Vs. movement along the supply curve - Concept of Equilibrium.

Unit-III:

Consumer Behaviour - Indifference Curve – Definition, Properties and equilibrium - Law of Diminishing Marginal utility – Equi-marginal utility – Consumer surplus and producer surplus
Production Function - Factors of Production: Law of Variable proportion – Laws of Returns to Scale – Costs of production -total cost, fixed cost, variable cost, average cost, marginal cost, short run and long run costs- Producer's equilibrium – Economies of scale - Break Even Analysis.

Unit-IV:

Product pricing: price and output determination under perfect competition - profit maximization, monopoly- price discrimination, monopolistic competition, oligopoly- collusion and cartels- ***pricing objectives and methods.**

Unit-V:

Introduction to National Income Accounts – Models of National Income Determination – Economic Indicators; Technology and Employment – **Issues and Challenges*.
** Self Study Portion*

Pattern for End Semester Examination

End Semester Questions Pattern	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section – A	12	10	2	20
Section – B	7	5	7	35
Section – C	5	3	15	45
Total Marks				100

Reference books:

1. P.L. Mehta, Managerial Economics- analysis, problems and cases – Sultan Chand Publishers, New Delhi.
2. C.M Chaundhary, business economics- RBSA Publishers, Jaipur
3. H.L. AHUJA, business economics, Sultan Chand Publishers, New Delhi
4. Maddala, G.S., and E. Miller. Microeconomics: Theory and Applications. McGraw- Hill International Ed.
5. Gupta G S, Managerial Economics- TATA Mc Graw Hill International

Semester	I
Subject	ALLIED I – BUSINESS COMMUNICATION
Maximum Marks	CIA- 40 Marks ESE-60 Marks
Credits/ Instruction Hours	4 Credits / 5 Hours(per week)
Exam Duration	3 Hours

Objectives

1. To facilitate the students to understand the concept of Communication.
2. To know the Basic Techniques of the Modern forms of Communication.

Unit-I:

Introduction to Communication- Meaning and Definition - Process - Functions - **Objectives - Importance* - Essentials of effective communication - Communication barriers - Overcoming communication barriers, Interactive Communication and the role of communication in the job of marketing & sales personnel.

Unit-II:

** Types of Communication -Written - Oral - Face-to-face - Silence - Merits and limitations* – modern methods of communication- E-Mail, Video Conferencing – **Social Corporate Networking*. Business etiquette, Effective communication and convincing customers- Persuasive Communication & Handling Negativity; Presentations to Hostile Audience –Negotiating Skills.

Unit-III:

Business Letters - Need and functions of business letters - Planning & layout of business letter - Kinds of business letters - Drafting of business letters - Enquiries and replies - Sales letters.

Unit-IV:

Market positioning in communication – Pillars of Marketing Communication [Mar.Com] – the Product, the benefit, the effect and the motivation – **Objectives of the Mar.Com Cycle*, marketing surveys- analysis and report writing (an Overview)

Unit-V:

Application of Communication Skills - Group Decision-Making - Presentation - Speeches – CustomerCare/Customers Relations - Public Relations

** Self Study Portion*

Pattern for End Semester Examination

End Semester Questions Pattern	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section – A	12	10	2	20
Section – B	7	5	7	35
Section – C	5	3	15	45
Total Marks				100

Reference books:

Rajendra Pal, Essentials of Business Communication, Sultan Chand Publishers, New Delhi

1. N. S . Raghunathan & B. Santhanam, Business Communication, Margham Publications, Chennai
2. R. C. Bhatia, Business Communication, Ane Books Pvt Ltd, New Delhi
3. Munter, Mary. Guide to Managerial Communication: Effective Business Writing and Speaking, PrenticeHall,
4. Kaul Asha., Effective Business Communication, Prentice Hall of India

Semester	II
Subject	CORE IV – MARKETING MANAGEMENT
Maximum Marks	CIA- 40 Marks ESE-60 Marks
Credits/ Instruction Hours	4 Credits / 5 Hours(per week)
Exam Duration	3 Hours

Objectives

1. To expose the students to the World of Marketing
2. To make the students understand the Functions of Marketing.

Unit – I:

Marketing Management – an Overview of basic concepts of market and marketing management - **what is marketing? - Responsibilities of Marketing Management* - Marketing Strategy Planning - Managing a Marketing Program - The Environment of Marketing - Analyzing Market Opportunities - Environmental Scanning - Differences between Micro and Macro Environment - Marketing Mix-The Traditional 4P's – the modern 7P's.

Unit – II:

Market Targeting - Buyer Behavior: Consumers and Industrial Buyer - Market Segmentation, Targeting and Positioning - **New Product Planning* – Marketing Strategies with reference to Product Life Cycle and Competitive Strategies.

Unit – III:

Marketing Mix Decisions - Product decisions- Differentiation, Branding, New product decisions - Pricing decisions
- Marketing Channel and distribution strategy, sales force management decisions - Marketing Communications: Advertising and sales promotion decisions- ** role of Indian Advertising Standards Council*

Unit – IV:

Distribution - Channels of distribution - meaning and importance; Types of distribution channels; **Wholesaling and retailing* - Factors affecting choice of distribution channel.
Marketing organization - Marketing Control - Marketing Research and the Marketing Information System.

Unit – V:

Marketing of Services - International Marketing - Non-Business Marketing – Rural Marketing - Marketing in the Contemporary Environment, **Recent issues and developments in marketing* - Social Marketing - online marketing, green marketing, sustainable marketing and relationship marketing.
** Self Study Portion*

Pattern for End Semester Examination

End Semester Questions Pattern	Total Questions	To Answer Questions	Marks Per Question	Total Marks
Section – A	12	10	2	20
Section – B	7	5	7	35
Section – C	5	3	15	45
Total Marks				100

Reference Books:

1. C B Gupta & Dr. Rajan Nair –Marketing Management, Sultan Chand Publishers, New Delhi
2. William J Stanton – Marketing, Prentice- Hall of India, Economy Edition
3. Philip Kotler – Principles of Marketing, Prentice- Hall of India, Eastern Economy Edition
4. Majaro, Simon. The Essence of Marketing. Prentice Hall, New Delhi.
5. J Jayasankar, Marketing, Margham Publications, Chennai

Course Code & Title: 2264205 & Computational statistics with excel
Course Type: Core

Semester: II
Credits: 3

Course objectives:

The course aims to provide data handling experience using MS- Excel

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	To understand the importance of excel application.
CO2	To Study the basic features and features for data analytics of excel.
CO3	To create formulae and use existing functions in excel.
CO4	To acquire knowledge on data entry and manipulate data in excel sheet.
CO5	Can perform data preprocessing and data analytics with the acquired statistical knowledge.

Course Code & Title : 2264311 & C- Programming Language Semester : III
Course Type : Allied Credits : 3

Course objectives:

To impart the knowledge of big data using c programming and mean and variance using C program
To obtain the knowledge of Pointer expressions and learn the statements of C language.

Course Outcomes: At the end of the Course, the Student will be able to

CO1	To know the basic concepts, data types and operators of C.
CO2	To know the concepts of control structure, looping and functions.
CO3	To know the concept of arrays, strings and pointers.
CO4	To know the concept of standard input and output functions.
CO5	To know the concept of file processing.

Course Code & Title : 206452(B) & Statistical Applications with R-Programming Semester: V
Course Type : Elective Credits: 5

Course objectives:

To make understand the student about basics of R programming language, latest analytics Tool
Understand the concept of data analysis, existing functions in R and z test, t-test, F- test, chi-square test

Elective Paper I

Course Outcomes: At the end of the Course, the Student will be able to

CO1	Basics of R programming language.
CO2	To know the concept of diagrams and measures of central tendency.
CO3	To know the concept of measures of dispersion, skewness and kurtosis.
CO4	To create formulae for correlation and regression use R.
CO5	Understand the concept of One- and two-sample tests, z test, t-test, F- test, chi-square test of independence and goodness of fit

S Sundarbalan

Signature of the HOD

Signature of the Principal

UNIVERSITY OF MADRAS

**Dwaraka Doss Goverdhan Doss Vaishnav College [Autonomous]
Shift – II**

FACULTY OF COMMERCE

BACHELOR OF COMMERCE IN COMPUTER APPLICATIONS

**CHOICE BASED CREDIT SYSTEM (CBCS) WITH GRADING
SEMESTER SYSTEM WITH CREDITS**

**B.Com[Computer Applications]
(Effective from the Academic year 2022-23)**

Semester	I	
Subject	CORE II – OFFICE AUTOMATION – THEORY & PRACTICALS	
Maximum Marks	CIA- 40 Marks	ESE- 60 Marks
Credits/ Instruction Hours	4 Credits / 75 Hours	
Exam Duration	3 Hours	

OBJECTIVES:

- The major objective in introducing the Computer Skills course is to impart training for students in Microsoft Office which has different components like MS Word, MS Excel and Power point.
- The course is highly practice oriented rather than regular class room teaching.
- To acquire knowledge on editor, spread sheet and presentation software.

OUTCOMES:

- Understand the basics of computer systems and its components.
- Understand and apply the basic concepts of a word processing package.
- Understand and apply the basic concepts of electronic spreadsheet software.
- Understand and apply the basic concepts of database management system.
- Understand and create a presentation using PowerPoint tool.

UNIT – I

Introductory concepts: Memory unit – CPU-Input Devices: Key board, Mouse and Scanner. Output devices: Monitor, Printer. Introduction to Operating systems & its features: DOS – UNIX– Windows. Introduction to Programming Languages.

UNIT – II

Word Processing: Open, Save and close word document; Editing text – tools, formatting, bullets; Spell Checker - Document formatting – Paragraph alignment, indentation, headers and footers, numbering; printing – Preview, options, merge.

UNIT – III

Spreadsheets: Excel – opening, entering text and data, formatting, navigating; Formulas – entering, handling and copying; Charts – creating, formatting and printing, analysis tables, preparation of financial statements, introduction to data analytics.

UNIT – IV

Database Concepts: The concept of data base management system; Data field, records, and files, Sorting and indexing data; Searching records. Designing queries, and reports; Linking of data files; Understanding Programming environment in DBMS; Developing menu drive applications

in query language (MS – Access).

UNIT – V

Power point: Introduction to Power point - Features – Understanding slide typesetting & viewing slides – creating slide shows. Applying special object – including objects & pictures – Slide transition – Animation effects, audio inclusion, timers.

TEXT BOOK:

1. Peter Norton, “Introduction to Computers” –Tata McGraw-Hill.

REFERENCE BOOK:

1. Jennifer Ackerman Kettel, Guy Hat-Davis, Curt Simmons, “Microsoft 2003”, Tata McGraw-Hill.

OFFICE AUTOMATION PRACTICALS - (3 HRS)

MS-WORD

1. Text Manipulation: Write a paragraph about your institution and Change the font size and type, Spell check, Aligning and justification of Text
2. Bio data: Prepare a Bio-data using template
3. Find and Replace: Write a paragraph about yourself and do the following. Find and Replace
4. Use Numbering Bullets, Footer and Headers.
5. Tables and manipulation: Creation, Insertion, Deletion (Columns and Rows). Create a mark sheet.
6. Mail Merge: Prepare an invitation to invite your friends to your birthday party. Prepare at least five letters.

MS-EXCEL

1. Data sorting-Ascending and Descending (both numbers and alphabets)
2. Mark list preparation for a student
3. Individual Pay Bill preparation.
4. Invoice Report preparation.
5. Drawing Graphs. Take your own table.
6. Creation of Balance Sheet

MS-ACCESS

1. Create a database using Students Mark details.
2. Perform the Sort operation using the student database.
3. Create a database using Employee details and generate a Form to get the input for the table.
4. Create a database using Library Information System with appropriate fields and generate a report to display the availability of books in the library.

MS-POWERPOINT

1. Create a slide show presentation for a seminar.
2. Preparation of Organization Charts
3. Create a slide show presentation to display percentage of marks in each semester for all students
4. Use bar chart (X-axis: Semester, Y-axis: % marks).
5. Use different presentation template different transition effect for each slide.

INTERNET

1. WWW (Browsing)
2. E-mail

Semester	II	
Subject	CORE IV – PYTHON PROGRAMMING THEORY AND PRACTICAL	
Maximum Marks	CIA- 40 Marks	ESE- 60 Marks
Credits/ Instruction Hours	4 Credits / 75 Hours	
Exam Duration	3 Hours	

Course Objectives

- To introduce the basic features of python programming and impart skills in an Industry standard programming language
- Understand fundamental programming concepts of Python programming and its Libraries
- Create advanced programming features in Python to solve industry standard problems

UNIT - I

Computer systems – Python Programming Language Computational Thinking – Python Data Types: Expressions, Operator, Variables, and Assignments – Strings – Lists – Objects & Classes – Python standard library.

UNIT - II

Imperative programming: Python modules – Built-in-function: print() function –eval() function – user-defined function & assignments -parameter passing.

UNIT - III

Text Data, Files & Exceptions: Strings, revisited – formatted output – files – errors & Exceptions – Execution control Structures: decision control & the IF statement

UNIT - IV

For LOOP & Iteration Patterns – two-dimensional list- while loop – more loop patterns – additional iteration control statements – Container and Randomness: Dictionaries – other built-in container types – character encodings & strings – module random.

UNIT - V

Namespaces – encapsulation in functions – global vs local namespaces exceptional flow control – modules as namespaces.

RECOMMENDED BOOKS

1. Michael Dawson – Python Programming for The Absolute Beginner –Cengage ,New Delhi.Kenneth A. Lambert – Fundamentals of Python First Programs - Cengage ,New Delhi
2. Ch Satyanarayana, M Radhika Mani, BN Jagadesh - Python Programming- Cengage, New Delhi

Reference Books

1. Ljubomir Periodic, “Introduction to Computing Using Python: An Application Development Focus”, John Wiley & Sons,2012
2. Shymala Devi, Python Programming, Vijay Nicole Imprints, Chennai
3. Sheetal Taneja & Naveen kumar, Python Programming a Modular approach – A Modular approach with Graphics, Database, Mobile and Web applications, Pearson, 2017.
4. Martin C. Brown, Python: The Complete Reference, Osborne/McHraw Hill, 2001.
5. Wesley J. Chun, “Core Python Programming”, Pearson Education, Second Edition, 2007.

PYTHON PROGRAMMING PRACTICALS

Objectives:

- To implement the python programming features in practical applications.
- To write, test, and debug simple Python programs.

- To implement Python programs with conditionals and loops.
- Use functions for structuring Python programs.
- Represent compound data using Python lists, tuples, dictionaries and modules.

LIST OF EXERCISES:

1. Program to convert the given temperature from Fahrenheit to Celsius and vice versa depending upon user's choice.
2. Program to calculate total marks, percentage and grade of a student. Marks obtained in each of the five subjects are to be input by user. Assign grades according to the following criteria:
Grade A: Percentage ≥ 80 Grade B: Percentage ≥ 70 and < 80 Grade C: Percentage ≥ 60 and < 70 Grade D: Percentage ≥ 40 and < 60 Grade E: Percentage < 40
3. Program, using user-defined function to find the area of rectangle, square, circle and triangle by accepting suitable input parameters from user.
4. Program to display the first n terms of Fibonacci series.
5. Program to find factorial of the given number.
6. Write a Python program to count the number of even and odd numbers from N numbers.
7. Python function that accepts a string and calculate the number of upper case letters and lower case letters.
8. Python program to reverse a given string and check whether the give string palindrome or not.
9. Write a program to find sum of all items in a dictionary.
10. Write a Python program to construct the following pattern, using a nested loop 1 22

```
333
4444
55555
666666
7777777
88888888
999999999
```

11. Simple analysis listing

PROGRAMME
OUTCOME &
PROGRAMME
SPECIFIC
OUTCOME



DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE

(AUTONOMOUS)

Re-accredited with “A++” by NAAC

College with Potential for Excellence, Linguistic Minority Institution

Affiliated to University of Madras

Arumbakkam, Chennai – 600 106

PROGRAM OUTCOMES

PROGRAM CODE – 01 – BA ECONOMICS

On successful completion of the programme the students will be able

PO1	To participate in various types of employment, development activities and public discourses particularly in response to the needs of the community one serves
PO2	To understand the need and have the competencies to support local, regional and national development
PO3	To develop critical and analytical thinking
PO4	To develop conceptual understanding, problem solving and application of skills
PO5 PO5	To provoke entrepreneurship among the students along with strong ethics and communication skills
PO6	To develop a questioning mind in diverse environments for better outcomes
PO7	To engage in lifelong learning and enduring proficient progress



**DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE
(AUTONOMOUS)**

**Re-accredited with “A++” by NAAC
College with Potential for Excellence, Linguistic Minority Institution
Affiliated to University of Madras
Arumbakkam, Chennai – 600 106**

PROGRAM SPECIFIC OUTCOMES

PROGRAM CODE – 01 – BA ECONOMICS

On successful completion of the programme the students will be able

PSO1 - To identify, understand and describe the various economic issues internally and internationally.

PSO2 - To explain and apply the underlying principles for economic decisions and policies at the micro and macro level.

PSO3 - To synthesize the functioning of the economic ecosystem.

PSO4 - To compare theories of various economic schools of thought and apprise their application to real world phenomenon.

PSO5 - To understand and analyze the potential and limits of various economic policies.

PSO6- To pursue a master's programme in Economics or a master's in an interdisciplinary subject like management or a professional Programme like CA, ACS.

PSO7- To obtain employment in the banking, financial services, insurance and HRM sectors.



**DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE
(AUTONOMOUS)**

**Re-accredited with “A++” by NAAC
College with Potential for Excellence, Linguistic Minority Institution
Affiliated to University of Madras
Arumbakkam, Chennai – 600 106**

Programme Name -BA Economics

Programme Code - 01

PO of Courses Relevant to Local ,Regional, National and Global Needs

1 ENTREPRENEURIAL DEVELOPMENT

2) MARKETING

3) ELEMENTS OF INSURANCE

4) FISCAL ECONOMICS - I

5) INTERNATIONAL ECONOMICS – I

6) INTERNATIONAL ECONOMICS – II

7) MONETARY ECONOMICS – I

8) INDIAN ECONOMY

9) MONETARY ECONOMICS – II

PROGRAMME OUTCOME FOR THE UNDERGRADUATE PROGRAM IN ECONOMICS (POs)

At the end of the program student will be able to:-

PO1	To participate in various types of employment, development activities and public discourses particularly in response to the needs of the community one serves
PO2	To understand the need and have the competencies to support local, regional and national development
PO3	To develop critical and analytical thinking
PO4	To develop conceptual understanding , problem solving and application of skills
PO5	To provoke entrepreneurship among the students along with strong ethics and communication skills
PO6	To develop a questioning mind in diverse environments for better outcomes
PO7	To engage in lifelong learning and enduring proficient progress

Program Outcomes

PO1 - Disciplinary knowledge: Provides a comprehensive knowledge and capable of demonstrating it the field of management and apply the in-depth knowledge in their field of specialization Marketing or Human resources.

PO2 - Problem analysis: Identify, review, formulate and analyse the problem or reformation to provide conclusions applying analytic thought to body of knowledge.

PO3 – Design/Development of solutions: Design solutions for social and economic needs applying their core management competencies to solve the problem integrated with real life learning.

PO4 – Conduct investigations of complex problems: Ability to inquire, identifying problems, logical flaws, analyse data from various sources, interpret and draw valid conclusions.

PO5 – Modern tool usage: Identify and access, evaluate appropriate software and integrating management competencies. Gain skills to use ICT for learning.

PO6 – With society: To apply rational thinking with contextual knowledge and evaluate the subsequent responsibilities of the professional management to the society.

PO7 – Environment & sustainability: Analyze the impact of professional management in the society and plan for sustainable development.

PO8 – Ethics: Demonstrate moral/ethical values in carrying out his duties in his profession and identify unethical work.

PO9 – Individual and teamwork: Demonstrate ability to work effectively individually, within the group and with other groups.

PO10 – Communications: Effectively communicate thoughts, ideas or any complex information orally or written using appropriate media clearly and concisely.

PO11 – Project management: Demonstrate knowledge and understanding of core management concepts applying to real scenarios in the work environment.

PO12 – Lifelong learning: Gain skills and knowledge through self-paced and self-directed learning and use to develop them personally and to be abreast with changing environment.

PROGRAM SPECIFIC OUTCOMES

PSO 1: Students will be able to apply the knowledge of management concepts in business environment and describe the recent trends.

PSO2: Students will build proficiency in their area of specialization (Marketing or Human Resource Management or Family Business Management or Media Management).

PSO3: Students undergo co-curricular activities to demonstrate practical knowledge in their domain area.

PSO4: Students acquire practical skills to identify & solve a problem/area of improvement.

PSO5: Students gain knowledge & skills to start their own enterprises, effectively contribute to the growth of the organization and/or pursue higher studies in management.

PSO6: Students will be able to identify the technology trends and its impact on business.

Department of
B.COM
(BANK MANAGEMENT)

ACADEMIC YEAR 2022-2023

PROGRAM EDUCATION OBJECTIVES (PEOS)

PEO1	To make bank management graduates conceptualize, critically analyse and acquire basic knowledge in banking and finance
PEO2	To inculcate a spirit of enquiry, so that bank management graduates search for facts and truth by developing methodologies that supports critical analysis and decision making
PEO3	To inculcate a spirit of the Ethics and Social commitment in the personal and professional life of bank management graduates so that they add value to the society
PEO4	To make Bank management graduates employment ready by updating them in current trends
PEO5	To become responsible global citizens as the world is becoming borderless

PROGRAMME OUTCOMES

At the completion of the B.Com (Bank management) program, the students of our Department will be able to :

S.NO	GRADUATE ATTRIBUTES	PROGRAMME OUTCOMES
1	Employment	To participate in various types of employment, development activities and public discourses particularly in response to the needs of the community one serve. (PO1)
2	Co-operation	To understand the need and have the competencies to support local, regional and national development. (PO2)
3	Analytical	To develop critical and analytical thinking (PO3)
4	Problem Solving	To develop conceptual understanding, problem solving and application of skills. (PO4)
5	Communication	To provoke entrepreneurship among the students along with strong ethics and communication skills. (PO5)
6	Critical Thinking	To develop a questioning mind in diverse environments for better outcomes (PO6)
7	Independent Learning	To engage in lifelong learning and enduring proficient progress (PO7)

PROGRAM SPECIFIC OUTCOMES

PS01	To guide and channelize the transformation process of every bank management graduate by providing in depth knowledge of banking and financial system
PS02	To ignite a passion for problem solving among students by fostering analytical and critical thinking
PS03	To impart ethics and a sense of social commitment and to make them to strive towards personal victory and value creation to society
PS04	To create future managers in Banking and Financial sector
PS05	To create future entrepreneurs

SEMESTER I -CORE PAPER 1

PRINCIPLES OF FINANCIAL ACCOUNTING

COURSE OUTCOMES:

At the end of the course, the student will be able to

CO 1	Understand the accounting concepts and accounting conventions and prepare journals
CO 2	Identifying the errors and rectifying it and to make them reconcile the Bank Pass Book and Cash Book
CO 3	Understand and analyze the Average Due date and Account current
CO 4	Make them prepare the final accounts of manufacturer and trader
CO 5	Understand the concept of depreciation and calculate depreciation
CO 6	Treatment of goodwill in partnership accounts and how to prepare account books while admitting partners

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	1	2	3	-	1	1	3	2	1	1	-
CO2	-	-	2	2	-	2	-	3	3	1	1	-
CO3	-	-	2	2	-	2	-	1	1	1	1	1
CO4	-	-	2	2	-	2	-	1	1	1	1	1

CO 6	3	3	3	2	3	2	2	2	2	2	2	2
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3- Strong 2- Medium 1- Low

SEMESTER I

NON-MAJOR ELECTIVE - I

BASICS OF BANKING AND INSURANCE- PAPER I

COURSE OUTCOMES:

At the end of the course, the student will be able to

CO1	Understand the various functions of commercial banks and the services provided.
CO2	Analyse the Banking Procedure and various types of relationships.
CO3	Examine the types of Crossing.
CO4	Classify the various rights of banker and aspects of Endorsement.
CO5	Categorise the various principles of Insurance
CO6	Understand the concept of subrogation and contribution

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO 1	2	2	2	1	1	1	2	3	1	3	3	1
CO 2	2	2	2	1	1	1	2	3	2	3	3	1
CO 3	1	1	1	1	1	-	1	3	2	2	2	1
CO 4	1	1	2	2	-	1	1	2	2	2	2	1
CO 5	1	1	2	2	-	1	1	2	2	2	2	1
CO 6	1	1	2	2	-	1	1	2	2	2	2	1

3- Strong 2- Medium 1- Low

SEMESTER II – CORE PAPER 3
ADVANCED FINANCIAL ACCOUNTING

COURSE OUTCOMES:

At the end of the course, the student will be able to

CO 1	Prepare the accounts for partnership firm when a partner retires
CO 2	Prepare the accounts when the partnership firm is dissolved
CO 3	Prepare the Departmental Trading Accounts
CO 4	Prepare the Branch Accounts
CO 5	Prepare the Hire Purchase Accounts
CO 6	Prepare the Instalment Purchase Accounts

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	2	3	-	2	-	1	2	3	-	-
CO2	-	-	2	3	-	2	-	1	2	2	-	-
CO3	-	-	2	3	-	2	-	1	2	2	-	-
CO4	-	-	2	3	-	2	-	1	2	2	-	-
CO5	-	-	2	3	-	2	-	1	2	-	-	-

CO6	-	-	2	3	-	2	-	1	2	-	-	-
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3- Strong 2- Medium 1- Low

SEMESTER II – CORE PAPER 4

THEORY OF MONEY AND BANKING-

COURSE OUTCOMES:

At the end of the course, the student will be able to

CO 1	Understand the main elements of the money supply in India.
CO 2	Functions of money and role of money in capitalistic and socialistic economic system
CO 3	Apply both inflation and deflation in the areas of money and banking.
CO 4	Understand the rationale behind nationalization of banks and also the impact of liberalization on banks
CO 5	Understand the concept of bank account and how to deal with special types of customers
CO 6	Express their view about the relationship between banker and customers and evaluate the effectiveness of such policies.

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO 1	2	2	2	3	1	2	1	2	2	2	-	-
CO 2	2	2	2	3	1	2	1	2	1	2	-	-
CO 3	2	2	2	3	1	2	1	2	1	2	-	-
CO 4	3	1	2	2	1	2	1	2	1	2	1	-

CO 5	1	1	2	2	1	2	1	2	2	2	-	-
CO 6	2	1	2	2	1	2	1	2	2	2	-	-

3- Strong 2- Medium 1- Low

SEMESTER II
NON- MAJOR ELECTIVE – II
BASICS OF BANKING AND INSURANCE- II

COURSE OUTCOMES:

At the end of the course, the student will be able to

CO 1	Analyse the various aspects of ATM
CO 2	Examine the procedures of Online Banking.
CO 3	Understand the various aspects of Pass Book, Demonetization and Core Banking.
CO 4	Classify the functions of RBI and its credit control.
CO 5	Understand the concept of life assurance
CO 6	Understand the concept of general assurance

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	2	1	-	2	1	3	2	3	3	1
CO2	2	2	2	1	-	2	1	3	1	3	3	1

CO3	3	2	2	1	1	2	1	3	2	3	2	1
CO4	1	1	1	2	1	1	1	2	2	2	2	1
CO5	2	2	2	1	1	2	1	2	2	2	2	1
CO6	2	2	2	1	1	2	1	2	2	2	2	1

3- Strong 2- Medium 1- Low

SEMESTER III – CORE PAPER 5
CORPORATE ACCOUNTING

COURSE OUTCOMES:

At the end of the course, the student will be able to

CO1	Understand the Various Kinds of Shares and Debentures and also will Understand the Difference Between lien and Forfeiture of Shares and also Underwriting of shares
CO2	Calculate managerial remuneration and prepare company final accounts
CO3	Prepare final accounts of banks
CO4	Calculate profits prior to incorporation
CO5	Understand the concept of goodwill and calculate goodwill
CO6	Understand the concept of life insurance and prepare final accounts of insurance companies

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
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CO1	2	1	2	3	-	1	-	1	1	1	1	1
CO2	-	-	2	3	-	1	-	1	2	1	1	1
CO3	-	-	2	3	-	1	-	3	2	1	1	1
CO4	-	-	2	3	-	1	-	1	2	1	1	1
CO5	-	-	2	3	-	1	-	1	1	1	1	1
CO6	-	-	2	3	-	1	-	1	1	1	1	1

3- Strong 2- Medium 1- Low

SEMESTER III – CORE PAPER 6

LEGAL SYSTEMS IN BUSINESS

COURSE OUTCOMES:

At the end of the course, the student will be able to

CO1	Understand the concepts of contract and various types of offers and acceptances.
CO2	Understand the performance of contract and remedies for breach of contract
CO3	Understand the differences between sale and agreement to sell and between conditions and warranties
CO4	Understand the various types of companies
CO5	Understand the differences between Memorandum and Articles , Concept of Prospectus, Meetings, shares and debentures
CO6	Understand the functions of SEBI

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	1	2	2	1	2	1	1	1	2	1	1
CO2	2	1	2	2	1	2	1	1	1	2	1	1
CO3	2	1	2	2	1	2	1	1	1	2	1	1
CO4	2	1	2	2	1	2	1	1	1	2	1	1
CO5	2	1	2	2	1	2	1	1	1	2	1	1
CO6	2	1	2	2	1	2	1	2	2	1	1	1

3- Strong 2- Medium 1- Low

SEMESTER III – CORE PAPER 7
BANKING THEORY, LAW AND PRACTICE

COURSE OUTCOMES:

At the end of the course, the student will be able to

CO 1	Understand the Role of Reserve Bank of India and its impact on the economic development.
CO 2	Categorize the various functions performed by commercial banks and its various aspects.
CO 3	Analyse the various types of deposits provided by commercial banks and understand the Concept of Banking Ombudsman and various solutions provided for Customer Grievances.
CO 4	Classify the various types of Borrowings and the knowledge of Precautionary measures adopted on the disbursement of loan.
CO 5	Examine the various types of Negotiable Instruments
CO 6	Examine the role of paying banker and collecting banker

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	2	3	1	2	2	3	1	2	1	1
CO2	2	2	2	3	1	2	2	3	1	2	1	1
CO3	2	2	2	2	1	2	2	3	1	2	1	1
CO4	2	2	2	2	1	2	2	3	1	2	1	1
CO5	2	2	2	2	1	2	2	3	1	2	1	1
CO6	2	2	2	2	1	2	2	3	1	2	1	1

3- Strong 2- Medium 1- Low

SEMESTER III – CORE PAPER 8

BUSINESS MANAGEMENT

COURSE OUTCOMES:

At the end of the course, the student will be able to

CO 1	Understand the basic concepts of management and also will understand the importance of scientific management
CO 2	Analyze the various steps and processes in planning and decision making.
CO 3	Understand the organizational structure and will know the differences between authority and responsibility and departmentalization and decentralization.
CO 4	Analyze the concept of directing ,motivation and various theories of motivation
CO 5	Understand the concept of Leadership
CO 6	Understand the concept of control and co-ordination

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	3	2	2	2	2	2	2	2	1	1
CO2	1	2	2	2	1	2	2	2	2	2	1	1
CO3	1	2	2	2	1	2	2	2	2	2	1	1
CO4	2	1	3	2	2	2	2	2	2	2	1	1
CO5	2	2	3	2	2	2	2	2	2	2	1	1
CO6	2	2	3	2	2	2	2	2	2	2	1	1

3- Strong 2- Medium 1- Low

SEMESTER III – ALLIED PAPER 3

COMPUTER APPLICATIONS IN BUSINESS

COURSE OUTCOMES:

At the end of the course, the student will be able to

CO 1	Understand the Basic Concept of Tally and also will Understand its Features and Configuration.
CO 2	Provide a Practical Knowledge Exposure to Accounting Vouchers in Tally
CO 3	Provide a Practical Knowledge Exposure to Preparing Trial Balance, Profit and Loss A/c and Balance sheet in Tally.
CO 4	Introduce the Students about SPSS.
CO 5	Provide a Practical Knowledge Exposure to Measures of Central Tendency in SPSS.
CO 6	Provide a practical knowledge to measures of Skewness in SPSS

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	1	2	3	1	2	1	1	1	1	1	1
CO2	1	1	2	3	1	2	1	1	1	1	1	1
CO3	1	1	2	3	1	2	1	1	1	1	1	1
CO4	1	1	2	3	1	2	1	1	1	1	1	1
CO5	1	1	2	3	1	2	1	1	1	1	1	1
CO6	1	1	2	3	1	2	1	1	1	1	1	1

3- Strong 2- Medium 1- Low

SEMESTER IV– CORE PAPER 9

ADVANCED CORPORATE ACCOUNTING

COURSE OUTCOMES:

At the end of the course, the student will be able to

CO 1	Understand about Price Level changes and also will Understand Social responsibility and Human Resource Accounting
CO 2	Understand about reduction of share capital and internal reconstruction

CO 3	Understand the concept of Amalgamation and Absorption
CO 4	Understand the concept of External Reconstruction
CO 5	Understand the concept of Holding Company and Subsidiary company
CO 6	Understand the concept of liquidation and prepare liquidator's final statement

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	2	2	2	-	2	1	2	2	1	1	1
CO2	1	2	2	2	-	2	1	1	1	1	1	1
CO3	1	2	2	2	-	2	1	1	1	1	1	1
CO4	1	2	2	2	-	2	1	1	1	1	1	1
CO5	1	2	2	2	-	2	1	1	1	1	1	1
CO6	1	2	2	2	-	2	1	1	1	1	1	1

3- Strong 2- Medium 1- Low

SEMESTER IV – CORE PAPER 10

FINANCIAL SERVICES AND BANCASSURANCE

COURSE OUTCOMES:

At the end of the course, the student will be able to

CO 1	Understand the basic concepts of financial services and economic services and also will understand the importance of players in financial services sector
CO 2	Analyse the various types of underwriters and various steps and process in SEBI in public issue management and functions of merchant banking under the capital market

CO 3	Understand the leasing and hire purchase and also features of leasing and factoring and also understand the differences between factoring and bills discounting
CO 4	Analyse the concepts of credit rating, venture capital companies and consumer finance and also understand the different types of loans
CO 5	Understand how banking institutions are selling life assurance and other insurance products and services
CO 6	Understand the tools for integrating insurance and banking

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	2	2	2	2	2	2	2	2	2	2
CO2	2	2	3	2	2	2	2	2	2	3	2	2
CO3	3	3	3	2	3	2	2	3	3	3	2	2
CO4	2	2	3	2	2	2	2	2	2	3	2	2
CO5	2	2	3	2	2	2	2	2	2	3	2	2
CO6	2	2	3	2	2	2	2	2	2	3	2	2

3- Strong 2- Medium 1- Low

SEMESTER IV– CORE PAPER 11

ENTREPRENEURIAL DEVELOPMENT

COURSE OUTCOMES:

At the end of the course, the student will be able to

C01	Define basic terms in entrepreneurship
C02	Analyze the classification of entrepreneurs
C03	Develop successful business ideas
C04	Prepare a project report after analyzing their feasibility
	Understand the concept of business planning

C05	
CO6	Understand the role of entrepreneur in economic growth

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO 1	2	2	3	2	3	2	3	2	2	3	2	3
CO 2	2	2	3	2	3	2	3	2	2	3	2	3
CO 3	2	2	3	2	3	2	3	2	2	3	2	3
CO 4	2	2	3	2	3	2	3	2	2	3	2	3
CO 5	2	2	3	2	3	2	3	2	2	3	2	3
CO 6	2	2	3	2	3	2	3	2	2	3	2	3

3- Strong 2- Medium 1- Low

SEMESTER IV– CORE PAPER 12 MARKETING OF BANKING SERVICES

COURSE OUTCOMES:

At the end of the course, the student will be able to

C01	Understand the basic marketing concepts that are applied in the banking industry.
C02	Understand the competition and develop bank marketing strategies
C03	Analyses the need of the customers and the factors affecting consumer behavior
C04	Develop a product design according to the market segmentation.
C05	Understand the concept of marketing research and the process involved in it
CO 6	Understand the concept of situation analysis

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO 1	2	2	2	2	2	2	2	3	2	3	2	2
CO 2	2	2	3	2	2	2	2	3	2	3	2	2
CO 3	2	2	3	2	2	2	2	3	2	3	3	2
CO 4	2	2	3	2	2	2	2	3	2	3	2	2
CO 5	2	2	3	2	2	2	2	3	2	3	2	2
CO 6	2	2	3	2	2	2	2	3	2	3	1	2

3- Strong 2- Medium 1- Low

SEMESTER IV- ALLIED PAPER 4

BUSINESS ECONOMICS

COURSE CODE:

CREDITS: 5

L:P:T:S 6:0:0:0

CIA MARKS:40

EXAM HOURS: 3

ESE MARKS: 60

LEARNING OUTCOMES:

On taking this course the student will learn about the consumers decision and market demand and different market structures

COURSE OUTCOMES:

At the end of the course, the student will be able to

C01	To understand the basic concepts of economics
C02	To create awareness about the concept of cost and profit
C03	To understand the concept of demand elasticity of demand and demand forecasting

C04	To understand the Law of supply and Law of Diminishing Marginal Utility
C05	To understand the concept of production and law of returns to scale
CO 6	To understand the concept of pricing in different markets.

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	3	3	1	3	2	2	1	2	1	1
CO2	2	2	3	3	1	3	2	2	1	2	1	1
CO3	2	2	3	3	1	2	1	2	1	2	1	1
CO4	2	2	3	3	1	2	1	2	1	2	1	1
CO5	2	2	3	3	1	2	1	2	1	2	1	1
CO6	2	2	3	3	1	2	1	2	1	2	2	1

3- Strong 2- Medium 1- Low

SEMESTER V- CORE PAPER 13

COST AND MANAGEMENT ACCOUNTING

COURSE OUTCOMES:

At the end of the course, the student will be able to

C01	To understand the concept of cost, cost sheet, tender , quotation and labour
C02	To calculate the cost of material and understand the concept of inventory control
C03	To understand the concept of overheads
C04	To prepare common size and comparative financial statements
C05	To understand the concept of marginal costing
CO 6	To analyse and prepare budgets and cash flow statements

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	1	2	3	-	2	-	1	1	2	3	2
CO2	1	1	2	3	-	2	-	1	1	2	3	2
CO3	1	1	2	3	-	2	-	1	1	2	3	2
CO4	1	1	2	3	-	2	-	1	1	2	3	2
CO5	1	1	2	3	-	2	-	1	1	2	3	2
CO6	1	1	2	3	-	2	-	1	1	2	3	2

3- Strong 2- Medium 1- Low

SEMESTER V– CORE PAPER-14

INVESTMENT MANAGEMENT

COURSE OUTCOMES:

At the end of the course, the student will able to

CO 1	Understand the basic concepts of investment and speculation
CO 2	Analyse the various investment avenues under the investment schemes
CO 3	Understand the SEBI guidelines on primary and secondary market and procedure for buying and selling of shares
CO 4	Analyse the economic, industry and company aspects and also will understand the features of credit rating like CRISIL, CARE and ICRA.
CO 5	Understand the technical analysis under the investment
CO 6	Understand the concept of portfolio management

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
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CO 1	2	2	3	2	1	2	1	2	2	2	1	2
CO 2	2	2	3	2	1	2	1	2	2	2	1	2
CO 3	2	2	3	2	1	2	1	2	2	2	1	2
CO 4	2	2	2	2	1	2	1	2	2	2	1	2
CO 5	2	2	2	2	1	2	1	2	2	2	1	2
CO 6	2	2	2	2	1	2	1	2	2	2	1	2

3- Strong 2- Medium 1- Low

SEMESTER V – CORE PAPER 15

INDIRECT TAXES

COURSE OUTCOMES:

At the end of the course, the student will be able to

C01	Understand the basic concepts about direct and indirect taxes.
C02	Identify the factors of levy of customs duty and analyze the drawbacks of warehousing
C03	Understand the concept and significance of goods and service tax in India and benefits to the economy.
C04	Analyze the functions performed by goods and services tax network and e-way bill compliance
C05	Evaluate the challenges faced by Government after implementation of GST and mechanism of IGST
CO 6	Understand the concept of input tax credit

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO 1	2	2	3	2	1	2	1	1	2	3	1	1
CO 2	2	2	3	2	1	2	1	1	2	3	1	1
CO 3	2	2	3	2	1	2	1	1	2	3	1	1
CO 4	2	2	3	2	1	2	1	1	2	3	1	1
CO 5	2	2	3	2	1	2	1	1	2	3	1	1
CO 6	2	2	3	2	1	2	1	1	2	3	1	1

3- Strong 2- Medium 1- Low

SEMESTER V– ELECTIVE 1

INCOME TAX LAW AND PRACTICE -I

COURSE OUTCOMES:

At the end of the course, the student will be able to

CO 1	Understand the meaning of important terms used in income tax
CO 2	Understand the concept of Income from salary
CO 3	Understand the concept of Income from House Property
CO 4	Understand the concept of Income from Business or Profession
CO 5	Understand allowable deductions and provisions from depreciation
CO 6	Understand the concept of TDS and will also learn how to file return

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO 1	2	1	3	3	1	2	2	1	2	3	1	2
CO 2	2	1	3	3	1	2	2	1	2	3	1	2
CO 3	2	1	3	3	1	2	2	1	2	3	1	2
CO 4	2	1	3	3	1	2	2	1	2	3	1	2
CO 5	2	1	3	3	1	2	2	1	2	3	1	2
CO 6	2	1	3	3	1	2	2	1	2	3	2	2

3- Strong 2- Medium 1- Low

RURAL BANKING

SEMESTER V – OPEN ELECTIVE 1

COURSE OUTCOMES:

At the end of the course, the student will be able to

CO1	To understand the concept of rural banking
CO2	To have awareness about the latest welfare schemes
CO3	To learn about the various institutional sources of finance
CO4	To understand the concept of credit planning
CO5	To understand the lead bank scheme
CO6	To learn about the institutions reporting rural development.

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO 1	2	2	2	2	1	2	2	2	2	2	2	2
CO 2	2	2	2	2	1	2	2	2	2	2	2	2
CO 3	2	2	2	2	1	2	2	2	2	2	2	2
CO 4	2	2	2	2	1	2	2	2	2	2	2	2
CO 5	2	2	2	2	1	2	2	2	2	2	2	2
CO 6	2	2	2	2	1	2	2	2	2	2	2	2

3- Strong 2- Medium 1- Low

SEMESTER V – OPEN ELECTIVE 2

CONSUMER AFFAIRS

COURSE OUTCOMES:

At the end of the course, the student will be able to

C01	To understand the concept of consumer
C02	To understand the nature of markets particularly Indian market
C03	To understand the consumer protection law in India
C04	To have a thorough understanding of the Grievance Redressal Mechanism
C05	To elaborate the role of Industry regulators in consumer protection
CO 6	To know about the consumer movement in India

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO 1	2	2	2	1	1	1	2	2	2	2	1	2
CO 2	2	2	2	1	1	1	2	2	2	2	1	2
CO 3	2	2	2	2	1	1	2	2	2	2	1	2
CO 4	2	2	2	2	1	1	2	2	2	2	1	2
CO 5	2	2	3	3	1	2	2	2	2	2	1	2
CO 6	2	2	3	3	1	2	2	2	2	2	1	2

3- Strong 2- Medium 1- Low

SEMESTER VI – CORE PAPER 16

PRACTICAL AUDITING

COURSE OUTCOMES:

At the end of the course, the student will be able to

C01	To understand the meaning of auditing, scope and classification of audit
C02	To understand the concept of audit planning Programme and working papers
C03	To understand the differences between vouching verification & valuation
C04	To understand the recent trends in auditing
C05	To understand the concept of appointment, removal, qualification & disqualification of auditors
CO 6	To understand the concept of Information System Audit.

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO 1	1	2	2	2	1	2	1	1	2	2	1	1
CO 2	1	2	2	2	1	2	1	1	2	2	1	1
CO 3	1	2	2	2	1	2	1	1	2	2	1	1
CO 4	1	2	2	2	1	2	1	1	2	2	1	1
CO 5	1	2	2	2	1	2	1	1	2	2	1	1
CO 6	1	2	2	2	1	2	1	1	2	2	1	1

3- Strong 2- Medium 1- Low

SEMESTER VI- CORE PAPER 17

HUMAN RESOURCE MANAGEMENT

COURSE CODE:

CREDITS: 4

L:P:T:S 6:0:0:0

CIA MARKS:40

EXAM HOURS: 3

ESE MARKS: 60

LEARNING OUTCOMES:

On taking this course the student will acquaint himself with concepts, principles and practices in Human Resource Management

COURSE OUTCOMES:

At the end of the course, the student will be able to

CO 1	Appreciate the importance of human resource management as a field of study and as central management function
CO 2	Understand the implication of human resource management and qualities of human resource managers
CO 3	Know the elements of the HR function recruitment, selection, training and development and are familiar with each elements key concept.

CO 4	Understand the methods of performance appraisal system, promotion and transfer
CO 5	Apply the principles and techniques of job analysis and measuring the quality of work life of an employees
CO 6	Analyse the quality of work life and evaluate the measures taken to overcome the obstacles.

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO 1	2	2	3	3	2	3	3	2	2	3	2	2
CO 2	2	2	3	3	2	3	3	2	2	3	2	2
CO 3	2	2	3	3	2	3	3	2	2	3	2	2
CO 4	2	2	3	3	2	3	3	2	2	3	3	3
CO 5	2	2	3	3	2	3	3	2	2	3	3	3
CO 6	2	2	3	3	2	3	3	2	2	3	3	3

3- Strong 2- Medium 1- Low

SEMESTER VI – CORE PAPER 18

FINANCIAL MANAGEMENT

COURSE OUTCOMES:

At the end of the course, the student will be able to

C01	To understand the meaning and sources of finance
C02	To understand the capital structure planning theories

C03	To work problems pertaining to capital techniques
C04	To understand the cost of capital concepts
C05	To have a basic understanding of dividend policies and the factors affecting it
C06	To analyse the factors influencing working capital and how to forecast it.

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	2	2	1	2	2	2	2	2	3	3
CO2	2	1	2	2	1	2	2	2	2	2	3	3
CO3	2	1	2	2	1	2	2	2	2	2	3	3
CO4	2	1	2	2	1	2	2	2	2	2	3	3
CO5	2	1	2	2	1	2	2	2	2	2	3	3
CO6	2	1	2	2	1	2	2	2	2	2	3	3

SEMESTER 6 – CORE PAPER 19

BANKING TECHNOLOGY AND PERSONALITY SKILLS

COURSE OUTCOMES:

At the end of the course, the student will be able to

CO 1	Define the term of contemporary banking developments and explain the importance of ATM, Mobile banking, Plastic cash, WAN, LAN, VSAT.
CO 2	Understand the importance of document storage and retrieval systems in digital signature system
CO 3	Understand Electronic clearing system
CO 4	Understand the impact of technology

CO 5	Understand cyber laws
CO 6	Understand Prevention of Money Laundering act

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	2	2	2	2	2	2	2	2	2	2
CO2	2	2	2	2	2	2	2	2	2	2	2	2
CO3	2	2	3	3	2	2	2	2	2	2	2	2
CO4	2	2	2	2	2	2	2	2	2	2	2	2
CO5	2	2	2	2	2	2	2	2	2	2	2	2
CO6	2	2	2	2	2	2	2	2	2	2	2	2

3- Strong 2- Medium 1- Low

SEMESTER VI – ELECTIVE 2

INCOME TAX LAW AND PRACTICE – II

COURSE OUTCOMES:

At the end of the course, the student will be able to

CO1	Calculate Income from Capital gains
CO2	Calculate Income from Other Sources
CO3	Club various sources of income
CO4	Set-off and carry forward of losses
CO5	Understand Permissible Deductions from Gross Total Income
CO6	Assess Firm's Tax Liability

MAPPING OF COURSE OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO 1	2	1	2	2	-	2	1	2	2	1	2	1
CO 2	2	1	2	2	-	2	1	2	2	1	2	1
CO 3	2	1	2	2	-	2	1	2	2	1	2	1
CO 4	2	1	2	2	-	2	1	2	2	1	2	1
CO 5	2	1	2	2	-	2	1	2	2	1	2	1
CO 6	2	1	2	2	-	2	1	2	2	1	2	1

3- Strong 2- Medium 1- Low

PROGRAM EDUCATION OBJECTIVES (PEOS)

PEO1	To make bank management graduates conceptualize, critically analyse and acquire basic knowledge in banking and finance
PEO2	To inculcate a spirit of enquiry, so that bank management graduates search for facts and truth by developing methodologies that supports critical analysis and decision making

PEO3	To inculcate a spirit of the Ethics and Social commitment in the personal and professional life of bank management graduates so that they add value to the society
PEO4	To make Bank management graduates employment ready by updating them in current trends
PEO5	To become responsible global citizens as the world is becoming borderless

PROGRAMME OUTCOMES

At the completion of the B.Com (Bank management) program, the students of our Department will be able to :

S.NO	GRADUATE ATTRIBUTES	PROGRAMME OUTCOMES
1	Employment	To participate in various types of employment, development activities and public discourses particularly in response to the needs of the community one serve. (PO1)
2	Co-operation	To understand the need and have the competencies to support local, regional and national development. (PO2)
3	Analytical	To develop critical and analytical thinking (PO3)
4	Problem Solving	To develop conceptual understanding, problem solving and application of skills. (PO4)
5	Communication	To provoke entrepreneurship among the students along with strong ethics and communication skills. (PO5)
6	Critical Thinking	To develop a questioning mind in diverse environments for better outcomes (PO6)
7	Independent Learning	To engage in lifelong learning and enduring proficient progress (PO7)

PROGRAM SPECIFIC OUTCOMES

PS01	To guide and channelize the transformation process of every bank management graduate by providing in depth knowledge of banking and financial system
PS02	To ignite a passion for problem solving among students by fostering analytical and critical thinking

PS03	To impart ethics and a sense of social commitment and to make them to strive towards personal victory and value creation to society
PS04	To create future managers in Banking and Financial sector
PS05	To create future entrepreneurs



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Arumbakkam, Chennai – 600 106

DEPARTMENT OF CORPORATE SECRETARYSHIP

PROGRAMME OUTCOME FOR UNDERGRADUATE

At the end of the programme the student will be able to:

PO1	To partake in various types of employment, development activities and public dialogue particularly in response to the needs of Industry and Entrepreneurship in the Regional, National and Global arena.
PO2	To promote critical thinking and analytical skills.
PO3	To develop core competency in conceptualisation, problem solving and effective application of skills.
PO4	To develop conceptual understanding, problem solving and application of skills
PO5	To encourage entrepreneurship among the students coupled with strong ethics and communication skills
PO6	To develop a questioning mind in diverse environments for better impact
PO7	To engage in lifelong learning to ensure proficient progress

Program Specific Outcomes

PSO1	Apply knowledge of Company law and Secretarial practice to comply legal formalities and to solve corporate problems with due diligence.
PSO2	Foster analytical cum critical thinking abilities for preparation and presentation of Financial Statements
PSO3	Ability to understand, analyze and communicate global, legal and ethical aspects of business.
PSO4	Acquire in-depth knowledge of Corporate laws and entrepreneurship embedded with ethics
PSO5	Instill a sense of social commitment and strive towards value creation to society.
PSO6	Create multipronged strategy for problem solving, critical analysis and decision making.
PSO7	Develop value-based leadership qualities, give due importance for lateral thinking so that they see things from a perspective which are not just simple but effective.

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Core Paper I – Financial Accounting-I [National Level]

Course Code : 2106101	Credits : 4
L:P:T:S : 5:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	Understand Accounting standards, the relevant provisions specified, calculation of average due date and Computation of claim for loss of stock/ Loss of profit [Fire insurance]
CO 2	Recall errors and its types, entries for rectification and its impact on GP/ NP and suspense account
CO 3	Classify investments and solve practical problems based on application of AS 13
CO 4	Apply the provisions of AS 6 for determining depreciation on assets.
CO 5	Prepare the Final Accounts of a Sole Trading Concern incorporating important adjustments and provision for revenue recognition as per AS 9.
CO 6	Differentiate single and double entry system and solve problems through statement of affairs and conversion method

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	1	3	2	1	-	2	-
CO2	1	3	2	1	2	2	-
CO3	1	3	-	1	-	2	-
CO4	1	3	1	1	1	2	-
CO5	1	3	2	1	1	2	-
CO6	1	2	2	1	1	1	-

S.No	CONTENTS OF MODULE	Hrs	Cos
1	UNIT- I Introduction to Accounting concepts and conventions, Accounting standards in India [AS and Ind AS], Introduction to AS 1- Disclosure of Accounting policies. Average Due date – Insurance Claims – Average Clause (Loss of stock & Loss of profit)	15	1,2
2	UNIT- II Classification of errors – Rectification of errors – Preparation of Suspense Account – Investment Accounts AS 13, Classification of investments- Carrying amount of investments- Profit/loss on sale of investments- Disclosure and reporting	15	3

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3	UNIT- III Depreciation – Meaning, Causes, Types –Provisions in AS 6 –Methods of depreciation- Straight line method, Written down value method [Change in method excluded], Sinking fund method, Annuity method, Revaluation method, Depletion method.	15	4
4	UNIT- IV Preparation of Final Accounts of a Sole Trading Concern with adjustments and accounting for Closing Stock, Outstanding, Accrual and Prepaid items, Depreciation, Bad debts & Provision, Reserve for Discount on debtors and creditors, Interest on Capital and Drawings, Manager's Commission, loss of stock by fire and recovery of insurance claims. Introduction to AS 9- Revenue recognition	15	5
5	UNIT- V Accounting from incomplete records – Meaning, Features, Limitations, Distinction between incomplete records [single entry] and Double Entry System – Estimation of Profit / Loss under Statement of Affairs method- Preparation of final statements by Conversion Method	15	6

TEXT BOOKS:

1. Gupta R. L., & Gupta V. K. (2019). Financial Accounting. 8th Ed. Sultan Chand & Sons. New Delhi, India. (ISBN: 978-81-8054-732-4)
2. Jain. S. P., & Narang K. L. (2019). Financial Accounting. Kalyani Publishers, New Delhi, India. (ISBN: 978-93-2723-123-6)
3. Shukla, M. C., Gupta, S. C., & Grewal T. S. (2017). Advanced Accounts. 19 Ed. S. Chand Publishing, New Delhi, India. (ISBN: 978-93-5253-314-5)
4. The Institute of Chartered Accountants of India. (2018). Intermediate (IPC) Course Study Material - Paper-1 Accounting. The Institute of Chartered Accountants of India (ICAI), New Delhi, India.

REFERENCE BOOKS:

1. Gupta R. L., & Radhaswamy M. (2018). Advanced Accountancy, Vol. I. 13th Ed. Sultan Chand & Sons, New Delhi, India. (ISBN: 978-81-8054-699-0)
2. Tulsian P. C. & Tulsian Bharat (2020). Tulsian's Principles and Practice of Accounting With Quick Revision Book. 5th Ed. CA Examination Series, MCGrawHill Education, New Delhi, India. (ISBN: 978-93-8981-169-8)

Note: Latest editions of the books shall be referred

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Core Paper II – Principles of Management [International level]

Course Code : 2106102	Credits : 4
L:P:T:S : 5:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	Define Management and its process, Discuss the functions of a Manager, Scientific Management, Management and Indian literature.
CO 2	Explain the different types and steps in Planning and Decision-making and to discuss the Policies, Procedures, Process and Methods in Decision-making
CO 3	Compare the different types of Organizations and to explain the Organization Structure, Span of Control, Committees, Departmentalization and Informal Organization; Analyse causes of Line & Staff conflict and suggest measures to resolve it.
CO 4	Describe authority, responsibility and accountability, factors determining Delegation, Decentralization, elements of direction and Leadership Styles.
CO 5	Explain the need, types and techniques for Co-ordination
CO 6	Describe the control process and techniques adopted in business.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	2	1	2	1	2	1	1
CO2	2	-	1	1	2	3	1
CO3	2	-	3	2	2	1	1
CO4	1	-	2	1	2	3	3
CO5	1	-	2	1	2	3	1
CO6	1	-	2	2	2	3	2

S.No.	CONTENTS OF MODULE	Hrs	Cos
1	UNIT- I Management: Definition – Nature & Scope – Role, Skills and Functions of a Manager – Levels of management- Distinction between management & administration- Management as an Art, Science or Profession	15	1

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	Development of Scientific Management, Contribution to management- Henry Fayol, Elton Mayo and Peter F. Drucker, Management in Indian literature [Arthashastram, Mahabharatham, Thirukkural]		
2	UNIT- II Planning: Definition, Nature & Characteristics – Types of plans – Objectives, Policies, Procedures, Rules, Strategies, Projects, Programmes, Budgets & Methods- Process of Planning – Merits & Demerits- Steps for effective planning Management by Objectives- Definition, Features, Process, Merits & Demerits, Measures to make MBO effective. Decision-making: Definition- Process and Significance –Types, Factors, Problems/ Constraints in decision making, Guidelines to make decisions effective	15	2
3	UNIT- III Organisation: Definition- Features, Steps in organizing, Principles of organization, Types of Organizations – Formal & Informal Organization- Line , Line & Staff, Functional, Project, Matrix, Virtual, Network, Committee- Purpose, Types, Merits & Demerits, Measures to make it effective Line & Staff conflict- Arguments for & against Line & Staff- Measures to resolve conflicts Organization Structure – Factors influencing organization structure Span of Control– Factors influencing Span of management Departmentation- Meaning- Factors- Bases of departmentation – Advantages & Disadvantages of different types of departmentation	15	3
4	UNIT- IV Authority – Sources of authority- Responsibility- Accountability, Power- Influence Delegation – Definition- Elements- Types- Need- Principles- Barriers – Measures to make delegation effective Centralisation-Decentralization-Merits & Demerits- Factors determining decentralization of authority-Distinction between delegation & decentralization Direction– Definition, Nature, Purpose- Elements-Principles Leadership-Functions of Leader- Qualities for a Leader-Theories and Styles of Leadership.	15	4
5	UNIT- V Co-ordination – Need, Types, Techniques and Requisites for Co-ordination Controlling – Definition, Importance, Objectives, Control Process- Requirements for an effective control system- Techniques of control	15	5,6

TEXT BOOKS:

1. Gupta C. B. (2018). Business Management. 15th Ed. Sultan Chand & Sons, New Delhi. (ISBN: 978-93-5161-131-8)
2. Prasad L. M. (2019). Principles and Practice of Management. Sultan Chand & Sons, New Delhi, India. (ISBN: 978-93-5161-050-2)
3. Tripathi, P. C., & Reddy P. N. (2017). Principles of Management. 6th Ed. MCGraw Hill Education, New Delhi, India. (ISBN: 978-93-5260-535-4)
4. Jayasankar, J. (2015). Principles of Management. Margham Publication, Chennai, Tamil Nadu, India.

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5. Koontz, Harold., & Wehrich, Heinz. (2020) Essentials of Management An International Perspective, 7th Ed. Tata McGraw-Hill Publishing, New Delhi, India. (ISBN: 978-00-7062-030-8)

REFERENCE BOOKS:

1. Sharma. R. K., Gupta, Shashi. K., & Sharma, Rahul. (2019). Principles of Management. Kalyani Publishers, New Delhi, India. (ISBN: 978-93-5359-796-2)
2. Robbins, Stephen P., Coulter Mary A., & DeCenzo David A. (2021) Fundamentals of Management, 11th Ed. Pearson Education, Inc. US. (ISBN: 978-01-3489-880-3)

Note: Latest edition of the books to be referred

Allied Paper –II -BUSINESS COMMUNICATION [Local level]

Course Code : 2106207	Credits : 5
L:P:T:S : 6:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Explain the Role and Importance of Business Communication to ensure the smooth flow of precise information through the Corporate/Entrepreneurial hierarchy.
CO2	Identify and apply the features of various types of Business Letters in the context of Corporate/Entrepreneurial perspectives.
CO3	Outline and understand the techniques and nuances of Modern Methods of Business Communication.
CO4	Design and develop a procedural system of Corporate Correspondence with Government, Directors, Shareholders, Financial Institutions and Vendors.
CO5	Preparation/ Drafting of various Statutory/Non-Statutory Reports and use of updated technological methods of Reporting.
CO6	Develop a clear understanding of the crucial role of Business Communication in Decision Making and success of the business enterprise.

Mapping of Course Outcomes to Program Specific Outcomes:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	3	-	3	2	2	3	1
CO2	1	-	2	2	3	1	1
CO3	2	-	2	1	1	2	3
CO4	1	-	2	1	1	2	1
CO5	3	-	3	1	1	3	1
CO6	2	-	1	2	1	1	-

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S.No.	CONTENTS OF MODULE	Hrs	Cos
1	UNIT – I Business communication – meaning – importance – types – directions – network – process – barriers to effective communication – importance of interpersonal skills, listing skills and emotional intelligence in workplace Layout of business letter – structure of business letter – Date, Salutation, Subject, Body, complementary close, enclosures- Essentials of good business letter	18	1
2	UNIT – II Trade enquiries and replies - quotations - Orders - Complaints and Settlement Trade references and status enquiries – collection Letters - Circular letters, Application for appointments and resume.	18	2
3	UNIT – III Internal Correspondence – circular, notices, note preparation, announcements, memo, press release Communication before and after meeting – notice and agenda, minutes – Do's and Dont's while drafting minutes	18	3
4	UNIT – IV Corporate Correspondence - Correspondence with Directors - Shareholders – Government agencies and others	18	4
5	UNIT – V Reports - kinds - Annual report - Report by individuals and committees - Report on meeting – Role of technology in Business Correspondence – E-mail- writing effective emails, tips and conventions of mail, Social media communication – ethics and limitations.	18	5,6

TEXT BOOKS:

1. Pal, Rajendra., & Korlahalli, J. S. (2016) Essentials of Business Communication. Sultan Chand & Sons, New Delhi, India. (ISBN: 978-81-8054-729-4)
2. Raghunathan, N. S., & Santhanam, B. (2019) Business Communication, Margham Publications, Chennai, Tamil Nadu, India.
3. Raman, Meenakshi., & Singh, Prakash. (2019) Business Communication. 2nd Ed. Oxford University Press, US. (ISBN: 978-01-9807-705-3)
4. Kalia, Shalini., & Agarwal, Shailja. (2019) Business Communication - A Practice Oriented Approach. Wiley Education, New Delhi, India. (ISBN: 978-81-2655-479-9)

REFERENCE BOOKS:

1. Chaturvedi, P. D. & Chaturvedi, Mukesh. (2020) The Art and Science of Business Communication: Skills, Concepts, Cases and Applications. Pearson Education, New Delhi, India. (ISBN: 978-93-3258-738-0)

Note: Latest edition of the books to be referred

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PG Department of Information Technology & BCA

Programme Outcome (PO)

PO1	To participate in various types of employment, development activities and public discourses particularly in response to the needs of the community one serve.
PO2	To implement discipline, professionalism, team spirit, communication skills, social and ethical commitment in the under graduates in order to embellish leadership roles expediting perfection in different sector with a categorical professional distinctiveness, business savvy, international recognition and imperishable expansion.
PO3	To improve the problem-solving skill to identify possible solutions and choosing the correct solution for any problem.
PO4	To enhance the competencies to support national, regional and local development plans and to create questioning mind.
PO5	To enhance the critical thinking ability to think clearly and rationally while understanding the logical connection between ideas in a reflective and independent thinking.
PO6	To engage in Lifelong learning and enduring proficient progress.

Dr. K. Angayarkkani, M.Sc., MCA., M.Phil., Ph.D.,
Head

PG Department of Information Techno
Dwarka Doss Goverdhan Doss



DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE

(AUTONOMOUS)

Re-accredited with "A++" by NAAC

College with Potential for Excellence, Linguistic Minority Institution

Affiliated to University of Madras

Arumbakkam, Chennai – 600 106

PG Department of Information Technology & BCA

Programme Specific Outcome (PSO)

PSO1	Gain theoretical knowledge in computer fields.
PSO2	Apply the knowledge of computer in practice.
PSO3	Ability to design and develop an application to meet the desired.
PSO4	Enhance programming skills in student.
PSO5	Enhance the critical thinking and problem solving abilities.
PSO6	Use computer skills in different fields.

Dr. K. Angayarkkani, M.Sc., MCA., M.Phil, Ph.D.,

Head

P.G. Department of Information Technology & BCA

Dwarka Doss Goverdhan Doss Vaishnav College

Arumbakkam, Chennai - 600 106.

Program Outcome (PO)

At the end of the program, the student will be able to:

PO	Program Outcome
PO1	Knowledge: Apply the knowledge of Mathematics to develop logical thinking.
PO2	Problem Analysis: Identify the problems in real life situations and develop Mathematical models which paves the way to obtain solutions.
PO3	Modern tool usage: Select and apply appropriate techniques, resources, computer programming and statistical tools to cope up with recent trends.
PO4	Individual and team work: Function effectively as an individual and as a member or leader in team.
PO5	Communication: Communicate with society at large, being able to comprehend and write affective reports and design documentation, make effective presentations.
PO6	Project Management: Acquire Mathematical and Statistical knowledge necessary to formulate, analyze, design and apply in multidisciplinary environments.
PO7	Life-long learning: Recognize the need for preparation and the ability to engage in life-long learning in the context of technological change.

Program Specific Outcomes (PSO)

At the end of the program, the student will be able to:

PSO	Program Specific Outcomes (PSO)
PSO1	Mathematical Thinking: Acquire abstract mathematical thinking and the capability of developing ideas based on them.
PSO2	Career: Practice mathematical tasks, tools, representation and methods for industry and entrepreneurial pursuit.
PSO3	Creativity: Develop quest for mathematics and prepare for higher learning.

4.	Sense of inquiry	Analyze Nature and laws of Physics by asking relevant questions in a sequential manner by inductive method. (PO4)
5.	Team player/worker	Collaborate effectively and gain the ability to work both independently and in group. (PO5)
6.	Skilled project manager	Understand the flow of Project/experimentation; gather men, method and means for its implementation. (PO6)
7.	Digitally Efficient	Seek e-resources and update Scientific information and skills through ICT tools. (PO7)
8.	Ethical awareness / reasoning	Demonstrate professional behavior such as being objective, unbiased and truthful in all aspects of work and avoiding unethical, irrational behavior such as fabricating, falsifying or misrepresenting data or committing plagiarism; the ability to identify the potential ethical issues in work-related situations; appreciation of intellectual property, environmental and sustainability issues; and promoting safe learning and working environment. (PO8)
9.	National and International perspective	Participate in global citizen science projects using e-learning materials as well execute proposals of National and International importance. (PO9)
10.	Lifelong learners	Learn, Unlearn, Relearn as well seeks solution to real life problems. (PO10)

Mapping of POs TO PEOs

PEO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
PEO 1	3	3	3	3	3	3	3	3	3	3
PEO 2	3	3	2	3	3	3	2	3	3	3
PEO 3	3	3	3	3	3	3	3	3	3	3
PEO 4	3	3	3	3	3	2	3	3	3	3
PEO 5	3	3	3	3	3	3	2	3	3	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

PROGRAM SPECIFIC OUTCOMES

PSO1 - Understand, identify basic principles and concepts of various branches of Physics, correlate and solve the problems in the field of core and applied Physics.

PSO2 - Demonstrate the acquired knowledge of Physics on various scientific issues.

PSO3 - Design various experiments, electronic circuits investigate and become capable problem solver, using mathematical, conceptual and hands on skills.

PSO4 - Apply analytical abilities acquired from the class room / laboratory and promote scientific ideas, harness renewable and nonconventional energy resources.

PSO5 - Appreciate their experimental learning beyond the classroom; construct logical arguments, using technical language, develop programming skills, approach open-ended problems and innovate solutions.

Above 1 to 3 goals are foundational goals leading to fundamental understanding of Physics. All the courses and various modules on the courses are built on the foresaid goals. The goals 3 to 5 are realized through laboratory experiments, projects and e- learning resources.

DEPARTMENT OF PHYSICS

ELIGIBILITY FOR ADMISSION

A pass in the Higher Secondary Examination by the Govt. of Tamil Nadu or an Examination accepted as equivalent thereof by the Syndicate of the University of Madras with Physics and Mathematics as major subjects of study.

DURATION OF THE COURSE

Duration of the course is three academic years consisting of six semesters. And each semester comprises of not less than 90 working days.

B.Sc. Physics Curriculum

Physics is one of the basic and fundamental sciences. The curriculum for the Graduate programme in physics is revised as per the UGC guidelines on Learning Outcome based education criteria course framework and integrated common regulations under CBCS of University of Madras. The learner-centric courses let the student progressively develop a deeper understanding of various aspects of physics. The courses will train students with sound theoretical and experimental knowledge that suits the need of academics and industry. In addition to the theoretical course work, students also learn Physics Laboratory methods for different branches of physics, specialized measurement techniques, analysis of observational data, including error estimation. Students will have deeper understanding of laws of nature through the subjects like classical Mechanics, quantum mechanics, statistical physics etc. Students' ability of problem Solving will be enhanced. Students can apply principles in physics to real life problems. Subjects like integrated electronics and microprocessors will enhance the logical skills as well as employability skills. Numerical methods and mathematical Physics provides analytical thinking and provides a better platform for higher level Physics and research. The restructured courses with well defined objectives and learning outcomes, provides guidance to prospective students in choosing the elective courses to broaden their skills in the field of physics and interdisciplinary areas. Elective modules of the framework offer students choice to gain knowledge and expertise in specialized domains of physics like astrophysics, medical physics, etc.

ELIGIBILITY FOR THE AWARD OF DEGREE

A candidate shall be eligible for the award of the degree only if she/he has undergone prescribed course of study for a period of not less than three academic years and passed the

PROGRAMME OUTCOMES

At the completion of the B.Sc. Chemistry program, the students of our Department will be able to :

S.N O	GRADUATE ATTRIBUTES	PROGRAMME OUTCOMES
1.	Knowledge	Attain in depth knowledge about the fundamental principles, essential facts, conclusions and applications of chemical and scientific theories in various domains of chemistry. (PO1)
2.	Critical Thinking	Carry out experiments in the area of organic analysis, estimation, derivative process, inorganic semi micro analysis, preparation, Kinetic, conductometric and potentiometric experiments and spectral analysis applying the domain of critical thinking. (PO2)
3.	Problem Solving	Define the background of reaction mechanisms, complex chemical structures, instrumental method of chemical analysis, and separation techniques and apply appropriate techniques for analysing specific problems both qualitatively and quantitatively in laboratories and in industries. (PO3)
4.	Usage of modern tools	Create data using modern chemical tools and ICT for modeling and analyze the data obtained from sophisticated instruments (like UV-Vis , FTIR, NMR, GCMS, Fluorescence, SEM,TEM and XRD) for chemical analysis (PO4)
5.	Communication	Develop Skills to evaluate, analyze and interpret the chemical information and data and to communicate effectively within the chemical community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. (PO5)
6.	Life-long Learning	Demonstrate scholarly attitude to pursue a career in the field of chemical education and research and have the zeal and vision to engage in independent and life-long learning in the broadest context of technological and social change. (PO6)
7.	Ethical Practices and Social Responsibility	Generate ideas and solutions for green and sustainable chemistry and approach towards planning and execution of research in frontier areas of chemical sciences. (PO7)
8.	Independent and Reflective Learning	Develop entrepreneurial skills in interdisciplinary and multidisciplinary areas of chemical sciences and its applications and develop a zeal to pursue a career in the field of chemistry. (PO8)

Mapping of POs TO PEOs

<u>PEO/PO</u>	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7
PEO 1	3	2	2	2	2	2	1
PEO 2	2	2	3	1	2	2	3
PEO 3	2	3	3	2	1	1	3

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

PROGRAM SPECIFIC OUTCOMES (PSO's)

At the time of graduation, our under graduates and post graduates would be able to:

PSO 1- Evaluate, analyze, interpret and effectively apply the basic laws, principles, phenomena, processes and mechanisms involved in the domain of organic, inorganic, physical and analytical Chemistry

PSO2 - Demonstrate the knowledge of Chemistry in the domain of research, education and perspective entrepreneurship.

PSO3 - Evaluate distinct problems in the field of chemical data analysis, scientific interpretation and reaction mechanisms with an understanding on basic tools to be employed.

PSO4 – Apply the knowledge of Chemistry to appreciate, develop and test the theoretical aspects for applications in environment, materials, medicines, and technology.

PSO5 - Employ standard laboratory equipment, instrumentation and classical techniques to carry out experiments and develop skills to interpret and explain the validity of experimental data in terms of accuracy and underlying theory.

PROGRAM OUTCOMES (PO) IN RELATION TO GRADUATE ATTRIBUTES

B.Sc BIOCHEMISTRY

By the end of the programme, the graduates will be able to	
PO1	To participate in various types of employment, development activities and public discourses particularly in response to the needs of the community one serves
PO2	To understand the need and have the competencies to support local, regional and national development
PO3	To develop critical and analytical thinking
PO4	To develop conceptual understanding , problem solving and application of skills
PO5	To provoke entrepreneurship among the students along with strong ethics and communication skills
PO6	To develop a questioning mind in diverse environments for better outcomes
PO7	To engage in lifelong learning and enduring proficient progress

M.Sc BIOCHEMISTRY

By the end of the programme, the graduates will be able to	
PO1	To attain suitable scientific knowledge and technical skills to realize, calibrate and develop innovative processes / skills for creation of inventive products which are beneficial to society.
PO2	To implement discipline, professionalism, team spirit, communication skills, social and ethical commitment in the post graduates in order to embellish leadership roles expediting perfection in different sector with a categorical professional distinctiveness, business savvy, international recognition and imperishable expansion.
PO3	To be habituated with the emerging expanses of erudition and their applications in several domains of biological sciences and to enlighten the students of its relevance in forthcoming studies
PO4	To enhance the insight of research-oriented knowledge in conjunction with literature survey, design of experimental methodology, analysis and interpretation of results and draw valid conclusions.
PO5	To provoke entrepreneurship among the students along with strong ethics and communication skills
PO6	To engage in Lifelong learning and enduring proficient progress

M.Phil., BIOCHEMISTRY

PO1	Sound knowledge in research methodologies to pursue interdisciplinary research.
PO2	Read and evaluate current literature in the field of research and beyond.
PO3	Present and Publish research findings in national and international conferences/ various research forums, peer reviewed journals for global impartment of knowledge.
PO4	Successful for post doctoral studies or to be employed in research organization with professional leadership.
PO5	Develop into a responsible academician, researcher and successful entrepreneur with a commitment for lifelong learning.

PROGRAM SPECIFIC OUTCOMES (PSO) IN RELATION TO
GRADUATE ATTRIBUTES

B.Sc BIOCHEMISTRY

After successful completion of 3years BSc programme the students will be able to	
PSO1	Become knowledgeable in the field of Biochemistry and apply the principles of the same to the needs of the Employer / Institution
PSO2	Gaining a wide knowledge on role of proteins, carbohydrates, nucleic acids, enzymes in the cell with their clinical importance.
PSO3	Acquiring analytical and hands on skills to perform research in the area of Biochemistry.
PSO4	Students will be able to comprehend the knowledge in the biochemical, analytical, biostatistical , computational areas.
PSO5	Integrating the concepts of Metabolism, Clinical Biochemistry, and Immunology, nutritional to illuminate acquaintance on health and disease.
PSO6	Use library search tools to locate and retrieve scientific information about a technique or topic related to biochemistry Use online data bases and source appropriately to study genetic disease Equipped to record and interpret digital data
PSO7	Identify problems related to environment. Analyze and derive valid conclusions with contemporary knowledge in biochemistry and computers

M.Sc BIOCHEMISTRY

After successful completion of 2 years MSc programme the students will be able to	
PSO1	Understanding of biological principles and the ability to make connections across different levels of biological organization, from molecules to cells, to whole organisms, populations and ecosystems.
PSO2	Students should be able to demonstrate advanced knowledge and understanding in macromolecular structure, enzyme kinetic behavior, gene expression, metabolic control, molecular signaling, immunity etc
PSO3	Students should be able to use their practical skills of wide range of biochemical techniques in various laboratory investigations. Students should be able to develop generic skills that allow them to analyze, interpret and relate known and unknown biological phenomenon
PSO4	Students should be able to communicate what they know through precise language, diagrammatic representation , graphical mode and using computational tools
PSO5	Post-graduates will be able to identify problems related to environment, analyse and derive valid conclusions with fundamental knowledge in biology and computers. Apply reasoning to assess societal, health, safety and legal issues and understand his responsibilities by undergoing waste recycling process.

M.Phil., BIOCHEMISTRY

PSO1	Equipped with strong knowledge and basic professional skills in learning and research
PSO2	To identify, formulate, and Enrich a variety of ideas and coherent understanding to solve bio-chemical problems for successful career and be professional.
PSO3	Grow professionally with their scientific knowledge and proficient skills and exhibit high standard of ethical conduct, positive attitude and societal responsibilities.
PSO4	Integrate to various technical training through laboratory practical and latest instruments, communication and presentation skills.
PSO5	Competent, novel and creative in addressing the needs of the Industry, and research.
PSO6	Creating rational approach to utilize the sources, and learn various theories and experiments from research.
PSO7	To build a prosperous career and understand the importance of research in the day to day of life.

BSc Biotechnology
ACADEMIC YEAR 2022–2023
PROGRAM OUTCOMES (PO) IN RELATION TO GRADUATE ATTRIBUTES

At the completion of the B.Sc. Biotechnology program, the students of our department will be able to:

S.NO	PROGRAMME OUTCOMES
PO1	To participate in various types of employment, development activities and public discourses particularly in response to the needs of the community one serves.
PO2	To understand the need and have the competencies to support local, regional and national development.
PO3	To develop critical and analytical thinking.
PO4	To develop conceptual understanding, problem solving and application of skills.
PO5	To provoke entrepreneurship among the students along with strong ethics and communication skills.
PO6	To develop a questioning mind in diverse environments for better outcomes.
PO7	To engage in lifelong learning and enduring proficient progress.

MSc Biotechnology

ACADEMIC YEAR 2022–2023

PROGRAM OUTCOMES (PO) IN RELATION TO GRADUATE ATTRIBUTES

PROGRAMME OUTCOMES

At the completion of the M.Sc. Biotechnology program, the students of our department will be able to:

PO1	To attain suitable scientific knowledge and technical skills to realize, calibrate and develop innovative processes / skills for creation of inventive products which are beneficial to society.
PO2	To implement discipline, professionalism, team spirit, communication skills, social and ethical commitment in the post graduates in order to embellish leadership roles expediting perfection in different sector with a categorical professional distinctiveness, business savvy, international recognition and imperishable expansion
PO3	To be habituated with the emerging expanses of erudition and their applications in several domains of biological sciences and to enlighten the students of its relevance in forthcoming studies
PO4	To enhance the insight of research-oriented knowledge in conjunction with literature survey, design of experimental methodology, analysis and interpretation of results and draw valid conclusions.
PO5	To provoke entrepreneurship among the students along with strong ethics and communication skills
PO6	To engage in Lifelong learning and enduring proficient progress

PROGRAMME OUTCOMES

At the completion of the B.Sc. Plant Biology & Plant Biotechnology programme, the students of our Department will be able to:

S.NO	GRADUATE ATTRIBUTES	PROGRAMME OUTCOMES
1.	Knowledge	Attain in-depth Knowledge in the field of plant and animal diversity in terms of structure, function and environmental relationships. (PO1)
2.	Critical Thinking	Apply the knowledge of biology to make scientific queries and enhance the comprehension potential. (PO2)
3.	Problem Solving	Identify the taxonomic position of plants and animals using principles and methods of nomenclature. Mapping of chromosomes, solving Bio statistical problems, and also experiments related to plant physiology (PO3)
4.	Usage of modern tools	Demonstrate practical observation of both internal and external features of plants & animals and experiments using Biological tools and techniques (Like Oil immersion Microscope, Light Microscope, Dissection Microscope, calorimeter, Ganong's potometer) for cellular and fundamental metabolism of plants with an understanding of the application and limitations. (PO4)
5.	Communication	Practice successful transfer of scientific knowledge and biological information both in oral and in writing and also making effective ICT presentations. (PO5)
6.	Life-long Learning	Study incessantly by self to cope with growing competition for higher studies and employment. Enhance the acquired skills for lifelong learning in the broadest context of technological and social change. (PO6)
7.	Ethical Practices and Social Responsibility	Demonstrate and practice social, environmental, and biological ethics. (PO7)
8.	Independent and Reflective Learning	Use of skills in interdisciplinary and multidisciplinary areas of life sciences and their applications and develop a passion to pursue a career in the field of Life science. (PO8)

MAPPING OF PO TO PEO

PEO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
PEO1	1	1	2	3	2	3	1	3
PEO2	1	1	2	2	1	3	1	3
PEO3	3	3	2	3	3	2	2	3

Correlation: 3 Strong 2 Medium 1 Low

PROGRAMME SPECIFIC OUTCOMES (PSO)

At the time of graduation Our Graduates would be able to:

PSO1	Evaluate, Analyse and interpret diversity of plant and animal life forms, using specific identification key characteristic features and its significance in structured framework, including critical understanding of the established theories, principles and concepts of a number of advanced and emerging issues in the field of Life sciences.
PSO2	Demonstrate comprehensive knowledge in various plant and animal structure and functions (both internal & external), physiological metabolism, Gene concepts, genome, cell organelles & tissue culture.
PSO3	Elucidate the knowledge of distribution of plants, herbal medicines, methods of gardening, different habitats and their degradation and analyse the diseases of crop plants and their control measures, study about communicable and non-communicable diseases and health & hygiene.
PSO4	Apply the knowledge of Life science to solve complex problems in research labs using the latest biological tools and techniques.
PSO5	Comprehend the latest developments in the field of Life science, both theoretical and practical and also on entrepreneurial development skills in a way to foster their core competency and lifelong learning.



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**PROGRAM OUTCOMES OF THE DEPARTMENT- COMPUTER
SCIENCE (U.G)**

PO1	To attain suitable scientific knowledge and technical skills to realize, calibrate and develop innovative processes / skills for creation of inventive products which are beneficial to society.
PO2	To implement discipline, professionalism, team spirit, communication skills, social and ethical commitment in the post graduates in order to embellish leadership roles expediting perfection in different sector with a categorical professional distinctiveness, business savvy, international recognition and imperishable expansion
PO3	To be habituated with the emerging expanses of erudition and their applications in several domains of biological sciences and to enlighten the students of its relevance in forthcoming studies.
PO4	To enhance the insight of research-oriented knowledge in conjunction with literature survey, design of experimental methodology, analysis and interpretation of results and draw valid conclusions.
PO5	To provoke entrepreneurship among the students along with strong ethics and communication skills.
PO6	To engage in Lifelong learning and enduring proficient progress.



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**PROGRAM SPECIFIC OUTCOMES OF THE DEPARTMENT -
COMPUTER SCIENCE (U.G)**

PSO1	Learning the applications of various software elements which help to identify various analysis and design methodologies
PSO2	Demonstrate by developing computer programs in the area related to algorithm, web designing, facilitating efficient design for complex problems.
PSO3	Enables the students to be familiar with the modern- day issues, latest trends in computing and technology and create ideas and solutions to existing problems
PSO4	Building code in Various Programming Languages and applications
PSO5	Detailed Glimpse of Orientation and Interconnection.
PSO6	Gains Knowledge in the various aspects of new Trends and Technologies.

PG & RESEARCH DEPARTMENT OF COMMERCE (SHIFT I)

PROGRAM OUTCOMES (PO)

PO1	To undertake/ engage in employment oriented activities, development activities and allied activities particularly in response to the needs of the society.
PO2	To understand the needs and to acquire the required competencies to support local, regional and national development.
PO3	To develop conceptual understanding of the subject, problem solving and application of skills in practical orientation of the subjects.
PO4	To develop critical and analytical thinking.
PO5	To instill entrepreneurial spirits among the students along with ethics and business orientation.
PO6	To kindle curiosity to review upon the diverse environments for enhanced and innovative and best practices.
PO7	To engage in lifelong learning and continuing learning and enduring proficient progress

PROGRAM SPECIFIC OUTCOMES

PSO-1	Equip the Graduates to meet the industry expectations in the field of Accounting, Auditing, Legal Compliance, Marketing, Taxation, Banking and Financial Services
PSO-2	Students are being trained to adapt to Entrepreneurship and Engage in Entrepreneurial Ventures.
PSO-3	Graduates are skillfully trained in association with professional training institutions.
PSO-4	Students are inspired to pursue professional courses- CA, CMA, ACS, Law and Management Courses.

CORE - XV ENTREPRENEURIAL DEVELOPMENT

Course Code :		Credits	: 04
L:T:P:S	: 4:0:0:0	CIA Marks	: 50
Exam Hours	: 03	ESE Marks	: 50

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define entrepreneur, understand the several theories of entrepreneurship and recognize the entrepreneurial development in India.	K1,K2
CO2	Conceive new business ideas and identify project opportunities together with problems to be faced.	K6,K2,K1
CO3	Analyze and select the types of organization and interpret about the growth, expansion, diversification and strategies.	K4,K2
CO4	Find the sources of finance and integrate the knowledge about government incentives, subsidies policies, tax concession to SSI units.	K1,K3
CO5	Acquire the awareness about the role and scope of women entrepreneur, rural entrepreneur and NGO's.	K2
CO6	Develop entrepreneurship skills.	K6

**SPECIALISED COURSE-I
LOGISTICS AND SUPPLY CHAIN MANAGEMENT**

Course Code: Credits : 04	
L:T:P:S:4:0:0:0	CIA Marks: 50
Exam Hours :03	ESE Marks : 50

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define various concepts in Logistics management; it gives the wider idea about the logistics.	K1
CO2	Discuss the inventory control, demand forecasting, distribution management, and logistics in 21 st century.	K3
CO3	Analyse supply chain management and its global applications	K4 & K5
CO4	Explain the role of manager, drivers, and key enablers in supply chain management.	K2
CO5	Generate ideas about aligning the supply chain with business strategy and compare and contrast about SCOR Model, 3PLS, Fourth Party Logistics.	K6
CO6	Develop and apply analytical techniques to design and operate integrated supply chains. Analyse and improve supply chain processers.	K5

PG Department of Physics
ACADEMIC YEAR 2022-2023
M.Sc. (PHYSICS)

PROGRAM OUTCOMES (PO) IN RELATION TO GRADUATE ATTRIBUTES
PROGRAMME OUTCOMES

At the completion of the M.Sc. Physics program, the students of our Department will be able to:

PO 1	Distinctive Academic curriculum:	Mathematical Physics, Classical Mechanics, Electromagnetic Theory, Advanced Electronics, Atomic and Molecular Physics, Quantum Mechanics, Solid State Physics, Nuclear Physics, Numerical Methods and Computer Programming, and project-based learning have acquired knowledge and skill in problem solving.
PO 2	Qualified and Competent Faculty Members:	Become professionally trained.
PO 3	Transfer of Knowledge through Scholarly Activities:	Demonstrate highest standards of academic excellence.
PO 4	Interdisciplinary Project-based Learning:	Excel in the research related to Physics and Materials characterization.
PO 5	State-of-the-Art Laboratories:	Become professionally competent in the area of electronics, and microcontrollers.
PO 6	Exceptional Computational Facilities:	Develop a knowledge in C programming and critical computing skills.
PO 7	Internship Program:	Industry interaction, secure good references and recommendations.
PO 8	Mentorship:	Build a strong resume, help guide career goals, abroad opportunities.
PO 9	Soft Skill:	Interpersonal and communication skills as well as a commitment to life-long learning.
PO 10	Electives, Extra Disciplinary Paper:	Acquire specific and in-depth knowledge to present and publish research findings.

PROGRAM SPECIFIC OUTCOMES

- PSO 1** Apply theoretical knowledge of principles and concepts of Physics to practical problems.
- PSO 2** Use mathematical techniques and interpret mathematical models of physical behaviour.
- PSO 3** The methodology required for planning and execution of experiments. The analysis and interpretation of experimental results.
- PSO 4** Demonstrate the ability to plan, undertake, and report on a project of original work.
- PSO 5** Develop communication skills, both written and oral, for specialized and non-specialized audiences.

CORE PAPER I – MATHEMATICAL PHYSICS I

Course Code : 2222101

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Comprehend the concept of Vector analysis along with Applications of Vectors.
CO2	Conceptualize Vector space and study of Dirac Delta Function and Applications.
CO3	Analyze characteristics of matrices and its different types and also solve linear equations.
CO4	Solve Linear Differential equations and discuss the properties of special functions.
CO5	Realize the basics of Tensor Analysis and its applications.

CORE PAPER II – CLASSICAL MECHANICS

Course Code : 2222102

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand the concepts of generalized coordinates and momenta and apply the D'Alembert's principle to obtain equation of motion for a given system using Lagrangian and Hamiltonian formulations for getting equations of motion for various mechanical system.
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CO2	Understand essential features of a classical problem (like motion under central force, periodic motions), use them to set up and solve the appropriate physics problems.
CO3	Apply the Euler's equations of motion to solve problems involving rotations of rigid bodies.
CO4	Understand Canonical transformations and use Hamilton-Jacobi formalism to solve mechanical systems
CO5	Distinguish different types of equilibrium. Solve coupled oscillator problems using theory of small oscillations and identify the normal modes.

CORE PAPER III – ELECTROMAGNETIC THEORY

Course Code : 2222103

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	Understand the foundations of electrostatics and learn to use various mathematical techniques to obtain electric field potential.
CO 2	Understand the foundations of magnetostatics, properties and boundary conditions obeyed by magnetic field and vector potential.
CO 3	Acquire knowledge to express Maxwell's equations in vector form using Faraday's laws and definition of Maxwell's displacement current and their applications.
CO 4	Develop knowledge about Retarded Potential. Rendering insights into fields generated by oscillating sources, and their applications.
CO 5	Demonstrate the ability to understand the connection between Special Theory of Relativity and Electrodynamics, and to express Electrodynamics (Maxwell's equations) in Tensor notation.

CORE PAPER IV – ADVANCED ELECTRONIC CIRCUITS

Course Code : 2222104

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand the working and designing of active filters using op-amps. The filters studied are first, second order, band pass and all pass filter
CO2	Realize how operational amplifier is used to construct oscillators and comparators and also to analyze their shortcomings
CO3	Acquire knowledge about the Semiconductor Optical Devices like solar cells, photodetectors: photodiode, PIN photodiode, Avalanche photodiode, light emitting diodes, laser diodes, Tunnel diode, IMPATT diode, Gunn diode.
CO4	Understand the concepts of Voltage and Current Time Base Generators by studying Miller and bootstrap time base generators its basic principles, and construction of Transistor miller time base generator and how it is useful in the industry.
CO5	Recognize of the multitude of applications that can be realized using TIMER555 by understanding the working knowledge of monostable multivibrator, astable multivibrator.

CORE PAPER V– MATHEMATICAL PHYSICS II

Course Code : 2222205

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand the basics of complex algebra and evaluation of definite integrals
CO2	Evaluation of coefficients of Fourier series and also its advantages
CO3	Deriving Laplace transform, Inverse Laplace transform and also Fourier transform
CO4	Learn the group axioms in group theory and symmetry operations along with applications.
CO5	Concept of Probability, Curve fitting technique.

CORE PAPER VI – QUANTUM MECHANICS I

Course Code : 2222206

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand the difference between Classical Mechanics and Old Quantum Theory
CO2	Interpret the conditions and Evaluate problems in Schrödinger's Equation
CO3	Compare the Schrödinger's, Heisenberg and Interaction pictures
CO4	Solve and analyze problems in particle in a box, Square well potential, Barrier penetration and Simple Harmonic Oscillator
CO5	Evaluate and solve problems in three dimensional Spherical Well and Harmonic Oscillator

ELECTIVE PAPER- I GENERAL THEORY OF RELATIVITY (A)

Course Code: 2222207 (A)

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand the basic principles of four vectors, relativistic particle motion and Lorentz Transformations.
CO2	Explain the main concepts of Tensors such as Line Element, Reciprocal Basis, Change of basis, Transformation Law and Affine Connection.
CO3	Acquire knowledge about Covariant Derivative, the Riemann Curvature Tensor, Second Covariant Derivative, Covariant Differentiation, Symmetry Properties of the Riemann Tensor, Bianchi Identities and the Einstein Tensor.
CO4	Explain the Equivalence Principle, Local Freely Falling Frame, Spherically Symmetric Solution to Field Equations, Motion in Three-Dimensional Euclidian Space.
CO5	Understand the Linearized Theory and Plane-wave solution to the Einstein Field Equations.

ELECTIVE PAPER I GROUP THEORY (B)

Course Code : 2222207 (B)

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand the concepts of Discrete Groups such as Multiplication Table, Conjugate Elements and Classes, Direct Product of Group, Isomorphism and Homomorphism, Permutation Groups and Distinct Groups of a Given Order.
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CO2	Explain the key points of the Representation Theory of Finite Groups. Learn about the Schur's Lemmas, the Orthogonality Theorem, Symmetrized Basis Functions for Irreducible Representations, Direct Product of Representations and Representations of a Direct Product Group.
CO3	Understand Continuous Groups with examples. Learn about Isomorphism, one parameter groups, Structure Constants, and Linear Representation of Lie Groups.
CO4	Explore the Applications of Group Theory in High Energy physics by learning about the Killing Form, the Structure of Simple Lie Algebras, and Representations of Quark Model.
CO5	Understand the applications of Group Theory in Condensed Matter Physics by learning the problem of Electronic Structure of Crystals, Translation Group and the Reciprocal Lattice. Learn about the Irreducible Representations of a Space Group, Free Electron Energy Bands.

**ELECTIVE PAPER I
SPECTROSCOPY (C)**

Course Code : 2222207 (C)

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand the concept of Microwave Spectroscopy and analyze the spectra of diatomic, Polyatomic Molecules and Symmetric Top molecules
CO2	Infra-Red Spectroscopy and its Instrumentation technique
CO3	Account of Raman activity by Classical and Quantum theory, The structure determination of N ₂ O and SO ₂ Raman Spectroscopy
CO4	UV Spectroscopy, its origin, principle and measurement
CO5	Resonance spectroscopy – NMR, EQR and ESR. Principle behind Mossbauer spectroscopy is discussed

**ADVANCED COURSE I– INTRODUCTION TO MICROPROCESSOR 8085 AND
MICROCONTROLLER 8051**

Course Code : 2222208

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	Study the architecture of microprocessor 8085.
CO 2	Knowledge of basics of modern computation is evident from the instruction set, addressing modes of the microprocessors 8085.
CO 3	Acquire knowledge about memory organization of microcontroller 8051
CO 4	Write programs in assembly language using microcontroller 8051
CO 5	Understand the operation of interfacing microcontroller with peripheral systems.

CORE PAPER VII- STATISTICAL MECHANICS

Course Code : 2222311

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Gain knowledge and become familiar with various thermodynamic processes.
CO2	Acknowledge Hamiltonian formalism, theory of Probability and Statistics needed to obtain the laws of thermodynamics
CO3	Understand the concepts of ensembles and their connections to thermodynamic quantities
CO4	To learn the classical and quantum statistics which describes the state of a system made of microscopic particles which either obey Fermi-Dirac statistics or Bose-Einstein statistics
CO5	Value of the phase transitions and extend these ideas to quantum world. To understand phase transition arising in ising model

CORE PAPER VIII – QUANTUM MECHANICS II

Course Code : 2222312

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Better understanding of the mathematical foundations of angular momentum of a system of particles.
CO2	Apply the perturbation theory to scattering matrix and partial wave analysis. Compare and analyze the different approximation methods
CO3	Applications of various approximation methods in solving the Schrodinger equation.
CO4	Understand the concept of Scattering cross-section, scattering amplitude of Born approximation and partial wave analysis method
CO5	Grasp the central concept and principles of relativistic Quantum Mechanics and solve problems.

ELECTIVE PAPER II RELATIVISTIC QUANTUM MECHANICS (A)

Course Code : 2222313 (A)

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand the Special Theory of Relativity by learning Lorentz Transformations, Space-time Diagrams, Simultaneity, Causality, Time Dilation Length Contraction, Addition of Velocities and the Geometry of Space-time.
CO2	Explain the main concepts in Relativistic Quantum Mechanics. Understand the Klein-Gordon equation, probability and current densities, equation of continuity, Dirac equation and the solution for the same.
CO3	Understand the covariant form of Dirac Equation, properties of gamma matrices, relativistic invariance of Dirac equation and Feynman's theory of positron.
CO4	Explore the field functions, quantization procedure for particles, Lagrangian density, and Euler-Lagrange equation for classical field to understand the concept of Second Quantization in detail.
CO5	Learn about the Quantization of EM Field, Generation and detection of Fock states of the Radiation field, coherent Photon States, and properties of Coherent States.

**ELECTIVE PAPER II
LASERS AND NON-LINEAR OPTICS (B)**

Course Code : 2222313 (B)

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Learn about Conventional Lasers, the differences between Spontaneous and Stimulated Emission, Einstein Coefficients, the different levels of laser action and Solid-State Lasers.
CO2	Explain the main concepts used to develop advanced lasers such as Q-Switching, Electro-optic Shutter, Mechanical and Saturable absorber Shutters and peak power emitted during the pulse.
CO3	Understand the basics of Nonlinear Optics by learning about Wave Propagation in an anisotropic crystal, Polarization Response of materials to light, Harmonic generation, Second harmonic generation, phase matching and third harmonic generation.
CO4	Learn the fundamentals of multi-quantum photoelectric effect, Theory of two photon process, experimental evidences of 2PA materials, stimulated Raman scattering and photorefractive effect.
CO5	Explore the applications of Laser Materials processing with lasers. Learn about the principle of Holography, Laser Range finders and communication by lasers.

**ELECTIVE PAPER II
MEDICAL PHYSICS (C)**

Course Code : 2222313(C)

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Learn the fundamentals, production and applications of X-rays. Explain the main concepts of transducers and realize its applications.
CO2	Understand the basics of blood pressure measurements. Learn about sphygmomanometer, EGC, ENG and basic principles of MRI.
CO3	Gain knowledge on Radiation Physics Learn the concepts of radiation detectors
CO4	Gets familiar with various detectors used in medical imaging
CO5	Functional knowledge regarding the need of radiological protection lasers in Medicine.

ELECTIVE PAPER III
COMPUTATIONAL METHODS AND C PROGRAMMING

Course Code : 2222417

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	Acquire knowledge and apply it to solve simultaneous linear equations
CO 2	Formulate an equation to fit a straight line. Enrich a given set of data points using interpolation methods like Newton's forward interpolation, etc.
CO 3	Demonstrate the methods to solve differential equations
CO 4	Acquire knowledge on C programming
CO 5	Write, Compile, Execute and Troubleshoot programs using C

CORE PAPER IX – CONDENSED MATTER PHYSICS

Course Code :2222415

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Arrive at the basic elements of crystal structure of condensed matter.
CO2	Conclude on the accurate description of lattice dynamics and thermal properties of crystalline solids. Derive cohesive energy of ionic crystals.
CO3	Perceive origin of energy bands in solids with focus on semiconductors
CO4	Able to explain various magnetic phenomena and describe the different types of magnetic ordering (Diamagnetism, Paramagnetism, Ferromagnetism) based on the exchange interaction.
CO5	Differentiate between type-I and type-II superconductors and score on the theoretical explanation of super conductivity viz Cooper pairs and BCS theory.

CORE PAPER X – NUCLEAR AND PARTICLE PHYSICS

Course Code : 2222416

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Acquire knowledge of nuclear models along with their defining features and
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	drawbacks.
CO2	Concept and nature of nuclear force. Attain the knowledge in nuclear interactions
CO3	Derive nuclear reaction kinematics, identify types of reactions and conservation laws
CO4	Remember the concepts of nuclear decay
CO5	Understand the nature, interaction etc. of the elementary particles.

**ADVANCED COURSE II
MATERIALS SYNTHESIS AND CHARACTERIZATION**

Course Code : 2222314

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	Acquire knowledge of basic approaches to crystal growth like solution growth technique, gel growth technique, melt technique, Bridgman technique, Czochralski technique, etc.
CO 2	Demonstrate the stages of thin film formation and can outline the conditions for the formation of amorphous, crystalline and epitaxial films
CO 3	Acquire an insight into the synthesis of nano materials.
CO 4	Understand the structure, types, physical properties and chemical properties and applications of nanotubes.
CO 5	Assimilate the principle, construction and working knowledge of spectroscopic techniques like UV–VIS spectroscopy, luminescence techniques, dielectric spectroscopy, and NLO studies.

PROGRAMME OUTCOMES

At the completion of the B.Sc. Chemistry program, the students of our Department will be able to :

S.N O	GRADUATE ATTRIBUTES	PROGRAMME OUTCOMES
1.	Knowledge	Attain in depth knowledge about the fundamental principles, essential facts, conclusions and applications of chemical and scientific theories in various domains of chemistry. (PO1)
2.	Critical Thinking	Carry out experiments in the area of organic analysis, estimation, derivative process, inorganic semi micro analysis, preparation, Kinetic, conductometric and potentiometric experiments and spectral analysis applying the domain of critical thinking. (PO2)
3.	Problem Solving	Define the background of reaction mechanisms, complex chemical structures, instrumental method of chemical analysis, and separation techniques and apply appropriate techniques for analyzing specific problems both qualitatively and quantitatively in laboratories and in industries. (PO3)
4.	Usage of modern tools	Create data using modern chemical tools and ICT for modeling and analyze the data obtained from sophisticated instruments (like UV-Vis , FTIR, NMR, GCMS, Fluorescence, SEM, TEM and XRD) for chemical analysis (PO4)
5.	Communication	Develop Skills to evaluate, analyze and interpret the chemical information and data and to communicate effectively within the chemical community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. (PO5)
6.	Life-long Learning	Demonstrate scholarly attitude to pursue a career in the field of chemical education and research and have the zeal and vision to engage in independent and life-long learning in the broadest context of technological and social change. (PO6)
7.	Ethical Practices and Social Responsibility	Generate ideas and solutions for green and sustainable chemistry and approach towards planning and execution of research in frontier areas of chemical sciences. (PO7)

8.	Independent and Reflective Learning	Develop entrepreneurial skills in interdisciplinary and multidisciplinary areas of chemical sciences and its applications and develop a zeal to pursue a career in the field of chemistry. (PO8)
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Mapping of POs TO PEOs

PEO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7
PEO 1	3	2	2	2	2	2	1
PEO 2	2	2	3	1	2	2	3
PEO 3	2	3	3	2	1	1	3
PEO 4	3	2	2	2	1	1	2
PEO 5	2	2	2	3	2	2	1

3-Strong Correlation 2- Medium Correlation 1- Low Correlation

PROGRAM SPECIFIC OUTCOMES (PSO's)

At the time of graduation, our post graduates would be able to:

PSO1. Create, Evaluate, analyze, interpret and effectively apply the basic laws, principles, phenomena, processes and mechanisms involved in the domain of Chemistry

PSO2. Apply the knowledge of chemistry in the domain of advanced research, education and perspective entrepreneurship.

PSO3. Solve the complex problems in the field of chemical data analysis, scientific interpretation reaction mechanisms with an understanding on tools to be employed and analytical skills to be applied with proper insight on societal, environmental, safety, legal and cultural impacts of the solution.

PSO4. Apply the knowledge of chemistry to appreciate, develop and test the theoretical aspects for applications in energy, environment, materials, medicines, and technology.

PSO5. Use standard laboratory equipment, modern instrumentation and classical techniques to carry out experiments and develop skills to interpret and explain the validity of experimental data in terms of accuracy and underlying theory.



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PROGRAM OUTCOMES (PO) IN RELATION TO GRADUATE ATTRIBUTES

PROGRAMME OUTCOMES

At the completion of the M.Sc. Computer Science program, the students of our Department will be able to:

PO1	Apply the knowledge of technological fundamentals, and compute specialized solutions for complex problems.
PO2	Develop and conduct appropriate experimentation, analyse and interpret data, and use scientific judgment to draw accurate inferences.
PO3	Develop strong reasoning skills to enable them to take successful decisions in problem solving areas.
PO4	Create, select, and apply appropriate techniques, resources, and IT tools to model complex computing activities.
PO5	Communicate effectively in order to design, implement and evaluate a computational system to meet desired needs within realistic constraints.
PO6	Recognize the need, prepare and engage in independent and life-long learning in the broadest context of technological change.
PO7	Apply ethical principles and commit to professional ethics and responsibilities and norms of the computer science society.
PO8	Perform effectively as an individual, or leader in diverse teams, and in multidisciplinary settings to accomplish a goal.



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PROGRAM SPECIFIC OUTCOMES

PSO 1	To Gain an understanding of the basic knowledge of computer science to appreciate develop and implement the solutions to problems in Real Time applications.
PSO 2	To Inculcate Skills to analyse a problem and to identify and define the logical modelling of solutions
PSO 3	Ability to apply the theoretical concepts and practical knowledge of Computer Science in analysis, design, development and management of computer based systems and applications in the interdisciplinary domain.
PSO 4	To Demonstrate skills to use modern tools, software and equipment for problem solving in new and emerging disciplines.
PSO 5	Develop workable solutions for problems drawn either from social context or from research corpus.



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SCHOOL OF MANAGEMENT

PG & Research

Approved by AICTE

PROGRAM SPECIFIC OUTCOMES FOR MBA COURSES

PSO 1: Graduates will have ability to Identify, Formulate and analyze the problems relating to Marketing, Finance, Human Resource and Supply Chain Management.

PSO 2: Graduates will have an ability to implement / Use appropriate Techniques, Management Skills, and Analytical Techniques and to solve Management Problems



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SCHOOL OF MANAGEMENT

PG & Research

Approved by AICTE

PROGRAM OUTCOMES (PO) WITH GRADUATE ATTRIBUTES

PO1	Domain Knowledge	Apply Knowledge of Management Theories & Practices to solve Business Problems
PO2	Critical Thinking & Decision Making / Problem Solving	Foster Analytical & Critical Thinking abilities for Data – Based Decision Making.
PO3	Leadership	Ability to develop value based Leadership Ability
PO4	Environment & Sustainability	Ability to understand, Analyze & communicate Global, Economic, Legal & Ethical aspects of Business.
PO5	Team Work	Ability to lead themselves & others in the achievement of Organizational Goals, Contributing effectively to a team environment.
PO6	Entrepreneurship	Ability to identify Entrepreneurial opportunities & leverage, Managerial & Leadership Skills for funding leading start – ups as well as growing family Business
PO7	Social Responsiveness & Ethical	Apply ethical principles & commit to Professional Ethics & Responsibility and norms of Management Practices.
PO8	Continuous Learning	Recognize the need and prepare to engage in lifelong learning in the broad context of technology changes leading sustainability.



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PROGRAM OUTCOMES

PROGRAM CODE – 31 – MA ECONOMICS

At the end of the Programme the student will be able:

PO1	To attain suitable scientific knowledge and technical skills to realize, calibrate and develop innovative processes / skills for creation of inventive products which are beneficial to society.
PO2	To implement discipline, professionalism, team spirit, communication skills, social and ethical commitment in the post graduates in order to embellish leadership roles expediting perfection in different sector with a categorical professional distinctiveness, business savvy, international recognition and imperishable expansion
PO3	To be habituated with the emerging expanses of erudition and their applications in several domains of biological sciences and to enlighten the students of its relevance in forthcoming studies
PO4	To enhance the insight of research-oriented knowledge in conjunction with literature survey, design of experimental methodology, analysis and interpretation of results and draw valid conclusions.
PO5	To provoke entrepreneurship among the students along with strong ethics and communication skills
PO6	To engage in Lifelong learning and enduring proficient progress



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PROGRAM SPECIFIC OUTCOMES (PSO)

PROGRAM CODE – 31- MA ECONOMICS

On successful completion of the Programme the students will be able

PSO1 - To comprehend and critically analyze economic phenomena that happen at the National and Global level.

PSO2 - To apply the fundamental principles of economics for decision making at the professional and personal level.

PSO3 - To evaluate the economic eco system.

PSO4 - To compare theories of various economic thinkers, evaluate their relevance to present world situation and recommend modifications.

PSO5 - To weigh the strength and limitations of economic policies and formulate policies through data analysis.

PSO6 - To be able to pursue research in economics or in related disciplines and clear competitive examinations choosing economics as the main subject.

PSO7 - To obtain employment in financial sector, data analytics or turn into entrepreneurs.



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PG DEPARTMENT OF SOCIAL WORK

PROGRAMME OUTCOMES (PO)

At the end of the MSW Programme, the students will be able to:

PO1: Professionalism with Scientific Knowledge

Identify with the social work profession and demonstrate professionalism with adequate scientific knowledge at various levels of work in social welfare, development and allied fields.

PO2: Problem Analysis

Apply critical thinking through professional use of self for engagement with analysis of problems, situations and issues of development within micro, meso and macro systems in order to identify elements that hamper the enhancement of the social functioning of individuals, groups and communities.

PO3: Design/ Development of Solutions

Assess and evaluate with individuals, families, groups, organizations, and communities and design/ develop informed intervention plans/ actions with professional judgments for their empowerment and development.

PO4: Conduct Investigations of Complex Problems

Conduct scientific social work research to investigate into complex problems in varied fields of social work to engage in research-informed practice and practice-informed research

PO5: Modern Tool Usage

Demonstrate competency in the adoption of modern social work tools such as advocacy, lobbying and networking to restore human rights and social and economic justice; apply modern Information and Communication Technology (ICT) tools and skills to improve the social work service delivery systems.

PO6: Link with Society

Engage with commitment and flexibility in practice in an environment of diversity with varied specific population groups defined in terms of age, class, colour, culture, disability, ethnicity, family structure, gender, marital status, national origin, race, religion, sex, and sexual orientation in order to acknowledge and integrate them into the mainstream society.

PO7: Environment and Sustainability

Promote responsible interaction with the environment in the modern ecological context and framework to demonstrate sustainable development.

PO8: Ethics

Apply social work ethical principles to guide professional practice – appreciating the diverse social structures, ideologies, value systems and moral dimensions of actions of the various clientele systems.

PO9: Individual and Team Work

Create a professional identity as an individual through self-awareness, demonstrate leadership qualities and act as an effective team player in the accomplishment of the goals of the social work profession.

PO10: Communication

Communicate (listen, read, comprehend, speak and write) effectively in person and through electronic media with the clientele systems, fellow social workers and other stake holders at large; engage in effective recording, reporting and documentation with sound knowledge in the social work domain.

PO11: Project Management and Finance

Demonstrate the knowledge of Management including financial management in public and voluntary welfare organisations and engage in policy practice to advance social and economic well-being and to deliver effective social work services.

PO12: Life-long Learning

Engage in independent and life-long learning in the context of socio-economic and technological changes to respond to realities that shape practice.



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PG DEPARTMENT OF SOCIAL WORK
PROGRAM SPECIFIC OUTCOMES

PSO1:

Demonstrate the knowledge, skills and attitude upholding the ethics and values of the social work profession in the various fields of social work specifically in the Industrial sector in the domain of Human Resource Management.

PSO2:

Practice the methods of social work with individuals, groups, communities and organizations through critical thinking and reflexive/ informed social work interventions.

PSO3:

Apply knowledge of human behaviour and the social environment during the engagement with diverse population groups.

PSO4:

Engage in critical/ challenging roles in the domain of Human Resource Management and the allied/ support services such as Industrial Relations and Labour Welfare.

PSO5:

Utilize, analyze and synthesize the knowledge of Human Resource Management and Development, Labor Legislations, Organizational Behavior, Organizational Development to strategically develop leadership competencies in the organizations and to evolve as entrepreneurs.

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DEPARTMENT OF COMMERCE (HONOURS)

**PROGRAM OUTCOMES (PO) IN RELATION TO GRADUATE
ATTRIBUTES**

PO1	To participate in various types of employment, development activities and public discourses particularly in response to the needs of the community one serves
PO2	To understand the need and have the competencies to support local, regional and national development
PO3	To develop critical and analytical thinking
PO4	To develop conceptual understanding, problem solving and application of skills
PO5	To provoke entrepreneurship among the students along with strong ethics and communication skills
PO6	To develop a questioning mind in diverse environments for better outcomes
PO7	To engage in lifelong learning and enduring proficient progress

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DEPARTMENT OF COMMERCE (HONOURS)

PROGRAM SPECIFIC OUTCOMES

PSO 1	Student can able to possess comprehensive professional knowledge in the area of Accounting, Marketing, Taxation and Management
PSO2	Students can be an Acumen (Quick Decision Maker).
PSO3	Students can be able to possess skills which are required for employment in Government and Non- Government Organization.
PSO4	Enable the students to equip characteristics such as professional skills facing up of challenges, creativity and ethical values.
PSO5	Students will have ability to work in team with team spirit
PSO6	Students will possess good communication skill and also have aptitude to convince others.
PSO7	Enable the students to initiate start up program.
PSO8	Students will be able to prove proficiency with the ability to engage as professionals like CA, CMA, CS and other courses
PSO9	Sensitize the students in the area of research.
PSO10	Able to apply professional competence by acquiring knowledge as per industry requirements



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DEPARTMENT OF MATHEMATICS WITH COMPUTER APPLICATIONS

At the end of the programme the student will be able to:

PROGRAM OUTCOMES (PO) IN RELATION TO GRADUATE ATTRIBUTES

At the completion of the B.Sc. Mathematics with Computer Applications program, the students of will be able to:

PO	Program Outcome
PO1	Knowledge: Apply the knowledge of Mathematics to develop logical thinking.
PO2	Problem Analysis: Identify the problems in real life situations and develop Mathematical models which paves the way to obtain solutions.
PO3	Modern tool usage: Select and apply appropriate techniques, resources, computer programming and statistical tools to cope up with recent trends.
PO4	Individual and team work: Function effectively as an individual and as a member or leader in team.
PO5	Communication: Communicate with society at large, being able to comprehend and write affective reports and design documentation, make effective presentations.
PO6	Project Management: Acquire Mathematical and Statistical knowledge necessary to formulate, analyse, design and apply in multidisciplinary environments.
PO7	Life-long learning: Recognize the need for preparation and the ability to engage in life-long learning in the context of technological change.

Signature of the HOD

Signature of the Principal



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DEPARTMENT OF MATHEMATICS WITH COMPUTER APPLICATIONS

**MATHEMATICS WITH COMPUTER APPLICATIONS
PROGRAM SPECIFIC OUTCOMES**

PSO	Program Specific Outcomes (PSO)
PSO1	Acquire abstract mathematical thinking and the capability of developing ideas based on them.
PSO2	Practice mathematical tasks, tools, representation and methods for industry and entrepreneurial pursuit.
PSO3	Make appropriate use of computer technology to develop solutions by using suitable languages and platforms.

Signature of the HOD

Signature of the Principal

Department of Physics (Shift II)
ACADEMIC YEAR 2022-2023
B.Sc. (PHYSICS WITH COMPUTER APPLICATIONS)

PROGRAM OUTCOMES (PO) IN RELATION TO GRADUATE ATTRIBUTES
PROGRAMME OUTCOMES

At the completion of the B.Sc. Physics with Computer Applications program, the students of our Department will be able to:

PO1	Acquired knowledge of Physics in different branches – Properties of Matter and Mechanics, Heat and Thermodynamics, Acoustics, Atomic Physics, Solid State Physics etc.,
PO2	The concepts in Physics are realised as real time applications, applied in the fields of Optics, Nuclear Physics, Thermal Physics, Solid State Physics, etc.
PO3	Electronics is studied exhaustively as Basic Electronics, Integrated Electronics, Digital Electronics so that students are employable in the semiconductor/digital/mobile/computer-based industries.
PO4	To introduce students with the architecture and operation of microprocessors. To familiarize the students with the programming and interfacing of microprocessors.
PO5	General Practical's for I, II, III year of B.Sc. (PCA), Basic Electronics, Applied Electronics Practical's for III B.Sc. (PCA) sharpens the skills of the students and the theoretical aspects of Physics concepts are made understandable.
PO6	Studying Data Structures. C++, Operating Systems, Database Management Systems using VB and Programming in Java gives the students the requisite knowledge of computer language programming techniques leading to definite employment in computers.
PO7	Students study Mathematics as an Allied paper, hence demonstrate the ability to explain and apply mathematics to represent key aspects of Physics through graphs.
PO8	The student has acquired knowledge of Electricity, Electromagnetism and electromagnetic waves. In Nuclear Physics the atom, the atomic core, nuclear power, ionizing radiation and radioactivity, binding energy and decay, ionizing radiation, fission and fusion.
PO9	Topics like the wave nature of light, the particle-wave duality, time dilatation, length contraction, relativistic momentum, addition of velocity, postulates of quantum mechanics, Schrodinger equation, particle in a box, in a quantum well, Orbital angular momentum operators, their commutation relations are studied to appreciate the significance of Physics
PO10	To appreciate the contributions of Physics in our present day-to-day life. The necessity of the development of Physics to understand global change and sustainability.
PO11	To be an ethical and professional person in the context of global, economic, environmental and societal realities while addressing relevant contemporary issues.

PROGRAM SPECIFIC OUTCOMES

- PSO1:** Students will demonstrate an understanding of core knowledge in Physics namely Electromagnetism, Quantum Mechanics, Thermal Physics, etc., and be able to apply this knowledge to analyse a variety of physical phenomena.
- PSO2:** Students obtain proficiency in Mathematics needed for a proper understanding of Physics.
- PSO3:** Students develop strong technical skills because they are trained in programming languages.
- PSO4:** Students develop problem solving skills, which makes their conceptual foundation in the subject strong.
- PSO 5:** Students acquire the required skills to compete for higher studies or employment entrepreneurship.

CORE PAPER I MECHANICS AND PROPERTIES OF MATTER

Course Code: 2237101

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	Understand the basics of Newtonian mechanics, displacement, velocity, acceleration and Newton's laws of motion
CO 2	Analyze and differentiate the simple and compound pendulum. Understand the dynamics of a system of particles
CO 3	Derive Euler's equation and Bernoulli's theorem in hydrodynamics; understand the concept of surface tension, viscosity and its variation with temperature
CO 4	Know the three types of strain and derive the relation between elastic constants; determine the rigidity modulus of the rod using static torsion method
CO 5	Understand the inertial frames, Galilean invariance and postulates of special theory of relativity; realize the consequences of Lorentz transformation, significance of mass – energy relation and four vectors.

ALLIED MATHEMATICS I

Course Code: 2236109

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Classify different types of matrices and their properties, using characteristic polynomial to find Eigen values & Eigen vectors, verify the square matrix satisfies its characteristic polynomial, compute inverse of the matrix using Cayley Hamilton theorem.
CO2	Use Demoivre's theorem to expand \sin^n and \cos^n , express \sin^n , \cos^n in multiples of \sin and \cos and also can express hyperbolic functions in terms of exponential functions and obtain hyperbolic identities, manipulate expressions involving hyperbolic functions.
CO3	Express inverse trigonometric functions in terms of logarithmic functions, Separate the real and imaginary parts of trigonometric functions of complex variables, evaluate integration using Bernoulli's formula and reduction formula and formulate Fourier series of a given periodic function by evaluating the Fourier coefficients.
CO4	Find partial derivatives of given function, classify maxima and minima of the function of two variables, calculate partial derivatives using Jacobian and Evaluate curvature & radius of curvature in Cartesian form.
CO5	Demonstrate about the Laplace transforms and inverse Laplace transforms of standard functions, solve second order differential equations using Laplace transform and inverse Laplace transform.

CORE PAPER II BASIC ELECTRONICS

Course Code: 2237203

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	Understand the concept of band gap energy and classification of materials based on it. Explain the characteristics of P-N junction diode and apply it to construct Half-wave and Full-wave rectifier
CO 2	Analysis the transistor characteristics in CE and CB mode. To analyze the working of RC coupled, Class A and Class B power amplifier
CO 3	Acquire knowledge about the concept of feedback and explain phase shift and Wien's bridge oscillators

CO 4	Design wave shaping circuits such as clippers, clampers and multivibrators
CO 5	Analyze the characteristics of special semiconductor devices such as FET, UJT and SCR and understand its real-time applications

ALLIED MATHEMATICS II

Course Code: 2236219

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Summarize the basic ideas about algebraic equations, determine the roots of polynomial equations, Identify the symmetric function and transform the polynomial equations by either increasing or decreasing the roots by a Constant.
CO2	Estimate the intermediate value of a function whose table values are known at equal intervals by Newton's forward and backward interpolation method, find the missing term in the table of values using binomial expansion and compute the intermediate value for a function whose table values are Unequal intervals.
CO3	Recall the concept of partial differentiation, explain the formation of Partial differential equation, classify the different type of solutions of PDE and enhance the problem-solving skills for any PDE and point out the method to be used for solving PDE.
CO4	Retrieve the idea of multiplication of vectors in two ways (dot and cross product) with its properties, interpret the derivative of a vector, manipulate differential operator to a vector in both dot and cross product and Summarize the properties of differential operators when applied to vectors.
CO5	Recall the vector operators, apply critical thinking and problem solving skills to evaluate line, surface and volume integrals and relate the line, Surface and volume integrals by gauss, stokes and Greens theorem.

**CORE PAPER III
MATHEMATICAL PHYSICS**

Course Code: 2237306

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	Evaluate the understanding of basic concept of linear vector space
CO 2	Identify a range of matrix methods that are essential for solving advanced problem in theoretical Physics.
CO 3	Apply special function skills to solve problems in Physics.
CO 4	Remember various processes involved in understanding the vector analysis to solve the equations of motion.
CO 5	Understand and evaluate the elementary complex analysis

**CORE PAPER IV
ELECTRICITY AND ELECTROMAGNETISM**

Course Code: 2237307

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	In Electrostatics, study the properties and boundary conditions obeyed by electric field, mathematical techniques to obtain electric field and their applications as conductors, capacitors, dielectrics
CO 2	Understand the foundations of magnetostatics, properties and boundary conditions obeyed by magnetic field, vector potential, magnetization and applications.
CO 3	Acquire knowledge about AC and DC circuits and their applications
CO 4	Understand Faraday's laws of electrolysis, self and mutual induction, measurement of horizontal and vertical component of Earth's magnetic field, Ballistic galvanometer and Induction coil.
CO 5	Understand the mathematical framework of Maxwell's equations

COMPUTER CORE PAPER I – WEB DESIGN

Course Code: 2237309

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	To Demonstrate Internet Basic concepts and Internet Domains To Study about Internet Server Identities To impart the concepts of Establishing Connectivity on the Internet
CO2	To classify the HTML Tags. To impart Lists, Frames and Table To the Forms and Forms Elements.
CO3	To elaborate DHTML Style Sheets and Element of the Style. To impart Linking a style sheet to a html documents and Web page designing.
CO4	Representation of Java Script Data types, Control and Looping and Functions. To point out the knowledge about the Dialog Boxes.
CO5	Representation of JavaScript Document Object Model and Event Handling. To point out Form object, User Defined Object and Cookies.

COMPUTER CORE PAPER II – OBJECT ORIENTED PROGRAMMING USING C++

Course Code: 2237310

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	<ul style="list-style-type: none">● Demonstrate the concept of OOP (Object Oriented Programming).● Comparison of POP and OOP.● Explain the Applications of OOPs.
CO2	<ul style="list-style-type: none">● Illustrate the concept of Tokens, Operators and Expressions.● Explain the Control structures.● Illustrate the concept of functions with an example.
CO3	<ul style="list-style-type: none">● Elaborate the process of creating Constructors and Destructors.● Explain the concept of Function over loading● Utilize the concept of Operator over loading.
CO4	<ul style="list-style-type: none">● Illustrate in detail the types of Inheritance with an example.● Demonstrate the concept of Virtual Functions and Polymorphism.● Explain the concept of console I/O operations.

CO5	<ul style="list-style-type: none"> ● Explain the concept File Pointers. ● Demonstrate the process of creating and closing a File. ● Explain the concept of Command-line Arguments.
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PHYSICS CORE PAPER V- SKILL ENHANCEMENT COURSE II – OPTICS

Course Code: 2237412

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	To understand the defects in lenses and methods to rectify them
CO 2	Interference and related experiments
CO 3	Diffraction and experimental explanations
CO 4	Understand the concept of polarization and optical activity
CO 5	Principle of LASER and its applications

-PHYSICS CORE PAPER VI QUANTUM MECHANICS

Course Code: 2237413

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Find out the inconsistencies in Classical Physics while trying to understand microscopic physics. Recall different laws related to Black Body Radiation, Einstein's Theory of Specific Heat and Limitations of Bohr's Model.
CO2	Compute the wavelength of matter waves. List out different experimental evidences for wave nature of particles.
CO3	Explain the postulates of Wave Mechanics and use Schrodinger's equation to compute Eigen values of physical observables
CO4	Evaluate the Commutation relation for angular momentum operators and Identify Pauli Matrices
CO5	Solve the Schrodinger's equation for standard potentials like Hydrogen Atom

COMPUTER CORE PAPER III – OPERATING SYSTEM

Course Code: 2237414

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	<ul style="list-style-type: none">• Define OS with its view and goals and services rendered by it• Design of OS with its structure. Message through inter poses communication. Allocation of process through scheduling algorithms.
CO2	<ul style="list-style-type: none">• .Define critical section problems and its usage.• Prevention of multiple process executing through the concept of semaphores.• Know the Mutual exclusion, Dead lock detection and agreement protocols for deadlock prevention and its avoidance.
CO3	<ul style="list-style-type: none">• Strategies of memory management schemes and the usage of virtual memory.• Brief of storage management.
CO4	<ul style="list-style-type: none">• Apply prepare Replacement to algorithms to avoid thrashing.• Methods to allocate files for proper protection.
CO5	<ul style="list-style-type: none">• Brief of I/O Systems.• Methods to avoid security problems.• Analysis of threats and threat monitoring system.

COMPUTER CORE PAPER IV – DATABASE MANAGEMENT SYSTEMS USING VISUAL BASIC

Course Code: 2237415

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	<ul style="list-style-type: none">• Differentiate the ways of structuring the data types in Visual Basic• Explain the concept of Label, Check box and Radio button controls.• Explain the process of Frames and Message boxes.
CO2	<ul style="list-style-type: none">• Explain the Control structures.• Illustrate the concept of functions with an example.• Explain the concept of Control arrays and Combo boxes.
CO3	<ul style="list-style-type: none">• Explain the concept of Menus and MDI forms.• Representation of SQL –DDL-DML Commands.• Connecting VB with Back end DBMS.

CO4	<ul style="list-style-type: none"> ● To demonstrate the components of the Database Management Systems. ● Demonstrate the concept of Class Diagram and Events. ● To impart the applications of various Normal Forms
CO5	<ul style="list-style-type: none"> ● Explain the concept of Form Layout and Reports. ● Demonstrate the concept of Procedural Languages.

PHYSICS CORE PAPER VII – THERMAL PHYSICS & ACOUSTICS

Course Code: 2237203

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	Concept of temperature, its measurement, knowledge in specific heat capacity of solids, liquids and gases. Understanding the benefits of low temperature physics
CO 2	Become familiar with various thermodynamic process and work done in each of this process. Have a clear understanding about reversible and irreversible process, working of a Carnot engine, and knowledge
CO 3	Derive the expression of thermal conductivity and know the various laws related to black body radiation
CO 4	Attain the scientific knowledge about wave motion
CO 5	Familiarize with important terms in acoustics like intensity, loudness, reverberation, etc., Gain knowledge about production, detection, properties and uses of ultrasonic waves

PHYSICS CORE PAPER VIII – SOLID STATE PHYSICS

Course Code: 2237519

Course Outcomes: At the end of the Course, the Student would be able to:

CO 1	Understand the basic concepts of force between atoms and bonding thereby distinguish materials based on the type of bonding
CO 2	Importance of dielectric constant. Realizing that the factors dielectric constant & relative permittivity are key to the operation of capacitors and the determination of the levels of capacitance achievable
CO 3	acquired knowledge on the nature of magnetic materials
CO 4	clear understanding about x-ray diffraction, understand the defects in solids
CO 5	Expected to gain knowledge of superconductivity, its underlying principles and its applications in modern world

OPEN ELECTIVE PAPER I – SPACE SCIENCE

Course Code: 2237520(A)

Course Outcomes: At the end of the Course, the Student would be able to:

CO1	Understand the basic concepts to space
CO2	Discuss the laws of solar system
CO3	Demonstrate formation of stellar objects
CO4	Analyze evolution and origin of galaxies
CO5	Summarize the basic laws of space science and formation of universe

OPEN ELECTIVE PAPER I – OPTICS AND PHOTONICS

Course Code: 2237520(B)

Course Outcomes: At the end of the Course, the Student would be able to:

CO1	Understand the basic concepts of Fourier optics
CO2	Discuss the periodic media and coatings
CO3	Demonstrate working of laser beams
CO4	Analyze the fiber and integrated optics

CO5	Demonstrate the concepts photonic device and also summarize the basic understanding of Fourier optics and functioning of devices
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OPEN ELECTIVE PAPER I – INTEGRATED ELECTRONICS

Course Code: 2237520(B)

Course Outcomes: At the end of the Course, the Student would be able to:

CO1	Acquire knowledge of Operational Amplifiers and its applications
CO2	Applying Op-Amp to solve simultaneous equations and second order differential equations. Learn how the op-amp is used to construct oscillators to generate square wave and sine wave
CO3	Acquire the knowledge of principle, construction and working of D/A convertor and A/D converter
CO4	Express the internal architecture of 555 Timer, and familiarize with the working Timer 555 as an astable, monostable multivibrator and Schmitt trigger
CO5	Understand and necessitate that the semiconductor memories like RAM, ROM, EPROM, EEPROM are applicable in today's digital world

COMPUTER CORE PAPER V – PROGRAMMING IN JAVA

Course Code: 2237521

Course Outcomes: At the end of the Course, the Student would be able to:

CO1	<ul style="list-style-type: none"> ● Demonstrate the concept of Object oriented programming ● Differentiate the ways of structuring the data types in Java ● Explain the process of creating arrays and operations performed.
CO2	<ul style="list-style-type: none"> ● Explain the process of creating Constructor class and Overriding methods. ● Illustrate the concept of Classes, Objects and Methods in Java ● Explain the concept of Multiprogramming
CO3	<ul style="list-style-type: none"> ● Elaborate the operation of creating Packages and Interfaces. ● Demonstrate the concept of creating Threads. ● Illustrate in detail the concept of Synchronization
CO4	<ul style="list-style-type: none"> ● Utilize the concept of Exception handling ● Demonstrate the concept of creating Applets. ● Illustrate in detail the types of operations performed on Files
CO5	<ul style="list-style-type: none"> ● Explain the concept of Network Basics ● Demonstrate the process of creating Frames and working with Graphics.

CORE PAPER IX – NUCLEAR AND PARTICLE PHYSICS

Course Code: 2237623

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand the Nuclear properties and different Nuclear Models
CO2	Evaluate problems in Half life and Mean life period and also to find the age of Earth
CO3	Understand the working of Radiation Detectors and Particle Accelerators
CO4	Compare between different Nuclear reactors and appreciate their applications
CO5	Distinguish the interaction, isospin and strangeness of different elementary particles
CO6	Solve problems under Nuclear Reactions

CORE 10 – ATOMIC PHYSICS

Course Code: 2237624(A)

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	Acknowledge electric and magnetic fields and positive rays
CO 2	Recognize photoelectric emission, photo electric equation. Reach a conclusion how photoelectric emission is extrapolated in the construction of photoelectric cells, photo emissive cells, photo voltaic cells and photo conducting cells
CO 3	Reason Pauli's exclusion principle in L-S and J-J coupling
CO 4	Make out the experimental arrangement for the normal Zeeman effect. Deduce anomalous Zeeman effect, Paschen-Back effect, Stark effect
CO 5	Distinguish between characteristic X-ray spectrum and continuous X-ray spectrum Realise the volume of uses of X-rays. Derive the necessary expression to understand the significance of Compton effect

ELECTIVE I – BIO-PHYSICS

Course Code: 2237624(B)

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	Learn about Interactive Potentials for strong and weak bonds, non-central forces, bond energies and spring constants
CO 2	Explore the techniques and methods available such as X-ray diffraction and molecular structure, nuclear magnetic resonance, Scanning Tunnelling Microscopy, optical tweezers and Atomic Force Microscopy
CO 3	Learn important topics like Biological Polymers, Biological Membranes, Nerve Signals and Vertebrate Heart
CO 4	Master the concepts of Chemical Spectroscopy such as Absorption, Atomic and Molecular energy levels, Raman spectra, Electronic energy spectra of polyatomic molecules, UV absorption by proteins and nucleic acids. Understand Laser and its applications
CO 5	Comprehend the chemical and analytical applications of Radiation and Traces in the Health Industry.

DISIPLINE SPECIFIC ELECTIVE I – APPLIED PHYSICS

Course Code: 2237624(C)

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Recognize and present real-life examples of the concept and interrelate some of them
CO2	Describe the link between Physics and the technology
CO3	Identify technological applications of the topics covered in syllabus
CO4	Understand the benefits of the course and potential to find his/her area of specialization
CO5	Acquire Knowledge to conduct experimental, theoretical or computational research.

DISCIPLINE SPECIFIC ELECTIVE II MICROPROCESSOR FUNDAMENTALS

Course Code: 2237625(A)

Course Outcomes: At the end of the Course, the Student will be able to

CO 1	Familiar with the general architecture of a microcomputer system and architecture & organization of microprocessor 8085
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CO 2	Recognize the instruction set of microprocessors 8085
CO 3	Describe the memory interfacing to 8085 microprocessors
CO 4	Explain the concept of interrupts in 8085 microprocessors
CO 5	Acquire basic knowledge on Programmable peripheral interface 8255 and explain modes of operation of 8255

DISCIPLINE SPECIFIC ELECTIVE II
– PHYSICS OF MATERIALS

Course Code: 2237625(B)

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	Gain knowledge on phase diagrams and various material processing methods
CO 2	Explain the necessary understanding on various advanced materials
CO 3	An idea about various characterizations like XRD, Electron Microscopy, Atomic Force Microscopy
CO 4	Describe why each of the fundamental properties of materials covered in the course (stress, strain, elastic constant, creep, fatigue, wear, hardness, Poisson's ratio, toughness, ductility, flexural strength, impact strength, elongation) are important
CO 5	To research current applications of materials understand limitations of those materials, evaluate future trends in those applications

DISCIPLINE SPECIFIC ELECTIVE II

– INTRODUCTION TO ASTRONOMY AND ASTROPHYSICS

Course Code: 2237625(C)

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	Understand Kepler's Laws, Sky coordinates, phases of the Moon, the Moon's orbit and eclipses and Planetary motions.
CO 2	Learn about the formation of Solar System and the various types of planets and atmospheres in the cosmos
CO 3	Understand how galaxies are formed, the various of galaxies, the Big Bang. Learn about the history and fate of the universe
CO 4	Explore the vast array of astronomical techniques and tools available at our disposal. Understand the techniques in use to detect dark matter
CO 5	Learn about the structure and evolution of Stars, White Dwarfs and Chandrasekar Limit, Virial Theorem, stages of nuclear burning, Schonberg-Chandrasekar limit and supernovas

COMPUTER CORE PAPER VI – DIGITAL ELECTRONICS

Course Code: 2237626

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Identify and realize that different number system with different number bases play a very important part in the computer
CO2	Construct basic logic gate using NAND and NOR gates. To use Boolean Algebra to design digital circuits and also minimization of gates by using Boolean laws
CO3	Simplify digital circuits using Karnaugh Map and create circuits requiring lesser gates
CO4	Justify that encoder, decoder, multiplexer as well as demultiplexer are combinational logic circuits as their output at any time depends upon the combination of the input signals present at that instant only
CO5	To reach a conclusion that Flip-flops is a data storage element and are fundamental building blocks of digital electronics systems used in computers, communications. Identify different types of flip-flops and what led to the development of these flip-flops.

ENVIRONMENTAL STUDIES

COURSE CODE:

OUTCOME:

1. Demonstrate a general understanding of the breadth and interdisciplinary nature of environmental issues.
2. Denote a general understanding of the qualitative and quantitative research methods to gain empirical evidence bearing on evaluation of environmentally sustainable alternatives
3. Reveal depth of critical analysis and writing of environmental problems that span popular, grey and primary publications.
4. Recall the ability to locate, interpret and apply published research and lessons from successful projects to a focused environmental solution with potential regional stakeholders.
5. Conduct and present (orally and in writing) independent research that is consistent with the highest standards and practices of research in environmental science.

EXTENSION ACTIVITY

COURSE CODE:

COURSE OUTCOME:

1. Able to handle the social relation between the public and students.
2. Familiarize the students to handle the environmental issues.
3. According to the need for higher secondary students, educate the school students both theory and practical.
4. Eradicate the plastics in and around the school and college.
5. The value education helps the student to develop
 - ✓ **Character development**
 - ✓ **Personality development and**
 - ✓ **Citizenship education**

Non-Major Elective 1 – DIGITAL ELECTRONICS

Course Code: 2236109

Course Outcomes: At the end of the Course, the Student will be Able to:

CO 1	Review of Number Systems and Codes: Binary, Octal and hexadecimal conversions
CO 2	Solving problems to perform binary addition and subtraction by 1's complement and

	2's complement method
CO 3	Identify basic logic Gates. Justified that Universal Gates are NAND and NOR because the construction of all other gates are realised
CO 4	Recall laws of Boolean algebra, De Morgan's Theorem and construction of Truth Tables
CO 5	Calculate the Min term and Max term to simplify Boolean expressions using Karnaugh Map

Non-Major Elective 2 – LASER PHYSICS

Course Code: 2237205

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	Identify that the process of population inversion, optical pumping are necessary for the functioning of LASER
CO 2	Analyze the different types of LASER
CO 3	Comprehend the industrial applications of LASER
CO 4	Assimilate the medicinal applications of LASER and appreciate how it useful to the society
CO 5	Envision how LASER is revolutionizing the field of Communication

Dwaraka Doss Goverdhan Doss Vaishnav
College (Autonomous) Arumbakkam,
Chennai - 600106.



B.A English Syllabus
(C.B.C.S)
(Effective from the academic year 2020 – 2021
onwards)

Program Educational Objectives (PEO)

The program aims to achieve the following objectives:

On completion of the programme a student

- ✦ will be able to identify the challenges and issues faced in the contemporary times and gain an insight of the complexities of human predicament/existence
- ✦ will be able to display conceptual, analytical, critical and communication skills
- ✦ will be able to comprehend cultural differences, identity issues, effectively practice life skills
- ✦ will be able to work in diverse fields and professions like teaching, journalism, translation and research

Program Outcomes (PO)

- **Knowledge:** Apply the knowledge of the literatures across regions, genres to comprehend and present the theoretical principles underlying the linguistic and contextual complexities of the texts as well as the ideologies that govern human existence
- **Problem analysis:** Identify and analyze the cultural diversities, critically examine the identity crisis/ issues confronted by people across nations as reflected in literature.
- **Design/development of solutions:** Develop awareness of the issues and conflicts prevalent over the times and arrive at probable solutions.
- **Conduct investigations of complex problems:** Review the existing knowledge and research, to decipher the socio-economic, political and psychological barriers that hamper progress and facilitate a dialogue.
- **Modern tool usage:** Choose appropriate techniques, and methodology, undertake research, discuss the theoretical and linguistic singularity of the texts
- **Society:** Apply theory to assess the societal and cultural issues and the consequent responsibilities in making literary studies meaningful and relevant to the contemporary times, generate ideas to dissolve differences
- **Environment and sustainability:** Understand the importance of ecology, the interdependence of human beings and nature, the growing environmental concerns and exhibit the knowledge of and need for sustainable development.

Ethics: Commit oneself to the eternal values and principles that pervade all aspects of human existence and practice humane values in everyday life

- **Individual and team work:** Develop intra personal and inter personal skills and function effectively both at personal and professional levels, be a competent leader
- **Communications:** Capable of assimilation as well as dissemination of knowledge and skills, to make comprehensible and effective presentations
- **Project management and finance:** Demonstrate intellectual curiosity and intuitive understanding, pursue research and create innovative ideas
- **Life – long learning:** Always willing to learn and adapt oneself to the ever changing socio-economic and cultural milieu, keep pace with the emerging trends

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B.A English Syllabus
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- ✦ will be able to comprehend cultural differences, identity issues, effectively practice life skills
- ✦ will be able to work in diverse fields and professions like teaching, journalism, translation and research

Program Specific Outcomes

At the end of the program the student will be able

To define and describe the diverse approaches to the study of literature/literatures, the multiple literary attributes and semantic features of the literary texts.

To identify and explain the socio-political, economic and cultural backgrounds of the various periods in literary history

To analyse differences and diversities, explore themes and identify forms and techniques employed in literary works.

To apply critical thinking and reasoning in real life contexts and develop a clear perception of the purpose and meaning of life

To effectively display their linguistic capabilities both spoken and written



**DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE
(AUTONOMOUS)**

**Re-accredited with “A++” by NAAC
College with Potential for Excellence, Linguistic Minority Institution
Affiliated to University of Madras
Arumbakkam, Chennai – 600 106**

DEPARTMENT OF CRIMINOLOGY

Name of the Programme: B.A. CRIMINOLOGY AN POLICE ADMINISTRATION

ACADEMIC YEAR 2022-2023

PROGRAMME OUTCOME

PO1	Demonstrate a systematic or coherent understanding of the fundamental concepts, principles and processes underlying the academic field of Criminology and its different subfields
PO2	Establish skills related to specialization areas within Criminology as well as within its subfields.
PO3	Sound knowledge of appropriate methodologies in order to conduct analysis and detect patterns of crime and victimization.
PO4	Exhibit skills to seek solutions to problems that emerge from the subfields and interdisciplinary subfields relating to Criminology.
PO5	Practical knowledge of techniques relevant to academia to pursue further studies in the field of Criminology or a related field.
PO6	Competitiveness to work in the government and non-government sectors under the broad category of Criminology.
PO7	Understanding of the importance of Criminology and its application in an academic, social, legal, industrial, economic and environmental context.



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DEPARTMENT OF CRIMINOLOGY

Name of the Programme: B.A. CRIMINOLOGY AN POLICE ADMINISTRATION

ACADEMIC YEAR 2022-2023

PROGRAMME SPECIFIC OUTCOME

PSO 1: To drive the progression of the graduate into an exceptional professional by instilling knowledge relating to the various fields of Criminology.

PSO 2: To mold passionate broad-minded human beings with strong sense of social commitment, responsibility and dynamic mind.



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B.A-SOCIOLOGY

PROGRAMME EDUCATIONAL OBJECTIVES (PEO's)

1. To produce efficient and intellectual undergraduates with strong fundamentals about the society, social institutions, individual life and research methodology to pursue higher studies in the field of research, social work, public services.(PE1)
2. To make undergraduates, capable of attaining employment in teaching,NGOS, Public sectors and industry.(PE2)
3. To enable undergraduates to develop professionally through life-long learning, higher education and other creative entrepreneurial pursuits in their areas of expertise or interest.(PE3)

The Graduate Attributes of UG programmes are as follows:

- 1) **Knowledge:** Acquire in-depth knowledge of the discipline or profession, including vast global perspective, with an ability to discriminate, evaluate, analyse and synthesise existing and new knowledge, and integration of the same for enhancement of knowledge.
- 2) **Critical Thinking:** Analyse problems critically, apply independent judgement for synthesising information to make intellectual and/or creative advances for conducting research in a wider theoretical, practical and policy context.
- 3) **Problem Solving:** Think originally, conceptualise and solve problems, evaluate a wide range of potential solutions for those problems and arrive at feasible, optimal solutions after considering public health and safety, cultural, societal and environmental factors in the core areas of expertise.
- 4) **Usage of modern tools:** Create, select, learn and apply appropriate techniques, resources, and modern ICT tools.
- 5) **Communication:** Communicate with the relevant community, and with society at large, confidently and effectively, such as, being able to comprehend and write effective reports and design documentation by adhering to appropriate standards, make effective presentations, and give and receive clear instructions.
- 6) **Life-long Learning:** Recognise the need for and have the preparation and ability to engage in life-long learning independently, with a high level of enthusiasm and commitment to improve knowledge and competence continuously.
- 7) **Ethical Practices and Social Responsibility:** Acquire integrity, code of conduct, ethics of life and an understanding of responsibility to contribute to the community for sustainable development of society.

- 8) **Independent and Reflective Learning:** Observe and examine critically the outcomes of one's actions and make corrective measures subsequently and learn from mistakes without depending on external feedback.

PROGRAMME OUTCOMES

At the completion of the B.A SOCIOLOGY program, the students of our Department will be able to :

S.NO	GRADUATE ATTRIBUTES	PROGRAMME OUTCOMES
1.	Knowledge	Attain in depth knowledge about the fundamental principles, essential facts, conclusions and applications of sociology and sociological theories. (PO1)
2.	Critical Thinking	Critical thinking can be evolved by means of case studies, observation, cause and effect relationship and other research tools. (PO2)
3.	Problem Solving	Social problems in the field of different social institutions can be solved qualitatively and quantitatively by explaining the structure and functions of the society. (PO3)
4.	Usage of modern tools	Create data using modern scientific research tools and ICT for classifying and analyzing the data obtained from the research for sociological analysis (PO4)
5.	Communication	Develop Skills to evaluate, analyze and interpret the social interaction and social relations of primary and secondary social groups and being able to comprehend, write effective reports, design documentation and make effective conclusions. (PO5)
6.	Life-long Learning	Demonstrate scholarly attitude to pursue a career in the field of sociology and research and have the zeal and vision to engage in independent and life-long learning in the broadest context of cultural and social change. (PO6)
7.	Ethical Practices and Social Responsibility	Social responsibilities can be inculcated by the means of formal and informal social controls (PO7)
8.	Independent and Reflective Learning	Develop entrepreneurial skills in interdisciplinary and multidisciplinary areas of social sciences and its applications and develop a zeal to pursue a career in the field of Humanities. (PO8)

Program Specific Outcomes (PSOs)

At the time of graduation, our under graduates would be able to:

PSO1- Evaluate, analyze, interpret and effectively apply the basic concepts, theories, phenomena, processes and scientific tools involved in the domain of sociology.

PSO2 – Demonstrate the knowledge of Sociology in the field of research, education, individual and social life.

PSO3 – Evaluate distinct social problems in the field of data analysis, scientific interpretation and conclusions with an understanding on basic scientific tools to be employed.

PSO4 – Apply the knowledge of sociology in the domain of Socio, economic , cultural ,religious , political and all other aspects of the society .

PSO5 - Employ field based knowledge and research techniques to develop skills to interpret and explain the validity of sociological data.



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Programme Outcome of BSc Psychology:

After completing the undergraduate course in psychology, the students

- a. Will get familiarized with scientific and humanistic approaches for the study of complexities of human mind and behaviour.
- b. Will get knowledge of basic psychological concepts and methods, and develop ability to appreciate the challenges in practical and theoretical aspects of psychology and the ability to comprehend core psychological concepts and theories.
- c. Will acquire basic skills and knowledge in major areas of application (e.g. psychological testing, experimentation, interviewing, behaviour modification, data analysis, report writing) and thus fostering the applied perspective.
- d. Will have self-understanding, reflexivity and personal growth. The students will be able to understand the complexities of self and human relationships and how they are intertwined.
- e. Will develop a high standard and concrete sense of ethical and moral appropriateness in general and specifically in collecting information testing, measurement and experimentation thus demonstrating moral and ethical awareness and reasoning.
- f. Will develop a healthy interface between society, culture and academic pursuit in the discipline of psychology which will promote a deeper sense of belongingness to society and community.



DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE

(AUTONOMOUS)

Re-accredited with "A++" by NAAC

College with Potential for Excellence, Linguistic Minority Institution

Affiliated to University of Madras

Arumbakkam, Chennai – 600 106



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Arumbakkam, Chennai – 600 106

PROGRAM SPECIFIC OUTCOMES OF B.SC PSYCHOLOGY PROGRAM

- To acquire basic knowledge on various theories, principles and concepts of Psychology.
- To develop relevant skills expected of Psychology professionals in an employment context.
- To encourage the application of concepts and processes of psychology to nurture the development of qualities, capacities and skills relevant to the individual and the society.
- To discover one’s strengths and weaknesses, figuring out one’s self and identity, establishing social relationships and ways to organize everyday life and relationships in such a way that the level of subjective wellbeing increases.
- To acquire an attitude of scientific enquiry and critical thinking, ability to plan, design and conduct research, analyze data and interpret them.

PROGRAMME OUTCOMES [PO] FOR UNDER GRADUATE B.Sc., Statistics

At the end of the UG Programme, the student will be able:

PO1	To participate in various types of employment, development activities and public discourses particularly in response to the needs of the community one serve.
PO2	To implement discipline, professionalism, team spirit, communication skills, social and ethical commitment in the under graduates in order to embellish leadership roles expediting perfection in different sector with a categorical professional distinctiveness, business savvy, international recognition and imperishable expansion.
PO3	To improve the problem-solving skill to identify possible solutions and choosing the correct solution for any problem.
PO4	To enhance the competencies to support national, regional and local development plans and to create questioning mind.
PO5	To enhance the critical thinking ability to think clearly and rationally while understanding the logical connection between ideas in a reflective and independent thinking and Lifelong learning and enduring proficient progress.

PROGRAMME SPECIFIC OUTCOMES [PSO] FOR B.SC STATISTICS

Program Specific Outcomes

PSO1	To Collect and handle the data.
PSO2	To carry out Statistics and Mathematical computation, both analytical and numerical to a reasonably good level.
PSO3	Identify the Suitable approaches and Statistical techniques using for a given data.
PSO4	Ability to solve the problem and Interpret the Solution.
PSO5	Facilitate numerical approximation to everyday life problems.

S Sundarbalan

Signature of the HOD

Signature of the Principal

DEPARTMENT OF M. A. ENGLISH

**CHOICE BASED CREDIT SYSTEM (CBCS)
OUTCOME BASED EDUCATION SYLLABUS**

M.A. ENGLISH

2022 - 2024



DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE

(AUTONOMOUS)

College with Potential for Excellence

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E.V.R. PERIYAR HIGH ROAD,

ARUMBAKKAM, CHENNAI – 600106, TAMILNADU.

FIRST SEMESTER

Course Structure: Paper I

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	CORE PAPER-I Poetry I From Chaucer to 17th Century		
Category of the Course C	Year & Semester First Year & First Semester	Credits 4	Subject Code 2265101
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Course Outcomes	CO1: Understand the origin of English Poetry (k2) CO2: Sketching the evolution of the British Poetic forms(k3) CO3: Distinguish types of poetic forms (k4) CO4: Delineate the features related to poetic forms(k4) CO5: Understand the form and context of poems (k2) CO6: Critically appreciate a poem (k5)		
Course Outline	UNIT I Chaucer and Medieval England		
	Geoffrey Chaucer The Nun's Priest's Tale from The Canterbury Tales		
	UNIT 2 Poetic Forms During 16th Century		
	Edmund Spenser Prothalamion Wyatt and Surrey (2 sonnets) Wyatt - Whoso List To Hunt Surrey - The Golden Gift that Nature Did Thee Give		
	UNIT 3 Poetic Forms during 17th Century		
Metaphysical Poetry			
John Donne		A Valediction: Forbidding Mourning Ecstasy	
UNIT 4 Satire			
John Dryden		Absalom and Achitophel	
UNIT 5 Epic			
John Milton		Paradise Lost Book I	

C – Core; E – Elective; ED – Extra disciplinary

Course Structure: Paper II

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	CORE PAPER- II Drama I Elizabethan and Jacobean Drama		
Category of the Course C	Year & Semester First Year & First Semester	Credits 4	Subject Code 2265102
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Course Outcomes	CO1: Understand the origin of drama in Britain (K2) CO2: Deduce the stages of evolution of British drama (K4) CO3: Correlate the context of theater and culture (K4) CO4: Examine the characteristics of Tragedy and Comedy (K4) CO5: Appraise the representative writers in their social and political milieu (K4) CO6: Critically analyse the representative texts from the Elizabethan and Jacobean Periods (K5)		
Course Outline	UNIT I Beginnings of Drama Miracle and Morality Plays – Everyman		
	UNIT 2 The Senecan and Revenge Tragedy Thomas Kyd The Spanish Tragedy		
	UNIT 3 Elizabethan Theatre Theatres, Theatre groups, audience, actors and conventions		
	UNIT 4 Tragedy and Comedy Christopher Marlowe Dr. Faustus Ben Jonson Every man in His Humour		
	UNIT 5 Jacobean Drama John Webster The White Devil		

C – Core; E – Elective; ED – Extra disciplinary

Course Structure: Extra Disciplinary-I

Course Code :	Credits : 03
L:T:P:S : 3:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	English for Professional Communication		
Category of the Course E (Elective for other departments)	Year & Semester First year & Second Semester	Credits 3	Subject Code 2265211
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Course Outcomes	CO1: Understand theories related to communication (k2) CO2: Listen and accurately deliver information in specific work situations (k6) CO3: Speak proficiently in the workplace (k6) CO4: Write formal letters of application and complaint (k6) CO5: Interpret digital representations of data efficiently (k4)		
Course Outline	UNIT I Communication Theory <ol style="list-style-type: none"> 1. Mode of Communication 2. Importance of Communication Theory 3. Types of Communication (Intrapersonal, Interpersonal, Group, Mass Communication) 4. Key Terms in Communication (Self Concept, Proxemics, Noise) 5. Models of Communication (Aristotle's Model, Shannon-Weaver Model, Helical Model, Schramm's Model) 		
	UNIT 2 Effective Speaking - Effective Listening Work ethics, Gender, Culture, and Workplace skills,		
	UNIT 3 Introduction to Modern Communication Media Websites and Blogs, LinkedIn, Facebook, Twitter, Instagram		
	UNIT 4 Workplace Communication Skills Online video conference		

Course Structure: Paper Number to be provided

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	CORE PAPER-Literary Criticism and Literary Theory - I		
Category of the Course C	Year & Semester First Year & Second Semester		Course code to be provided
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Course Outcomes	CO1: Appreciate the importance of literary theory (k4) CO2: Delineate the trajectory of the changing approach to art (k2) CO3: Develop an overview of the critical trends starting from Aristotle’s classical criticism to the post-structural and post-colonial theories (k2) CO4: Understand the aesthetic concepts of the Classical, New-classical and Romantic critics (k2) CO5: Utilize the vocabulary of literary theory and criticism appropriately (k6) CO6: Examine the interrelatedness of the various critical stands (k4)		
Course Outline	UNIT I : Imitation - Pleasure and Instruction - Myths and Archetypes -Poetic Structure -Diction; Text –Author-Reader - The ‘Other’ – Formalism – Structuralism. UNIT 2 Classical, Neo - Classical and Romantic Criticism Aristotle Poetics: Aristotle’s view of Imitation & Definition of Tragedy Chapters 1-3,6-12 and 14. Sir Philip Sidney Apologie for Poetry William Wordsworth Preface to Lyrical Ballads S.T. Coleridge Biographia Literaria Ch 14		
	UNIT 3 Humanistic Criticism Matthew Arnold Study of Poetry T.S. Eliot Tradition and the Individual Talent		
	UNIT 4 Formalism and Structuralism Cleanth Brooks Language of Paradox Northrop Frye The Archetypes of Literature Tzvetan Todorov Structural Analysis of Narrative		

THIRD SEMESTER
Course Structure: Paper IX

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	CORE PAPER IX- Shakespeare Studies		
Category of the Course C	Year & Semester 2nd Year & Third Semester	Credits 4	Subject Code 2265312
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Course Outcomes	CO1: Understand and enjoy Shakespeare’s plays and sonnets (K2) CO2: Interpret Criticism of Theatre (K3) CO3: Examine the plays in the context of Elizabethan England (K4) CO4: Delineate the sources, problems of categorization and trends in Shakespeare Studies upto the 19th Century (K4) CO5: Evaluate the contemporary relevance of Shakespeare’s works (K5) CO6: Examine the plays using mythical, archetypal, feminist, post-colonial and New historicist modern approaches (K4)		
Course Outline	UNIT I		

Course Structure: Paper X

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	CORE PAPER X- English Language & Linguistics		
Category of the Course C	Year & Semester 2nd year & Third Semester	Credits 4	Subject Code 2265313
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Course Outcomes	CO1: Understand the English Language from a historical perspective (k2) CO2: Analyse sounds and identify patterns of sounds in the English Language (k4) CO3: Understand the functioning of brain and its role in speech production (k2) CO4: Appraise the different approaches to second language acquisition (k4) CO5: Compare and contrast language in terms of systematic differences (k4) CO6: Adopt and practise English Language Teaching approaches (k6)		
Course Outline	Unit I - Phonology 1) The Sounds of Language 2) The Sound Patterns of Language 3) Transcription & Reverse Transcription		
	Unit II - Linguistics 1) Language and the Brain 2) Language & Regional Variation 3) Language & Social Variation 4) Language & Culture		
	Unit III - Teaching of English as Second Language (TESL) <ul style="list-style-type: none"> • English Language Teaching (ELT), English as Foreign Language (EFL), English as Second Language (ESL), English for Specific Purpose (ESP) 		

Course Structure: Paper XI

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	CORE PAPER XI- Literary Criticism and Literary Theory II		
Category of the Course C	Year & Semester 2nd Year & Third Semester	Credits 4	Subject Code 2265314
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Course Outcomes	CO1: comprehend the main facets of contemporary critical theory CO2: explain the development of poststructuralism and postmodernism CO3: recognise and interpret power structures underlying the production of literature and life CO4: display an understanding of psychoanalytic critical theory CO5: critically analyse the gender politics and gender fluidity in literary texts CO6: use contemporary critical theories to appreciate texts and narratives		
Course Outline	UNIT I 1. Roland Barthes - Death of the Author 2. Michel Foucault- What is an Author?		

Course Structure

Course Code :	Credits : 03
L:T:P:S : 3:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	EXTRA DISCIPLINARY-II- Literature Analysis Approaches and Copy Editing		
Category of the Course (Elective Within the Dept)/ED	Year & Semester 2nd year & Third Semester	Credits 3	Subject Code 2265315
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Objectives of the Course	CO1: Apply techniques of critical evaluation to an unspecified text (k4&k5) CO2: Write a book review (k6) CO3: Proof read a text and edit it with the relevant tools (k5) CO4: Explore and be equipped the workspace related to language and literature (k3) CO5: Write effective business-related correspondence and documentation (k6)		
Course Outline	UNIT I Practical Criticism: Critique and Book Review		
	UNIT 2 Publishing Industry: Concept organisation function.		
	UNIT 3 Copy Editing : <ul style="list-style-type: none"> ● Basics Functions Role and Process ● Use of MS Word and Google docs for editing Copy Editor: Role and Responsibility		
	UNIT 4 E- Publishing <ul style="list-style-type: none"> ● Introduction ● Difference between conventional publishing and e – publishing (pros and cons) ● Distribution/Delivery methods ● E-books/ E-journals/ Web publishing 		

C – Core; E – Elective; ED – Extra disciplinary

Course Structure: ELECTIVE PAPER IV

Course Code :	Credits : 03
L:T:P:S : 3:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Subject: INTRODUCTION TO TRANSLATION STUDIES

Subject Code: 2265316

COURSE OUTCOMES

- CO1: Identify the role of translation in society (K2)
- CO2: Illustrate basic concepts of translation (K3)
- CO3: Demonstrate fundamental skills in translation (K3)
- CO4: Examine translation in the Indian context (K4)
- CO5: Perform practical tasks in translation (K6)

Unit 1 Basic concepts of Translation

(10 Hrs)

- 1.1 Kinds of Translation
 - 1.1.1. Interlingual
 - 1.1.2. Intralingual
 - 1.1.3. Intersemiotic
- 1.2 Concepts to be derived from practice
 - 1.2.1 Source Language and Target Language
 - 1.2.2 Equivalence
 - 1.2.3 Word for word, Sense for Sense

Unit 2 Translation in the Indian context

(15 Hrs)

- 1.3 Introduction to Short Fiction from South India by Mini Krishnan
- 1.4 Translating Culture Codes

Unit 3 Literary Texts in translation

(10 Hrs)

- 3.1 VM Basheer - Nose
- 3.2 Cho Dharman - Dry Leaves
- 3.3 C.S. Chellappa - Vaadivasal (OUP)
- 3.4 Rajam Krishnan - Lamps in the Whirlpool (OUP)

Unit 4 Application of Translation

(10 Hrs)

- 4 Dubbing and Subtitling
 - 4.1 Film Harry Potter and the Order of the Phoenix
 - 4.2 Advertisements

Suggested Reading

Munda, Jeremy. 'New Directions From the New Media'. Introducing Translation Studies. Routledge, New York. 2008.

FOURTH SEMESTER

Course Structure: Paper XII

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	CORE PAPER XII-Twentieth Century Poetry		
Category of the Course C	Year & Semester 2nd Year & Fourth Semester	Credits 4	Subject Code 2265417
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Course Outcomes	CO1: Recognize various aspects of 20th century British poetry (K2) CO2: Examine poetry based on the usage of form, poetic devices and figures of speech (K4) CO3: Critically analyse the poems in terms of theme, content, background, etc (K5) CO4: Explain important ideas and systems of thought characteristic to 20th Century England and Europe (K2) CO5: Correlate poetry with significant movements like Modernism, Imagism and Symbolism (K4) CO6: Illustrate the influence of representational arts, Marx and the European influences on postmodern poetry (K3)		
Course Outline	UNIT I Edwardian and Georgian Poetry - Modernism – Modernity – Religion – Imagism – Symbolism – Influence of representational arts in poetry - European influences –		

Course Structure: Paper XIII

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	CORE PAPER XIII- Writings by and on Women		
Category of the Course C	Year & Semester 2nd year & Fourth Semester	Credits 4	Subject Code 2265418
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Objectives of the Course	CO1: Demonstrate an understanding of the politics of gender and authorship (k3) CO2: Examine patriarchy and its influence on women’s lives and creative processes (k4) CO3: Identify and critique gendered oppression (k2&k4) CO4: Examine how women writers have challenged gender-based oppression (k4) CO5: Understand the intersectionality of gender, class, caste, race, etc. (k2)		

Core Structure: Paper XIV

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	CORE PAPER XIV - Postcolonial Literature												
Category of the Course C	Year & Semester 2nd year & Fourth Semester	Credits 4	Subject Code 2265419										
Pre-requisites	Minimum Entry requirements for the course / Eligibility												
Objectives of the Course	<p>CO1: Demonstrate an understanding of the concepts related to the study of postcolonialisms (k3)</p> <p>CO2: Examine imperialism and its impact on the history, culture and language of various once colonised nations (k4)</p> <p>CO3: Identify and critique racism as a colonial construct (k2&k4)</p> <p>CO4: Examine how writers from former colonies question the hegemony of the colonial histories (k4)</p> <p>CO5: Understand the importance of multiplicity of stories (k2)</p> <p>CO6: Read texts within the theoretical framework of postcolonial studies (k5)</p>												
Course Outline	<p style="text-align: center;">UNIT 1: Key Concepts in Post-coloniality (14 concepts)</p> <p>Abrogation, appropriation, binarism, cartography, centre/margin, dependency theory, ethnicity, ecological imperialism, hegemony, hybridity, orality, other, post-colonialism/postcolonialism, subaltern</p>												
	<p style="text-align: center;">UNIT 2: India, Pakistan and Srilanka</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Agha Shahid Ali</td> <td style="width: 50%;">Dacca Gauzes (India- poem)</td> </tr> <tr> <td>Nissim Ezekiel</td> <td>A Very Indian Poem in Indian English (India-poem)</td> </tr> <tr> <td>Alagu Subramaniam</td> <td>Solomon's Justice (Sri Lanka- short story)</td> </tr> <tr> <td>Sa'adat Hasan Manto</td> <td>Khol do! (Pakistan short story)</td> </tr> <tr> <td>Edward Said</td> <td>"Crisis" in <i>Orientalism</i> from David Lodge's <i>Modern Criticism and Theory</i></td> </tr> </table>			Agha Shahid Ali	Dacca Gauzes (India- poem)	Nissim Ezekiel	A Very Indian Poem in Indian English (India-poem)	Alagu Subramaniam	Solomon's Justice (Sri Lanka- short story)	Sa'adat Hasan Manto	Khol do! (Pakistan short story)	Edward Said	"Crisis" in <i>Orientalism</i> from David Lodge's <i>Modern Criticism and Theory</i>
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<p style="text-align: center;">UNIT 3: Australia, New Zealand and Canada</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Henry Lawson</td> <td style="width: 50%;">The Drover's Wife (Australia- short story)</td> </tr> </table>			Henry Lawson	The Drover's Wife (Australia- short story)									
Henry Lawson	The Drover's Wife (Australia- short story)												

Course Structure: Elective

Course Code :	Credits : 03
L:T:P:S : 3:0:0:0	CIA Marks : 40
Exam Hours : 03	ESE Marks : 60

Title of the Course / Paper	ELECTIVE PAPER V- Film Studies		
Category of the Course E (Elective within the department) /ED	Year & Semester Second Year & Fourth Semester	Credits 3	Subject Code 2265420
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Course Outcomes	CO1: Identify different kinds of films (k1) CO2: Identify various technical aspects of cinema (k1) CO3: Sketch the evolution of cinema in India (k3) CO4: Critically analyse cinema from various perspectives (k4) CO5: Appreciate and review films (k6)		
Course Outline	UNIT I History of Cinema in India; Major landmarks in India Cinema Satyajit Ray- "What is Wrong with Indian Films?"		
	UNIT 2 Kinds of Films Historical Patriotic Documentary Thrillers etc.		
	UNIT 3 Art of Film Making: Some Important Techniques Acting/ Photography/Direction/Script Writing etc		
	UNIT 4 Films and Entertainment Films and Social Responsibility		
	UNIT 5 Review of Films		

FOURTH SEMESTER
Research Methodology and Project Writing

Course Code :	Credits : 04
L:T:P:S : 4:0:0:0	Internal Evaluation : 20
Exam Hours : 03	Project Content : 40 Project Viva : 40

Title of the Course / Paper	Core Paper XV- Research Methodology and Project Writing		
Category of the Course C	Year & Semester Second Year & Fourth Semester	Credits 4	Subject Code 2265421
Objectives of the Course	CO1: Understand the basic structure and methodology of research (k2) CO2: Organize reading and research in a cogent manner (k6) CO3: Understand and apply the process of writing a dissertation (k6) CO4: Understand the basic format of a research paper (k2) CO5: Document research in an efficient manner (k6)		

CO2	L	L	L	H	H	M	L	L	L	L	L	H	M
CO3	L	M	L	H	M	M	L	L	L	L	M	H	H

Course Structure: Value Added Course

Course Code :	Credits : 01
L:T:P:S ::	CIA Marks :
Exam Hours :	ESE Marks :

Title of the Course / Paper	Value Added Course: Theatre Art		
Category of the Course VAC(Value Added Course)	Year & Semester Second Year & Fourth Semester	Credits 1	
Pre-requisites	Minimum Entry requirements for the course / Eligibility		
Course Outline	1. Approach to characterization		

**II MA – III SEMESTER
OPEN ELECTIVE – CONTENT WRITING**

Objectives:

- To introduce learners to the basic concepts of Content Writing.
- To sensitize them to the various styles and techniques of writing and editing.
- To create industry-academia interface through institutional support.

Outcomes:

The students will be able to

- Understand the various technological advancements in the field of content writing.
- Familiarize with a variety of professional writers' styles to develop the students.
- Demonstrate knowledge of editing and revision techniques
- Assess the world of publishing, and other career-related aspects of writing.
- Develop a personal style and apply craft techniques to revise written work.

Module I.

The Digital Era (Internet information revolution, digital and online education)

Module II

Types of Content Writing – (Sites, Blogs, Social Media, Scripts, etc..)

Module III.

Styles of Content Writing (Narrative, Critical, Promotional, etc..)

Module IV

Importance of Audio-Visual Elements (choosing images, creating memes, including animations and videos)

Module V

Editing and Technical Tools (Editing and proofreading, understanding html, markups and online tools)

Suggested Reading:

Blog Writing : The Content Creation Blueprint – Anthony James
Content Writing Step by Step – Joseph Robinson
Content Writing Handbook 2021 – Kounal Gupta
How To Write Great Website Content in 2019 - Andy Williams

I MA – I SEMESTER
GENERIC ELECTIVE II - TECHNICAL WRITING

Objectives

- To understand students and know the stages of the writing process such as prewriting, writing and rewriting
- To produce a set of documents related to technology which improves the accuracy.
- To understand the basic components of definitions on technical writing.

Outcomes

The students will be able to

- Identify and use appropriate formats and conventions on technical writing.
- Assess effectiveness and validity of information from various sources.
- Develop strategies for information design in enhancing the documents.
- Summarize larger texts in clear, direct style for practical applications.
- Edit documents with peer exchange and according to professional guidelines.

Module I.

Technical Writing: A Curtain Raiser

Module II

P-W-R and BPS

Module III.

From Sentences to paragraphs

Module IV

The Know-How of Technical Description

Module V

Document Design, Graphics: Enhancing Content

Documents:

- Letters: Kings and Mechanics
- The Summary: The Art of Brevity
- Written Reports: The Basics
- Proposals, Brochures, User Manuals, White Paper
- CVs: Drafting the Blueprint of Your Future
- On the Track: You a Tech-Writer!

Suggested Reading:

The Technical Writer's Handbook – Matt Young
Writer's Solution – Stephen King
College Writing Skills – John Langan
Academic Writing – Stephen Bailey
Science & Technical Writing: A Manual of Style – Philip Rubens

DEPARTMENT OF M. A. ENGLISH

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DEPARTMENT OF M. A. ENGLISH

VISION:

To upgrade present status of our department into research leading to degrees of PhD

MISSION:

To enable students to appear for UPSC, UGC, SLET, NET and other competitive examinations

PROGRAMME EDUCATIONAL OBJECTIVES (PEO's)

1. To produce efficient and intellectual postgraduates with strong fundamentals in appreciating literature, criticism and communication and to encourage them to pursue research in the field of literature (PEO1)
2. To make postgraduates capable of attaining employment in teaching, research and industry (PEO2)
3. To enable postgraduates to develop professionally through life-long learning, research and creative intellectual pursuits (PEO3)

PROGRAM SPECIFIC OUTCOMES (PSOS)

At the time of graduation, our postgraduates will be able to:

PSO1	gain a sound understanding of literary periods, authors and theories
PSO2	strengthen literary knowledge and sharpen critical acumen of students to embark on a literary pursuit
PSO3	understand thought, culture and history reflected in the study of literature
PSO4	use communication as an effective instrument
PSO5	understand group dynamics and become a good team player in the workspace
PSO6	succeed in competitive examinations
PSO7	use technological tools relevant to the work space

PROGRAMME OUTCOMES

At the completion of the M.A. English program, the students will be able to:

S.No	GRADUATE ATTRIBUTES	PROGRAMME OUTCOMES
1.	Scholarship and Knowledge	attain concrete knowledge about major time periods, authors and theories with relation to the respective historical and socio-political contexts (PO1)
2.	Critical Thinking	analyse and critique texts by exhibiting a clear understanding of literary theories and concepts (PO2)
3.	Research Skill	demonstrate skills which enable students to defend interpretations and research practices by using texts and secondary sources (PO3)
4.	Usage of relevant modern tools	employ technical skills in the professions of English Language Teaching, technical writing, creative writing and writing for different media (PO4)
5.	Communication	develop skills to evaluate, analyze and interpret information and to communicate effectively within the workplace and society at large (PO5)
6.	Independent and Reflective Learning	exhibit self-awareness and acquire appropriate skills to understand and analyse issues on local and global scales (PO6)



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Arumbakkam, Chennai – 600 106**

DEPARTMENT OF DATASCIENCE

Name of the Programme: B.Sc. Data Science

ACADEMIC YEAR 2022-2023

PROGRAMME SPECIFIC OUTCOME

PROGRAMME SPECIFIC OUTCOMES [PSO's]

PSO1	Learning the applications of various software elements which help to identify various analysis and design methodologies
PSO2	Demonstrate by developing computer programs in the area related to algorithm, web designing, facilitating efficient design for complex problems.
PSO3	Enables the students to be familiar with the modern- day issues, latest trends in computing and technology and create ideas and solutions to existing problems
PSO4	Building code in Various Programming Languages and applications
PSO5	Detailed Glimpse of Orientation and Interconnection.
PSO6	Gains Knowledge in the various aspects of new Trends and Technologies.



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Arumbakkam, Chennai – 600 106

DEPARTMENT OF DATA SCIENCE

Name of the Programme: B.Sc. Data Science

ACADEMIC YEAR 2022-2023

PROGRAMME OUTCOME

PROGRAM OUTCOMES (PO)

At the end of the programme the student will be able:

PO 1	To undertake/ engage in employment oriented activities, development activities and allied activities particularly in response to the needs of the society.
PO 2	To understand the needs and to acquire the required competencies to support local, regional and national development.
PO 3	To develop conceptual understanding of the subject, problem solving and application of skills in practical orientation of the subjects.
PO 4	To develop critical and analytical thinking.
PO 5	To instill entrepreneurial spirits among the students along with ethics and business orientation.
PO 6	To kindle curiosity to review upon the diverse environments for enhanced and innovative and best practices.
PO7	To engage in lifelong learning and continuing learning and enduring proficient progress



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SEMESTER I

Core Paper I – FINANCIAL ACCOUNTING-I

Course Code : 2267101	Credits	4
L:P:T:S : 6:0:0:0	CIA Marks	: 50
Exam Hours : 03	ESE Marks	: 50

Learning Objective:

1. To enable the students to understand the systems of preparing financial statement for various types of organization.
2. To familiarize the students with knowledge about financial reporting standards.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand Accounting standards, the relevant provisions specified, computation of claim for loss of stock/ Loss of profit [Fire insurance] and calculation of Net Claim
CO2	Recall errors and its types, entries for rectification and its impact on GP/ NP and suspense account
CO3	Apply the calculation of depreciation and understand Provision in AS 10
CO4	Prepare the Final Accounts of a Sole Trading Concern incorporating important adjustments and provision for revenue recognition as per AS 9.
CO5	Differentiate single and double entry system and solve problems through statement of affairs and conversion method and Understand Royalty accounts

Core Paper II - OFFICE AUTOMATION

Course Code : 2267103	Credits	4
L:P:T:S : 0:6:0:0	CIA Marks	: 50
Exam Hours : 03	ESE Marks	: 50

Learning Objective:

1. To introduce the computer fundamental and to impart training in MS office which has different components like MS Word, MS Excel, MS Power Point.
2. To familiarize the students with practical knowledge on drafting word documents, spread sheet and presentations.

Course Outcomes: At the end of the Course, the Student will be able to:



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CO1	Understand the basic concepts of computer systems and its components.
CO2	Understand and apply the Word processing technique in day -to- day office communication and procedures.
CO3	Understand and apply the concepts of spread sheet technique in day -to- day office accounting and automation.
CO4	Understand and create presentation using power point tool and slide show.
CO5	Understand the concepts of operating systems, programming language, computer networks, internet.

Allied I – BUSINESS ECONOMICS

Course Code : 2267102	Credits	5
L:P:T:S : 6:0:0:0	CIA Marks	: 50
Exam Hours : 03	ESE Marks	: 50

Learning Objective:

1. To facilitate the students with micro and macro- economic concepts
2. To familiarize the concepts and gain knowledge to face competitive public service exams with confidence.

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	Understand the basic concepts of economics along with cost classifications
CO 2	Learn and apply the demand and supply concepts
CO 3	Get good insight of the concepts of marginal utility
CO 4	Develop an understanding on the concept of Break even
CO 5	Gain Knowledge on the concepts of perfect competition, monopoly, oligopoly



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SEMESTER II

Core Paper III – FINANCIAL ACCOUNTING II

Course Code :	Credits	4
L:P:T:S : 6:0:0:0	CIA Marks	: 50
Exam Hours : 03	ESE Marks	: 50

Learning Objective:

1. To gain knowledge on branch and departmental accounting.
2. To familiarize partnership accounting .

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Understand concept of branch , its accounting treatment and Investment accounts (AS13)
CO2	Learn to prepare departmental accounting , and adjustment of inter departmental transfers.
CO3	Compare the Accounting treatment in Hire purchase & Instalment system, Explain Accounting for leases as per AS 19.
CO4	Solve problems relating to Admission, Retirement and Death of a partner and understanding limited liability partnership.
CO5	Prepare accounts pertaining to dissolution of Partnership firm and apply the provisions of Garner Vs Murray towards insolvency of a partner; Explain the accounting treatment for Gradual realisation of assets & piece meal distribution.

Core Paper IV – PYTHON PROGRAMMING

Course Code :	Credits	4
L:P:T:S : 0:6:0:0	CIA Marks	: 50
Exam Hours : 03	ESE Marks	: 50

Learning Objective:

1. To understand the basic features of python programming and impart skills in an industry standard programming language.
2. To familiarize and create programming features in Python to solve real time industry problems.

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Learn fundamentals and core Python scripting elements.
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CO2	Discover and write Python functions to facilitate code reuse.
CO3	Learn to use Python read and write files and make their codes robust by handling errors and exceptions.
CO4	Explore Python’s object-oriented features.
CO5	Gain knowledge on exceptional flow control

Allied Paper II – INDIAN ECONOMY

Course Code : 2267206	Credits	5
L:P:T:S : 6:0:0:0	CIA Marks	: 50
Exam Hours : 03	ESE Marks	: 50

Learning Objective:

1. To develop Corporate Correspondence skills
2. To acquire knowledge on drafting reports, business letters.

Course Outcomes: At the end of the Course, the Student will be able to:

CO 1	Understand the basic concepts of economic growth & development and computation of National Income
CO 2	Learn major problems of Indian Economy
CO 3	Get good insight of the concepts of agriculture and its contribution to economic development
CO 4	Develop an understanding on the concept of Role of industries in economic development
CO 5	Gain Knowledge on the concepts of Five year plans in India



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DEPARTMENT OF B.COM COMPUTER APPLICATIONS

Programme Outcome For Undergraduate

At the end of the programme the student will be able to:

PO1	To undertake / engage in employment-oriented activities, development activities and allied activities particularly in response to the needs of the society.
PO2	To understand the needs and to acquire the required competencies to support local , regional and national development.
PO3	To develop conceptual understanding of the subject, problem solving and application of skills in practical orientation of the subjects.
PO4	To develop critical and analytical thinking.
PO5	To instill entrepreneurial spirits among the students along with ethics and business orientation.
PO6	To kindle curiosity to review upon the diverse environments for enhanced and innovative and best practices.
PO7	To engage in lifelong learning and continuing learning and enduring professional progress.



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PSO1	Apply a combination of business management and computer applications knowledge to address and solve real-world problems.
PSO2	Acquire a solid understanding of object-based computer applications and their application in various business sectors.
PSO3	Cultivate a deep sense of social commitment and endeavor to make a positive impact on society.
PSO4	Exhibit competence in comprehending, evaluating, and effectively communicating the worldwide, legal, and ethical aspects of business.
PSO5	Employ object-oriented language programs with different applications to analyze real business challenges.
PSO6	Embrace a multidisciplinary approach to skill development and nurture leadership qualities rooted in values.
PSO7	Equip graduates with the expertise needed to satisfy industrial standards in accounting, auditing, legal compliance, taxation, and computer languages.