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

BCA's CO

FIRST SEMESTER

Course Title: CORE - COMPUTER PROGRAMMING USING C++

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

Course Title: CORE - INTRODUCTION TO DIGITAL LOGIC DESIGN

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.

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Course Title: NON-MAJOR ELECTIVE-I - COMPUTER FUNDAMENTALS

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

SECOND SEMESTER

Course Title: CORE - JAVA WITH OOPS PRINCIPLES

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

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Course Title: CORE - FUNDAMENTALS OF DATA STRUCTURES

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.

Course Title: NON-MAJOR ELECTIVE –II - INTRODUCTION TO HTML

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 toe mail address
CO5	Concept of adding images Understand the table creation.

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THIRD SEMESTER

Course Title: CORE – PROBLEM SOLVING USING PYTHON

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

Course Title: CORE - WEB DEVELOPMENT TECHNOLOGIES

CO1	To understand the basic concepts of internet and HTML language with different types of tags like formatting the text, inserting the tables.
CO2	Enable to apply technical knowledge and create different style sheets
CO3	Understand the data types, variables constants, operators and looping structure, arrays used in Java Script.
CO4	Understand functions, arguments used in Java Script.
CO5	Understand the Validations used in Java Script.

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Course Title: CORE – ESSENTIALS OF OPERATING SYSTEMS

CO1	Describe the important computer system resources and the role of operating system and scheduling of processes by CPU algorithms.
CO2	Understand the process synchronization and Deadlock algorithms.
CO3	Evaluate the requirement for process synchronization and coordination handled by Operating system.
CO4	Describe and analyze the memory management and its allocation policies.
CO5	Identify use and evaluate the file management policies with respect to different Storage management technologies.

FOURTH SEMESTER

Course Title: CORE - RELATIONAL DATABASE MANAGEMENT SYSTEMS

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 Implicit and Explicit Cursors.
CO5	Representation of Exception and Pre-Defined Exception. To Point out the Importance of Triggers, Sub Programs, Functions and Procedures.

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Course Title: CORE - OPEN SOURCE TECHNOLOGIES

CO1	Describe the history and Architecture of Linux OS.
CO2	Understand the Shell programming basics like variables, operators.
CO3	Evaluate various decision making, Looping statements in shell.
CO4	Describe and analyze the arrays and command line arguments in shell.
CO5	Identify and evaluate Basic system administration concepts of Shell programming.

FOURTH SEMESTER

Course Title: CORE - FOUNDATIONS OF SOFTWARE ENGINEERING

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

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FIFTH SEMESTER

Course Title: CORE - DOT NET FRAMEWORK PROGRAMMING

CO1	To gain knowledge in object-event models in DHTML.
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

Course Title: CORE –DATA MINING CONCEPTS

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

Course Title: CORE –PRINCIPLES OF COMPUTER NETWORKS

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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Course Title: ELECTIVE I – ESSENTIALS OF DIGITAL MARKETING

CO1	Infer digital marketing practices, inclination of digital consumers and their behaviors.
CO2	Discover various search engine optimization techniques for digital marketing analysis.
CO3	Determine the value of integrated marketing campaigns across SEO, Paid Search, Social, Mobile, Email, Display Media, Marketing Analytics
CO4	Develop understanding of the latest digital practices for social media marketing and promotions
CO5	Distinguish among the different technology used in Digital Marketing. Construct insights on building organizational competency by way of digital marketing practices and cost considerations.

Course Title: ELECTIVE I –WEB COMMERCE

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

Course Title: ELECTIVE I – MANAGEMENT INFORMATION SYSTEMS

CO1	Know the basic knowledge of Management Information System, Study the techniques, Implement the applications
CO2	Understand the data preparations, Know the types of database, data warehouse and basics of data mining concepts.
CO3	Know the concepts ERP and CRM. Role of Decision making and Knowledge Management System in MIS
CO4	Introduce Software Development Life Cycle. Product based MIS valuation and System maintenance.

CO5	Describe the Information System Security Threats. Study about Disaster Recovery Plan, Social and Ethical Issues.

Course Title: ELECTIVE I – SUPPLY CHAIN MANAGEMENT

CO1	Demonstrate the evolution and importance of supply chain management, Distinguish decision phase in supply chain. Illustrate supply chain applications.
CO2	Describe the Supply Chain Networks, Framework of supply chain and Role of network design in supply chain.
CO3	Evaluate the Role of transportation in Supply Chain, Construct the transportation network.
CO4	Distinguish sourcing and coordination in supply chain, Illustrate the effect of co-ordination in supply chain and building strategies.
CO5	Understanding the role of IT in supply chain, Study of E-Business in supply chain.

Course Title: ELECTIVE I – RESOURCE MANAGEMENT TECHNIQUES

CO1	Applying features of Operations Research 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

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SIXTH SEMESTER

Course Title: CORE - PHP & MySQL

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.

Course Title: CORE – ANDROID PROGRAMMING

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

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Course Title: CORE – ALGORITHMIC DESIGN TECHNIQUES

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 4-Queens Problem Definition of Hamiltonian Cycle Problem.
CO5	Understand the Travelling Salesman Problem. Definition of Branch and Bound general method.

Course Title: ELECTIVE II – FUNDAMENTALS OF CLOUD COMPUTING

CO1	Knows the reason about the basic Cloud models and Importance of various kinds of cloud platforms
CO2	Develop Cloud Concepts and how to implement a software virtualization concept to meet desired needs and Requirements.
CO3	Analyze the Concepts of cloud Utility and Enterprise grid computing, implementing security level of third party in cloud computing, cloud security benefitsand Government policies.
CO4	Design the Cloud Architecture- Layers and Models
CO5	Usage of cloud Configuration using Cloud Simulators

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Course Title: ELECTIVE II – APPLICATIONS OF INTERNET OF THINGS

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 cloud computing and services in IoT.
CO5	Appreciate the role of Big data analytics in a typical IoT system and determine its industrial perspective.

Course Title: ELECTIVE II – INFORMATION AND CYBER SECURITY

CO1	Understand Information Security Principles such as security attacks and services.
CO2	Design Terms, concepts related to Security Attacks and Services.
CO3	Apply the Concepts of various privacy methods.
CO4	Analyze the cyber security concepts and principles.
CO5	Understand the classification, remedial, frauds, legal privacies of cybercriminals.

Course Title: ELECTIVE II – BASIC CONCEPTS OF ARTIFICIAL INTELLIGENCE

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

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Course Title: ELECTIVE II – MECHANISMS OF BLOCK CHAIN TECHNOLOGY

CO1	Understand the abstract models behind Blockchain Technology.
CO2	Identify the insights of crypto currency domain-Bitcoin.
CO3	Demonstrate the Ethereum platform as an example for Blockchain technology.
CO4	Apply hyper ledger Fabric to implement the Block chain Application.
CO5	Discuss the various application areas of Blockchain