Criteria 2.3.1

Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

Student-centric methods, such as experiential learning, participative learning and problem-solving methodologies used for enhancing learningexperiences

Student-Centered Learning refers to a wide variety of educational programs, learning experiences, instructional approaches, and academic-support strategies that are intended to address the distinct learning needs, interests, aspirations, or cultural backgrounds of individual students and groups of students.

Teacher-centered instruction doesn't allow students to express themselves, ask questions, and direct their own learning. When a classroom operates with student-centered instruction, students and instructors share the focus. Instead of listening to the teacher exclusively, students and teachers interact equally.

D G V C adopts various students centric methods, enable the learner meet their learning goals, academic success with required competencies. Methods such as experiential learning, participative learning and problem solving are used at various stages and levels to enhance learning opportunities to the students.

In a student-centered learning space, students choose what they will learn, how they will pace their learning, and how they will assess their own learning by playing the role of the facilitator of the classroom.

Methods of Instruction:

Differentiated Instruction (Low Tech). Differentiated instruction is the teaching practice of tailoring instruction to...

Inquiry-based Learning (High Tech). Based on student investigation and hands-on projects, inquiry-based learning is a...

Expeditionary Learning (High Tech). The learning in this model includes multiple content areas so that students can see...

Personalized Learning (High Tech). At the heart of the model, teachers have students follow personalized learning...

To assess the generic skill third component, various methods are adopted to name a few Lectures method, Interactive method, Group discussion, Student seminar, Summer Internship, Industrial visit, Project based learning, Participation in guest lectures, Hands on workshop, Model demonstration, poster presentation, role play and Quiz.

(i) Lecture method and was used to
- Maintain regular eye contact with the entire class and encourage the students to take notes.

(ii) Interactive Method:

- Interactive methods can be specifically organized to meet the needs of particular audiences.
- It makes the session interesting with enthusiastic participation of the students.

(iii) Seminar & Poster Presentation:

- Presenting and Attending a seminar improves the communication skills, helps in gaining knowledge and networking with others.

(iv) Industrial Visit, Summer internship, Hands on workshop and Model demonstration:

- Students become more aware of industry practices and regulations during industry visits.

(v) Role Play, Group Discussion and Quiz:

- It's an effective way for students to draw and maintain their attention on topics and to develop their interest.

(vi) Participation in guest lectures:

- Students get new perspectives and opinions that are often missed in a regular class.

During pandemic, faculty and students were trained to use ICT integrated student centric methods were adopted. To name few Interactive method, Group discussion, Student seminar, certification program, Participation in Guest Lectures, Hands on workshop, Model demonstration, Poster presentation, role play and Quiz.

Output of ICT integrated Student centric methods

- Students can learn at their own pace and re-reading, skipping, or accelerating through concepts as they choose.
- Positive attitudes towards learning, self-regulation and intrinsic motivation.
- It developed responsibility for the learning path in the hands of students.
- Traveling time can be saved and there is no geographical space barrier.
- Ease and quick share of reading material
- Technical difficulties can be solved through pre-recording video lectures
- Educators can use a combo of audio, videos, and text to reach out to their students in this time of crisis to maintain a human touch to their lectures.
- The *Anywhere-Anytime* feature of e-learning is beneficial in the times of crisis-like situation.

Challenges faced by faculty in implementing student centric methods (experiential, participative and interactive learning methods through online mode during pandemic

- The effectiveness of online learning might have been hindered, in some cases, by the lack of basic digital skills among certain students and teachers, making them unprepared to adapt to the new situation so abruptly.
- Connectivity issues; many teachers were unaware of virtual evolution portals for assessment.
- Authenticity of students' work, their understanding and behavioral changes cannot be checked.
- Lack of interaction with students
- Difficulty in communicating with learners and lack of capacity to successfully dispel pupil's doubts.
- Virtual teaching is the only viable option to teach amid lockdown which resulted in escalation of teachers` working hours.

Challenges faced by the students in implementing student centric methods (experiential, participative and interactive learning methods through online mode during pandemic

- Students need to have access to devices such as computers and the necessary software to participate in online learning activities, which is often a challenge for lower-income households.
- Some students will have relatives or friends who have died during the pandemic.
- Loss of employment for parents and guardians, hunger and lack of nutrition.
- Many students enter without self-regulation skills and mindset.
- Laboratory skill session was postponed due to the campus closure and this resulted in the lack of motor skill. Practical assignments that normally served as the reinforcement to the theory class were reduced.

Responses of the students towards experiential learning during Pandemic

- Preferring recorded classes and live classes that can be recorded since it gives them a flexibility in learning.
- Students preferred quiz and assignments at the end of every class for effective learning.
- Students felt that one-week time should be given for submitting their assignments.
- Students wished to attend online exams.
- Online learning improves their technical skills as compared to face-face classes.

Online internship training program/ Interactive instructional online courses organized by the department /attended by the students for effective learning during pandemic.

- Conformational Analysis for Beginners an online course for one week commenced on April 10, 2020. Nearly 440 participants of various colleges of Tamilnadu have taken up the course and 220 participants attended the test out of which 170 participants were certified.
- "A virtual connect with group theory" commenced on 21st May 2021 for 10 days. There was about 1112 participants Nationwide. About 705 participants took the test and 420 scored above 60% and they were certified.
- Various online courses has been conducting under the platform infowledge.edunext.in. Nearly 1000 participants have been benefited.

Experiential learning is important in today's lives and explain how students benefited by this methodology of learning

Students are encouraged to analyse how their actions affected the issue, and how their outcome may have varied from other students'. They are encouraged to analyse how their actions affected the issue, and how their outcome may have varied from other students'. This analysis helps them better understand how the concepts learned can be applied to other, varied circumstances.

At Dwaraka Doss Goverdhan Doss Vaishnav College, there are multiple opportunities for students to explore industries and areas whether it is through summer or academic internship, conducting research, participating in community based learning or through involvement in co-curricular activities. The college has adopted holistic student centric learning methodologies for experiencing the learning process through which students develop knowledge, skills and values from direct experiences outside the traditional academic setting. Students are exposed in multiple ways to experience the pulse of society to understand its needs and challenges through experiential learning.

The multiple learning opportunities for students can be summarized as :

- Summer Internships programs in the industry to get a real feel of activities.
- Surveys : example - socio economic survey - Applying theory into practice.
- Student Research Projects – Assisting senior faculty in various funded and non-funded projects.
- Industrial visits - for industry academia interaction to help students develop comprehensive idea of working in an industrial setup. Also educational and environmental field trips.
- Problem Solving methodologies put into practice, through unique initiatives by college, like creating Maths lab, language labs, etc.
- Case studies: Real world issues and concepts are understood, through case studies. Community based learning
- Co-curriculars: Hands on training in relevant skill based courses to enable them to tap their latent interest in industry.
- E- Learning and simulations programmes.
- Conclaves, Seminars, Workshops, industry- academia interactions events conducted, by various departments and exposure to other institutions which employ various methodologies to promote pooling ideas, and inter disciplinary participative learning technique.

Participative learning become part of life, explain how your students benefited with this learning.

- Participation adds interest—It's hard to maintain students' focus and attention when all they hear is the professor talking. It helps to hear another voice as well as an answer or another point of view.
- Participation engages students—A good question can pique their interest, make them wonder why, get them to think, and motivate them to make connections with the content. This benefit is magnified when teachers play a bit with the question, when they repeat it, write it on the board, and don't call on the first hand they see.
- Participation provides the teacher feedback—When students answer or try to explain, teachers can see the extent of their understanding. They can correct (or help the students correct) what the students haven't got right or don't see quite clearly.
- Participation provides the students feedback—When teachers ask questions or otherwise seek student input over a topic, they are letting students know something about theimportance of certain ideas and information.
- Participation can be used to promote preparation—If an instructor regularly calls on students and asks questions about assigned reading or what's in their notes from the previous class session, that can get students (at least some of them) coming to class prepared.
- Participation can be used to control what's happening in class—If a student is dozing off, texting, quietly chatting, or otherwise not attending to what's happening, that student can be called on or the student next to the offender can be asked to respond.

- Participation can be used to balance who's contributing in class and how much—In the vast majority of cases, it is the teacher who selects the participant. If teachers will wait patiently and not always select the same student, if they look expectantly to others and confirm verbally and nonverbally the value of hearing from different people, they can influence who speaks and how much. Participation even helps teachers control how much they talk.
- Participation encourages dialogue among and between students—Students can be asked tocomment on what another student has said. A question can be asked and students can be invited to discuss possible answers with each other before the public discussion.
- Participation can be used to develop important speaking skills—In many professional contexts, people need to be able to speak up in a group. They may need to offer information, ask questions, or argue for a different solution. People don't learn to speak up in a group by reading about how to do it—it's one of those skills best developed with practice. And it's one of those skills that develops better with feedback. If participation is being used to teach students this public communication skill, they will need feedback.
- Participation gives students the opportunity to practice using the language of the discipline—Most faculty have spoken astronomy, accounting, psychology, gerontology, political science, whatever the field for years, and they've forgotten how much of the language is new, different, and difficult for students. Participation gives students the chance to practice using a different vocabulary.

Problem-solving learning methodology help students in their life.

- This skill enables the students to learn new knowledge by facing the problems to be solved. It is expected of them to observe, understand, analyze, interpret, find solutions, and perform applications that lead to a holistic understanding of the concept.
- This method helps in developing a brainstorming approach to learning concepts.
- The students try different strategies to arrive at the solution.

Feedback of students towards learning methods adopted in the department.

- Many students felt that the learning outcome would be harder to achieve due to the sudden shift to online education.
- Main concerns among students were lack of contact with other students.
- Quieter students feel more comfortable partaking in class dialogue without being recognized or judged as they are not in a classroom setting.

Suggestions from students/faculty/Experts to improve effective learning.

- Incorporation of blended learning that is classroom and distance learning in the curriculum shall improve the overall learning environment.
- Amplify learning objectives through guided inquiry -a teacher may assign a project, presentation or create an alternative demonstration of learning.
- Create a collaborative culture of curious thinkers: This encourages them to articulate their process, wonderings, connections, and out of- box thinking.

- It is good to include some brain storming sessions in the classroom when students can challenge their thinking process. Give them puzzles or interesting activities in which they need to apply their thought process.

- This would stimulate their brain and makes them active and energized to receive new lessons. Creative sessions can also be included which challenges their critical thinking and logical reasoning.

- Distributed practice: The study activities are supposed to be spread over the period which gives significant results. Students usually have a habit of rushing with the lessons when the deadlines for exams are nearing. This type of learning won't do any good to retain the information in the memory for long. So teachers should encourage distributed practice in which they learn the subjectthroughout the term. Teachers can evaluate their learning with regular, weekly or monthly tests and mini exams.

Adaptability of students towards experiential learning and Participative learning after pandemic.

- Blended learning helps all learning requirements and styles through a variety of mediums and techniques.
- The usage of online teaching and learning reaps the benefits of time and location flexibility associated with it. Teachers can develop innovative pedagogical approaches.
- A step-by-step guide can be prepared for the teachers and students on how to access and use various e-learning tools and how to cover major curriculum content via these technologies thereby reducing the digital illiteracy.
- More amenable for self and continuous learning.
- The benefits of quality education via e-learning can be enjoyed by improving the development of e-resources and e-content delivery.

Annexure:

Student-centric methods adopted in the department before pandemic.

Experiential learning

Hands on training

Field Visit

Projects

Poster Presenting

Role play

Mock Interview

Participative Learning

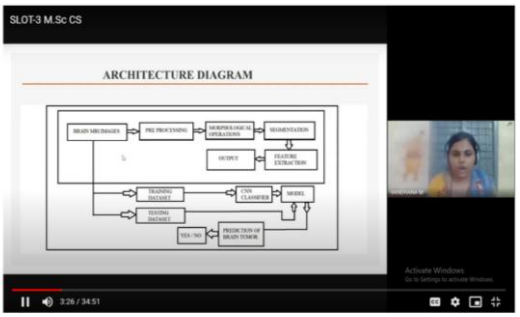
Guest lectures

Seminar

Group/panel discussion

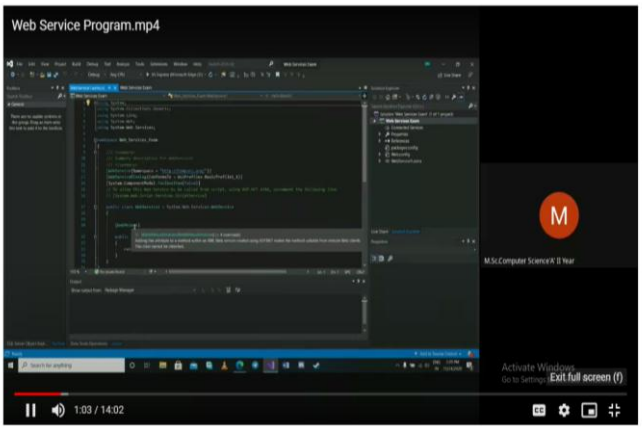
Article Review

Case Study



Problem solving method

Mind Mapping



Puzzle solving

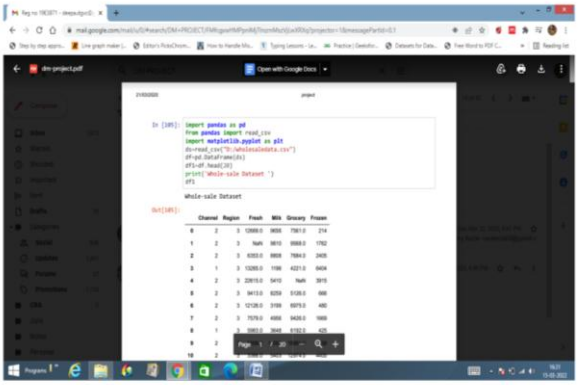
Case studies

Internship

TOPIC: Database Connectivity

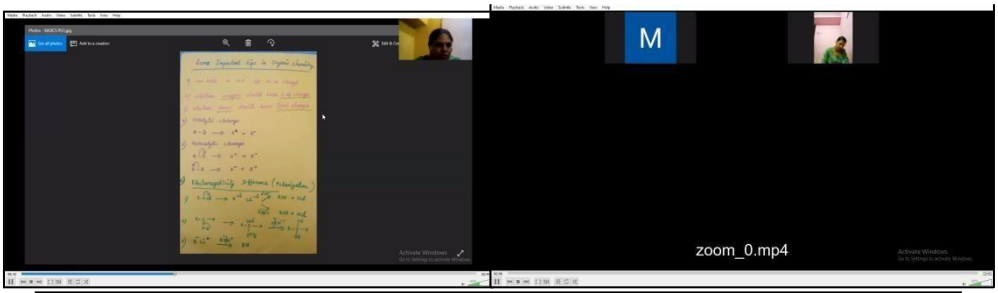
TOPIC: Java mail Components

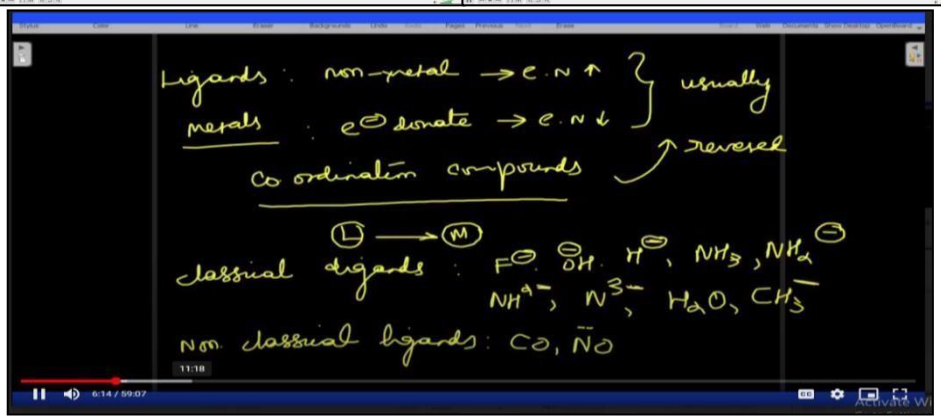
Minor Projects



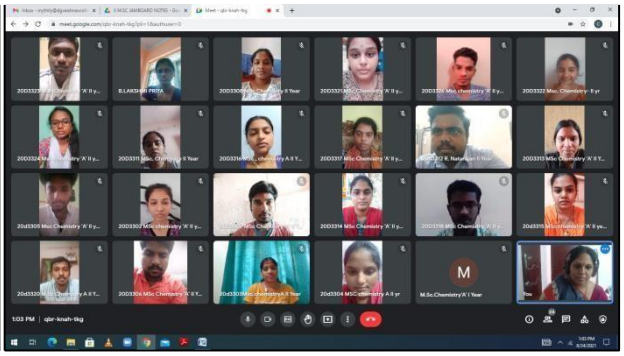
Student Centric methods adopted in the department during pandemic

Online class through Zoom

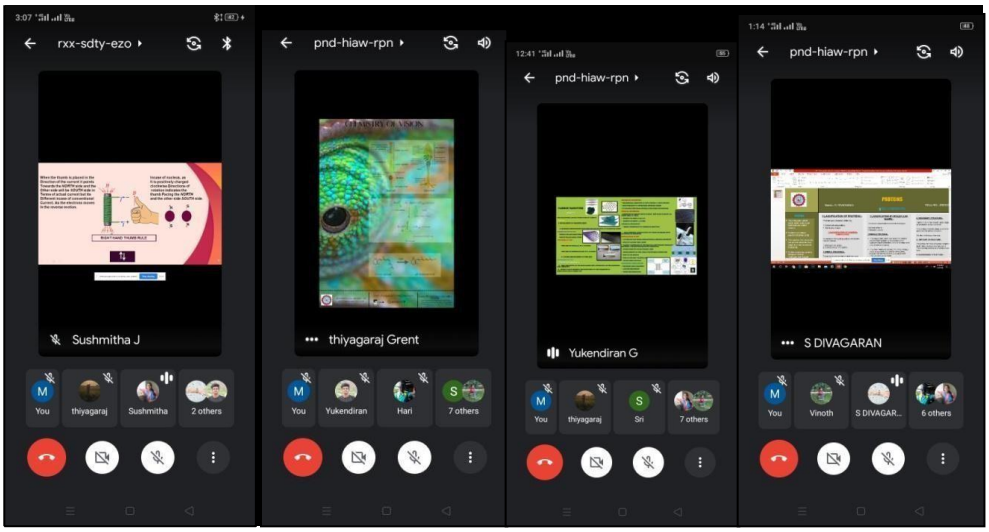




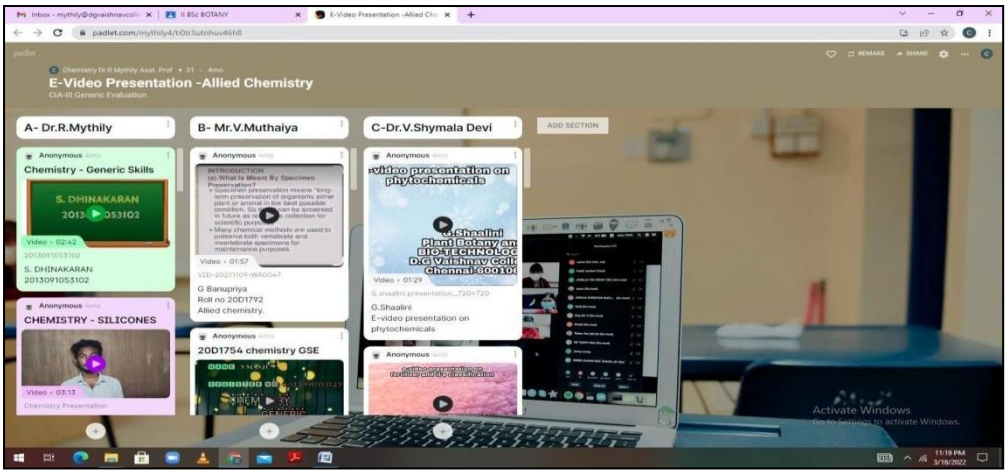
Group discussion through online mode



m-learning (Mobile learning) - Online seminar



Role play



Animated Video presentation using Render forest as a tool

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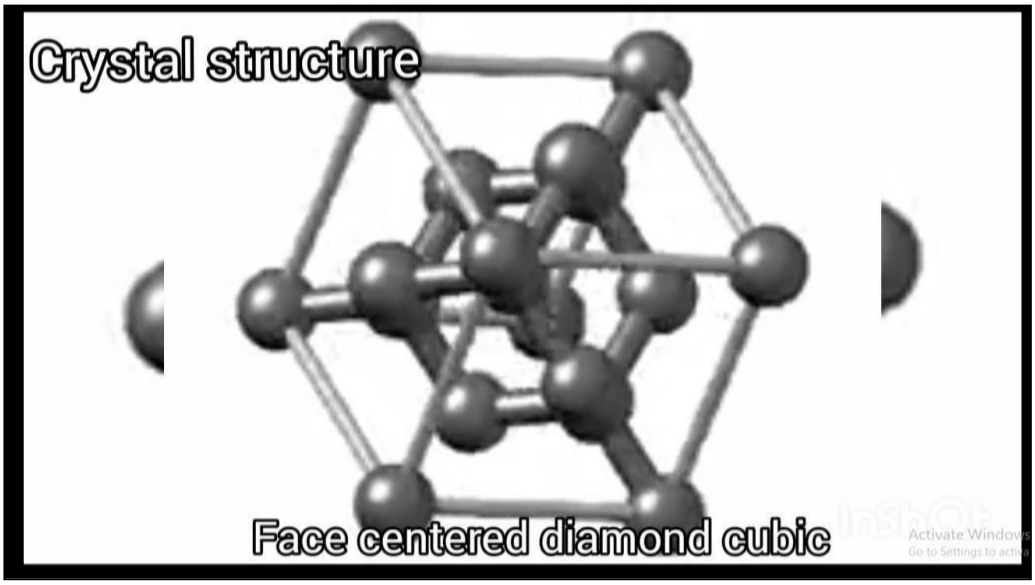
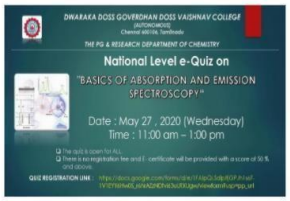
Usage of Model animations for online classes



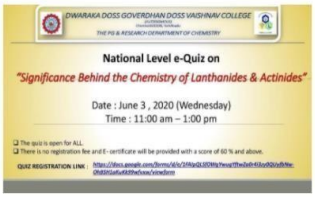
VIRTUAL E-QUIZZES

With the aim to upgrade the knowledge of Chemistry, a spark is thrown in the form of e-quiz during the pandemic to enlighten new learning opportunities.



A National level e-quiz on "Basics of Absorption and Emission Spectroscopy" was conducted on May 27, 2020 from 11.00am to 1.00pm. Dr.K.Premalatha, Associate Professor and Head was the Convener and Dr.R.Kumaran was the co-ordinator of the quiz competition.

There were two parts in the quiz, and content was raised up to postgraduate and research level. There were 800 number of registrants, 495 participants from various colleges in Tamilnadu and Andhra Pradesh etc. One of the participant was from RUHR UNIVERSITY BOCHUM, GERMANY. 150 participants were certified.



A National level e-quiz on "Significance behind the chemistry of Lanthanides and Actinides" was conducted on June 3, 2020 from 11.00am to 1.00pm. Dr.K.Premalatha, Associate Professor and Head was the Convener and Dr.R.Kumaran was the co-ordinator of the quiz competition There were 750 number of registrants, 475 participants and 150 participants were certified. The participants were from various colleges in Tamilnadu and Andhra Pradesh etc. The certificate was issued to the participants who scored above 50 percentage.

A National level e-quiz on "Coordination chemistry" was conducted on June 6, 2020 from 11.00 am to 1.00 pm. Dr.K.Premalatha, Associate Professor and Head was the Convener and Dr.M.Vanjinathan was the coordinator of the quiz competition. There were about 378 student participated.

The participants were from various colleges in Tamilnadu and other states. The quiz on Coordination chemistry content was raised up to the level of CSIR-NET examination.

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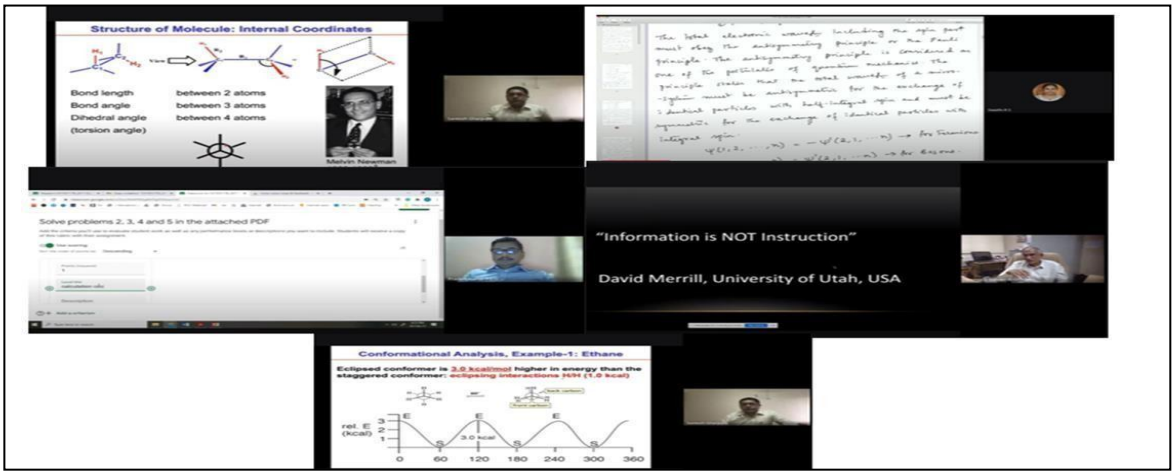
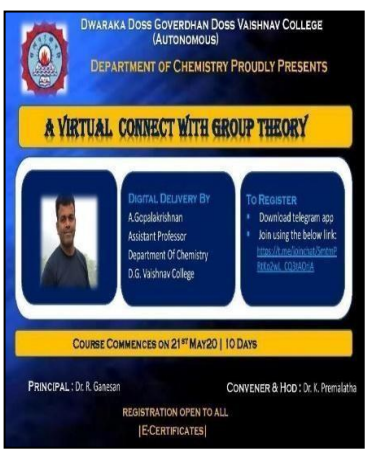
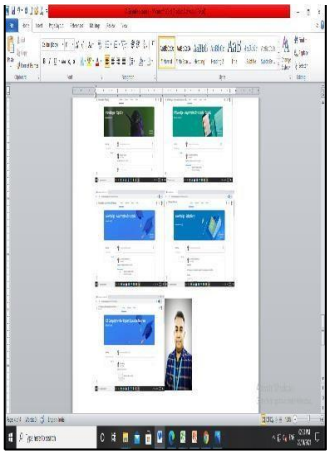
Linguistic Minority Institution. Affiliated to University of Madras

GUEST LECTURES







Online Internship training program/Interactive instructional online courses.(Certif

DEPARTMENT OF CHEMISTRY
Indian Institute of Technology Madras

CERTIFICATE

This is to certify that

Ms. R. ABINAYA

(Dwaraka Doss Goverdhan Doss Vaishnav College, Chennai)

has participated in the SUMMER FELLOWSHIP PROGRAMME 2018 of this Institute in the Department of Chemistry from 01-05-2018 to 25-06-2018

She has submitted a report on **"COPOLYMERIZATION OF NORBORNENE ANHYDRIDES AND CYCLOHEXANE OXIDES USING TRIMETHYLALUMINUM"**

The Department wishes all the best

V.J

Prof. V. Jagadeeshkumar
Dean, Academic Courses

24-07-2018

Prof. Indrapal Singh Aidhen
Head, Department of Chemistry

सीएसआईआर - केन्द्रीय चर्म अनुसंधान संस्थान
CSIR - CENTRAL LEATHER RESEARCH INSTITUTE
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद् Council of Scientific & Industrial Research)
अडयार, चेन्नई, तमिलनाडु, भारत
ADYAR, CHENNAI – 600 020, TAMIL NADU, INDIA

डॉ. पी. तनिकैवेलन
Dr. P. Thanikaivelan

प्रधान वैज्ञानिक एवं प्रमुख, प्रगत पदार्थ प्रयोगशाला
Principal Scientist & Head, Advanced Materials Laboratory

August 20, 2018

To Whom It May Concern

This is to certify that, Mr. A. Arun Jegan (17D3381), Department of Chemistry, Dwaraka Doss Goverdhan Doss Vaishnav Collaege, has undergone internship from May 1, 2018 to May 21, 2018 at Advanced Materials Laboratory, CSIR-Central Leather Research Institute. During this period he has undergone some instrumental training like UV-visible spectroscopy, X-ray Diffraction, Particle size analyzer and FT-IR. He also prepared copper nanoparticles and characterized them using UV-visible spectroscopy, XRD and particle size analyzer.

P. Thanikaivelan

Advanced Materials Laboratory
+91 44 2443 7142
+91 44 2491 2150
thanik8@yahoo.com; thanik@clri.res.in

Indian Academy of Sciences
Bengaluru

Indian National Science Academy
New Delhi

The National Academy of Sciences, India
Allahabad

SUMMER RESEARCH FELLOWSHIP PROGRAMME

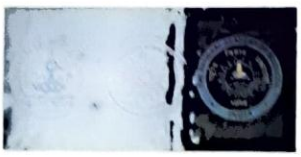
CERTIFICATE

This is to certify that Mr R Kaviyarasan worked on a project entitled "A supramolecular approach to construct porous 2D materials from transition metal dichalcogenides and graphene" during April-June 2018 as a Summer Research Fellow under the supervision of Professor Subi J George, Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru. The Summer Research Fellowship Programme is jointly sponsored by IASc (Bengaluru), INSA (New Delhi) and NASI (Allahabad).

M.R.N. Murthy

Place: Bengaluru
Date: 25-06-2018

M.R.N. Murthy
Chairman, Science Education Panel



Tata Institute of Fundamental Research

Homi Bhabha Road, Colaba, Mumbai 400005, India.

An autonomous institution of the Department of Atomic Energy, Government of India and a Deemed University

Certificate of Participation

This is to certify that Ms. S Hari Priya

participated in the

Visiting Students' Research Programme (VSRP-2018)

in the School of Natural Sciences

held at TIFR during May 7 - July 4, 2018

(Sreelaja Nair)
Co-ordinator, VSRP-2018

Mumbai, July 4, 2018

UNIVERSITY OF MADRAS
Department of Physical Chemistry
School of Chemical Sciences
Maraimalai Campus, Guindy, Chennai-600 025
Tel: 91- 44-22202818 (O), Fax: 91-44-22300488

Dr. E. MURUGAN, Ph.D.,
Professor

Prof.& Head i/c
Dept. of Material .Science

ATTENDANCE CERTIFICATE

This is to certify that **Ms. DHIVYA VADHANA. P**, from D.G. Vaishnav College has did her internship training in the area of **"ANALYTICAL CHARACTERISATIONS OF NANOHYBRID MATERIALS"** in the Department of Physical Chemistry, School of Chemical Sciences, University of Madras under my direct supervision from **01.06.2015 to 17.05.2015**. During her period of internship she was regular, punctual, active and shown much interest to learn all analytical techniques. Further, Divya vadhana Conduct and Character is appreciable. More particularly, she followed my instructions carefully & totally and acquired more than average knowledge in the latest instrumental techniques. Hence, I certify that her internship period is satisfactory.

Place : Chennai-25
Date : 17.06.2015

(Prof E. Murugan)

nail

kavirenu krishnan <kavikrishrenu@gmail.com>

nmer Fellowship Programme 2018 - Department of Chemistry, IIT Reg.

Abi Ramu <ramuabi7@gmail.com> Thu, Apr 5, 2018 at 10:49 AM
Reply-To: Abi Ramu <ramuabi7@gmail.com>
To: kavikrishrenu@gmail.com

–
Sent from Gmail Email App for Android

——— Forwarded Message ——— From: Office Chemistry cyoffice@iitm.ac.in To: ramuabi7@gmail.com Date: Tuesday, 27 March 2018, 10:59AM +05:30 Subject: Summer Fellowship Programme 2018 - Department of Chemistry, IIT Madras - Reg.

> Dear R.ABINAYA,
>
> I am happy to inform that you have been selected for the IITM Summer Fellowship Programme 2018 in the Department of Chemistry. Your summer fellowship is for a period of 60 days from 16-05-2018 to 15-07-2018. Offer letters for the above programme will be sent to you shortly. Kindly confirm your joining immediately **on or before 30-03-2018 through email**, failing which the **seat will be allotted to the next candidate**.
>
> With regards, nmuthu, cyoffice

SUMMER PROJECT REPORT

BY: M.SAINATH
Supervisor: Dr. Sudipta Basu
IISER Pune

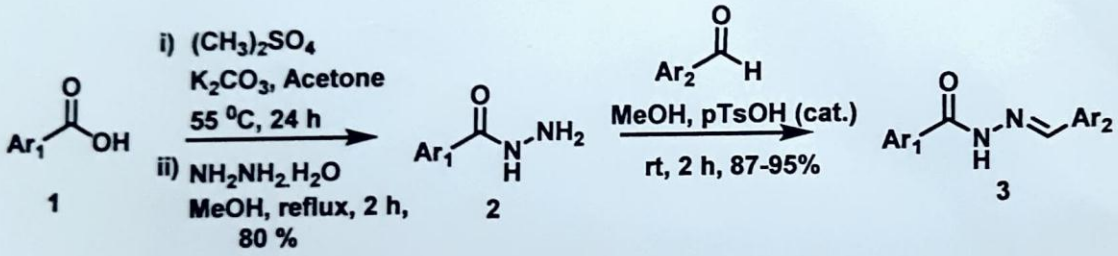
INTRODUCTION:

Mitochondria are the main energy generating source in living cells and play an important role in cellular signalling, metabolism and most importantly, apoptosis. Defects in mitochondrial functions can lead to many diseases including cancer. Hence lots of efforts have been put in recent years to target mitochondria. Development of novel small molecules to selectively target mitochondria in cancer cells is the main challenge and the project involved synthesis of such small molecules to be able to achieve that. A few molecules synthesized were found to have fluorescence. The molecules were characterized through ^{1}H NMR, ^{13}C NMR and HRMS.

DIFFERENT TECHNIQUES LEARNT DURING THE PROJECT:

Proper handling of chemicals, glassware and lab safety protocols were fundamental to the project work.

The synthesis of small molecules was carried out under room temperature or inert or dry atmosphere. The quantity of reactant materials were calculated and weighed accurately by using weighing apparatus and the reaction then carried out.



Thin Layer Chromatography (TLC) was used to monitor the progress of the reaction at every step by using ultra-violet and TLC stains. Column chromatography technique was used to quantitatively separate and purify the desired product from the reaction mixture. Different solvent systems were used to carry out column chromatography.

Instruments used: Rotary evaporator, vacuum pump and magnetic-heating reaction stirrer.

Softwares used: ChemDraw Professional (Version 16.0) and MestReNova (Version 6.0.2).

Sudipta Basu

SIGNATURE AND SEAL OF THE SUPERVISOR

डॉ. सुदीप्त बसु / Dr. Sudipta Basu
रामलिंगस्वामी फेलो / Ramalingaswami Fellow
भारतीय विज्ञान शिक्षा एवं अनुसंधान संस्थान
Indian Institute of Science Education & Research
पुणे / Pune - 411 021 India

TTK Healthcare
LIMITED

January 3, 2022

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Ms.YADUSHAILA V (R.No.19D1404),** III Year, B.Sc. Chemistry student from Dwaraka Doss Goverdhan Doss Vaishnav College, Chennai, has undergone **"Internship Training"** in our Organisation during the period 21.12.2021 to 31.12.2021.

for **TTK HEALTHCARE LIMITED**

M MURUGAN
SR. DY GENERAL MANAGER-HR

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