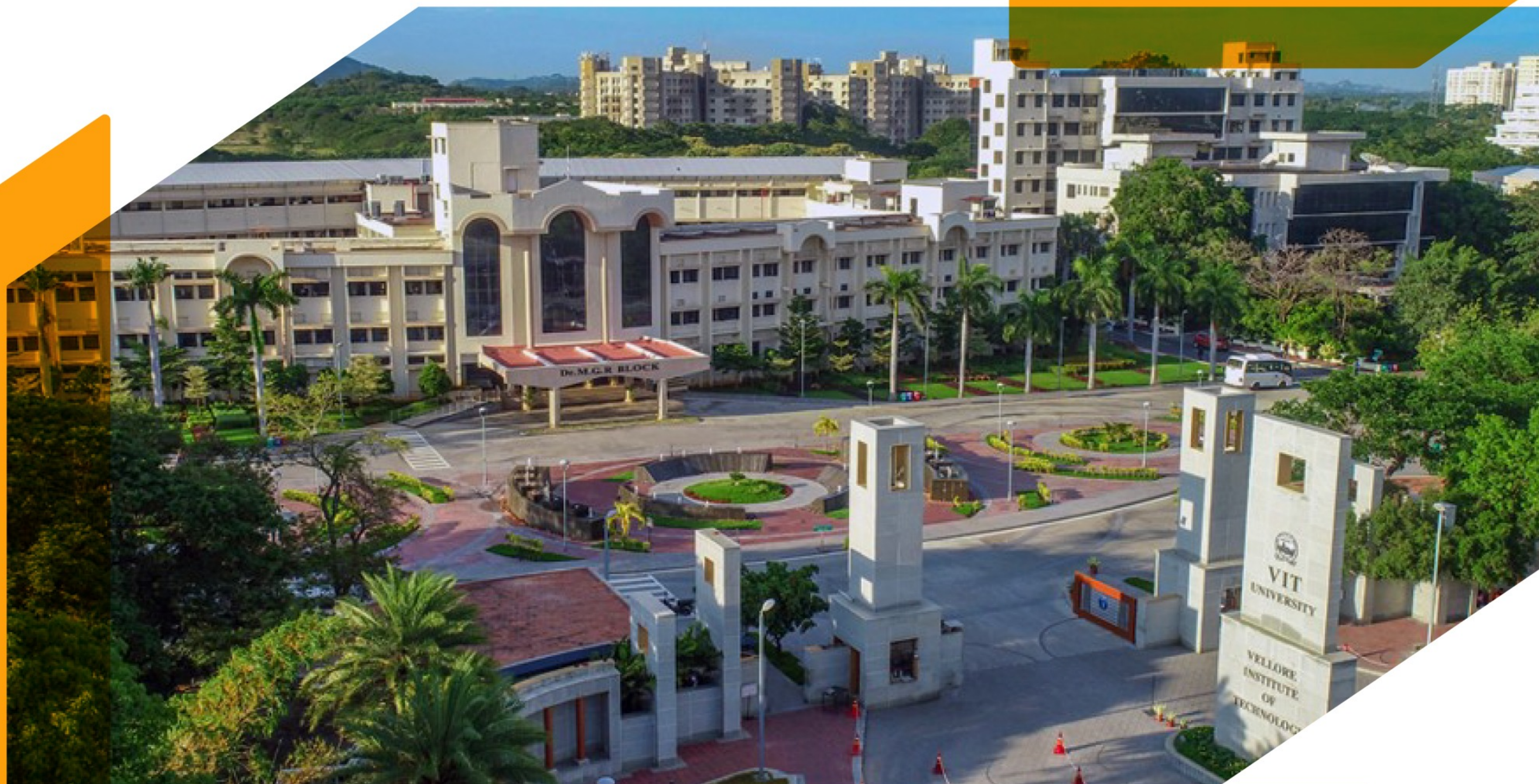




VIT[®]
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)



CHEM-REFLECT

VOLUME 4 ISSUE – 2

(JUN 2022 – DEC 2022)

NEWSLETTER FROM

SCHOOL OF CHEMICAL ENGINEERING

VELLORE INSTITUTE OF TECHNOLOGY

www.vit.ac.in/schools/scheme



Table Of Content

About SCHEME	3
Message From The Dean	4
School Experts	6
Student Achievements	7
Patents	9
Events organised By Chapters	10
Events	11
VAC	14
Guest Lectures	16
Journal Publications	17
Student Testimonials	21
Industry Interactions	23
MoU's	24
Editorial Committee	25

About SCHEME

“Making the world a better place by chemical engineering”

The School of Chemical Engineering (SCHEME) is determined to nurture new talents and create leaders and entrepreneurs who can bring value addition to the chemical and allied process industries. Besides high quality teaching and instruction at UG level, the faculty members of the school are actively involved in executing a number of R&D and consultancy projects from government agencies including DST, DBT and also from many reputed industries. The school has also regularly benefited from international linkages facilitated by University-level MoU-s with a number of leading foreign universities.



CHEMICAL ENGINEERING

WORLD RANK: 301 – 350

INDIAN RANK: 11

Message From The Dean

Dear readers,

Welcome to the volume 4 and issue 1 of the newsletter of the School of Chemical Engineering.

This issue provides information about the publications and research work of our faculty and students. The awards and honours received, the teaching-learning and research process and much more is explored.

SCHEME houses B.Tech and PhD programmes in Chemical Engineering. All faculty members are doctorates from reputed institutions in India and abroad. This year three new faculty members joined this school. Many flagship events conducted by us.

I hope you find this newsletter engaging. While the newsletter provides a bird's eye view of the accomplishments of the School, you are welcome to contact the Office of SCHEME to know further details about us.

Dr. Muruganandam L
Dean, SCHEME - VIT



The Mission Of the School

To prepare the graduates for a rewarding career by providing quality education in Chemical Engineering in tune with evolving requirements of the society.

To impart knowledge and develop technology through quality research in frontier areas of chemical and inter-disciplinary fields.

To produce practicing engineers with professional ethics to cater the contemporary needs of the society and environment.

The Vision



To improve the quality of life through innovations in Chemical Engineering

Our Faculty members



Dr. Muruganandam. L
Professor & Dean



Dr. Mahesh Ganesa Pillai
Professor



Dr. Shishir Kumar Behera
Professor



Dr. Nirmla G S
Professor



Dr. Velu S
Professor



Dr. Anand V P Gurumoorthy
Professor



Dr. Aruna Singh
Professor



Dr. Babu ponnusami A
Professor



Dr. Monash P
Professor



Dr. Thomas Theodore
Professor



Dr. Ganesh Moorthy I
Associate Professor



Dr. Chitra D
Associate Professor



Dr. Nagamalleswara Rao K
Associate Professor



Dr. Mohammed Rehaan Chandan
Associate Professor



Dr. Sivagami K
Associate Professor



Dr. Aslam Abdullah M
Associate Professor



Dr. Dharmendra Kumar Bal
Associate Professor



Dr. Aabid Hussain Shaik
Associate Professor



Dr. Shankar Raman Dhanushkodi
Associate Professor



Dr. Bandaru Kiran
Assistant Professor



Dr. Rima Biswas
Assistant Professor



Dr. Samarshi Chakraborty
Assistant Professor



Dr. Karthika S
Assistant Professor



Dr. Kuldeep Roy
Assistant Professor



Mr. Pandurangan K
Assistant Professor

Student Achievements



Aditya Tiwari 19BCM0064 won the Donald F. & Mildred Topp Othmer Scholarship Award in 2022. Each year, Donald F. & Mildred Topp Othmer Scholarship Awards 15 AIChE student members a scholarship of \$1,000 around the globe. Awards are presented on the basis of academic achievement and involvement in student chapter activities.

Aditi Sridhar 21BCM0035 won second place for a Paper Presentation Competition, titled Technidite, under the banner of Crust'22, organized by UPES AAPG Student Chapter.



Arin Saha 21BCM0072 won 3rd place in the Student Poster Presentation competition, titled ChEnigma, during the Indian Student Regional Conference 2022, hosted and organized by AIChE-VIT.

Tanish Mukherji 20BCM0018 secured first place in the intercollege pictionary competition held at the Christian Medical College Vellore, under the banner of Pegasus 2022. Secured 2nd place in the essay writing competition on the occasion of VIT library week, held by the Chancellor VIT University, Dr. G. Viswanathan.



Student Progression to Higher Studies

Total Number of students pursuing higher studies from the 2018 -2022 batch are 28.



1) Ritik Konduskar (2018-2022) (18BCM0025) will be pursuing his Masters in Chemical Engineering at SUNY Buffalo, New York (State University of NY).



2) Adamya Patel 18BCM0022 (2018-2022) will be pursuing his Master of Science from Cornell University.



3) Anushka Ranaut 18BCM0051 (2018-2022) will be pursuing her Masters in chemical and applied chemistry from University of Toronto.



4) Mansi Aliveli 18BCM0046 (2018-2022) is an incoming graduate student at Hamburg University of Technology, Germany.



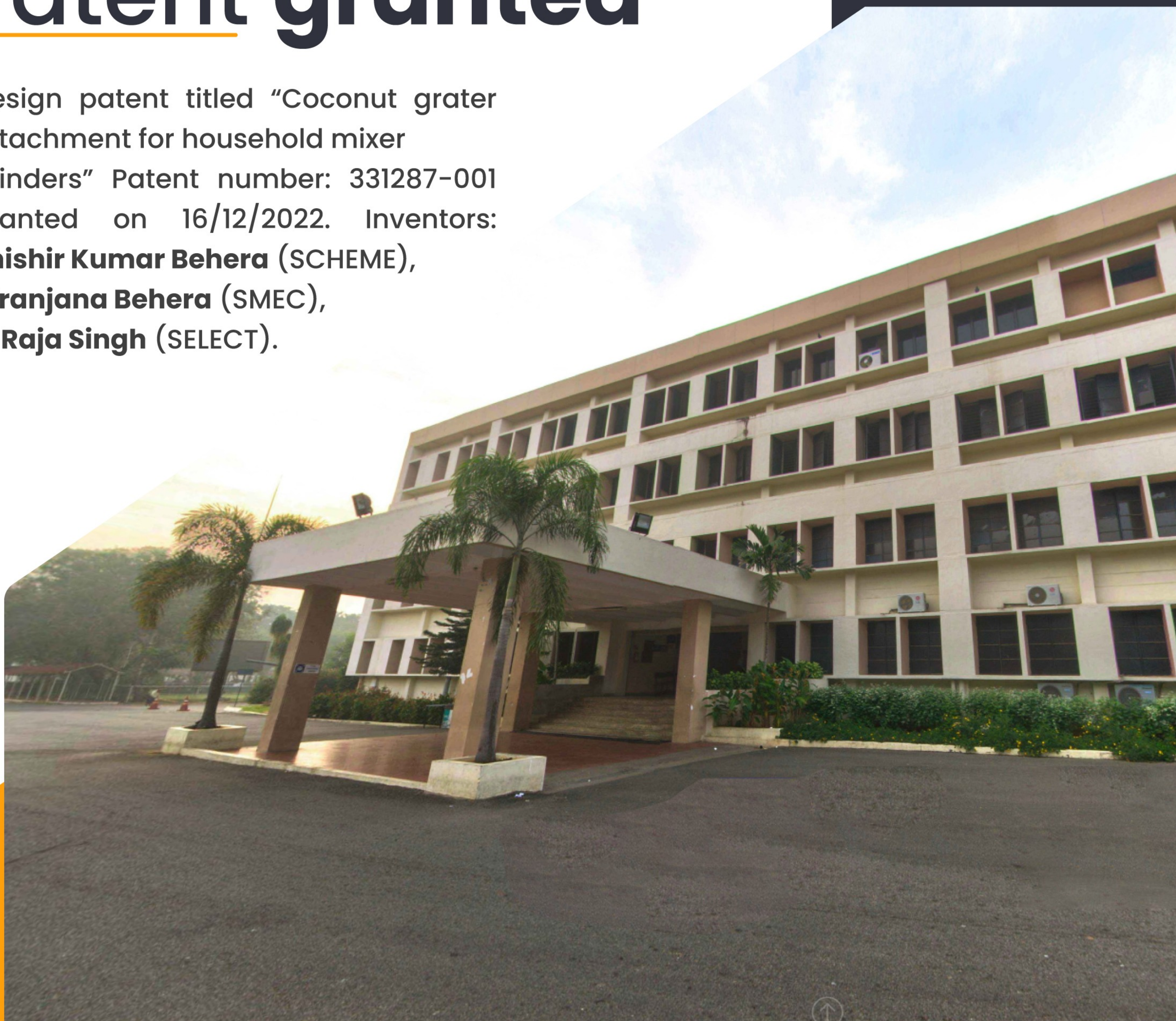
5) Jen Biju Varghese 18BCM0129 (2018-2022) will be pursuing his Masters in Sustainable Energies Technology from the University of Southampton, England.

Patent Filed

- **'Polyol Composition for Synthesizing Polyurethane foam'; 19 July-2022; Published. Inventors: Mohammed Rehaan Chandan (SCHEME), Aabid Hussain Shaik (SCHEME), Mohammed Rizwan (PhD student, SCHEME)**
- **'Ethylene Propylene Diene Monomer (EPDM) Hybrid Composite For High Voltage Outdoor Insulation Application'; 17 June-2022; Published. (Inventors: Mohammed Rehaan Chandan (SCHEME), Aabid Hussain Shaik (SCHEME), Mohammed Rizwan (PhD student, SCHEME)**
- **'Reference Electrode Configuration'; 22 December-2022; Filed. Inventors: SHANKAR RAMAN DHANUSHKODI (SCHEME), Ramesh Kumar C (ARC), SRINIVAS S (UG student, SCHEME)**

Patent granted

Design patent titled "Coconut grater attachment for household mixer grinders" Patent number: 331287-001 granted on 16/12/2022. Inventors: **Shishir Kumar Behera (SCHEME), Niranjana Behera (SMEC), R. Raja Singh (SELECT).**



Events organised By Chapters



American Institute of Chemical Engineers – VIT

American Institute of Chemical Engineers, Vellore Institute of Technology, Student Chapter organized 16 events and the Student Regional Conference (SRC), an annually held event.



Indian Institute of Chemical Engineers – VIT

Indian Institute of Chemical Engineers, Vellore Institute of Technology, Student Chapter has organized 12 events.



Society of Petroleum Engineers – VIT

Society of Petroleum Engineers, Vellore Institute of Technology, Student Chapter has organized 06 events

Events organized by Chapters During Gravitas:



The 13th edition of graVITas unfolded itself with many pre-gravitas and main events. The theme was innoVate, Iterate, implemenT, and all the 3 chapters of SCHEME came with amazing events. They also had their stalls set up during the publicity mela.

American Institute of Chemical Engineers, VIT conducted 3 events - 'Chroma Guess' (an event that combined the participants' acting skills and knowledge of chemistry), 'Court quest' (a live courtroom session game show) and 'The Hour of the Mystery' (a workshop where participants performed experiments with chemicals).

Indian Institute of Chemical Engineers conducted 5 events - Candela , AlChemmy cartel, Seal the Deal, Chemitron and Matfactory.

Society of Petroleum Engineers conducted 3 events - 'HexaCon: IQPhoria' (a multiple round event with involved questions from various themes) , 'HexaCon: Hexagon Hunt' (a treasure hunt in the academic block SMV) and 'HexaCon: Power Business 2022' (an event based on techno entrepreneurship).



India Student Regional Conference (SRC)

Aiche VIT Vellore organized the SRC'22 witnessing a participation of 70 students from multiple institutes. We had the honor of having Dr. Anjan Ray(Director of Indian Institute of Petroleum at Council of Scientific and Industrial Research, and of CBRI), Dr. GP Rangaiah(Emeritus Professor, National University of Singapore) and Dr. Kazuho Nakamura(Associate Professor, Yokohama National University, Japan) as our Guests of Honors. The main events were CheEnigma (Chem-E-Car, STPC Abstract Submission, K-12 Abstract) and ChemE Jeopardy, along with paper and poster presentations.



Industrial Visits:

A total of 6 industrial visit was undertaken by SCHEME students at three industries. 3rd year and 2nd UG students participated actively in the industrial visits.



Date: 15/09/2022
Ultramarine Pigments Pvt. Ltd.,
Ranipet.



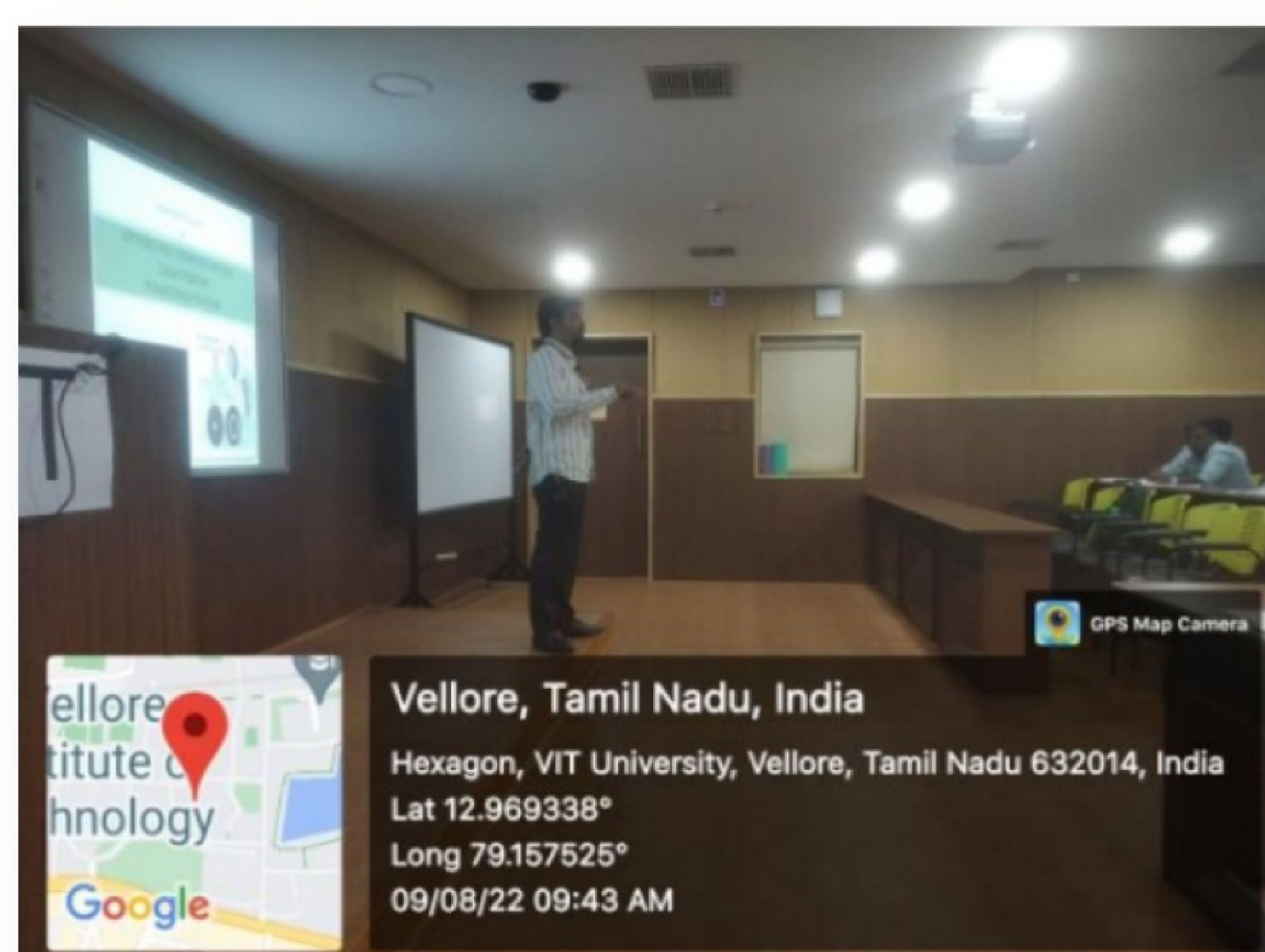
Date: 14/09/2022
Aavin, Vellore.



Date: 18/10/2022
North Chennai Thermal Power Station,
Chennai.

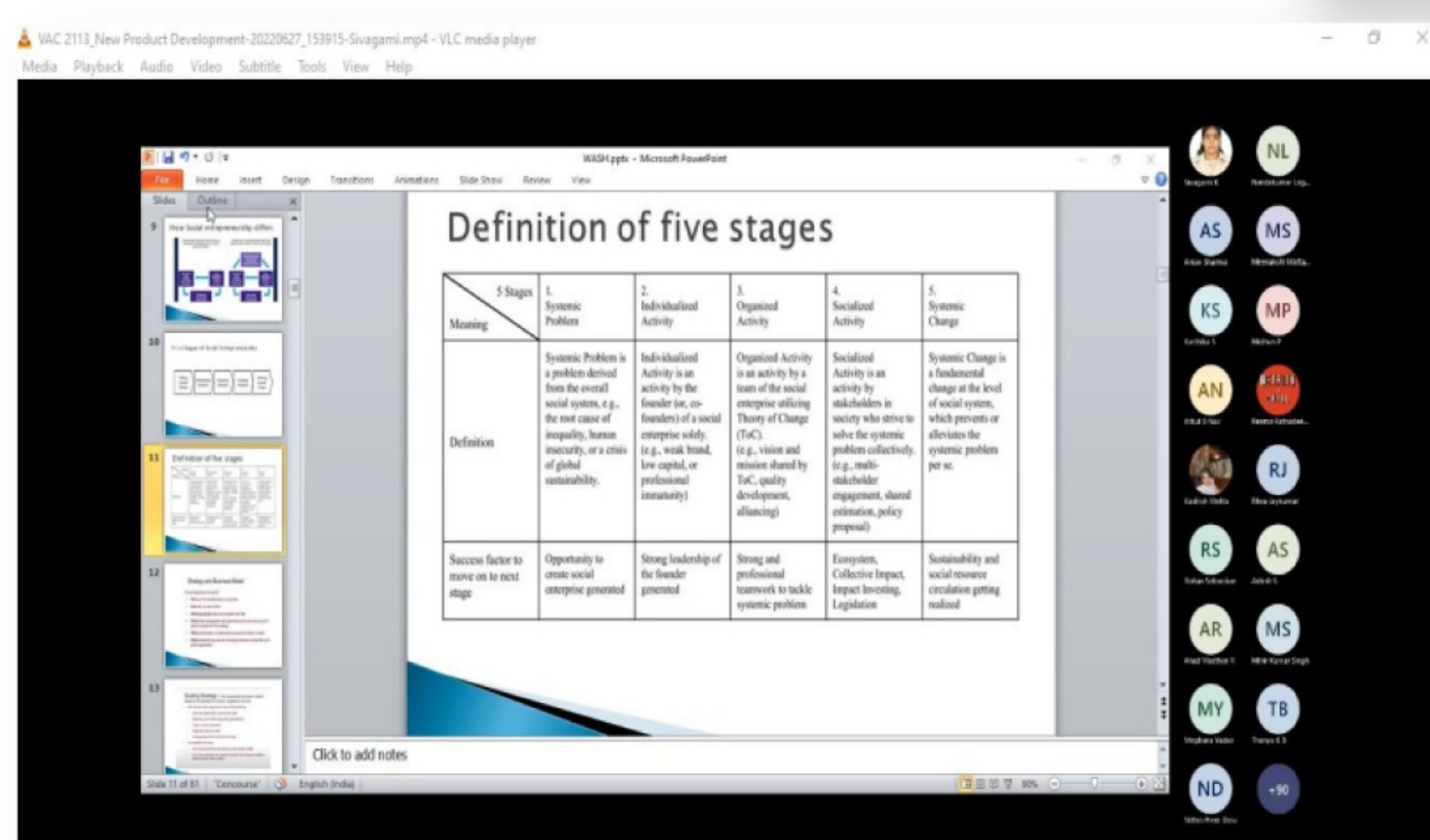
VAC – on Software tools for Nanoscale Material Characterization in Engineering Applications (9th–15th August, 2022)

VAC was held from 9th–15th August, 2022 under the supervision of Dr. Aabid Hussain Shaik Dr. Mohammed Rehaan Chandan and Dr. Bandaru Kiran. The objective of the course was to make the students acquire an understanding of nanoscience, nanotechnology software tools, synthesis of nanomaterials and the basic science and computational techniques used behind them.



VAC – on New Product Development

‘New Product Development’ was organised by SCHEME in association with the Institute Innovation Council from 27th June to 7th July, 2022. The coordinators involved were Dr. S Karthika, Dr. K Sivagami and Dr. L Muruganandam. The main objective of the course was to help the participants learn how to evaluate the methods for identifying market needs and assessing demand, introduction and success of a new product in the market, and to become competent with a set of tools as well as methods for product design and development.



Guest Lectures Delivered by Faculty members



Professor Ganesh Moorthy delivered a lecture on the challenges and opportunities of the sustainable development of biofuels at the Sathyabama Institute of Science and Technology, Chennai, India, on 19th December 2022.

Professor Aslam Abdullah and **Professor Aruna Singh** delivered a lecture on Career Opportunities after 12th standard at the Government High School Vadacheri and Gollakuppam, Vaniyambadi, India, on 8th December 2022.

Professor Ganesh Moorthy delivered a lecture on Process Calculations for Biotechnologists at the Kamaraj College of Engineering and Technology, Madurai, India, on 6th December 2022.

Professor Shishir Kumar Behera delivered a lecture on the Key Mechanisms and Application in Landfill of Biomethane production at the Gandhi Institute for Technology, Bhubaneswar, India, on 18th November 2022.

Professor Monash P. delivered a lecture on MS Excel and MATLAB in-built tools that help solve Chemical Engineering Problems at the Mahendra Engineering College, Namakkal, India, on 17th October 2022.

Professor Sivagami K. delivered a lecture on Resource Recovery from Biomedical Waste Using Catalytic Pyrolysis at the Mahatma Gandhi University, Kottayam, Kerala, India, on 9th September 2022.

Professor Samarshi Chakraborty delivered a lecture on the Brief Overview on Nanofluid Synthesis, Characterization and Applications at the Vellore Institute of Technology, Vellore, India, on 13th August 2022.

Professor Mohammed Rehaan Chandan delivered a lecture on the Stability Aspects of Castor Oil based Polyurethane Foam at Mahatma Gandhi University, Kottayam, India, on 8th August 2022.



Journal Publications by UG Students

- Advances in chitosan biopolymer composite materials: From bioengineering, wastewater treatment to agricultural applications, Chadha U., Bhardwaj P., Selvaraj S.K., Kumari K., Isaac T.S., Panjwani M., Kulkarni K., **Mathew R.M.**, **Satheesh A.M.**, Pal A., Gunreddy N., Dubey O., Singh S., Latha S., Chakravorty A., Badoni B., Banavoth M., Sonar P., Manoharan M., Paramasivam V., Materials Research Express, Vol:9, Issue: 5, DOI: 10.1088/2053-1591/ac5a9d
- Degradation of environmentally harmful textile dye rhodamine B using silicate ceramic photocatalysts, Venkatraman S.K., Vijayakumar N., Bal D.K., **Mishra A.**, Gupta B., Mishra V., Wysokowski M., Koppala S., Swamiappan S., Inorganic Chemistry Communications, Vol:142, DOI: 10.1016/j.inoche.2022.109674
- Design and Analysis of Artificial Neural Network (ANN) Models for Achieving Self-Sustainability in Sanitation, Ganesapillai M., Sinha A., Mehta R., **Tiwari A.**, Chellappa V., Drewnowski J., Applied Sciences (Switzerland), Vol:12, Issue: 7, DOI: 10.3390/app12073384
- Study of silver nanoparticle-loaded auxetic polyurethane foams for medical cushioning applications, Vinay V.C., Varma D.S.M., Chandan M.R., Sivabalan P., Jaiswal A.K., **Swetha S.**, Kaczmarek B., Sionkowska A., Polymer Bulletin, DOI: 10.1007/s00289-021-03705-x
- Biocompatible polymer-capped oxidation-resistant copper nanoparticles for nanofluid and hydrogel applications, Bal D.K., Chandan M.R., **Taneja R.**, **Tiwari R.R.**, Saboor S., Mishra D., Ghosh A., Shaik A.H., European Physical Journal Plus, Vol:137, Issue: 1, DOI: 10.1140/epjp/s13360-021-02280-4

Journal Publications by UG Students



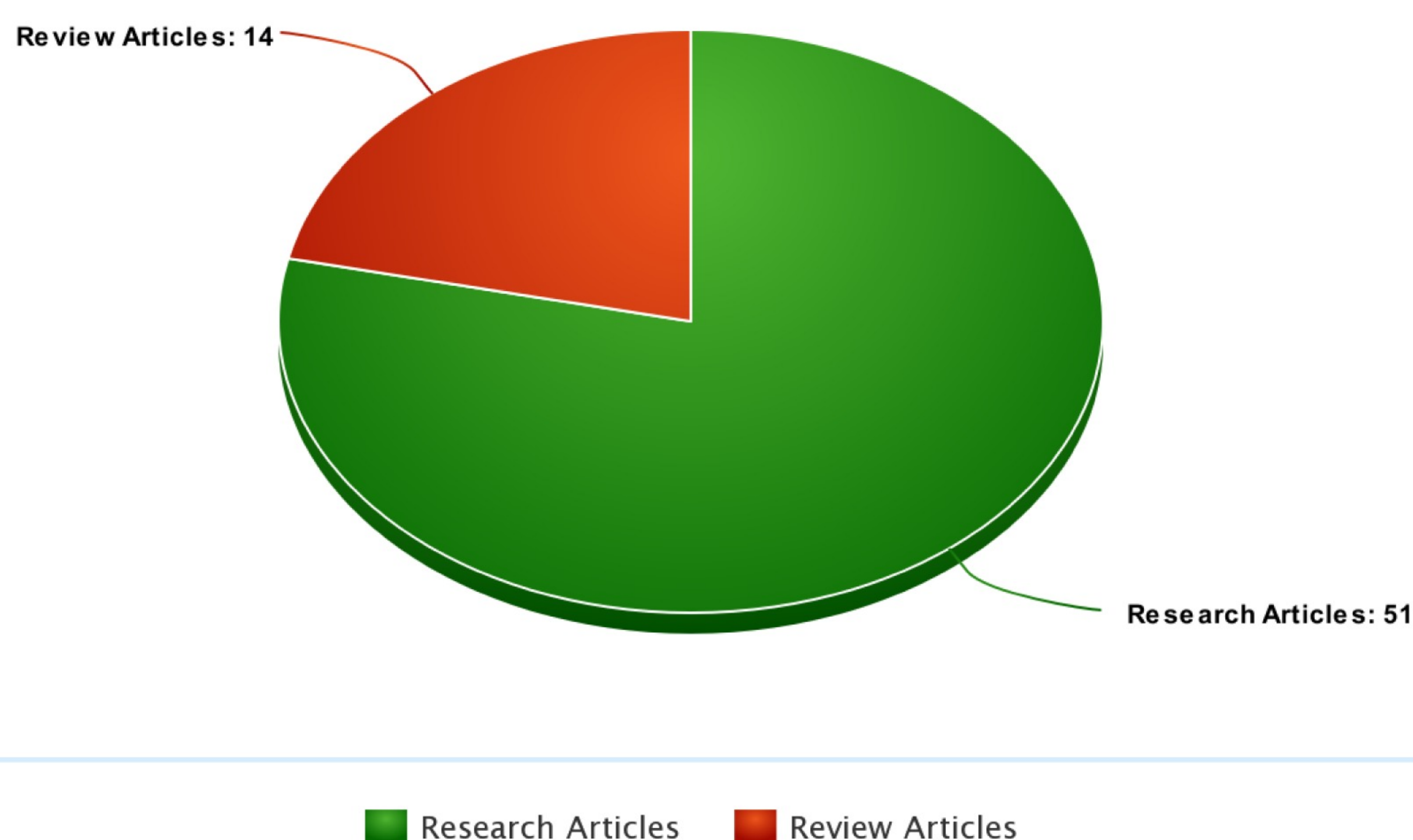
- Artificial neural network-based pore size prediction of alginate gel scaffold for targeted drug delivery, Das R., Bhasarkar J., **Rastogi A., Saxena R.**, Bal D.K., Neural Computing and Applications, DOI: 10.1007/s00521-022-07958-z
- A review of the function of using carbon nanomaterials in membrane filtration for contaminant removal from wastewater, Chadha U., Selvaraj S.K., **Vishak Thanu S., Cholapadath V., Abraham A.M., Zaiyan M M.**, Manoharan M., Paramsivam V., Materials Research Express, Vol:9, Issue: 1, DOI: 10.1088/2053-1591/ac48b8
- Complex Nanomaterials in Catalysis for Chemically Significant Applications: From Synthesis and Hydrocarbon Processing to Renewable Energy Applications, Chadha U., Selvaraj S.K., **Ashokan H., Hariharan S.P., Mathew Paul V.**, Venkatarangan V., Paramasivam V., Advances in Materials Science and Engineering, Vol:2022, DOI: 10.1155/2022/1552334
- Nanomaterials for Electromagnetic Interference Shielding Applications: A Review, Tiwari A., Tiwari A., Bhatia A., Chadha U., **Kandregula S.**, Selvaraj S.K., Bhardwaj P., Nano, DOI: 10.1142/S1793292022300018
- Review - Contemporary Progresses in Carbon-Based Electrode Material in Li-S Batteries, Chadha U., Bhardwaj P., Padmanaban S., Suneel R.M., **Milton K., Subair N.**, Pandey A., Khanna M., Srivastava D., Mathew R.M., Selvaraj S.K., Banavoth M., Sonar P., Badoni B., Rao N.S., Kumar S.G., Ray A.K., Kumar A., Journal of the Electrochemical Society, Vol:169, Issue: 2, DOI: 10.1149/1945-7111/ac4cd7
- Review - Chemical Structures and Stability of Carbon-doped Graphene Nanomaterials and the Growth Temperature of Carbon Nanomaterials Grown by Chemical Vapor Deposition for Electrochemical Catalysis Reactions, Chadha U., Sinha S., Jonna J., Goswami M., **Ghani H., Nair K.**, Pandey N., Kataray T., Selvaraj S.K., Bhardwaj P., Banavoth M., Sonar P., ECS Journal of Solid State Science and Technology, Vol:11, Issue: 4, DOI: 10.1149/2162-8777/ac5c83

Journal Publications by UG Students

- Progress on compatibility issues of alcohols on automotive materials: Kinetics, challenges and future prospects- a comprehensive review, Muthuraman V.S., **Patel A.**, **Shreya V.**, Vaidyanathan A., Reshwanth K.N.G.L., Karthick C., Jacqueline P.J., Jan G?ca M., Ashok B., Sivagami K., Nanthagopal K., Process Safety and Environmental Protection, Vol:162, Pg.No:(463-493), DOI: 10.1016/j.psep.2022.04.022
- A Review on Environmental and Economic Impact of 2D Nanomaterials-Based Heat Transfer Fluids, Shaik A.H., Shaik S., **Goyal S.**, Chandan M.R., Veza I., Buradi A., Alarifi I.M., Journal of Nanomaterials, Vol:2022, DOI: 10.1155/2022/3443360
- A Survey of Applications of MFC and Recent Progress of Artificial Intelligence and Machine Learning Techniques and Applications, with competing fuel cells, Gyaneshwar A., Selvaraj S.K., Ghimire T., Mishra S.J., **Gupta S.**, Chadha U., Manoharan M., Paramasivam V., Engineering Research Express, Vol:4, Issue: 2, DOI: 10.1088/2631-8695/ac5fd9
- Theoretical progresses in silicon anode substitutes for Lithium-ion batteries, Chadha U., Hafiz M., Bhardwaj P., Padmanaban S., **Sinha S.**, **Hariharan S.**, **Kabra D.**, Venkatarangan V., Khanna M., Selvaraj S.K., Banavoth M., Sonar P., Badoni B., R V., Journal of Energy Storage, Vol:55, DOI: 10.1016/j.est.2022.105352

Publications statistics by SCHEME (Calendar Year 2022)

Total Publications - 65



Articles with foreign collaboration : 45

Cumulative Impact factor: 264.21

Highest Impact factor : 16.80

Average Impact factor: 4.06

Student Testimonials

Fresher's chit chat:



Aruna Balaji

1st year PR

22BCM0016

So how has been your experience in Vit and school of chemical engineering?

My experiences here at vit has been nothing but amusing. Meeting new people from different places who have lived a life different from mine is very exhilarating.

What do you think about the curriculum and faculty?

The faculty here are very involved and make sure we understand what is being taught . They also give us the necessary exposure that we require from professionals. The curriculum is up to date. Labs are definitely up to my expectations and it's fun learning there.

What are your thoughts on ffcs?

My thoughts on Ffcs are kind of divided . Meeting my classmates in a single space together would be difficult but at the same time I'm excited to interact with new peers. But ffcs is surely useful. We get to choose our faculty and courses.



Jai Prakash

1st Year PR

22BCM0014

How would you describe your experience in VIT and School of Chemical Engineering?

My experience in VIT and SCHEME has been really amazing. The knowledge and insights I have gained in my short term as engineering student in VIT has cleared my doubts about my future choices. And has helped in understanding what I want I want to become in the future.

What are your thoughts on curriculum and the faculty?

The curriculum has been tailored for the students so that we do not feel excessively burdened and still learn about the basics of engineering. The faculty has guided our paths to their utmost abilities and have tried to instill in us a sense of innovation and technical knowledge to create a sturdy foundation for our foray into the wide world of engineering.

What do you think about the opportunities provided by Scheme, FFCS and other facilities?

SCHEME has helped me further rationalize my decision of becoming a chemical engineer and provided ample opportunities to develop myself in the field. I find FFCS a very useful system which lets me choose what, when and from whom I want to study according to my convenience. I find ffcs a very useful system which lets me choose what, when and from whom I want to study according to my convenience.

Industry Interaction

Visit to DUROFLEX Pvt. Ltd

Dr. Mohammed Rehaan Chandan (SCHEME), Dr. Aabid Hussain Shaik (SCHEME) and Dr. Ariful Rahaman (CMCT) visited, Duroflex Pvt. Ltd, Hosur, on 27th October 2022. They discussed regarding possible collaboration on joint research work, consultancy and MoU.



Visit to Regional Geoscience Laboratories

Dr. Bandaru Kiran (SCHEME), and Dr. Sivagami K (SCHEME) along with students visited, Regional Geoscience Laboratories, ONGC Ltd, Anna Nagar West Extension, Chennai, on 3rd November 2022. They discussed regarding possible collaboration on joint research work and MoU.



MoU's

Two MoU's signed

1. Yokohama National University, JAPAN.
2. Ranitec.



This MEMORANDUM OF UNDERSTANDING is made and entered into on 13/10/2022 between the Faculty of Engineering, Faculty of Environment and Information Sciences and College of Engineering Science Yokohama National University, JAPAN and School of Chemical Engineering, Vellore Institute of Technology, Vellore, INDIA



This MOU between RANITEC and VIT has been entered for promoting Academic and Research related activities on this 21 day of October 2022 ("Effective Date") at Walajapet, Vellore

Editorial Committee

Faculty Board Members



Dr. Mohammed Rehaan Chandan
Associate Professor, SCHEME - VIT



Dr. Samarshi Chakraborty
Assistant Professor, SCHEME - VIT

Student Board Members



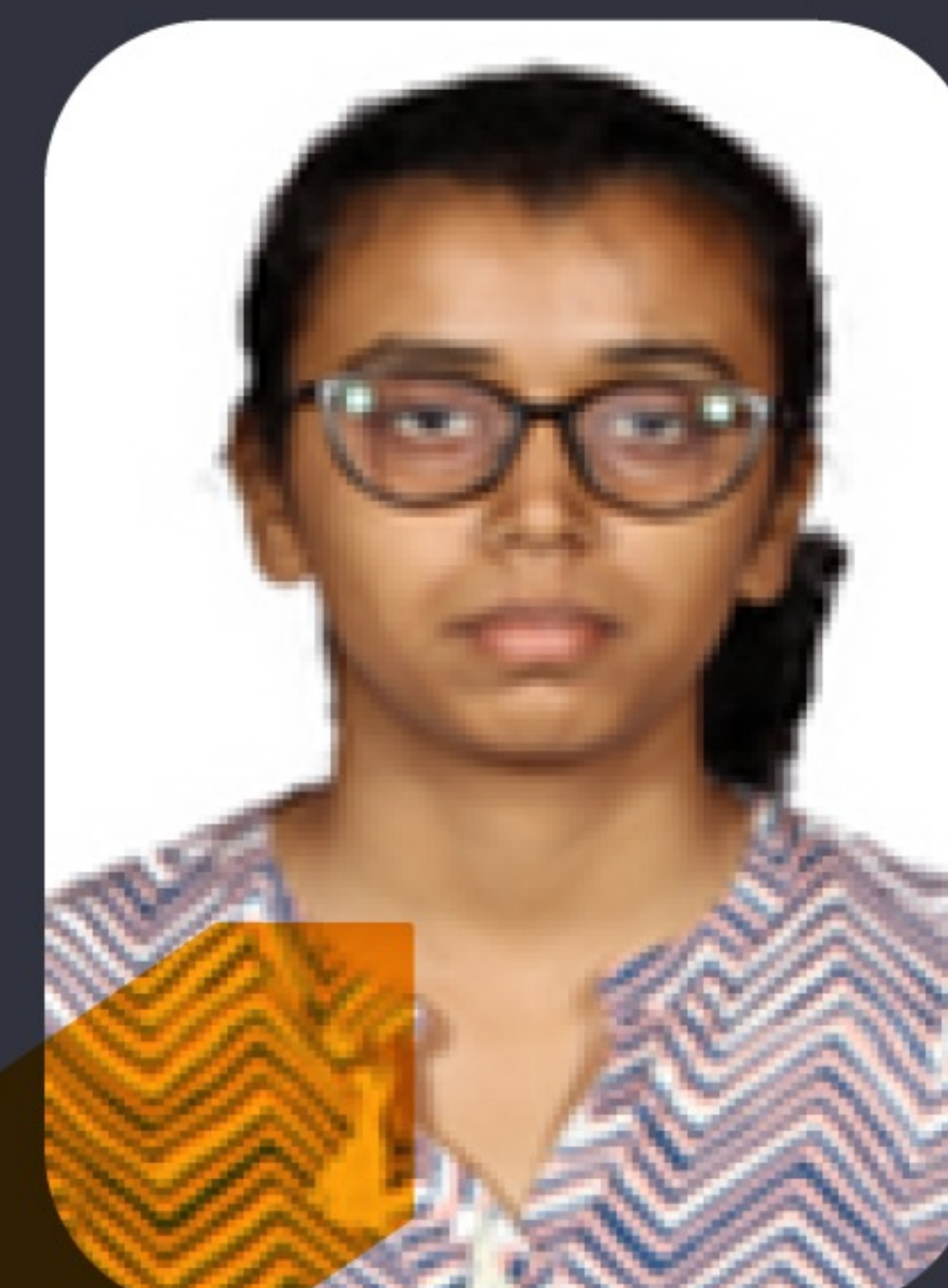
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**Thank
You !**

Happy Reading!



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Contact Us

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