



# DEPARTMENT OF CHEMICAL ENGINEERING

#### MONTHLY NEWSLETTER



#### "ACCELERATING IDEAS INTO ACTIONS"

#### Volume: 3, Issue: VII, July 2024



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### **ABOUT THE DEPARTMENT**

The Department of Chemical Engineering came into existence in the year **1994** with the B.Tech programme in Chemical Engineering. The Department has highly qualified and experienced faculty and staff and has modern infrastructural facilities.

The department is well equipped with excellent lab facilities. All the faculty members possess post graduate / Ph.D. qualifications, five faculty members are pursuing their Ph.D.

The Department has been accredited till 30.06.2025 by the National Board of Accreditation.

Programmes run by the department are,

- B.Tech Chemical Engineering
- M.Tech Chemical Engineering
- Ph.D

### VISION

To attain comprehensive recognition in research and training students for developing a value based sustainable society on both National and global platforms by fostering creative minds for academic and research excellence with highly futuristic facilities and potential support.

# MISSION

**Empowering Excellence:** To establish a cutting-edge infrastructure that supports and propels internationally acclaimed research, fosters creativity, and cultivates an entrepreneurial spirit.

**Continuous Improvement:** To empower individuals by nurturing their innovative capabilities, equipping them with essential skills and attributes to innovate and meet the evolving needs of society.

**Lifelong Support:** To provide high-quality technical education with hands on experience that prepares students for successful careers in the chemical and allied industries, enabling them to excel both national and global scales.



#### **PROGRAMMES OFFERED**

# **B. Tech CHEMICAL ENGINEERING**

### PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

**PEO 1**: Equip students with the necessary skills and knowledge to prosper in their career in Chemical Engineering and related domains.

**PEO 2**: Encourage students to Pursue advanced learning and engage in research with internationally acclaimed institutions and foster professional growth.

**PEO 3**: Empower students with leadership qualities to succeed in diversified fields with ethical administrative acumen and adapt to the rapid technological advancements and innovations.

#### **PROGRAM OUTCOMES (POs)**

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. Problem analysis: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. Design / development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.



8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. Communication: Communicate effectively on complex engineering activities with the engineering 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.

11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

#### **PROGRAM SPECIFIC OUTCOMES (PSOs)**

1. Apply the knowledge of science and mathematics in the field of various transport processes to accomplish the contemporary needs of chemical and allied industries.

2. Execute the chemical engineering principles and modern engineering tools to conduct experiments or design a system for developing quality chemical processes by considering the cost, safety and environmental aspects.

#### M. Tech CHEMICAL ENGINEERING

### PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

**PEO1**: Function effectively to solve complex industrial problems using Chemical engineering concepts and also in expanding areas of Energy and Environmental industries.

**PEO2**: Pursue their careers in Research and Development towards an advanced degree in Chemical engineering and allied technical discipline.

**PEO3**: To become Professional Leaders in the complex work environment.





#### **PROGRAM OUTCOMES (POs)**

1. Independently carry out research /investigation and development work to solve practical problems.

2. Write and present a substantial technical report/document.

3. Demonstrate a degree of proficiency over the area as per the specialization of the program. The proficiency should be at a level higher than the requirements in the appropriate bachelor program

4. Potential to analyze solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety.

5. Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

6. Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

### **PROGRAM SPECIFIC OUTCOMES (PSOs)**

**PSO1**: Apply the knowledge of science and mathematics in the field of various chemical engineering processes to accomplish the contemporary needs of chemical and allied industries.

**PSO2**: Usage of modern engineering tools to design and conduct experiments to develop quality chemical processes by considering the cost, safety and environmental aspects.

#### Ph.D. Chemical Engineering

**The Ph.D. in Chemical Engineering** is being offered in chemical engineering department since 2011. Our department has been recognized as a research center by the Centre of research, Anna University, Chennai.. Our department is equipped with advanced and sophisticated facilities such as High-Performance Liquid Chromatography (HPLC), Gas Chromatography (GC), Atomic Absorption Spectroscopy (AAS), and a UV-Vis spectrophotometer. In addition to these analytical techniques, pilot scale level equipments are available to promote research. In our research centre, Two research scholars have successfully completed their Doctoral degree and other scholars are pursuing their doctoral degree.



#### **CONTINUING EDUCATION**

- Dr. N. P. Kavitha, Dr. S. Rajasekar, Mr. S. Jai Ganesh and Mr. M. Ananda Boopathy, Assistant Professor, Department of Chemical Engineering underwent an industrial training on Electroplating techniques and its auxiliary equipments at Sri Rajeshwarii Platers, Ambattur Industrial Estate, Chennai from 27.06.2024 to 03.07.2024.
- Dr. G. Sudha, Associate Professor and Mr. N. Arun Prem Anand, Assistant Professor, Department of Chemical Engineering underwent an industrial training on Electroplating techniques and its accessory equipments at Sri Kannika Parameshwari Platters, Ambattur Industrial Estate, Chennai from 29.06.2024 to 04.07.2024





**Dr. M. Srividhya**, Assistant Professor, Department of Chemical Engineering, attended a faculty development program on **Advances in renewable energy technologies for sustainable development** organized by **Bharathi Vidyapeeth College of Engineering**, Navi Mumbai from 29.7.2024 to 2.8.2024.







# VALUE ADDED EDUCATION INTERACTION WITH OUTSIDE WORLD

IIChE - AIChE - ACT SVCE Students' Chapter, Department of Chemical Engineering was inaugurated with new office bearers for the academic year 2024 – 2025 followed by a guest lecture on **Recent advancements in Chemical Industries** was delivered by **Mr. D. Senthi Kumar**, Whole-time director, Tamilnadu Petroproducts Limited, Chennai on 29.07.2024 to final year and third year Chemical Engineering Students.







GPS Map Camera

THE CATALY5T





### VALUE ADDED EDUCATION

#### **STUDENT INERNSHIPS**

- Ms. K. Vidhyavarshini, IV Year Chemical Engineering Student, underwent 4 weeks internship titled "Comparison of Heat Transfer rate in a jacketed vessel using conventional coolant and nanocoolant" from May to July 2024 at Department of Chemical Engineering, SSN College of Engineering, Chennai.
- Mr. V. Umesh, IV Year Chemical Engineering Student, underwent 8 weeks online internship titled "Industrial Process safety and management" offered by Indian Institute of Chemical Engineers from 20.05.2024 to 14.07.2024.
- Mr. R. Balakrishnan, III Year Chemical Engineering Student, underwent an internship at Thirumalai Chemicals Limited, Ranipet from 12.06.2024 to 09.07.2024.
- Ms. P. Kanimozhi, III year Chemical Engineering Student, underwent an internship at Tamilnadu Chemical Products Limited, Karaikudi from 13.06.2024 to 29.06.2024.
- Ms. B. Swetha Suji, II Year Chemical Engineering Student, underwent an Internship at Chennai Petroleum Corporation Limited, Manali from 11.06.2024 to 25.06.2024
- Mr. C. Bharathkumar, III Year Chemical Engineering Student, underwent internship at Sakthi Sugars Limited, Erode from 11.06.2024 to 25.06.2024.
- Mr. V. Janakiraman, III Year Chemical Engineering Student, underwent intershnip at Ultramarine and Pigments Limited, Ranipet from 27.6.2024 to 5.7.2024.
- Ms. P. Nirmala Devi, III Year Chemical Engineering Student, underwent Internship at Chennai Petroleum Corporation Limited, Manali from 12.06.2024 to 08.07.2024.
- Mr. S. Vignesh kumar, III Year Chemical Engineering Student, underwent internship at Manali Petrochemicals Limited, Manali from 24.06.2024 to 12.07.2024.
- Mr. R. Vishwa, III Year Chemical Engineering Student, underwent internship at Tamilnadu Newsprint and Papers Limited from 26.06.2024 to 15.07.2024.
- Ms. D. Janani, III Year Chemical Engineering Student, underwent internship at JK Fenner India, Madurai Limited from 12.6.2024 to 12.07.2024.
- Mr. K.S. Pramodh, III Year Chemical Engineering Student, underwent internship at Skyline Resins and Chemicals, Chennai from 12.06.2024 to 12.07.2024.
- INTERACTION WITH OUTSIDE WORLD
- Mr. K. Sandhiya, III Year Chemical Engineering Student, underwent internship at Neyveli Lignite Corporation India Limited, Neyveli from 20.6.2024 to 19.07.2024.



### VALUE ADDED EDUCATION

#### **STUDENT INTERNSHIPS**

- Mr. A. Hariharan, III Year Chemical Engineering Student, underwent internship at Skyline Resins and Chemicals, Chennai from 12.06.2024 to 12.07.2024.
- Mr. S. Prithvi, III Year Chemical Engineering Student, underwent internship at Chennai Petroleum Corporation Limited, Manali from 19.06.2024 to 02.07.2024.
- Mr. M. Magesh, III Year Chemical Engineering Student, underwent internship at Sakthi Sugars Limited, Erode from 11.06.2024 to 25.06.2024.
- Mr. B. Sri Vishnu, III Year Chemical Engineering Student, underwent Internship at Chennai Petroleum Corporation Limited, Manali from 18.6.2024 to 5.7.2024.
- Mr. C. B. Barkav, III Year Chemical Engineering Student, underwent Internship at Chennai Petroleum Corporation Limited, Manali from 24.06.2024 to 10.07.2024.
- Ms. Sri Dharshini, III Year Chemical Engineering Student, underwent Internship at Chennai Petroleum Corporation Limited, Manali from 24.06.2024 to 10.07.2024.
- Mr. S. Vignesh, III Year Chemical Engineering Student, underwent Internship at Chennai Petroleum Corporation limited, Manali from 24.06.2024 to 10.07.2024.
- Mr. S. Guhan, III Year Chemical Engineering Student, underwent internship at Neyveli

Lignite Corporation India Limited, Neyveli from 20.6.2024 to 19.07.2024.

- Ms. B. Mrudhula, IV Year Chemical Engineering Student, underwent 2 weeks internship at DHCU department at Chennai Petroleum Corporation Limited, Manali from 12.06.2024 to 08.07.2024.
- Mr. V. Umesh, IV Year Chemical Engineering Student, underwent 2 weeks internship at Petro6 Engineering & Construction Pvt. Ltd., Chennai from 27.06.2024 to 12.07.2024.
- Mr. M. R. Vishweswaran, IV Year Chemical Engineering Student, underwent 2 weeks internship at REF-III Department at Chennai Petroleum Corporation Limited, Manali from 27.06.2024 to 10.07.2024.
- Ms. S. T. Vaishnavi, IV Year Chemical Engineering Student, underwent 2 weeks internship at REF-III Department at Chennai Petroleum Corporation Limited, Manali from 01.07. 2024 to 10.07. 2024.
- Ms. I. Swetha, III Year Chemical Engineering Student, underwent 2 weeks internship in Pharmaceutical Industrial Quality Control Operations and Practices at Alchymars ICM SM Private Limited, Chennai from 3.07.2024 to 17.07.2024.



# VALUE ADDED EDUCATION

#### **STUDENT INTERNSHIPS**

- Ms. **S. Nithyapriya**, IV Year Chemical Engineering Student, underwent an internship at IIT, Guwahati from 15.06.2024 to 14.07.2024.
- Mr. P. Arjun, IV Chemical Engineering Student, underwent an internship at Kawman Pharma, Cuddalore from 27.06.2024 to 09.07.2024.
- Mr. P. Balaji, IV Chemical Engineering Student, underwent an internship at Kawman Pharma, Cuddalore from 27.06.2024 to 09.07.2024.
- Mr. K. Gokul, IV Chemical Engineering Student, underwent an internship at Kawman Pharma, Cuddalore from 27.06.2024 to 09.07.2024.
- Mr. M. Haresh Babu, IV Chemical Engineering Student, underwent an internship at Kawman Pharma, Cuddalore from 27.06.2024 to 09.07.2024.
- Ms. **G. Kavisavarna**, IV Year Chemical Engineering Student, underwent internship at Chennai Petroleum Corporation Limited, Manali from 12.06.2024 to 08.07.2024.
- Ms. I. Kaviyashree, IV Year Chemical Engineering Student, underwent internship at Chennai Petroleum Corporation Limited, Manali from 12.06.2024 to 08.07.2024.
- Mr. M. Masanam, IV Year Chemical Engineering Student, underwent internship at Chennai Petroleum Corporation Limited, Manali from 12.06.2024 to 08.07.2024.
- Mr. P. Moksaa Prasan, IV Year Chemical Engineering Student, underwent internship at Chennai Petroleum Corporation Limited, Manali from 12.06.2024 to 08.07.2024.
- Mr. A.S. Praveen Kumar, IV Year Chemical Engineering Student, underwent Internship at Chennai Petroleum Corporation Limited, Manali from 27.06.2024 to 10.07.2024.
- Mr. A. Ramapriyan, IV Year Chemical Engineering Student, underwent Internship at Chennai Petroleum Corporation Limited, Manali from 27.06.2024 to 10.07.2024.
- Mr. T. Suganeeswaran, IV Year Chemical Engineering Student, underwent Internship at Chennai Petroleum Corporation Limited, Manali from 27.06.2024 to 10.07.2024.
- Ms. **N. Prerna Unnathe**, IV Year Chemical Engineering Student, underwent internship at Cetex Petrochemicals Private Limited, Chennai from 27.06.2024 to 10.07.2024.
- Ms. P. N. Sanjana Shree, IV Year Chemical Engineering Student, underwent internship at Cetex Petrochemicals Private Limited, Chennai from 27.06.2024 to 10.07.2024.
- Mr. S. Santhosh Kumar, IV Year Chemical Engineering Student, underwent internship at Cetex Petrochemicals Private Limited, Chennai from 27.06.2024 to 10.07.2024.





# VALUE ADDED EDUCATION

#### **STUDENT INTERNSHIPS**

- Ms. V. Vidhyalakshmi, IV Year Chemical Engineering Student, underwent internship at Kothari Petrochemicals Limited, Manali from 27.06.2024 to 10.07.2024.
- Mr. J. P. Meshanth, IV Year Chemical Engineering Student, underwent internship at Kothari Petrochemicals Limited, Manali from 27.06.2024 to 10.07.2024.
- Ms. Yauvani Maria Rosme, IV Year Chemical Engineering Student, underwent 2 weeks in-plant training at DCW Limited, Sahupuram, Thoothukudi District from 27.06.2024 to 10.07.2024.
- Ms. **B. Sevvanthi**, IV Year Chemical Engineering Student, underwent 10 days in-plant training at Aavin Dairy Products, Sathuvacheri, Vellore from 01.07.2024 to 09.07.2024.
- Ms. **S. Saranya**, IV Year Chemical Engineering Student, underwent internship at Cetex Petrochemicals Private Limited, Chennai from 27.06.2024 to 10.07.2024.



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### **RESEARCH OUTCOMES**

**Dr. G Sudha**, Associate Professor, Department of Chemical Engineering, **Ms. Vanisuvathsala S V** and **Ms. K Vidhyavarshini** from Final year, Department of Chemical Engineering published their journal on "**Role of Nano Coolant in Optimizing Heat Transfer**" in International Research Journal on Advanced Engineering and Management. <u>https://doi.org/10.48392/IRJAEM.2024.0355</u>



International Research Journal on Advanced Engineering and Management https://goldncloudpublications.com https://doi.org/10.47392/IRJAEM.2024.0355 e ISSN: 2584-2854 Volume: 02 Issue: 07 July 2024 Page No: 2470-2473

#### **Role of Nano Coolant in Optimizing Heat Transfer**

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<sup>2</sup>Department of Chemical Engineering, College of Engineering and Technology, SRM Institute of Science and Technology, Kattankulathur, Tamil Nadu, India.
<sup>3</sup>Department of Chemical Engineering, Sri Sivasubramaniya Nadar College of Engineering, Chennai, Tamil

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#### Abstract

Nanofluids are colloidal mixtures of base fluids such as oil, ethylene glycol, water, or a combination of these base fluids and metal, metal oxide, or ceramic nanoparticles. The concept of Nano coolants is used in jacketed vessel to increase the thermal conductivity of water. The Nano sized powder will then be distributed into a fluid with the aid of strong magnetic force agitation, ultrasonic agitation, etc. Due to the high surface area and surface activity nanoparticles has the tendency to aggregate. Lower concentration of nanocoolant will increase the heat transfer rate without increase in the pumping power and pressure drop. The Concentrations of nanofluid prepared are 0.001%. Cupric oxide Nanoparticle mixture was prepared by blending the respective nanoparticles in water using a bath-type sonicator. The heat transfer rate of cupric oxide nanofluids in a jacketed vessel was calculated and compared with base fluid. The increase of heat transfer coefficient using 0.001% Cupric oxide Nanoparticle was found to be 160.56 % when compared with basefluid. **Keywords:** Jacketed Vessel; Nanocoolant; Sonication; Heat Transfer Rate

**Dr. M. Srividhya** and **Mr. N. Arun Prem Anand** Assistant Professors, Department of Chemical Engineering presented a paper titled 'Characterisation and Design **Experimentation on Biodiesel production from Melia Dubia seeds**' in the international conference on Advancements in Humanities, Management, Science and Technology organized by **G. Narayanamma Institute of Technology & Science**, Hyderabad on 24. 07. 2024 & 25. 07. 2024.





#### **OUTLINE OF ACHIEVEMENTS**

- Mr. Didar Hameed, IV Year Chemical Engineering Student, underwent a paid internship at The KCP Limited, Andhra Pradesh with a stipend of Rs. 20,000/- from 12.06.2024 to 27.07.2024.
- Mr. R. Jana, IV Year Chemical Engineering Student, underwent a paid internship at The KCP Limited, Andhra Pradesh with a stipend of Rs. 20,000/- from 12.06.2024 to 27.07.2024.
- Mr. Janarthan, IV Year Chemical Engineering Student, underwent a paid internship at The KCP Limited, Andhra Pradesh with a stipend of Rs. 20,000/- from 12.06.2024 to 27.07.2024.
- Mr. **S Ramanamoorthy**, IV Year Chemical Engineering Student, underwent a paid internship at The KCP Limited, Andhra Pradesh with a stipend of Rs. 20,000/- from 12.06.2024 to 27.07.2024.
- Mr. M. Mukundan, IV Year Chemical Engineering Student, underwent 2 months paid

# internship with a stipend of Rs. 25,000/- per month at Technip Energies India, Chennai from 01.07.2024 to 27.08.2024.



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## **INTERACTION WITH ALUMNI**

We had the pleasure of welcoming back the **1999 batch** to our department on 27th July, 2024. The alumni toured our Campus, laboratories, reminisced about their college days, and enjoyed reconnecting with fellow batchmates. The Head of the Department also addressed the group, sharing insights into the department's recent achievements and future plans. It was a joyful and memorable event that strengthened the bond between the alumni and the department.





## **INTERACTION WITH ALUMNI**



Dr. Prasad Balegedde-Ramachandran B.Tech Chemical Engineering (1998-2002) Senior Global Technology Manager Petrochemicals, BASF, Germany

#### **Dear Friends**,

I start with a very simple but effective quote which is closely related to me and sometimes you might have heard in Movies as well.

#### Don't wait for Opportunity....just create it.

I say this quote to myself for every occasion. Be it studies, career, sports etc. I would like to recall years between 1998 and 2002. I chose ChemEng in bachelor's against wishes of many in my family. I put myself in a tricky position because I need to justify to the people who criticized me for choosing ChemEng. 22 years later, I am still a Chemical Process Engineer in World's largest Chemical producer. It's because I have created opportunities consistently even today. Off course not all the opportunities went how I thought. However, it gave me directions and a career recipe to move forward.

I have 4 points to say and take it as friendly advice or tips. If its unimportant then don't hesitate to ignore them.

1. If chemical engineering really interests you then don't hesitate to take ChemEng as your career. Just ignore if anyone say why did you choose ChemEng and change it?

2. Choose one/few topics/Subjects that interests you and excites you to work on it. You build your career around it. It could be Energy/ Pharma / Bio / Simulation. Start studying research papers / magazines on the topics and search for recent developments.

3. Then approach your Guides for projects in the topic / companies for internships. If you do few projects including internships/ certifications, then you will definitely have a better resume than lot of other people. This would certainly help for higher studies / work in a company or work in a company and later higher studies. Try to main consistent CGPA. Create a first recipe in your Life and keep changing it when required. For e.g. if pharma doesn't work out, change it.

4. Lastly if you think chemical engineering is not something that interests you, be quick in knowing what you really want and then start working on it. However, for non-ChemEng, tips 1-3 are anyway required.



# **INTERACTION WITH ALUMNI**

#### To cut to the chase:-

- 1. (Try to) Attend all lectures, create healthy relationship with Professors/Lecturers.
- 2. Maintain consistent CGPA.
- 3. (Try to) take notes.
- 4. (Try to) build network with Seniors/Alumni.
- 5. Build good communication / public speaking skills.
- 6. Never ever have an Idle phase. Develop hobbies. Do sports/training/Gym/Yoga/Meditation
- 7. Set role models of a known person (not Elon Musk for e.g.) and keep changing them. It is not to be like the role model you set, but to cross them.
- 8. Say to yourself this 4 year (precisely last 1 year) is going to change your life and you will know when you look back like how I do now.
- 8. Be Honest, trust yourself and be open-minded to learn new things

Good luck and all the best for your future endeavours.

Life is simply like 100-m Hurdles. Each jump is a mere Destination. All you need is a plan, a roadmap and courage to jump.

#### Yours,

Prasad





#### **GLANCE TO INFRASTRUCTURE**

The **Process Modeling and Simulation Lab** plays a crucial role in both Undergraduate and Postgraduate programs. In this lab, various simulation tools are utilized, including Aspen Plus, Aspen HYSYS, Simflow, Ansys, and MATLAB. The Department of Chemical Engineering at SVCE has acquired 150 licenses from AspenTech, USA, which are renewed annually. Additionally, we have a campus-wide license for MATLAB. All students at our college are effectively utilizing MATLAB. For Undergraduate students, 12 experiments are conducted, focusing on essential subjects such as Heat Transfer, Mass Transfer, Chemical Reaction Engineering, Thermodynamics, and Momentum Transfer through these simulation tools. This experience helps students recognize the importance of modern simulation tools and their usage in chemical process design and optimization. Additionally, the lab offers 10 experiments for the Postgraduate program, integrated with theoretical coursework. With these simulation tools, our undergraduate and postgraduate students are publishing manuscripts in journals and conferences. Overall, this lab significantly enhances students' prospects for securing positions in reputable firms and thrust areas of Research.







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### **EDITORIAL LEADS**





**Dr. R. Govindarasu** Head of The Department Department of Chemical Engineering Mr. N Arun Prem Anand Assistant Professor Department of Chemical Engineering

### **STUDENTS EDITORIAL TEAM**

Mr. Umesh VIV/CHEMr. Vaiyapuri A NIII/CHEMs. Jyotsna Sudhi MithranIII/CHEMr. Tharun PII/CHE

## **ABOUT US**



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