

## Vision of the Department

To be the prime seat of quality education in chemical engineering that nurtures and promotes innovations, creative thinking and leadership.

## Contents of this Issue

- ✦ From the HoD's Desk
- ✦ From the Editor's Desk
- ✦ News and Events

## Mission of the Department

- ✦ To Provide quality education, to meet the changing needs of industry.
- ✦ To provide theoretical knowledge and hands-on experience through the classroom and laboratory sessions.
- ✦ To develop quest for research in the field of Chemical Engineering.
- ✦ To produce morally, ethically and socially responsible chemical engineering graduates.

## Salient features of the Department

- ✦ State of art laboratories.
- ✦ Qualified and experienced faculty.
- ✦ Very effective teaching-learning process.
- ✦ Consistently good results.
- ✦ Consistently increasing placements.

## Program Specific Objectives (PSOs)

- ✦ The student will demonstrate knowledge of various concepts by formulating and solving problems in advanced courses in chemical engineering.
- ✦ The student will show an ability to design experiments and analyze and interpret data which will enable them to be enterprising professionals.



## From the HoD's Desk



Department of Chemical Engineering offers platform for students from the Konkan region to develop a career in various fields of chemical engineering. It continues to be the prime seat of chemical engineering education in the entire Konkan belt of Maharashtra. Many of our alumni are placed in various renowned industries while many of them are pursuing their higher studies. The department has developed a very strong association with its alumni and is always seeking feedback from them. The department also looks forward to the feedback of other stakeholders so that better policies can be implemented in the department for all-round progress of its students.

Thank You  
Dr. N. G. Kanse, Head,

## From the Editor's Desk



Dear readers,  
रसायनत्रिकी has been serving as a platform where all of the departmental activities conducted during the semester are summarized. The newsletter also covers departmental news and achievement of faculty and students during the semester. It gives me immense pleasure to invite you to submit your articles for रसायनत्रिकी.

Regards

Prof. A. K. Bandsode,  
Assistant Professor

## Innovations in Chemical Engineering

### Digital Twins Revolutionise Chemical Manufacturing

A new study reports that digital twin technology is rapidly transforming the chemical industry, offering major gains in process optimisation, product quality, and operational safety. By integrating real-time data from sensors and control systems, digital twins create virtual replicas of chemical processes, enabling continuous monitoring, predictive maintenance, and precise reaction control.

The research highlights that digital twins allow manufacturers to run “what-if” simulations, accelerating innovation and helping companies meet strict environmental and regulatory standards. Benefits include reduced emissions, improved efficiency, and lower operational risks.

However, the study also notes challenges such as data integration complexity and the need for highly accurate models. Despite these hurdles, researchers conclude that digital twins are becoming a key driver of sustainability and innovation in chemical manufacturing.

### Carbon Capture, Utilization, and Storage (CCUS)

The rapid rise in greenhouse gas (GHG) concentrations due to human activities has significantly increased the Earth's average surface temperature, contributing to global warming. These impacts are commonly assessed using indicators such as Global Warming Potential (GWP), expressed in carbon dioxide equivalents (CO<sub>2</sub>-eq), which help quantify a region's overall carbon footprint. A carbon footprint represents the total GHG emissions generated directly or indirectly by human activities, making it a critical metric for evaluating environmental impact.

India, as one of the world's fastest-growing economies, faces increasing pressure to reduce its carbon emissions while sustaining industrial development. Carbon Capture, Utilization, and Storage (CCUS) has emerged as a vital strategy in this transition. CCUS is expected to play a central role in India's pathway to reducing CO<sub>2</sub> emissions by 50% by 2050 and achieving net-zero emissions by 2070, aligning with national climate commitments

### Smart Functional Polymers Inspired by Biological Systems

Smart polymers are intelligent, stimuli-responsive materials inspired by biological systems that sense and adapt to their environment. They undergo reversible changes in structure and properties when exposed to physical, chemical, or biological triggers. Recent advances highlight their versatility and dynamic behaviour, making them highly valuable in modern medical applications. These materials are transforming fields such as targeted drug delivery, tissue engineering, and biosensing.

Scientists investigate that which already is; Engineers create that which has never been. — Albert Einstein

## News and Events

### Expert Lecture on “Role and Challenges of a Process Engineer in Chemical Industry”

The Department of Chemical Engineering organized an expert lecture on “Role and Challenges of a Process Engineer in Chemical Industry” on 15 th September 2025. The session featured Ms. Ruchita Gharat, an esteemed alumna of the Chemical Engineering Department from the 2021 batch, who is currently serving as a Technical Associate at Laxmi Organics. The lecture aimed to provide students with valuable insights into the professional life of a process engineer and the challenges encountered in the chemical industry. The event was conducted in collaboration with the Association of Chemical Engineering Students (ACES) The program was successfully coordinated by Second Year Chemical Engineering students. Mr. Zimad Fansopkar hosted the session, ensuring smooth proceedings, while all faculty members of the Chemical Engineering Department actively participated and supported the event. The lecture was attended by 31 students, who actively engaged in the interactive session by asking questions and sharing their own aspirations. The event was meticulously organized under the guidance of Dr. P. A. Giri, ensuring that students gained maximum benefit from the alumni interaction. Overall, the lecture provided a comprehensive understanding of the role and challenges of a process engineer in the chemical industry and offered valuable guidance for students planning their professional careers.



Ms. Ruchita Gharat during her talk

## News and Events

### NEO GENESIS 2K25 – A Welcome Function of Second-Year Students

A Welcome Function for Second Year Students Chemical was organized by the Department of Chemical Engineering in collaboration with the Association of Chemical Engineering Students (ACES) on Wednesday, 24 September 2025. This year the welcome function is organized under the theme of “Neo-Genesis 2K25” and successfully organized by the Final Year students. The department organizes a welcome function for new batches every year. The objective of this function is to give a warm welcome to the freshers. It is followed by events and initiatives coordinated by Ms. Shravani Vichare. Events like Damsharaz, Musical chairs, Fishpond and Passing the Pass performances and splendid decoration, thus making it a fervent and impressive evening.

The function was graced by the presence of Dr. Kaushal Prasad, Principal FAMT; Dr. N. G. Kanse, Head of the Department; and Prof. R. K. Marag, ACES Faculty In charge, along with all the department faculty and students. Dr. N. G. Kanse welcomed the students and conveyed his best wishes for their journey ahead. Dr. Kaushal Prasad, in his address, guided the students on the importance of discipline, active participation in departmental activities, and consistent efforts for academic as well as personal growth. The event was attended by around 50 students and concluded with a vote of thanks by Mr. Nikhil Apte.



ACES Team with faculty members during Neo-Genesis 2K25 celebrations.

## News and Events

### Environmental Awareness Program Organized by Department of Chemical Engineering

The Department of Chemical Engineering, through the Association of Chemical Engineering Students (ACES) organized an Environmental Awareness Program on 1<sup>st</sup> October 2025. The event aimed to promote sustainable practices and encourage the use of eco-friendly alternatives to plastic. As part of the initiative, cotton bags were distributed to faculty members to spread awareness about reducing plastic usage and adopting greener habits. The program was graced by the presence of Dr. Milind Yadav, In-charge Principal, and Dr. Nitin Kanse, Head of the Department of Chemical Engineering. On this occasion, Prof. Raju K. Marag delivered an insightful speech emphasizing the importance of adopting sustainable and environmentally responsible practices in everyday life. The event successfully conveyed the message of environmental protection and sustainability among faculty and students, inspiring the academic community to contribute towards a greener and cleaner future. Mr. Nainesh Mayekar and Dr. N. G. Kanse along with BE students during the visit



Faculty members with the organising Team (ACES Team).

## News and Events

### Industrial Visit to VAV Lipids Pvt. Limited

The Department of Chemical Engineering organized an industrial visit on 4<sup>th</sup> October 2025 for SE, TE, and BE students to VAV Lipids Pvt. Ltd., Mirjole MIDC, Ratnagiri, with the objective of providing exposure to solar plant and various unit operations. A total of 36 students participated in the visit. During the session, Mr. Rahul Nandre (Manager) and Mr. Rajesh Pal explained in detail the working principles and technical aspects of the solar plant. The visit provided valuable practical insights into industrial processes and renewable energy systems. The visit aimed to bridge the gap between theoretical knowledge and industrial practices, helping students understand various chemical processes, safety protocols, and sustainability initiatives implemented in modern chemical industries. Dr. Nitin G. Kanse, Head of the Chemical Engineering Department, and Prof. Raju K. Marag accompanied the students. The visit was coordinated by Prof. Raju K. Marag, ensuring smooth execution and meaningful learning outcomes for all participants.



Dr N. G. Kanse & Prof. R. K. Marag with company officials and FAMT Chem students