



K.K. Wagh Education Society's

K.K. Wagh Institute of Engineering Education and Research, Nashik.

Chemical Engineering Department

Vol.: 3, Issue:2

TECHNICAL NEWS LETTER

January 2022 - June 2022

The Department of Chemical Engineering was established in 1999 with the objective of creating a center of excellence in Chemical Engineering, with an annual intake of 60 students. The department has been accredited twice by the National Board of Accreditation (NBA), AICTE, New Delhi and got the NBA extension for 3 years from July 2022 to June 2025. The department boasts experienced faculty members with several years of academic expertise and veteran supporting staff with strong research interests in both conventional and emerging areas of Chemical Engineering. Emphasizing continuous knowledge enhancement, the department has been sponsoring faculty members for postgraduate and research programs in recent years. It is equipped with state-of-the-art infrastructure and laboratories designed to meet the requirements of the university syllabus. Additionally, the department has an adequate number of computers with the latest configurations and internet facilities. To support teaching and learning, the department provides advanced computational tools, including professional software such as UNISIM, DWSIM, BricsCAD, and MATLAB. It also maintains an in-house library with reference books for all subjects and a comprehensive Chemical Engineering encyclopedia. The department has an excellent track record of academic results. Students have secured top ranks in university examinations and achieved success in competitive exams such as GATE, GRE, and others. They have also been recruited by leading national and international Chemical industries. In addition to focusing on basic sciences and engineering subjects, the department encourages students to participate in various national events such as project exhibitions, paper presentations, model-making competitions, and sports activities. Association of Chemical Engineering Students (ACES), a student's association, functions in the department and provides strong platform for overall development of the students. The students get a chance to interact in Seminars, Workshops, Cultural Programmes, Expert Lectures on various topics like Personality Development, Preparation for competitive examination, study abroad etc. through ACES. The department is proactive for good industry institute interaction. Department has signed MoUs with various industries for mutual benefit. Industry experts are regularly invited, and industrial visits are organized each year to bridge the gap between theory and practice. The department organizes internships for third-year students every year in various renowned industries in the region.

■ Details of Faculty of Chemical Engineering:

S.N.	Name of Faculty	Qualification	Area of specialization	Designation
1.	Prof. Dr.Venkat S. Mane	Ph.D.	Chemical Engineering	Professor & H.O.D.
2.	Prof. Dr. Suyog N. Jain	Ph.D.	Chemical Engineering	Assistant Professor
3.	Prof. Vijay N. Mawal	Ph.D. Pursuing	Chemical Engineering	Assistant Professor
4.	Prof. Dr.Gaurav B.Daware	Ph.D.	Chemical Engineering	Assistant Professor
5.	Prof. Sandeep N. Derle	Ph.D. Pursuing	Chemical Engineering	Assistant Professor
6.	Prof. Piyush P. Joshi	M.Tech.	Chemical Engineering	Assistant Professor
7.	Prof. Zameer K. Deshmukh	M.Tech.	Chemical Engineering	Assistant Professor
8.	Prof. Tejmal B. Mahale	M.Tech.	Chemical Engineering	Assistant Professor
9.	Dr. Yennam Rajesh	Ph.D.	Chemical Engineering	Assistant Professor
10.	Prof. Priyanka Shivde	M.Tech.	Chemical Engineering	Assistant Professor

■ CHEMFEST 2K22

The Department of Chemical Engineering organized a two-day online National Level Technical Symposium, CHEMFEST 2K22, on 7th and 10th May 2022. The symposium featured various technical competitions, such as Paper Presentation and Quiz competitions. Dr. V.S. Mane was present to grace the inauguration function. Prof. P. P. Joshi, Chemfest Coordinator, welcomed all dignitaries on the dais. Dr. V.S. Mane, Head of the Chemical Engineering Department, delivered the welcome speech for the event. Dr. Yennam Rajesh, Chemfest Co-coordinator, proposed the vote of thanks at the inaugural function. The total number of registrations for various events in CHEMFEST 2K22 was around 160. Students should take part in such events to explore new dimensions of technology.

■ Expert Lectures and Career Guidance Sessions Organized:

- Expert talk on "Project Management- Part II" was delivered by Dr. V. V. Mahajani, Retd. Professor, Institute of Chemical Technology, Matunga, Mumbai on 25th March 2022.
- Expert talk on "Project Management- Part I" was delivered by Dr. V. V. Mahajani, Retd. Professor, Institute of Chemical Technology, Matunga, Mumbai on 23th March 2022.
- Expert talk on "Overview of Chemical Engineering" was delivered by Ms. Neelam Kute, Process Engg., Catapharma Pvt. Ltd., Nashik on 19th March 2022.
- Expert talk on "Conversion of CO₂ to Value added Chemicals" was delivered by Dr. Satyam Naidu Vasireddy, Scientist, CEPD Division, CSIR - National Chemical Laboratory, Pune on 17th March 2022.
- Expert talk on "Emotional Engineering" was delivered by Mr. Yogesh Vidyadhar Phadtare, Psychologist on 11th March 2022.

- Expert talk on "Unit Process: Distillation & It's System" was delivered by Mr. Ketan More, Sr. Sales Engineer, R & D Therm India Pvt. Ltd., C14/2, NICE Industrial Area, MIDC Satpur, Nashik on 05th March 2022.
- Expert talk on "Mixing in Stirred Tank Reactors-Some basic aspects" was delivered by Dr. V. G. Pangarkar, Retd. Professor and Head, Chemical Engineering Department, Institute of Chemical Technology, Matunga, Mumbai on 04th March 2022.
- Expert talk on "Green Chemistry: My Perspectives" was delivered by Dr. V. V. Mahajani, Retd. Professor, Institute of Chemical Technology, Matunga, Mumbai on 12th January 2022.

■ Training and Placements :

Sr. No.	Student Name	Name of Company
1	Chavan Prathmesh Pramod	Catapharma Chemicals Pvt. Ltd., Nashik
2	Rajput Jayesh Ravindra	
3	Deore Aniket Bharat	
4	Devang Anjali Manoj	Laxmi Organics Pvt. Ltd., Mahad
5	Dharankar Soham Sandeep	Art Rubber Industries Ltd., Nashik
6	Girase Tejas Komalsingh	Val Organics Pvt. Ltd., Vapi Gujrat
7	Padol Aniruddha Krushna	
8	Shinde Atul Jetan	
9	Shukla Shivam Rajesh	VIP Industry Ltd., Bhiwandi
10	Jadhav Chaitanya Prashant	
11	Jadhav Prathamesh Anil	
12	Kulkarni Rajas Sugandh	Konark Global Engineering, Nashik
13	Mandlik Aditi Gorakh	Sameer Chemcon Engineers Pvt. Ltd., Mumbai
14	Jain Pareesh Kishor	
15	Jate Shreyas Digambar	
16	Katyare Dinesh Pramod	Wipro Ltd., Pune
17	Shaikh Sahil Shabbir	Radico NV Distilleries Maharashtra Ltd., Aurangabad
18	Kathepuri Rohit Vikram	
19	Kayande Umesh Pandharinath	
20	Khan Nabeel Mubeen	Ralson Tyres India Ltd., Dhar
21	Ugale Jayashri Arun	Emcure Pharmaceuticals Ltd., Kurkumbh
22	Chandwani Pawan Vinodkumar	
23	Kolhe Mayur Jagannath	
24	Misal Mahendra Shivaji	Garware Plastics & Polyester Ltd., Aurangabad
25	Mahadik Gokul Rajendra	
26	Mandlik Avdhoot Bandu	
27	Patel Dhruvi Nitinkumar	Art Rubber Industries Ltd., Nashik
28	Patil Dhananjay Naresh	AbhitecEnergycon Ltd., Mumbai
29	Patil Nehal Manohar	Zentech Pvt. Ltd., Nashik
30	Patil Varsharani Chhotu	Infosys Ltd., Pune
31	Pimpalkar Varad Sanjay	
32	Shaikh Faiz Shabbir	
33	Vyawahare Abhishek Gajanan	West Bengal Chemical Industries Ltd., Dahej
34	Shaikh Younus Kalindar	
35	Pimple Swapnil Pawaba	
36	Sable Akshay Dattatray	L&T Green Energy Business, Mumbai
37	Shimpi Anushka Pankaj	NPCC Engineering Pvt. Ltd., Mumbai
38	Shinde Priyanka Shankar	Hipla Technologies Pvt Ltd. - Pune
39	Suryavanshi Paragkumar R	Cadila Pharmaceuticals Ltd., Ankaleshwar
40	Tathe Shamali Arun	SVAAR Process Solutions Pvt. Ltd., Nashik
41	Lomte Abhijeet Baliram	IPCA Laboratories Ltd., Aurangabad
42	Magar Shreyas Karbhari	TCS Ltd., Pune

■ Industrial Visits :

S.No.	Class	Name of Industry	Date
1.	BE	AgriSearch Pvt. Ltd., Nashik	27/04/2022
2.	SE	Sewage Treatment Plant, Tapovan	16/03/2022

■ FDP/ Workshop/STTP attended by Faculty:

- Dr. G. B. Daware and Prof. S. N. Derle successfully completed three days Faculty Development Program on "Electronic Product Design" from 27th to 29th June 2022 organized by AICTE IDEA Lab at KKWIEE&R, Nashik.
- Prof. Ravi Bolleddu successfully completed two days Faculty Development Program on "Building AR and MR immersive experiences using PTC Vuforia Studio and Microsoft Hololens2" from 19th & 20th April 2022, organized by AICTE IDEA Lab at KKWIEE&R, Nashik
- Prof. Ravi Bolleddu successfully completed workshop on "Charging Infrastructure and challenges for EV and ESS Charging" on 10th March 2022, organized by National Fire Service College, GOI, Nagpur.
- Prof. Parashar Varsha successfully completed an International Seminar on "Renewable Energy Resources: New Technologies of 2022" on 5th March 2022, organized by Institute of Technology,irma University.
- Dr. Yennam Rajesh successfully completed Mini symposium on "Smart, clean, Green, and Sustainability" on 6th Feb 2022, organized by Indo Universal Collaboration for Engineering.
- Dr. Yennam Rajesh successfully completed Lecture series on "Process, Innovation and Automation: a Chemical Engineers perspective" on 4th Feb 2022, organized by IICHe-HRC and Anurag University, Telangana.

■ Papers Presented in Conference by Staff and students :

Title of Paper: An efficient removal of Indigo Carmine dye (IC) from aqueous medium using environmental friendly synthesized ZnAl₂O₄

Name of Conference: 1st International Conference on Advances in Water Treatment and Management (ICAWTM-22)

Date of Conference: 25th to 26th March 2022

Organized by: Pandit Deendayal Energy University

Names of Authors: Dr. Yennam Rajesh, Dr. G. B. Daware

Abstract: In recent years, materials have not only shown significant application in human life but also have a very important role in various industries. Over the last few decades, metal oxide and mixed metal oxide (MMO) have been acknowledged as efficient and environment-friendly alternatives to present-day available materials for different chemical, food, dye, and pharmaceutical industries along with environmental treatments. In view of the significant use of MMO in different fields, in the current work, nanocrystalline zinc aluminate (ZnAl₂O₄) has been successfully synthesized by the eco-friendly, cost-effective solid-state Mechanochemical (MCh) method, and it is used for the photocatalytic degradation of Indigo Carmine (IC) pollutant present in the wastewater of different industries. Numerous appropriate techniques, like Fourier-transform infrared spectroscopy (FT-IR), Ultraviolet-Visible Diffuse Reflectance Spectroscopy (UV-DRS), Scanning

continued on page 3

Electron Microscopy (SEM), and Transmission Electron Microscopy (TEM), were used for its characterization. It is revealed that ZnAl_2O_4 exhibits a pronounced photocatalytic activity under the influence of UV-visible light exposure. The present study also reveals a possible pathway for photocatalytic degradation of IC using liquid chromatography-mass spectrometry (LC-MS).

■ **Title of Paper:** Ecofriendly synthesis of pure and modified CuMnO_3 : Its application as gas sensor

Name of Conference: 1st International Conference on Advances in Water Treatment and Management (ICAWTM-22)

Date of Conference: 25th to 26th March 2022

Organized by: Pandit Deendayal Energy University

Names of Authors: Dr. G. B. Daware, Dr. Yennam Rajesh

Abstract: Recently, novel materials like gas-sensing metal oxides, mixed metal oxides, and modified mixed metal oxides have attracted great attention owing to their key roles in monitoring environmental pollution, security in hospitals, homes, and public places, and hazardous emissions from industries and automobile exhaust. Initially, the mechanochemical (MCh) method was employed for the synthesis of the CuMnO_3 catalyst and then the modification of CuMnO_3 through the hydrothermal route. These synthesized catalysts were characterized by Ultraviolet Violet-Diffused Reflectance (UV-DRS) spectroscopy, Fourier Transform Infrared Spectroscopy (FTIR), and Scanning Electron Microscopy (SEM). The average particle size obtained for 3% Fe/ CuMnO_3 was found to be 14–28 nm. The present work proclaimed that among all the synthesized 1, 3, 5% Fe/ CuMnO_3 materials, the 3% Fe modified CuMnO_3 material shows significant gas sensing properties towards highly toxic H_2S gas released from sewage plants, oil, and natural gas industries, among NH_3 , CO_2 , H_2S , H_2 , CO_2 and Cl_2 with moderate temperature requirements and excellent selectivity.

■ **Title of Paper:** Role of cationic surfactants in palladium adsorption of commercial ion exchange resins using electroless plating solutions

Name of Conference: 1st International Conference on Advances in Water Treatment and Management (ICAWTM-22)

Date of Conference: 25th to 26th March 2022

Organized by: Pandit Deendayal Energy University

Names of Authors: Dr. Yennam Rajesh, Dr. G. B. Daware

Abstract: This work investigates the role of cationic surfactants in the adsorption of palladium ions from synthetic electroless plating solutions using a commercial resin, Lewatit TP-214. This would also help us in determining the batch adsorption experiments elaborated on the optimal parameters such as surfactant concentration, pH, dosage, initial metal ion concentration for the development of an ion-exchange resin with high metal removal efficiency. Critical micelle concentration (CMC) appears to be an

important parameter in determining the adsorption behavior of ion-exchange resins with palladium ions. Equilibrium models were measured for their fitness with the obtained Pd (II) batch adsorption characteristics and Freundlich isotherm confirms the heterogeneous Pd (II) adsorption on Lewatit TP-214. FTIR analysis confirmed that the Pd (II) metal uptake of Lewatit TP-214 resin largely depends on amine groups ($-\text{NH}_2^+$ and $-\text{NH}^+$) and the donor atoms attached to cationic surfactant. The optimized choice of adsorption parameters (pH of 8, dosage of 1 g/L, and contact time of 300 min) of Lewatit TP-214 adsorbent provided the highest metal uptake and removal efficiency as 201.7 mg/g and 90.16%, respectively, for the lowest Pd concentration of 300 mg/L.

Prof. Dr. V. S. Mane
HOD, Chemical Engg.

Prof. Dr. K. N. Nandurkar
Principal

