



UPL UNIVERSITY
OF
SUSTAINABLE TECHNOLOGY

Established under the Gujarat Private Universities (Amendment) Act, 2009 (Gujarat Act No. 7 of 2009)

Issue – 17

December 2025
to June 2026

**DEPARTMENT OF
CHEMICAL ENGINEERING**



CHEMEZINE

Chemical Engineering e-Magazine



**NBA ACCREDITED
IN TIER-1**

3rd Time Accreditation

2025–2028



**IIChe
BEST STUDENT
CHAPTER
2026**



*Creating Competent **Chemical Engineers** for the World of Tomorrow*

TABLE OF CONTENTS

	Vision & Mission	03/75		Magazine Articles	52/75
	Academic Activities	05/75		Alumni Column	61/75
	Shining Stars: Results	15/75		Achievements	64/75
	IChE Activities / Events	19/75		Students' Corner	70/75
	Other Activities	33/75		Editor's Column	74/75

DEPARTMENT OF CHEMICAL ENGINEERING, SRICT



To achieve excellence in Chemical Engineering and allied fields by providing excellent teaching learning experience enabling students to become competent professionals to tackle global issues.

MISSION

- ❖ To provide excellent technical education to students with basics of chemical engineering.
- ❖ To provide theoretical and practical education so that students vigorously apply knowledge in solving chemical engineering problems for sustained development.
- ❖ To inculcate professional ethics among students by exposing them to state of the art technologies in the field.
- ❖ To inspire students for lifelong learning and to develop leadership qualities in their career.

Program Educational Outcomes (PEOs) of Department

- ❖ To impart the fundamentals of chemical engineering and enable them to have a successful career in wide range of core industries.
- ❖ To deliver quality technical education thereby developing sustainable technology in addressing global issues.
- ❖ To prepare graduates who are capable of solving complex chemical engineering problems.
- ❖ To provide practical aspects of chemical engineering to the students by ways of industrial visits, expert lectures and increased industry-institute interaction thereby making students industry ready.
- ❖ To prepare graduates who can effectively communicate, demonstrate leadership qualities with creative thinking and professional ethics.



Message from Head of Department

Dear Readers,

Another successful semester has flown by and it is our pleasure to share the consolidated report of our department's activities and achievements for Summer 2026. The exceptional outcomes we continue to witness are a true reflection of the discipline, effort and passion of our students, staff and our stakeholders.

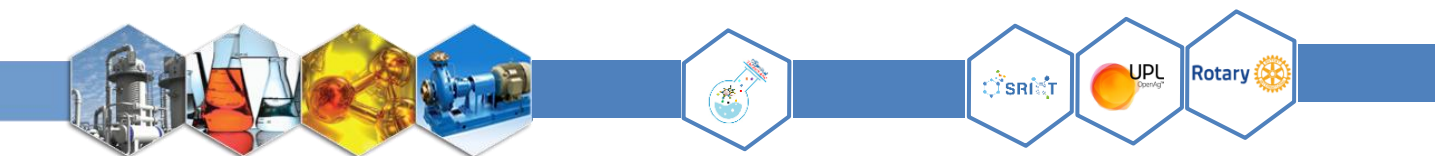


This past semester, the Department of Chemical Engineering marked several achievements. Notably, we secured our NBA accreditation, received the Best Student Chapter Award for IICChE at the Ankleshwar Regional Center and celebrated excellent placement outcomes for our graduating class. Furthermore, we expanded our industry footprint by conducting couple of training programs for industrial professionals and successfully updated our Semester-3 syllabus to align with the NEP. As we look toward the upcoming semester, our focus is on building even stronger bridges. We aim to scale up our industrial interactions, modernize our project laboratories and increase our community outreach involving all – Diploma, BE, ME and PhD students. On behalf of the entire department, we extend our deepest gratitude to the university management and our key stakeholders including respected BoS members, employers, alumni, parents and all for their unwavering support, encouragement and guidance.



INDUSTRIAL VISITS (Summer -2026)

Sr. No	Date	Name of the Industry	Sem	Number of Students
1	02.01.2026	UPL-5, Jhagadia	BE-8th	51
2	06.01.2026	Jayshree Aromatics, Ankleshwar	DE-4th	196
3	20.01.2026	Welkin Engineering Company, Ankleshwar	DE-6th	157
4	23.01.2026	Shreeneel Chemicals, Ankleshwar	DE-4th	166
5	29.01.2026	Acume Chemicals, Jhagadia	BE-6th	95
6	30.01.2026	Nuberg, Jhagadia	BE-8th	42
7	02.03.2026 & 03.03.2026	Chemcrux Industries, Ankleshwar	BE-4th	77
8	11.03.2026	BEIL and Bharat Rasayan, Dahej	BE-4th	102
09	13.03.2026 and 16.03.2026	RR Chemicals	DE-4th	50
10	13.03.2026	Acquire Chemicals-2 plants	DE-6th	102
11	17.04.2026	Veer Pharma Chem, Jhagadia	DE-6th	40





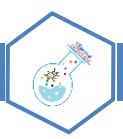
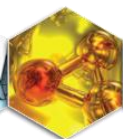
GLIMPSES of INDUSTRIAL VISITS



DE-6th Sem, Acquire Chemicals, Ankleshwar



DE-6th Sem, Welkin Engineering, Ankleshwar

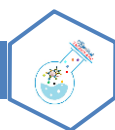
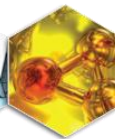




GLIMPSES of INDUSTRIAL VISITS



BE Semester-4 students at BE-4 Chemcrux Enterprise Pvt. Ltd





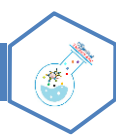
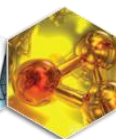
GLIMPSES of INDUSTRIAL VISITS



BE-4th Sem, Bharat Rasayan, Dahej

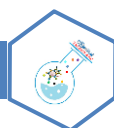


BE-8th Sem, Superform, Jhagadia



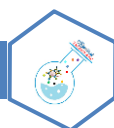


Sr.	Sem	Expert Name and details	Topic of EL	Date
1	BE 8	Mr. Hemendra Sata (Head HR, Jubilant Infrastructure Ltd.)	Chemical Engineers role in industry	19.12.25
2	BE 8	Dr. Uma Shankar Tiwari (CEO, Acumen Gate Academy, Vadodara)	Future Scope of Chemical Engineering	30.12.25
3	BE 4	Dr. Uma Shankar Tiwari (CEO, Acumen Gate Academy, Vadodara)	Future Scope of Chemical Engineering	30.12.25
4	BE 8	Ms. Jignasha Rajwant (BDM, Career Craft Consultant, Bharuch)	Study Abroad	31.12.25
5	BE 6	Ms. Jignasha Rajwant (BDM, Career Craft Consultant, Bharuch)	Study Abroad	31.12.25
6	BE 4	Prof. M.N.Vyas (Consultant)	Safety in Chemical Industry	25.02.26
7	BE 6	Prof. M.N.Vyas (Consultant)	Safety in Chemical Industry	10.03.26





8	DE 6	Mr. Utsav Patel, Production officer, Alivus Life	Chemical Engineers in Pharma Industries	09-02-26
9	BE 4	Mr. Utsav Patel, Production officer, Alivus Life	Chemical Engineers in Pharma Industries	09-02-26
10	DE6	Mr. Sanket Yadav, GM, Aarti	Role of process engineering in chemical industry	16-02-26
11	DE6	Mr. Amar Agera, GM, Shri Ram	Basics of Production in chemical manufacturing	16-02-26
12	DE6	Mr. Kaushik Vaijapurkar	Entrepreneurship	16-02-26
13	DE6	Dr. Bhavik Mahant	Current trends in chemical engineering	16-02-26
14	BE8	Ms Shreya Sharma, Research Scholar, Research Scholar at the University of Oxford	Biocatalysis development	25-02-26
15	BE8	Mr. A I Shaikh, Former AGM, GNFC	Energy Efficient and Sustainable Chemical Manufacturing	13-02-26
16	BE 8	Prof. Radhika Khosla (Research Director)-Oxford University	Bio-catalysis Development	16-03-26



EXPERT LECTURE

INSIGHT • KNOWLEDGE • SUCCESS



GLIMPSES of EXPERT LECTURE



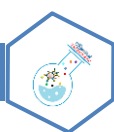
B.E. Semester-8: Ms. Jignasha Rajwant



B.E. Semester-8: Mr. Hemendra Sata



Expert Lecture by M. N. Vyas



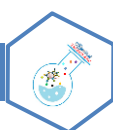


GLIMPSES of EXPERT LECTURE

Expert Lecture by **Ms Shreya Sharma**, Research Scholar at the University of Oxford on Biocatalysis development on 25th Feb 2026



Expert lecture on Research Scope and Emerging Research Areas in Biochemical, Chemical, and Environmental Sciences & Student Interaction of **Prof. Dr. Sashi Lalwani** from **Miami University** on 03/12/2025





PEER LEARNING INITIATIVE

Under Peer learning initiative (PLI), senior student delivers technical content to peers making it comfortable and easy for students. It also improves communications skills, and professional development.

Name of student	Semester of student who delivered PLI		Name of the course
KRUTIK MANISHBHAI MACHHI	BE	SEM-4	CH1312 - Separation Processes
JADAV JENIL RAHULKUMAR	BE	SEM-4	CH1310 - Industrial organization
AKASH MANDAL	BE	SEM-8	CH1314 - Polymer Technology
BHATI KULDEEP TARACHAND	DE	SEM-6	CH1208 - Process Heat Transfer -I
JHA KOMAL	DE	SEM-6	CH1213 - Industrial Water Pollution
JHA KOMAL MANORANJAN	DE	SEM-6	CH1207 - Chemical Process TechnologyII
KRUNAL VASAVA	BE	SEM-4	CH1315 - Process Equipment Design
DIVYESH PATEL	BE	SEM-6	CH1208 - Process Heat Transfer -I
DIVYARAJ SINH SOLANKI	DE	SEM-6	CH1209 - Pollution Control & Effluent Treatment
SOLANKI DIVYARAJ SINH	DE	SEM-6	CH1211 - Utilities & Instrumentation in Ch. Plant
DHRUV KAMDAR	BE	SEM-4	CH1314 - Polymer Technology
ROOPAM JIBAN DEBNATH	BE	SEM-8	CH2310 - Mass Transfer Operations-II
CHAUHAN AASHUTOSH	BE	SEM-6	CH2206 - Chemical Process Industries
PARTH P PARMAR	BE	SEM-6	CH2208 - Process Heat Transfer
RANA MOHIT SANJAYBHAI	BE	SEM-6	CH2206 - Chemical Process Industries
MEET PATEL	BE	SEM-8	CH2211 - Wastewater Engineering
PATEL PARTH RAKESHBHAI	BE	SEM-6	CH2209 - Chemical Engineering Thermodynamics
KAYASTH JAY SANDIP KUMAR	BE	SEM-8	CH2320 - Sustainable Technology
BHAVYA PATEL	BE	SEM-6	CH2210 - Air Pollution Control
KEYA PRAJAPATI	BE	SEM-8	CH2310 - Mass Transfer Operations-II
AKASH MANDAL	BE	SEM-8	CH2317 - Waste to Energy
PARTH PATEL	BE	SEM-6	CH2207 - Chemical Engineering Mathematics





PEER LEARNING INITIATIVE

PATEL HITKUMAR BHARATBHAI	DE	SEM-6	CH1207 - Chemical Process TechnologyII
PARTH PARMAR	BE	SEM-6	CH1315 - Process Equipment Design
ANUJ SONAWANE	DE	SEM-6	CH1209 - Pollution Control & Effluent Treatment
PRUTHVIRAJSSINH VIJAYSINH MORI	BE	SEM-6	CH1208 - Process Heat Transfer -I
DHARMIK PATEL	BE	SEM-4	CH1213 - Industrial Water Pollution
DHARMIK ASHISHBHAI PATEL	BE	SEM-4	CH1310 - Industrial organization
JAIMIN PATEL	BE	SEM-4	CH1315 - Process Equipment Design
PRASAD DODIA	DE	SEM-6	CH1208 - Process Heat Transfer –I
PATEL HERIK DHAVALKUMAR	BE	SEM-6	CH1312 - Separation Processes
HERIK PATEL	BE	SEM-6	CH1315 - Process Equipment Design
PATEL JAIMIN MUKAUNDBHAI	BE	SEM-4	CH1213 - Industrial Water Pollution
KHER MOHAMMADSAIF Z	DE	SEM-6	CH1209 - Pollution Control & Effluent Treatment
PATIL YASH PRASHANT	DE	SEM-6	CH1207 - Chemical Process Technology-II
SAKSHI PAVAN KUMAR	BE	SEM-4	CH1314 - Polymer Technology
PANDEY SAKSHI PAWAN	BE	SEM-4	CH1310 - Industrial organization
SAKSHI PANDEY	BE	SEM-4	CH1312 - Separation Processes
PRITEE SURYAKANT DIGHE	BE	SEM-6	CH1314 - Polymer Technology
PRITEE DIGHE	BE	SEM-6	CH1315 - Process Equipment Design
PATEL DEV KHUSHALBHAI	DE	SEM-6	CH1213 - Industrial Water Pollution
YASH SHARAD PATIL	DE	SEM-6	CH1207 - Chemical Process TechnologyII
PATEL BHAVYA SANTOSHKUMAR	BE	SEM-6	CH1309 - Chemical Reaction Engineering
MANSHI BHARUCHA	DE	SEM-6	CH1209 - Pollution Control & Effluent Treatment
BHARUCHA MANSHI HARSHAD	DE	SEM-6	CH1207 - Chemical Process Technology-II
PRIT MODI	BE	SEM-4	CH1312 - Separation Processes
MODI PRIT CHETANKUMAR	BE	SEM-4	CH1213 - Industrial Water Pollution
MEET VANKAR	BE	SEM-4	CH1315 - Process Equipment Design
CHAUHAN NEEL	BE	SEM-4	CH1314 - Polymer Technology
MOHMMED SALED T	DE	SEM-6	CH1208 - Process Heat Transfer –I
SHAIKH MOHAMMED HAMZA	DE	SEM-6	CH1209 - Pollution Control & Effluent Treatment
PARTH S. RANA	DE	SEM-6	CH1207 - Chemical Process Technology-II
MOHIT RANA	BE	SEM-6	CH2207 - Chemical Engineering Mathematics
PATEL MEET MANISHBHAI	BE	SEM-8	CH2311 - Chemical Reaction Engineering-II
YASHRAJ MAHIDA	BE	SEM-6	CH2207 - Chemical Engineering Mathematics
PRAJAPATI KEYA AMITKUMAR	BE	SEM-8	CH2317 - Waste to Energy
PRIYA DIGHE	BE	SEM-6	CH2206 - Chemical Process Industries
GAGANDEEP SINGH	BE	SEM-6	CH2209 - Chemical Engineering Thermodynamics
CHAUHAN ASHUTOSH	BE	SEM-6	CH2210 - Air Pollution Control



UNIVERSITY
EXAM RESULTS
Diploma, B.E., M.E.
Summer-2026



Sr. No	Semester	Total	Pass	Fail	% Pass
1	D.E. Semester-4	212	155	57	73.11
2	D.E. Semester-6	204	190	14	93.14
3	B.E. Semester-4	149	81	68	54.36
4	B.E. Semester-6	125	97	28	77.6
5	B.E. Semester-8	54	54	0	100
6	M.E. Semester-2	10	7	3	70
7	M.E. Semester-4	8	7	1	87.5



Top 3 from every Sem – Exam Summer 2026

Diploma Semester-IV



SPI – 10/10
CPI – 10/10

JEESON SAJI VARGHESE



SPI – 10/10
CPI – 9.87

ANURAJ THAKUR



SPI – 10/10
CPI - 9.78

VASAVA DISHANT RAJUBHAI

Diploma Semester-VI



SPI – 10/10
CPI – 9.98

JHA KOMAL MANDRANJAN



SPI – 10/10
CPI - 9.86

BHATI KULDEEP TARACHAND



SPI – 10/10
CPI -9.93

PATEL HITKUMAR BHARATBHAI

UNIVERSITY EXAM RESULTS

D.E., B.E., M.E.

Summer-2026

CHEMICAL ENGINEERING BRANCH



Top 3 from every Sem – Exam Summer 2026

B.E. Semester-IV



SPI – 9.7
CPI - 9.74

PooRV Nuwal



SPI – 9.75
CPI - 9.69

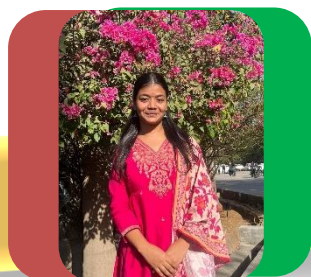
Rana Mohitkumar Sanjaybhai



SPI – 9.74
CPI – 9.49

Rachit Jaiswal

B.E. Semester-VI



SPI – 9.83
CPI - 9.7

Pritee Dighe



SPI – 9.46
CPI – 9.50

Rana Mohitkumar Sanjaybhai



SPI – 9.46
CPI – 9.27

Yashrajsinh Mahida

B.E. Semester-VIII



SPI – 9.84
CPI – 9.64

Aakash Mandal



SPI – 10
CPI - 9.44

Keya prajapati



SPI – 9.4
CPI – 9.5

Meet Patel

UNIVERSITY EXAM RESULTS
D.E., B.E., M.E.
Summer-2026
CHEMICAL ENGINEERING BRANCH



Top 3 from every Sem – Exam Summer 2026

M.E. Semester-II



SPI – 9.72

CPI - 9.61

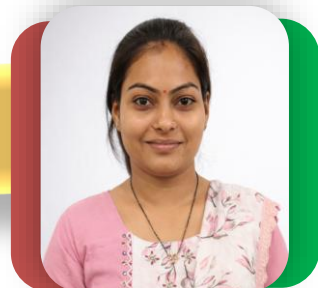
M. Shabad



SPI – 8.78

CPI – 8.86

Lavati Bhupesh



SPI – 8.61

CPI – 8.72

Apexa Patel

M.E. Semester-IV



SPI – 10

CPI - 9.31

Chauhan Trusha



SPI – 10

CPI - 9.33

Mahadevwala Manish



SPI – 10

CPI - 9.52

Chauhan Jagruti


Congratulations!

PLACEMENT

D.E., B.E.



UPL UNIVERSITY
OF
SUSTAINABLE TECHNOLOGY

SUMMER-2026

CHEMICAL ENGINEERING BRANCH

PROGRAM	INDUSTRY NAME	NO. OF STUDENTS PLACED
 D.E.	▶ Cohizon	06
	▶ Colourtex	01
	▶ Gharda Chemicals	04
	▶ GIL	02
	▶ Navin Fluorine	03
	▶ Reliance (Hajira)	02
	▶ Saint-Gobain	03
	▶ SRF	03
	▶ Tatva Chintan	04
	▶ UPL	14
 B.E.	▶ Amneal	05
	▶ BEIL	02
	▶ Bharat rasayan	02
	▶ Cohizon	01
	▶ EPIGRAL	03
	▶ GFL	03
	▶ Gharda Chemicals	06
	▶ GIL	02
	▶ GREENS	01
	▶ Lanxess	03
	▶ Navin Fluorine	02
	▶ SRF	02
	▶ UPL	08
	TOTAL	82



STRONG INDUSTRY
CONNECT



EXCELLENCE IN
PLACEMENTS



BUILDING CAREERS
BEYOND LIMITS



PARTNERS IN
PROGRESS

SRICT IICChE Students Chapter – Activities (Summer 2026)



Career Craft: Resume Excellence Workshop



Held on 1st January 2026 by the Chemical Engineering Department under the IICChE Student Chapter. Targeted BE 6th semester students to prepare them for placements and higher studies.

“Career Craft: Resume Excellence Workshop” focused on building professional, impactful resumes. Students learned to present skills, projects, and achievements effectively. Included resume drafting, peer reviews, and Q&A. Hands-on activities ensured practical learning and immediate feedback.

“Industry Ignite” Future-Ready Skills Program

Debate topic: “Industry Ignite: Future-Ready Skills Program.” Conducted on 6th January 2026 by the Chemical Engineering Department under the IICChE Student Chapter.



SRICT IICChE Students Chapter – Activities (Summer 2026)



DDCET Quest 2026: The Ultimate Prep Summit 1.0



Conducted on 28th January 2026 by the Chemical Engineering Department under the IICChE Student Chapter. DDCET Mock Test was organized exclusively for diploma students, with 153 participants. Designed to provide a real exam-like experience, familiarizing students with question types, time constraints, and exam structure. The mock test simulated actual conditions to strengthen exam readiness. Improved time management skills and boosted confidence among participants.

SRICT IIChE Students Chapter – Activities (Summer 2026)

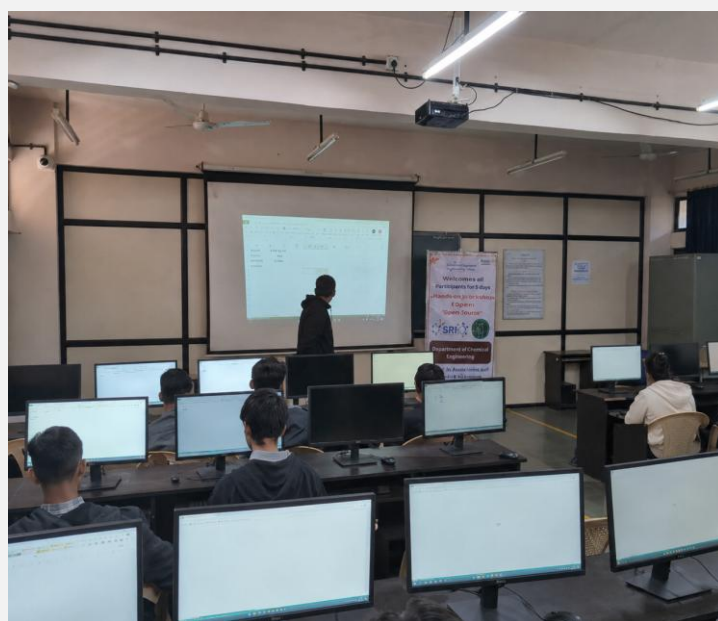


EXCEL PRODIGY Data Skills Bootcamp



Conducted on 9th January 2026 by the Chemical Engineering Department under the IIChE Student Chapter. Designed for DE and BE students, focusing on basic data analysis using Excel. Enhanced practical skills and confidence in handling data.

Strengthened readiness for academic research, industry applications, and career growth.



SRICT IIChE Students Chapter – Activities (Summer 2026)



Lab Innovators Hands-On Model Design Challenge



Promoted creativity and practical learning through model design. Students engaged in hands-on tasks simulating real-world chemical engineering systems. Event: “Lab Innovators: Hands-On Model Design Challenge.”

Held on 27th January 2026 by the Chemical Engineering Department under the IIChE Student Chapter

SRICT IChE Students Chapter – Activities (Summer 2026)



“AI in Chemical Engineering”: Hands-on ANN Workshop

Conducted on 9th February 2026 by the Chemical Engineering Department under the IChE Student Chapter. Aimed to introduce students to AI applications in chemical engineering. Practical exposure through image recognition, Artificial Neural Networks (ANN), and Python-based garbage classification.



SRICT IICChE Students Chapter – Activities (Summer 2026)



“Back to Campus”: Alumni Insights Forum



On 16th February 2026, the Chemical Engineering Department under the IICChE Student Chapter conducted an expert session on “Career Opportunities After Diploma in Chemical Engineering.” The session guided students on higher education, industry expectations, and skill development, helping them gain clarity and confidence about their future.



SRICT IICChE Students Chapter – Activities (Summer 2026)



“Engineer’s Voice”: TechTalk Podcast Series



The Department of Chemical Engineering, under the banner of the IICChE Student Chapter, successfully organized the "Engineer's Voice: TechTalk Podcast Series" on 24th February 2026. The podcast-style session focused on the role of Artificial Intelligence in Chemical Engineering, providing students with insights into emerging technologies, industrial applications, and the future of AI-driven engineering practices. 116 Chemical Engineering Students

SRICT IICChE Students Chapter – Activities (Summer 2026)



NEP Pe Charcha



Conducted on 27th February 2026 by the Chemical Engineering Department under the IICChE Student Chapter. Interactive session titled “NEP Pe Charcha – What Change for You?” for second-semester students. Dr. Sunil Badgujar shared key points on the National Education Policy (NEP). Dr. Krunal J. Suthar addressed students’ queries, making the session engaging and clear.

Chem Fest 2026: The Carnival of Reactions & Creativity



On 13th March 2026, ChemFest 2026: The Carnival of Reactions & Creativity was organized under the IICChE Student Chapter with great enthusiasm.

SRICT IIChE Students Chapter – Activities (Summer 2026)



“SafeChem Week”: Awareness • Action • Responsibility



Safety Week Celebration:

Theme: “Disasters Happening in Industries.”

Students actively designed posters on industrial safety, hazards, and preventive measures. Faculty guidance encouraged awareness, creativity, and effective presentation. Promoted safety consciousness and highlighted the importance of preventive practices. Helped students understand real-world industrial risks.

SRICT IICChE Students Chapter – Activities (Summer 2026)



Python Workshop

The B.E. Semester VI and B.E. Semester IV students actively participated in a workshop on “Python Programming”, jointly organized by the Department of Chemical Engineering, Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat, and the Indian Institute of Technology (IIT), Bombay, held from 22nd to 24th December 2025, focusing on fundamental and applied Python skills for engineering applications.



SRICT IIChE Students Chapter – Activities (Summer 2026)



Python Workshop

Workshop on Basic Programming using Python

Certificate of Achievement

This is to certify that

Sumit Rathore

has successfully completed the 3 day workshop organized by
Sardar Vallabhbhai National Institute of Technology on 22 December 2025.
He/She scored A grade in the proctored online test.
This workshop was offered by the FOSSEE project, IIT Bombay,
funded by National Mission on Education through ICT, MHRD, Govt. of India.


Prof. Prabhu Ramchandran
IIT Bombay



bca90



To verify, scan the QR code or visit: <https://fossee.in/certificates/verify>

This certificate is issued by FOSSEE, IIT Bombay

B.E Semester 4th

Sumit

Rathore

(240I02I0I082) secured **A**
grade in the workshop was
offered by FOSSEE Project,
IIT Bombay organized on
22nd to 24th December 2025

B.E Semester 4th

Yashita

Singh

(240I02I0I093) secured
B+ grade in the workshop
was offered by FOSSEE
Project, IIT Bombay
organized on 22nd to 24th
December 2025

Workshop on Basic Programming using Python

Certificate of Achievement

This is to certify that

Yashita Singh

has successfully completed the 3 day workshop organized by
Sardar Vallabhbhai National Institute of Technology on 22 December 2025.
He/She scored B+ grade in the proctored online test.
This workshop was offered by the FOSSEE project, IIT Bombay,
funded by National Mission on Education through ICT, MHRD, Govt. of India.


Prof. Prabhu Ramchandran
IIT Bombay



495a7



To verify, scan the QR code or visit: <https://fossee.in/certificates/verify>

This certificate is issued by FOSSEE, IIT Bombay

SRICT IICChE Students Chapter – Activities (Summer 2026)



Students and faculty at IIT Gandhi Nagar for Technical workshop



Our Students visited the IIT-GN
central Library



Visited the Center of Creative
Learning and STEM Lab.



Our Students Interacted with
Dr. Kalpana Balakrishnan
(Top 2% Scientist, Dean
(Research)) and Dr. Komal
Shah (Asso. Prof., Indian
Institute of Public Health
Gandhinagar) during the
breakout session.

SRICT IIChE Students Chapter – Activities (Summer 2026)



Students attending 'Air Pollution' workshop



Students of the 2nd Year B.E. Chemical Engineering program, guided by faculty members, participated in a two-day workshop titled *“Advances in Tools and Technologies to Quantify Health Impacts of Air Pollution”*, jointly organized by IIT Gandhinagar (IIT-GN) and the University of Illinois Urbana-Champaign (UIUC) on 18th–19th December 2025. The workshop offered valuable insights into modern analytical tools and computational techniques used to evaluate the health effects of air pollution through interactive sessions, expert lectures, and hands-on demonstrations.

Glimpses of the sports club



Congratulations WINNERS



OTHER ACTIVITIES

Refresher course on LCA – 19th December 2025



The Dept. of Chemical Engineering organized a one-day training program on Life Cycle Assessment (LCA) for chemical products. The program featured Mr. Hemendra Sata (Director HR, Jubilant Ingrevia) as Chief Guest, Dr. Shrikant J. Wagh (Provost, UPL University), and resource person Mr. Sai Bhaskar Veluri (Principal Consultant – ESG). Sessions covered LCA fundamentals with a live demo of EU PEF and PCF tools. Mr. Sata also delivered a guest lecture to B.E. Semester 8 CE and EST students.

OTHER ACTIVITIES

External Academic Audit – Chemical Engineering



As part of its commitment to continuous academic excellence, the Department of Chemical Engineering underwent its annual External Academic Audit on 17 December 2025. The audit provided a comprehensive review of the department's academic processes, teaching-learning practices, and overall performance. The expert shared valuable insights through a detailed SWOT analysis, based on which a comprehensive action plan was prepared to drive continuous improvement and further strengthen the quality of academics.



OTHER ACTIVITIES

Expert talk delivered at KJ Polytechnic



Dr. Krunal Suthar delivered a guest lecture at ITI Jaghadia on 15th December for final-year diploma students as part of a one-week training program on DCS Operation. The lecture, titled “Career Paths after Diploma in Chemical Engineering,” was attended by students from K. J. Polytechnic and Valsad Polytechnic College.

Design Engineering course at Gattu Vidyalaya



Design Thinking & Innovation session was conducted on 20th December 2025 at Shree Gattu Vidyalaya for 9th Standard (English Medium) students by **Mr. Chintan Modi**, Mr. Ankit P. Solanki, & Mr. Krunal Shah. Students explored creative problem-solving through Product Development Canvas, Mind Mapping Canvas, and Learning Need Matrix (LNM) with engaging activities and assessment. The session inspired young minds to think creatively and innovate for real-life challenges.

OTHER ACTIVITIES

Participation at Marathon 2026



Vidya Vinimay Sabha



We have started *Vidya Vinimay Sabha*, a 15-minute TED-style monthly talk where faculty share ideas on pedagogy, learning, and beyond. So far, four sessions were held: Mr. Chintan delivered on “*Are we teaching or are students learning?*”, Dr. Dinesh delivered on “*Opulences of Krishna.*” Dr. Sunil delivered on “*NEP*” and Mr Kimshuk delivered on “*Outcome based Education*”.

OTHER ACTIVITIES

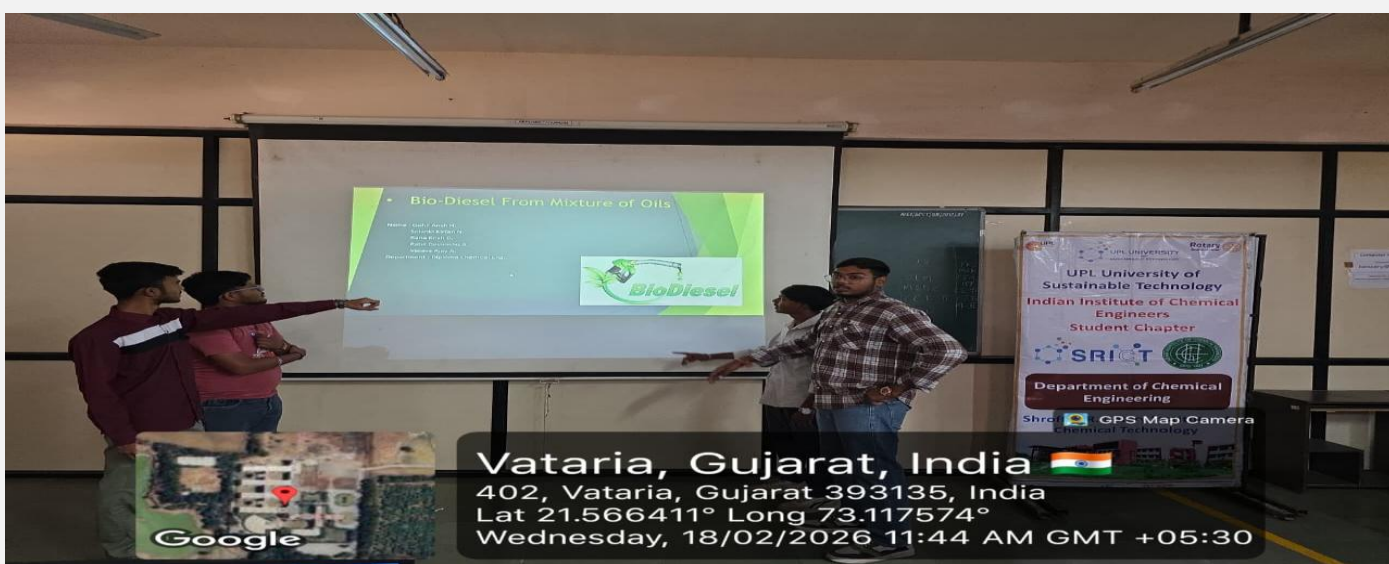
Parents Teacher Meeting (PTM)-DE & BE 4th and 6th Semester

The Department of Chemical Engineering organized a Parent–Teacher Meeting (PTM) on 07 February 2026 at UPL University for parents of BE Chemical Engineering 4th and 6th semester students. The meeting aimed to discuss students' academic performance, attendance, discipline, and participation in co-curricular activities. Parents shared their feedback and concerns, while faculty members addressed their queries and provided guidance for students' academic improvement and overall development.



OTHER ACTIVITIES

DIPLOMA 6TH SEM Project Review



Continuous projects reviews are taken from final year students. The reviews were organized during 16 – 18 February 2026. Students working on experimental-based projects under the guidance of faculty supervisors presented the work. During the review, students presented their experimental setup, methodology, and initial trial results. Further experimentation, data analysis, and result evaluation are currently in progress as per the project schedule.

OTHER ACTIVITIES

Training Program at BEIL

In February 2026, the Center of Excellence (CoE) in Process Safety, a full-day Safety Training Programme on 18th February 2026 was conducted. The training was delivered by Dr. Swapna Reha Panda and Dr. Ravindra Kanawade, faculty members of Chemical Engineering. The programme was organized in coordination with Shri Omprakash Mahadwad, Coordinator – CoE, for participants from BEIL Infrastructure, GIDC Ankleshwar. A total of 28 participants successfully completed the training. The CoE continues to promote industrial safety awareness and process safety competency across industries.



OTHER ACTIVITIES

Participation as speaker during FDP

Dr. Ravindra Kanawade delivered a technical session during the AICTE VAANI FDP Program organized by PVP College of Engineering & Technology (Polytechnic), Loni, Maharashtra. He delivered sessions on CO₂ Capture and CO₂ Utilization and it was delivered for a total of 73 participants from various Engineering and Polytechnic colleges across Maharashtra, focusing on recent advances, technologies, challenges, and industrial perspectives related to carbon capture and utilization.

In-plant training Orientation for Diploma Students

Mr. Mrityunjay Ojha organized comprehensive orientation and guidance sessions to prepare students for industrial exposure. Diploma Engineering Semester 4 students will be going for in-plant internship for 15 days. An orientation session was taken on 10th April 2026.

OTHER ACTIVITIES

Refresher course organized in Feb-2026



The Department of Chemical Engineering organized a one-day refresher course on **“Energy Efficient and Sustainable Chemical Manufacturing.”** The program focused on energy optimization, sustainable practices, and industry–institute interaction. Experts shared insights on clean energy, digital monitoring, ESG readiness, and sustainability roadmaps. Around 30 industry participants attended, and the course concluded with positive feedback.



OTHER ACTIVITIES

Training Program at GNFC



A certificate distribution ceremony was organized on 25th Feb 2026 for the three training programs conducted between July and October 2025 at GNFC, Bharuch for its employees. The certificates were presented by Shri Satish Mehta, GM (SCM) along with Shri H. N. Mehta, Head - Training & Development, Shri Hitesh Parekh, Program Coordinator and representatives from our university.

OTHER ACTIVITIES

“Abhyutthan–2026”



Abhyutthan–2026, the annual Academic Awards Ceremony, was jointly organized by the Departments of Chemical Engineering and Electrical Engineering in two phases on **17 March** and **8 April 2026** in two separate phases to recognize students' outstanding academic achievements. The event was graced by distinguished industry leaders, including **Shri Pankaj Bharwada**, **Shri R. D. Mane**, **Shri Bikas Phaujdar** (Gujarat Fluorochemicals Ltd.), and **Shri Nilay Vyas** (UPL Ltd.), along with university leadership, faculty, parents, and students.



OTHER ACTIVITIES

Best Students of the Academic Year 2025–2026 GOLD MEDALISTS



- Best student award (3rd year) & Overall Diploma: Jha Komal Manoranjan (5th Semester)
- Best student award (2nd year): Jeeson Saji Varghese (Chemical Engg)
- Best student award (2nd year): Mehul Sonawane (Chemical Engg)

OTHER ACTIVITIES

NBA Visit on 27, 28 and 29th March 2026

The Department of Chemical Engineering proudly hosted the NBA Peer Team for the accreditation evaluation of the B.E. Chemical Engineering programme on 27th, 28th, and 29th March 2026.



The department is delighted to announce that the B.E. Chemical Engineering programme has been granted NBA accreditation up to 31st December 2028. This achievement reflects the collective efforts and unwavering commitment of every stakeholder associated with the department.

OTHER ACTIVITIES

Guest lecture on Process Simulation and Digitalization



Dr Alok Gautam and Dr Krunal Suthar delivered sessions on Process Simulation and Digitalization in Chemical Engineering, respectively, during the GUJCOST-DST sponsored workshop organized by the neighbouring institute at Navsari. The session was attended by 90 students of BE third and final year.



OTHER ACTIVITIES

A one-day workshop for Diploma Students



A one-day workshop on “Chemical Engineering in the Real World: Challenges, Practice and Simulation” Was organized on 6th March for Diploma Final Year students from various colleges (KJ, Valia and Valsad polytechnic) A total 29 students participated

OTHER ACTIVITIES

BoS Meeting (10th April)

Program – Vision and Mission

OUR VISION

To achieve excellence in chemical engineering education and allied fields by providing an excellent teaching learning experience that enables students to become leading professionals capable of tackling global issues.

MISSION

- To provide excellent technical education to students with basics of chemical engineering.
- To provide theoretical and practical education so that students vigorously apply knowledge in solving chemical engineering problems for sustained development.
- To inculcate professional ethics among students by exposing them to state of the art technologies in the field.
- To inspire students for lifelong learning and to develop leadership qualities in their career.

SRM Department of Chemical Engineering

1:47 PM | BOS Meeting

The Semester-III syllabus under NEP 2020 was revised during the 5th Board of Studies (BoS) meeting of the Department of Chemical Engineering, with a focus on making the curriculum more industry-aligned and outcome-oriented.

Award of Degree – Credit requirement

Sr. No.	Credit	Additional Requirement		Name of Degree	Remarks
		Credit	Courses		
1	168	--	--	<i>B.E. Chemical Engineering</i>	<i>Compulsory</i>
2	168	16	Within Dept.	<i>B.E. Chemical Engineering (Honours)</i>	<i>Optional</i>
3	168	16	From Other Dept.	<i>B.E. Chemical Engineering With Minor in Data Science</i>	<i>Optional</i>
4	168	16+16	From Within & Other Dept.	<i>B.E. Chemical Engineering (Hon.) with Minor in Data Science</i>	<i>Optional</i>

1:50 PM | BOS Meeting

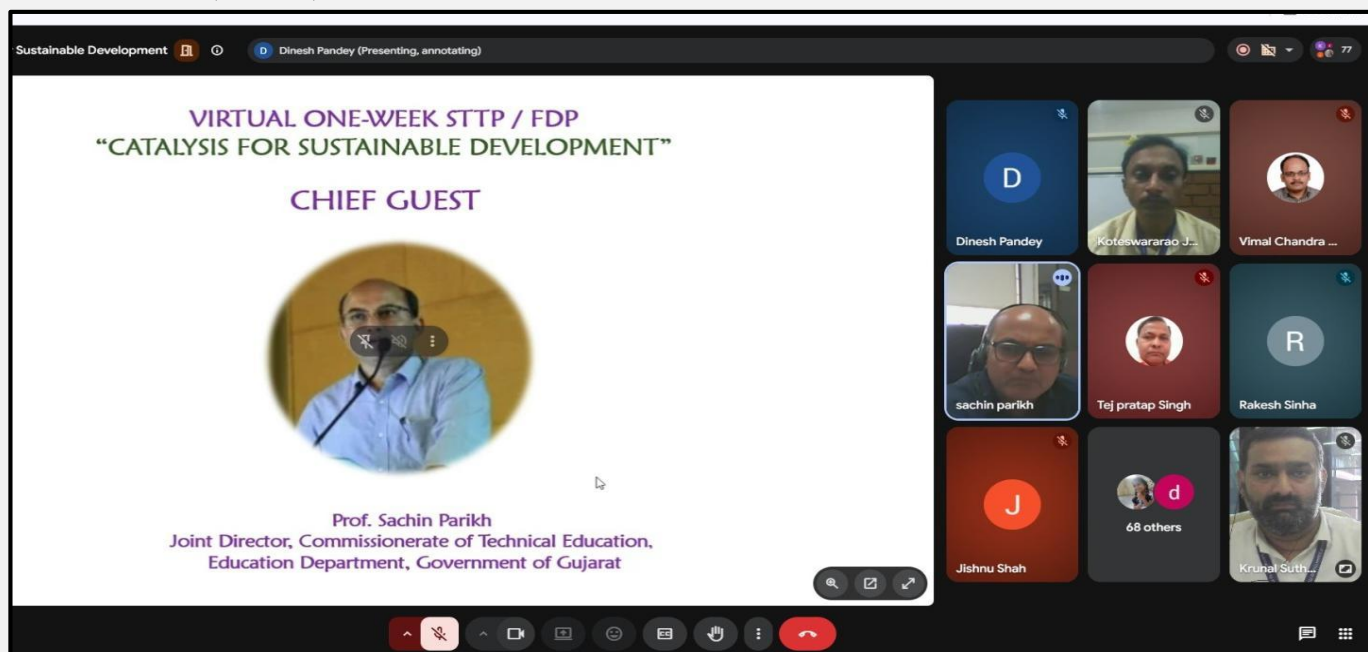
Thanks to the BoS members:

Dr. Sunil Bhagwat, Director, IISER, Pune, Dr. Vimal Gandhi, Associate Professor, DDIT, Nadiad, Mr. Kishor Karodiya, Head Phosphoric Division, UPL Ltd, Mr. Bikas Phaujdar, Dy. Unit Head, GFL Ltd, Mr. K Srivatsan, Director, Subhasri Pigments, Dr. Omprakash Mahadwad, Dean Engineering, UPL University, Dr. Krunal J. Suthar, Member Secretary & Head - Chemical Engineering, UPL University, Dr. Sunil Badgujar, Provost Nominee & Faculty, Chemical Engineering, UPL University

OTHER ACTIVITIES

One-week Short Term Training Program (STTP) on “Catalysis for Sustainable Development”

The Department of **Chemical Engineering** organized one-week Short Term Training Program (STTP) on “**Catalysis for Sustainable Development**” on 22nd to 26th June 2026. The inaugural session was graced by Prof. Sachin Parikh, Jt. Director, Directorate of Technical Education (DTE), as the Chief Guest.



Total **120 participants** from various organizations registered for the program. Speakers' details are as follow:

- *Prof. Vimal Chandra Srivastava, IIT Roorkee: Role of AI/ML in Sustainable Catalysis in Chemical Engineering: A Few Case Studies*
- *Prof. Prakash D. Vaidya, ICT Mumbai: The Role of Catalysis in Energy Transition: Hydrogen Production, Biofuels, and CO₂ Utilization*
- *Prof. Sunil Kumar Maity, IIT Hyderabad: Current Status of Sustainable Aviation Fuels (SAF) Production from Biomass*
- *Prof. Parimal A. Parikh, SVNIT Surat: Bioethanol Valorization*
- *Dr. Shrirang Sabde, Eurofins PSS: Conversion of Waste into Wealth: Chemical Recycling of Polymers Hydrolytic Depolymerization of PET into Terephthalic Acid and Ethylene Glycol Using Phase Transfer Catalysis*
- *Dr. Dharmendra Pandey, MANIT Bhopal: Sustainable Catalysis for CO₂ Utilization*

OTHER ACTIVITIES

Visit to Industrial Expo



The Chemical Engineering Department participated in the Ankleshwar Industrial Expo 2026 held on April 18, 2026, at Ankleshwar GIDC, Gujarat. The expo brought together leading industries from chemical, pharmaceutical, and engineering sectors, providing a comprehensive platform to explore advancements in process technologies, instrumentation, and industrial systems. The visit aimed to strengthen industry-academia interaction and understand current industrial trends to align academic practices with real-world applications.



OTHER ACTIVITIES

Glimpse of Winstinct 2026

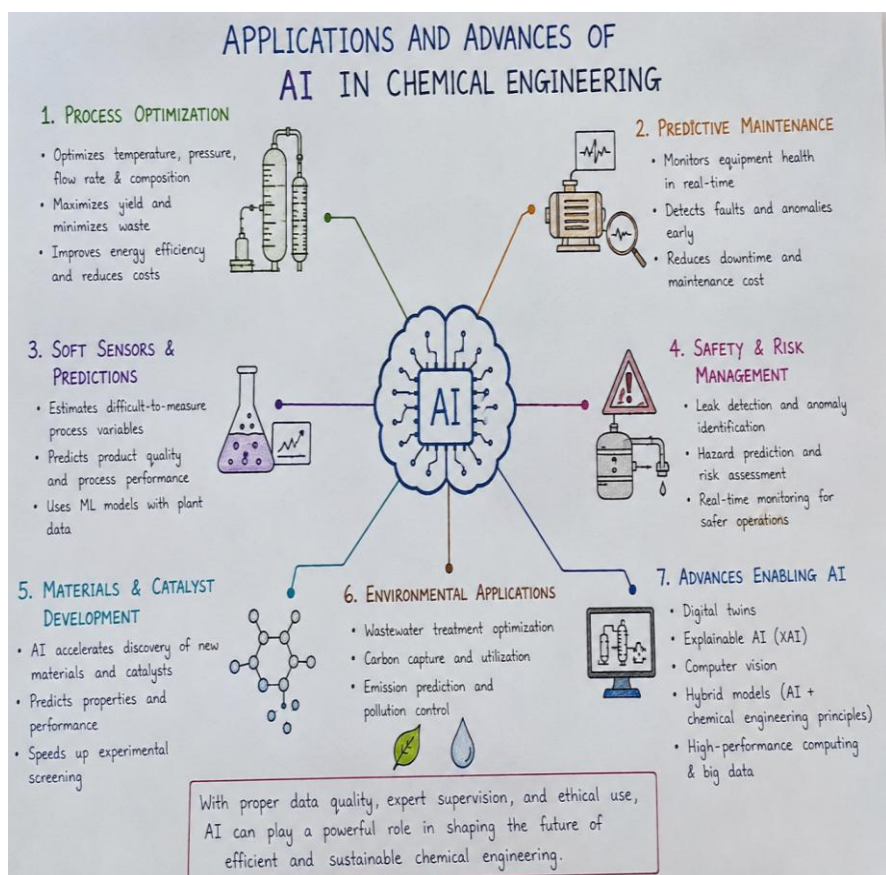


Applications and Advances of AI in Chemical Engineering

Artificial Intelligence (AI) is rapidly transforming chemical engineering by making industrial processes smarter, safer, and more sustainable. In modern chemical plants, AI and machine learning models analyse large volumes of experimental, simulation, and real-time sensor data to predict product quality, optimise operating conditions, and reduce energy consumption. These tools are especially useful in complex operations such as distillation, membrane separation, reaction engineering, petroleum refining, wastewater treatment, and carbon capture.

One major application of AI is process optimisation, where algorithms identify the best temperature, pressure, flow rate, and composition for maximum yield and minimum waste. AI-based soft sensors help estimate difficult-to-measure variables, while predictive maintenance systems detect equipment faults before breakdowns occur. In safety management, AI supports leak detection, hazard prediction, and real-time monitoring, reducing risks in chemical plants. AI is also advancing material discovery, catalyst development, bioenergy systems, and environmental pollution control.

Recent advances such as digital twins, explainable AI, computer vision, and hybrid models combining data with chemical engineering principles are further improving reliability and decision-making. With proper data quality, expert supervision, and ethical use, AI can play a powerful role in shaping the future of efficient and sustainable chemical engineering.



By Mr. Dhruv Patel
(Lecturer)

Agricultural Waste to Bioethanol: A Sustainable Pathway for Future Energy

Abstract

The increasing global demand for sustainable energy has led to extensive research into bioethanol production from lignocellulose biomass. Agricultural residues such as bamboo, rice husk, and sugarcane bagasse are renewable, cost-effective, and environmentally friendly feedstock. This article reviews the key processes involved in bioethanol production, including pre-treatment, hydrolysis, fermentation, and distillation. It also highlights the challenges and recent advancements in the field, emphasizing the potential of lignocellulose ethanol as a future energy source.

I. Introduction

The depletion of fossil fuels and rising environmental concerns have accelerated the need for alternative energy sources. Bioethanol is considered a promising renewable fuel due to its biodegradability and lower greenhouse gas emissions. Unlike first-generation biofuels, lignocellulose bioethanol utilizes agricultural waste, thereby avoiding competition with food resources.

Bamboo is an attractive feedstock because of its rapid growth rate, high cellulose content, and widespread availability. Its utilization not only provides energy but also helps in waste management and sustainability.

2. Structure of Lignocellulosic Biomass

Lignocellulosic biomass is composed of three major components: Cellulose (40–50%): A linear polymer of glucose and the primary source for ethanol production. Hemicellulose (20–30%): A branched polymer producing both pentose and hexose sugars. Lignin (15–25%): A complex aromatic polymer that provides rigidity and resistance to degradation. The presence of lignin forms a protective barrier, making biomass resistant to enzymatic attack. Therefore, pre-treatment is necessary.

3. Bioethanol Production Process

A. Pretreatment :

- Removes lignin and opens the biomass structure.
- Increases surface area for enzyme action.
- Common methods: alkali, acid, and steam explosion.

B. Hydrolysis:

- cellulose into glucose.
- Uses enzymes like cellulase.
- Can be enzymatic (preferred) or acid-based Converts.

C. Fermentation:

- Glucose is converted into ethanol by microorganisms.
- Common organism: *Saccharomyces cerevisiae*.
- Produces ethanol and carbon dioxide.

D. Distillation:

- Separates ethanol from fermentation mixture.
- Produces ~95% pure ethanol.
- Further dehydration gives fuel-grade ethanol.

4. Challenges in Bioethanol Production

- High cost of enzymes
- Formation of inhibitors (furfural, HMF) Energy-intensive distillation
- Low overall efficiency Difficulty in industrial scale-up

5. Recent Advancements

- Genetically engineered microorganisms for higher yield Consolidated bioprocessing (CBP) combining steps Nanotechnology in enzyme immobilization Development of integrated bio refineries

Conclusion

Bioethanol production from agricultural waste presents a sustainable and eco-friendly alternative to fossil fuels. Although challenges such as high cost and low efficiency remain, continuous advancements in biotechnology and process engineering are improving feasibility. With proper optimization, lignocellulose bioethanol has the potential to become a major contributor to future energy needs.

References

- Sun, Y., Cheng, J. (2002). Hydrolysis of lignocellulose materials. Balat, M. (2011). Production of bioethanol from biomass.
- Kumar, P. et al. (2009). Pre-treatment methods for biomass. Humbird, D. et al. (2011). Biofuel process design and economics.



Machhi Krutik
BE Semester-5
Chemical Engineering

AI-Driven Smart Grids: The Nervous System of Sustainable Cities

As the world shifts toward decentralized renewable energy, the traditional power grid—designed for one-way flow from coal or gas plants to consumers—is becoming obsolete. The AI-Driven Smart Grid represents the evolution of energy infrastructure into an intelligent, self-healing network capable of managing the complexity of 2026's energy demands.

The Technical Framework

At the heart of a smart grid lies the integration of Internet of Things (IoT) sensors and Machine Learning (ML) algorithms. These systems process Big Data; from smart meters, weather forecasts, and historical usage patterns to perform three critical functions: Predictive Analytics: Using Recurrent Neural Networks (RNNs) to forecast energy spikes before they happen.

Edge Computing: Processing data locally at the substation level to allow for millisecond-response times during grid fluctuations.

Automated Demand Response: Automatically dimming non-essential industrial loads or drawing power from parked Electric Vehicles (V2G - Vehicle-to-Grid) during peak hours.

Efficiency by the Numbers The transition to AI-managed infrastructure isn't just a theoretical upgrade; it provides measurable sustainability gains:

Carbon Mitigation: By optimizing the dispatch of renewable energy, AI grids can reduce carbon emissions by up to 2 gigatons globally by 2030.

Operational Reliability: AI can predict equipment failure (like transformer overheating) with 90% accuracy, preventing massive blackouts and reducing maintenance costs by 15%–30%.

Consumer Savings: Smart grids empower prosumers; (those who both produce and consume energy via solar panels), allowing them to sell excess power back to the grid at peak prices, potentially reducing household energy bills by 20%.

Why it Matters for UPL University

For our University of Sustainable Technology, the study of smart grids is the ultimate multidisciplinary challenge. It combines Electrical Engineering (power systems), Computer Science (AI/ML algorithms), and Environmental Science (decarbonization strategies).

Technical Note: The stability of these grids often relies on the N-1 reliability criterion, ensuring the system remains functional even if a major component fails. AI enhances this by simulating millions of failure scenarios in seconds to find the most resilient grid configuration.



Mehul Sonawala CE – 5th Sem

Prediction of Heat Capacity of DESs Using Machine Learning Approaches

UPL University of Sustainable Technology

Department of Chemical Engineering, Ankleshwar, Gujarat

Mentored by: Mr. Dhruv Patel

Research Team: Dev Sharma, Dishant Vasava, Jeelson Saji Varghese, Mehul Sonawane (Semester-IV)

ABSTRACT

Deep eutectic solvents (DESs) are increasingly recognized as promising green alternatives to traditional volatile organic solvents, valued for their low toxicity, biodegradability, and highly tunable physicochemical properties. Among these properties, heat capacity (C_p) is particularly important, as it directly impacts the thermal efficiency, sizing, and safety of industrial chemical processes. Yet, measuring heat capacity experimentally across diverse DES systems remains a slow, costly, and resource-intensive task due to the practically limitless combinatorial pairings of precursors. To overcome this challenge, this study successfully applies advanced machine learning techniques to map and predict the heat capacity of various DES formulations. Using a curated dataset of thermodynamic and structural parameters, we developed and tested three distinctive mathematical paradigms: Random Forest (RF), Support Vector Regression (SVR), and Artificial Neural Networks (ANN). All models achieved robust predictive performance, with ensemble and neural approaches showing

I. Introduction

The ongoing evolutionary transition within chemical manufacturing demands a foundational shift away from conventional, hazardous volatile organic compounds (VOCs) toward sustainable, environmentally benign fluid alternatives. Deep eutectic solvents (DESs) have emerged as frontrunners in this green chemistry movement. Typically formulated by combining a quaternary ammonium salt or metal halide acting as a Hydrogen Bond Acceptor (HBA) with an organic molecule acting as a Hydrogen Bond Donor (HBD), DESs exhibit a remarkable depression in freezing points relative to their separate initial components.

In modern chemical process engineering, mapping the fundamental thermodynamic attributes of these systems is a strict precursor to industrial scaling. Specifically, isobaric heat capacity governs the sizing of thermal transport units, heat exchangers, distillation columns, and chemical reactors. It determines the underlying energy footprint required to modulate the thermal threshold of processing lines and ensures safe operating boundaries under exothermic or endothermic operational constraints.

Despite its industrial criticality, gathering empirical heat capacity matrices across a broad spectrum of structural configurations is hindered by classic experimental bottlenecks. Traditional micro-calorimetry screening methods require substantial physical resources, time, and specialized equipment. Because the possible structural space of candidate DES pairs expands exponentially with the introduction of novel tailored functional groups, manual trial-and-error discovery is functionally unfeasible. Consequently, predictive modeling paradigms powered by machine learning offer an optimal alternative route to accelerate screening and support computer-aided molecular design (CAMD) workflows.

2. Research Objectives

The systematic milestones established in this research include:

1. **Predictive Framework Construction:** Developing accurate, generalizable data-driven models capable of mapping structural features to macro-scale heat capacity.
2. **Algorithmic Benchmarking:** Running a comparative performance audit across three core machine learning methodologies: Random Forest (RF), Support Vector Regression (SVR), and Artificial Neural Networks (ANN).
3. **Feature Attribution Tracking:** Isolating, ranking, and identifying the principal physical, environmental, and structural features that dictate energy storage capability in fluid matrices.
4. **Green Solvent Architecture Design:** Creating a deployment-ready computational methodology to select solvents for high-performance industrial applications.

3. Methodology

To ensure mathematical rigor and eliminate predictive bias, a structural three-phase computational architecture was executed, encompassing raw data harvesting, multi-variable preprocessing, and optimized algorithmic evaluation.

3.1 Data Acquisition

A master thermodynamic database containing comprehensive literature-validated experimental heat capacity records of binary type III deep eutectic solvents was compiled. The dataset comprises various pairings of HBAs (e.g., choline chloride) and diverse HBDs (e.g., polyols, carboxylic acids, and amides) measured across a wide temperature spectrum.

3.2 Data Preprocessing

Raw chemical descriptors require mathematical adaptation prior to model ingestion. Feature tracking profiles were explicitly mapped onto key structural dimensions:

- **Molecular Mapping:** Extracting constituent molecular weights (M_w) and structural polarity indices.
- **Composition Descriptors:** Calculating explicit molar ratios of the HBD and HBA components.
- **Environmental States:** Standardizing thermodynamic measurement temperatures (T).
- **Feature Scaling:** To counteract structural magnitude disparities, numerical attributes were standardized using min-max scaling pipelines. The complete dataset was sequentially partitioned into isolated training arrays and testing vectors to facilitate independent cross-validation.

3.3 Machine Learning Architectures Tested

The predictive engine evaluates three distinct structural archetypes to capture multi-variable interactions:

- Random Forest (RF):** A robust ensemble learning configuration utilizing a collection of parallel decision trees. By aggregating individual predictions via mean voting methods, RF reduces variance and delivers highly reliable feature importances while remaining resilient against data anomalies.
- Support Vector Regression (SVR):** An optimization scheme that maps inputs into high-dimensional geometric hyperplanes using non-linear radial basis function (RBF) kernels. SVR aims to encapsulate structural points within an error margin boundary defined by a tolerance metric (ϵ).
- Artificial Neural Network (ANN):** A multi-layered dense network architecture containing input layers, multiple deep hidden layers, and an output layer. Driven by non-linear activation functions and optimized via backpropagation, ANNs adaptively learn complicated cooperative hydrogen-bonding networks.

The universal target relationship is modeled as:

$$C_p = f(M_w, T, x_{HBD} / x_{HBA}, Polarity)$$

4. Results and Discussion

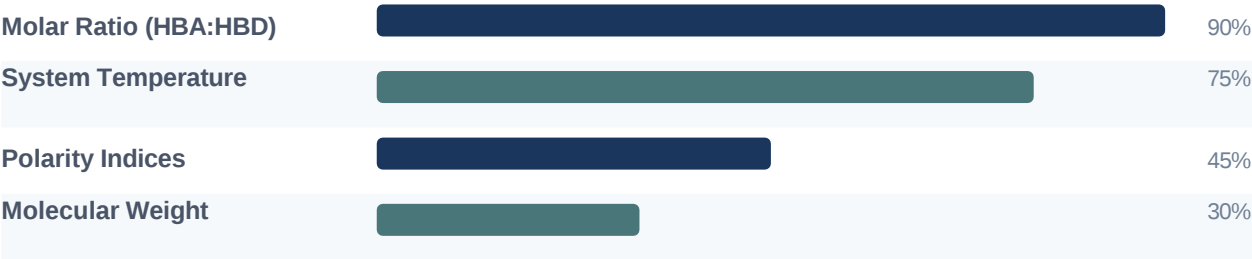
4.1 Model Performance Evaluation

The evaluation metrics across the validated machine learning configurations show that non-linear architectures outperform linear baselines, safely tracking highly dynamic thermodynamic shifts.

Model Architecture	Predictive Accuracy (R ²)	Error Rate Trend (AARD %)	Structural Optimization Capacity
Random Forest (RF)	0.87 - 0.93	3.50% - 4.20%	High resilience to outlier variation
Support Vector Regression (SVR)	0.81 - 0.86	5.10% - 6.00%	Dependent on precise kernel parameter tuning
Artificial Neural Network (ANN)	0.94 - 0.99	0.50% - 3.99%	Exceptional handling of hydrogen-bonded systems

As detailed in the performance matrix, the **Artificial Neural Network** achieved the highest performance tier, yielding minimal Average Absolute Relative Deviation (AARD). This high-tier alignment stems from the network's capacity to handle multi-variable cooperative properties typical of deep eutectic fluid dynamics, matching findings established in recent comprehensive thermodynamic modeling initiatives (Halder et al., 2025; Shu et al., 2024).

Relative Feature Importance Breakdown on Heat Capacity



5. Conclusion

This computational exploration validates the framework of integrating advanced data-driven machine learning models directly into green chemical synthesis workflows. By utilizing Artificial Neural Networks, Random Forests, and Support Vector Regression, the isobaric heat capacity of highly complex deep eutectic solvents was predicted with exceptional accuracy from elementary molecular and thermodynamic tracking inputs.

Transitioning from physical, empirical bench trials to scalable machine learning screening architectures yields deep resource savings, reducing developmental lag in green chemical processing. Isolating dominant structural triggers—most notably the precursor molar pairing metrics and internal polarity matrices—furnishes process engineers with precise structural control rules. This enables the direct formulation of next-generation, tailored green solvents structured for maximum energetic efficiency in large-scale sustainable industrial heat management networks.

References

Halder, A. K., Haghbakhsh, R., Ferreira, E. S. C., Duarte, A. R. C., & Cordeiro, M. N. D. S. (2025). Machine learning-driven prediction of deep eutectic solvents' heat capacity for sustainable process design. *Journal of Molecular Liquids*, 418, 126707.

<https://doi.org/10.1016/j.molliq.2024.126707>

Shu, Y., Du, L., Lei, Y., Hu, S., Kuang, Y., Fang, H., Liu, X., & Chen, Y. (2024). Modeling Study on Heat Capacity, Viscosity, and Density of Ionic Liquid–Organic Solvent–Organic Solvent Ternary Mixtures via Machine Learning. *Processes*, 12(7), 1420.

<https://doi.org/10.3390/pr12071420>

A Proud MOMENT

The UG Program
B.E. Chemical Engineering
has been accredited by NBA

3rd TIME ACCREDITATION

Accreditation Cycle-1: 2019-2022
Cycle-2: 2022-2025
Cycle-3: 2025-2028

NBA
NATIONAL BOARD OF ACCREDITATION

NOW IN TIER 1

For 3 Years
2025-2028

Heartiest congratulations to our students, faculty, alumni, staff, industry partners and all stakeholders for this remarkable achievement.

ALUMNI Column

Best wishes to Mr Deepraj Patil who will be joining Symbiosis Institute of Business Management, Pune for my MBA journey.



Back to Campus: Alumni Insights Forum

The expert session on "Career Opportunities" was designed to guide students on higher education opportunities, career pathways, and industry expectations through interactions with accomplished alumni and industry professionals on 16th Feb 2026



- Mr. Sanket Yadav, Plant Manager, Aarti Industries Ltd.
- Mr. Kaushik Vaijapurkar, MD, Shaswat Technochem Enterprise
- Mr. Amar Aghera, Manager, Sai Ram Chemicals
- Dr. Bhavik Mahant, Research Lead

Glimpse of Alumni Meet –
Jan 2026



ALUMNI | Column

I, Aakash Kumar Mandal, am delighted to share my journey as a proud alumnus of the 2026 batch of UPL University of Sustainable Technology, where I completed my B.E. in Chemical Engineering. Looking back at my four years, I feel immense gratitude for the opportunities, experiences, and values that shaped me into the person I am today.



Academically, my journey has been highly rewarding. I graduated with an outstanding 9.75 CPI and was honored with the Best Student Award, Best Department Award, and Best Academic Year Award. These achievements reflect not only my dedication but also the continuous support and encouragement I received from my professors, mentors, and classmates.

Representing my university at national-level platforms was one of the most memorable parts of my journey. I proudly participated in the IChE SCHEMCON National-Level Debate Competition, National-Level Technical Presentation Competition, and the National Youth Parliament Debate, where I had the opportunity to exchange ideas, enhance my public speaking abilities, and learn from talented participants from across the country.

I sincerely express my heartfelt gratitude to the Chemical Engineering Department, respected faculty members, the Head of Department, and the entire UPL University family for their constant guidance, motivation, and unwavering support throughout my academic journey. I am equally thankful to my friends and classmates, whose encouragement made every challenge easier and every success more meaningful. My journey at UPL University of Sustainable Technology has been truly transformative. It has given me knowledge, confidence, lifelong friendships, and the foundation for a successful career. I will always remain proud to be a part of this wonderful institution. Thank you to everyone who made this incredible journey unforgettable.

Aakash Kumar Mandal, B.E. Chemical Engineering (Batch of 2026)

ALUMNI | Column

I, Bhati Kuldeep Tarachand, feel truly privileged and sincerely grateful to share my journey as an alumnus of the Diploma in Chemical Engineering program at UPL University of Sustainable Technology. Looking back on my time at this institution, I am filled with pride and gratitude for the strong academic and personal foundation it has provided me. Although the college offered valuable campus placement opportunities, I have decided to continue my academic journey rather than immediately entering the workforce. I aspire to further strengthen my technical knowledge by pursuing a Bachelor of Engineering (B.E.) in Chemical Engineering. Throughout my diploma, I felt privileged to be part of a supportive and enriching learning environment. Beyond the rigorous academic curriculum, my experience was enhanced through induction programs, insightful expert talks, hands-on industrial visits, practical laboratory exposure, and a valuable summer internship. Participating in technical events and campus activities not only strengthened my engineering mindset but also improved my presentation skills, helped me overcome stage fear, and contributed significantly to my overall personality development. My time at this university has been a truly transformative experience that I will always cherish. I would like to express my heartfelt gratitude and sincere appreciation to the Chemical Engineering Department, our respected faculty members, and our HOD for their continuous support, patience, guidance, and mentorship throughout my academic journey. I also extend my sincere thanks to my classmates and project teammates for their constant encouragement, friendship, and shared experiences. I feel honored to have completed this important stage of my engineering journey at UPL University of Sustainable Technology, and I remain deeply thankful for the knowledge, values, and opportunities the institution has provided. Thank you to everyone who made this journey such a rewarding and memorable chapter of my life.

Bhati Kuldeep Tarachand
Alumnus – Diploma in Chemical
Engineering (2026)



ACHIEVEMENTS

Publication Summer-2026

Sr. No.	Faculty Name	Paper Title	Journal / Publication	Date of Publication
1	Dr. Krunal J. Suthar,	Influence of Aqueous Phase pH on the Extraction Efficiency of Vildagliptin Using Methylene Dichloride	Intl. Journal of RF and Microwave Computer-Aided Engineering .	June 2026
2	Dr. Alok Gautam	Decomposition kinetics and diffusion-controlled mechanisms of organic industrial waste: a non-isothermal TGA–iso-conversional study	Biofuels (Taylor & Francis)	08 Jan 2026
3	Dr. Alok Gautam	Thermodynamic and kinetic parametric study of thermal degradation of rice husk and industrial organic waste materials in different proportions and their gasification analysis	Journal of the Indian Chemical Society (Elsevier)	11 Apr 2026
4	Dr. Chintan K. Modi	A Review on Organic Rankine Cycle, Thermoelectrics, and Process Integration in Sustainable Waste Heat Recovery Technologies	International Communications in Heat and Mass Transfer (Elsevier)	21 Apr 2026
5	Dr. Sudeep D. Wadia	A Review on Organic Rankine Cycle, Thermoelectrics, and Process Integration in Sustainable Waste Heat Recovery Technologies	Intl. Communications in Heat and Mass Transfer (Elsevier)	21 Apr 2026
6	Dr. Chintan K. Modi	Review on Heat Exchanger and Improvement of its Efficiency Using Nanofluid	Applied Thermal Engineering (Elsevier)	16 Dec 2025
7	Dr. Chintan K. Modi	Assessing the Role of Renewable Energy in India's Clean Energy Transition	Journal of Applied Bioanalysis	Dec 2025
8	Dr. Sandip H. Gharat	Discharge of Spheres and Dumbbells Mixed with Fine Grains from a 3D Silo	EPJ Web of Conferences (Powders & Grains 2025)	Dec 2025
9	Dr. Sandip H. Gharat	From Pharmaceutical Ingredients to Drug Delivery – Impact of Flow, Uniformity and Contamination on Product Quality of Solid Dosage Forms – A Critical Review	International Journal of Drug Delivery Technology	10 Jun 2026
10	Dr. Ravindra Kanawade	Model-Based Evaluation of Bromelain Stability during Pressure–Temperature Processing	Current Nutrition and Food Science	29 April 2026
11	Mr. Kimshuk Desai, Mr Mitul Parikh	A review on organic rankine cycle, thermoelectrics, and process integration in sustainable waste heat recovery technologies	International Communications in Heat and Mass Transfer	July 2026
12	Dr Ravindra, Dr Swapna	Solar-Powered Waste Compactor for Sustainable Environmental Application	Journal of Solar Energy Engineering	June 2026
13	Dr. Chintan, Ms Shraddha Pandya	Assessing The Role Of Renewable Energy In India's Clean Energy Transition	Journal Of Applied Bioanalysis	Dec 2025

ACHIEVEMENTS

Conference Attended



Dr. Sandip attended and presented paper in 10th International Conference on Micromechanics of Granular Media on “*Discharge of spheres and dumbbells mixed with fine grains from a 3D silo,*” Organized by Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR) Bengaluru, India



Faculty members Mr. Kimshuk Desai, Mr. Dhruv Patel, Dr. Sandil Gharat and Mr. Sudeep Wadia along with second year chemical Engineering students actively participated in the 2nd International Conference “Green Chemistry and Engineering towards Sustainable Development – An Industrial Perspective” (GCESDIP 2.0) held at SVNIT Surat on 17–18 April 2026.

ACHIEVEMENTS

CONGRATULATIONS to Dr. Chintan Modi. He has successfully defended his PhD work on the topic - Sustainable Approach to Separate Azeotropic Mixtures: Evaluating Green Solvents Using a Simulation Approach. He pursued his PhD from Nirma University under the guidance of Dr Milind Joshipura.



Mr. Jishnu Shah, received 3rd Prize Best M.Tech Abstract from GCPC, Gujarat (2025–26). Recognition: Awarded for research in cleaner production and sustainable technologies.



Proud Achievement

**IICChE SRICT Student Chapter
Best Student Chapter Award**
Ankleshwar Regional Centre



Happy to share this proud milestone for our department.



**Department of
Chemical Engineering**
UPL University of
Sustainable Technology

ACHIEVEMENTS

FDP Attended Summer-2026

Sr.	Faculty Name	Topic / Programme	Date	Duration
1	SANDIP GHARAT	AI for Sustainable Development Goals	1 Dec 2025 to 5 Dec 2025	5 Days
2	MITUL PARIKH	AI in Chemical Engineering: Industry, Curriculum and Research Perspectives	1 Dec 2025 to 5 Dec 2025	5 Days
3	MITUL PARIKH	Applications of Computational Techniques in Process and Manufacturing Industries	15 Dec 2025 to 19 Dec 2025	5 Days
4	SUDEEP WADIA	Application of AI in Chemical Engineering	12 Jan 2026 to 17 Jan 2026	6 Days
5	KIMSHUK DESAI	Application of AI in Chemical Engineering	12 Jan 2026 to 17 Jan 2026	6 Days
6	DHRUV PATEL	Application of AI in Chemical Engineering	12 Jan 2026 to 17 Jan 2026	6 Days
7	ARGADE KUNAL	Application of AI in Chemical Engineering	12 Jan 2026 to 17 Jan 2026	6 Days
8	ARGADE KUNAL	Advanced Research Trends for Green and Sustainable Development	23 Feb 2026 to 28 Feb 2026	6 Days
9	HEMILSINH VANSIA	Advanced Research Trends for Green and Sustainable Development	23 Feb 2026 to 28 Feb 2026	6 Days
10	PATEL DHRUV	Advanced Research Trends for Green and Sustainable Development	23 Feb 2026 to 28 Feb 2026	6 Days
11	MINAXI PATEL	Advanced Research Trends for Green and Sustainable Development	23 Feb 2026 to 28 Feb 2026	6 Days
12	MITUL PARIKH	Green to Net Zero: Smart Chemical Engineering for a Sustainable Future	4 May 2026 to 9 May 2026	6 Days
13	KIMSHUK DESAI	Advances in Chemical Engineering including AI-ML Applications	19 May 2026 to 23 May 2026	5 Days
14	SUDEEP WADIA	Advances in Chemical Engineering including AI-ML Applications	19 May 2026 to 23 May 2026	5 Days
15	MITUL PARIKH	Advances in Chemical Engineering including AI-ML Applications	19 May 2026 to 23 May 2026	5 Days
16	KRUNAL SUTHAR	Google for Education AI Implementation Program 2026	26 May 2026	2 Hours
17	GHARAT SANDIP	Google for Education AI Implementation Program 2026	26 May 2026	2 Hours

ACHIEVEMENTS

Student NCC cadet at PM Rally, New Delhi

NCC Cadet SUO Abhishek Rajbhar of the University proudly represented UPL University of Sustainable Technology and the Gujarat Directorate at the prestigious Prime Minister's Rally held on 28th January on the occasion of Republic Day. His selection for this national-level event reflects his exemplary discipline, leadership qualities, and dedication to the values of the NCC. This achievement brings great pride and honour to the University and inspires fellow cadets to strive for excellence.



NPTEL participation



Elite NPTEL ONLINE CERTIFICATION

(Funded by the MoE, Govt. of India)

This certificate is awarded to
HETANG SHAH
for successfully completing the course

Energy Resources, Economics, and Sustainability

with a consolidated score of **64** %

Online Assignments	23.5/25	Proctored Exam	40.5/75
--------------------	---------	----------------	---------

Total number of candidates certified in this course: 814

Prof. Kaushik Ghosh
Prof. Kaushik Ghosh,
Professor (Chemistry)
Coordinator CEC

Feb-Apr 2026
(8 week course)



Prof. Ranjana Pathania
Prof. Ranjana Pathania,
Professor (BSBE)
Coordinator (NPTEL)

Mr. Hetang Shah, Chemical Engineering students successfully completed the 8-week NPTEL online course "Energy Resources, Economics, and Sustainability" (Jan–Apr 2026) offered by IIT Roorkee, securing the **Elite** certification with an overall score of **64%**.



Indian Institute of Technology Roorkee



Roll No: NPTEL26HS115S751100014

To verify the certificate



No. of credits recommended: 3



Creating Competent Chemical Engineers for the world of tomorrow

68/75

In Conversation With Dr. Chintan Modi



What inspired you to pursue a PhD while working full-time?

My interest in process simulation and its ability to solve complex industrial problems inspired me to pursue a PhD. I wanted to apply advanced simulation tools to develop practical, sustainable solutions that could bridge the gap between research and industrial practice.

How did you balance your academic responsibilities with PhD research?

My priority was always my students and academic responsibilities. I treated my PhD as a long-term commitment, using my spare time to work consistently on research until I reached the finish line.

What was the most challenging part of your PhD journey and how did you overcome it?

There were times when progress seemed very slow, and I even considered giving up. However, I reminded myself that research is a journey of patience and persistence. With a positive mindset, continuous learning, and the support of my guide and family, I kept moving forward.

My research focuses on developing sustainable methods for separating azeotropic mixtures, using green solvents and process simulation. The aim is to reduce energy consumption, improve process efficiency, and promote environmentally responsible chemical manufacturing.

What impact do you hope your research will have on society or industry?

I hope my research encourages industries to adopt greener, more energy-efficient separation processes, contributing to sustainable manufacturing and environmental protection.

What advice would you give to aspiring PhD scholars?

Don't compare your journey with anyone else's — every PhD has its own pace. Stay committed, keep learning, and remember that even small progress each day eventually leads to success. Treat your PhD as a journey of learning rather than just earning a degree. Be open to feedback and embrace failures as valuable lessons.

INTERVIEW



69/75

Chintan Modi

Asst. Professor,
Chemical Engineering
UPL University

ART MEETS ENGINEERING

Creativity Beyond the Classroom



This section celebrates the artistic talent of our students and faculty. Through sketches, paintings, and photography, it presents the colourful side of the Chemical Engineering Department, where imagination meets innovation.



Jagannath Art

Ms. Shraddha Pandya, Faculty



Traditional Pencil Sketch

Ms. Dhara Patel, Faculty



Sketch Study

Meet Dhobi, DE 5 Sem



Evening Sky Photography

Jay Parmar, DE 5 Sem

“Engineering builds the future, but *creativity* gives it *colour*.”

Art MEETS ENGINEERING

CREATIVITY INSPIRES • INNOVATION BUILDS • IMAGINATION TRANSFORMS



By Ms. Renuka Nasane Faculty



“Where imagination meets innovation, every creation becomes a solution.”



By Ms. Renuka Nasane Faculty



By Ms. Bhavika Bhatia Lab Assi.



By Ms. Bhavika Bhatia Lab Assi.



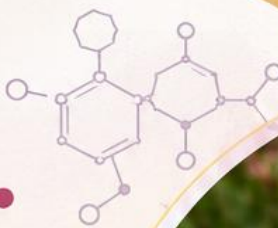
By Ms. Renuka Nasane Faculty

“Engineering gives us the **tools** to build the future. Art gives us the **vision** to make it **beautiful**.”



✦ Resin to Radiance:

The Chemistry Behind Handcrafted Jewellery



When we look at a beautiful pair of resin earrings, we usually admire the colours, floral designs, and intricate patterns. But behind every handcrafted piece lies an interesting blend of art and science. What appears to be a simple fashion accessory is actually the result of a carefully controlled chemical process. Resin jewellery is made by mixing liquid resin with a hardener.

This transformation requires the right proportions, proper temperature, and enough curing time. A small mistake can lead to bubbles, cracks, or an uneven finish, making precision the key to creating the perfect piece. This is where chemical engineering quietly plays its role. The same principles used to manufacture polymers, coatings, adhesives, and advanced materials are applied in the making of resin jewellery. Every elegant design reflects an understanding of material properties, process control, and quality—concepts that chemical engineers work with every day.

Resin jewellery reminds us that science is not confined to laboratories or industrial plants. It is present in the things we wear, admire, and cherish. Every handcrafted earring is more than just an ornament—it is a beautiful example of how chemistry and creativity come together to transform simple materials into something truly special.



By, Krushna and Sahil khan BE Chemical 3rd sem





The Heart of a Chemical Engineer

We entered with dreams and a notebook clean,
Not knowing the world behind every machine.
Soon we met **Bernoulli, Reynolds, and Raoult**,
And learned that success needs pressure by default.

In **fluid flow**, we found our direction,
Through pipes of struggle and valves of correction.
Our thoughts became pumps, our hopes became streams,
Carrying forward our calculated dreams.

In **heat transfer**, we burned and we grew,
Like conduction through metal, our patience passed through.
Every failure supplied a new driving force,
And every late night changed our course.

In **mass transfer**, we learned separation,
Not only of phases, but fear from determination.

Like distillation rising tray by tray,
We purified ourselves along the way.

In **thermodynamics**, we understood life,
Energy changes through effort and strife.

No process is perfect, losses remain,
But efficiency is born through pain.

In **reaction engineering**, we found our rate,
Some dreams were slow, some changed with fate.

With catalysts like teachers guiding our way,
We reached conversion day by day.

In labs, we measured, spilled, and tried,
With safety goggles and anxious pride.

From titration drops to pilot plant towers,
We built confidence through practical hours.
Now, after B.E., we do not just hold a degree,
We carry a process industry inside memory.

A Chemical Engineer is not made in ease,
But in reactors, equations, and sleepless theories.

We are not just students who passed an exam,
We are designers of every future plant and dam.

Where others see smoke, we see control,
Where others see waste, we find a goal.

So here we stand with knowledge and fire,
With pressure in heart and purpose higher.

From raw dreams to refined careers,

We are Chemical Engineers.



From the EDITORIAL BOARD



“

We are delighted to present the 17th issue of CHEMEZINE - the Chemical Engineering e-Magazine. This edition captures the vibrant activities, events, and celebrations conducted throughout the semester for both students and faculty. As editors, our aim is to make this magazine informative, engaging, and a true reflection of our department's dynamic culture. We have strived to cover most of the events and accomplishments, and we extend our sincere thanks to all stakeholders for their contributions.

Looking ahead, we encourage even greater involvement from everyone. We invite intriguing, unpublished articles from students and staff members of the Chemical Engineering department for upcoming editions. As we prepare for the Summer 2026 session, we are excited about the promising opportunities and activities it holds. Your suggestions are always welcome as they help us grow and improve. We look forward to your active participation in shaping the future of CHEMEZINE. Happy reading, and we hope to hear from you soon!

”

EDITORIAL BOARD



Renuka Nasane
Faculty



Priya Dighe
BE-VII



Yashita Chauhan
BE-V



Mehul Sonawane
DE-V



Jeeson Varghese
DE-V



Department of Chemical Engineering

GRADUATION SPECIAL: CLASS OF 2026

CONGRATULATIONS TO OUR 2026 CHEMICAL ENGINEERING GRADUATES!



DIPLOMA IN CHEMICAL ENGINEERING - BATCH OF SUMMER 2026



B.E. IN CHEMICAL ENGINEERING - BATCH OF SUMMER 2026



M.E. IN CHEMICAL ENGINEERING - BATCH OF SUMMER 2026

WISHING EVERY STUDENT A BRIGHT FUTURE!