



AISSMS
COLLEGE OF ENGINEERING

ज्ञानम् सकलजनहिताय
Accredited by NAAC with "A+" Grade



CHEMIXIR NEWSLETTER

Principal: Dr. D. S. Bormane

July 2025 to Dec 2025

Head of Dept: Dr. A V Mohod

Month of Release: Jan 2026

Department Vision:

To be a leader in Chemical Engineering education providing service to society

Department Mission:

1. To prepare graduates for **responsible positions** in chemical industry, academia and research
2. To prepare graduates to **analyze and solve problems** of chemical industry, academia and research
3. To strengthen industry-institute interaction to develop **industry oriented attributes** like attitude, soft skills, team work and leadership

Program Educational Objectives (PEOs)

1. **Competency:** To prepare competent graduates in Chemical Engineering so that they are successful in their professional career in industry, academia or research
2. **Problem Solving Skills:** To prepare graduates who can identify, analyze, research and solve Chemical Engineering problems of practical importance to industry, academia or research
3. **Leadership Skills:** To prepare graduates with effective communication, teamwork and leadership skills so that they can play effective role in industry, academia and research institutes.

Program Specific Outcomes (PSO)

Chemical Engineering graduates will be able to

1. Identify, analyze, design and develop solutions to Chemical Engineering problems of practical importance to industry and society.
2. Demonstrate sound understanding of Chemical engineering fundamentals to solve problems through the use of modern experimental methods, computer aided design and simulation software



Dr. D S Bormane

From Principal's Desk...

It is a matter of great pride and satisfaction for AISSMS COLLEGE OF ENGINEERING to bring out the News Letter 'CHEMIXIR' Released from the Department of Chemical Engineering. The College has made tremendous progress in all areas of academic, non-academic, and capacity-building relevant to staff and students. I am confident that this issue of the Department News Letter will send a positive signal to the staff, students and the person who are interested in Technical education and Technology based activities. A News Letter is like a mirror that reflects the clear picture of all sorts of activities undertaken by a Department and develops writing skills among students in particular and teaching faculty in general my heartfelt Congratulations to staff members and Students for their fruitful effort. With Best Wishes.



Dr A V Mohod

From HOD's Desk...

Department of Chemical Engineering was established in the year 1996, with an intake capacity of 40 students for UG which was increased to 60 students in 1997. The PG program was started in 2011 with an intake of 18 students. The Department has well-qualified and experienced faculty with an average experience of 8-10 years. Faculty is also involved in research & professional activities inside & outside the campus. They are encouraged to upgrade their knowledge and qualifications. The department was successful in giving consistently good academic results in the last three years and motivating the students to be involved in extracurricular and co-curricular activities like paper presentations and project competitions leading towards all-around development of our students. The Department has well-equipped laboratories with sophisticated equipment. We have organized many workshops and seminars for the students and staff.

From the Editor's Desk....

It gives us great pleasure to hand over to you "CHEMIXIR" the newsletter of the Chemical Engineering department. The department has 18 staff members and more than 180 students. All of us are involved in number of activities and working for development of the department. The Newsletter is a common platform to showcase the talents of the department. It also provides for showcasing of achievements and efforts taken by one and all which contribute towards department strengths. It is our attempt to get maximum contribution from staff and students to come together and interact through this newsletter. We try to pick the moments of guest lectures conducted by department, various industry visits carried out, competitions organized, achievements and participation by students and staff. We hope this newsletter will help in its own way to achieve our goal & realize our vision progressively. Hope you will find this newsletter informative. Your suggestions for improvement in the newsletter are welcome.

Chemixir, Chemical Department Newsletter

Editorial Board

Published at: Department of Chemical Engg, All India Shri Shivaji Memorial Society's
College Of Engineering, Pune - 411001



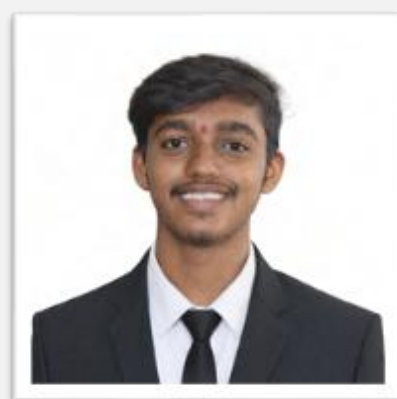
Prof. P.S. Tadkar



Ms. Priyanka Santosh Auti



Mr. Londhe Vishwajeet Vijay



Mr. Adarsh Laxman Birje

1. Teacher's Day Celebration

Teacher's Day was celebrated on 04/09/2025 under the coordination of Dr. S. Sharma and Dr. M. B. Mane (IIC Coordinators), along with Mrs. K. N. Bawankar (IICChE Coordinator). A special peer teaching activity was conducted, where final-year students taught third-year students, and third-year students taught second-year students. A total of 13 students from TE and BE participated in the activity.



2. Dr A. P. J. Abdul Kalam's Birth Anniversary

Dr. A. P. J. Abdul Kalam's birth anniversary was celebrated on 10/10/2025, organized by Dr. S. Sharma and Dr. M. B. Mane (IIC Coordinators), along with Mrs. K. N. Bawankar (IICChE Coordinator). The session included talks by Dr. S. Sharma and Dr. M. B. Mane. A total of 20 students from SE, TE, and BE attended the session.



3. ET(Engineering Today)2025

FlowQuest was conducted on 29/09/2025 and 30/09/2025. The event was coordinated by Dr. S. Sharma (Event Coordinator) and Mrs. K. N. Bawankar (ET Coordinator). Dr. S. Sharma, Assistant Professor at AISSMSCOE, Pune, served as the judge. A total of 77 participants from various departments of AISSMSCOE, Pune and other colleges attended the event



4. Engineers' Day celebration

Engineers' Day celebration in the form of a seminar competition was held on 17/09/2025. It was organized by Dr. M. B. Mane and Dr. S. Sharma (IIC Coordinators), along with Mrs. K. N. Bawankar (IChE Coordinator). The judges were Dr. M. Y. Naniwadekar (Associate Professor), Dr. S. B. Ghugare (Assistant Professor), and Dr. S. R. Varade (Assistant Professor), all from AISSMSCOE, Pune. A total of 11 groups from SE, TE, and BE Chemical Engineering participated in the competition.

TOTAL FUNCTIONAL / LIVE MOU INITIATED BY THE DEPARTMENT

Sl.No.	Name of the collaborating agency / institution / industry / corporate house with whom the MoU / collaboration / linkage is made	Year of signing MoU / collaboration / linkage	Duration of MoU / collaboration / linkage	Actual activities under each MOU
1	Super Aqua Services, Pune	14-08-2023	3 years	Placement and Internship in WTP and STP
2	Celestial Institute of Technology, Pune	08-06-2023	3 years	Interaction regarding Waste water treatment
3	Deccan Environmental Consultants Pvt Ltd Pune	11-05-2022	1 year	Internship , Expert lectures
4	Appttrain Systems, (Corporate Trainers) Vadodara (Gujarat)	11-05-2022	2 years	Expert Lectures, Assistance for Placement and Internship
5	Chemtrol Industries, Gujarat	11-05-2022	1 year	Placement and Internship
6	Bureau of Indian Standards, Pune Branch Office	04-05-2022	2 years	Acivities under 'Standards' Club
7	SARBI Petroleum and Chemicals Pvt Ltd. Mumbai	23-03-2022	2 years	Expert Lectures
8	TKT Consultant , Pune	23-01-2022	1 year	Expert Lectures, MOU
9	Reva Process Technology, Baner, Pune	19-01-2021	10 years	Expert Lectures, MOU
10	Techpert Process Industries, Wakad, Pune	09-01-2020	2 years	Placement, MOU and Industrial Training to students
11	Fluid Technics, Kothrud, Pune	01-01-2020	2 years	Placement, MOU
12	Marcuras Water Treatment India Pvt. Ltd., MIDC, Bhosari, Pune	30-12-2019	2 years	Placement, Industrial Training to students, MOU and Industrial Visit
13	Synergy Process Systems, Baner, Pune	30-12-2019	2 years	Placement, Expert Lectures, Resource Person, Industrial Training to Students and Faculty

				Members, MOU, Industry Institute Interaction Program and Short Term Course proposal
14	Indian Biodiesel Corporation, Baramati, Dist. Pune	11-10-2016	10 years	Project work, Internship

Expert Lectures Organized: AY 2025-2026 (Term -I)

To bridge the gap between industry and academia and to ensure that students stay informed about current trends and practices in the industry, we organize expert lectures every term of the academic year. The list of guest lectures organized during Term I of the academic year 2025–26 is as follows:

Sr.	Topic	Name of Expert	Date	Faculty Coordinator
1	100 % Scholarship for Study Abroad	Mr Subhash Pol	06/08/2025	Prof P S Tadkar
2	Industrial Waste Water Treatment	Dr Pankaj N Patil	12/10/2025	Prof P S Tadkar
3	Project Management	Mr Vivek Gadre	17/10/2025	Prof P S Tadkar
4	Process Safety Education	Mr. Ajay Patil	02/11/2025	Mrs K N Bawankar
5.	Industrial Effluent and Wastewater Management	Mr Shripad Kulkarni		Dr M B Mane Dr A S Jadhav
6	Marketing Management of Banking Products	Mr. Kenneth Thomas	13/09/2025	Dr A S Jadhav
7	Process Control Concepts in Chemical Industry	Mr. Kirat Raval	04/11/2025	Dr. S B Ghugare
8	Career Opportunities and Counselling for Chemical Engineers	Mr Shubham Shinde	15/07/2025	Dr M Y Naniwadekar
9	Opportunities for Indian students in France for higher education	Mr.Phillipe Maurin, Mr.Rini Abraham	06/10/2025	Dr. S. R. Varade

List of Social Visits organized during A. Y. (2025-26)

Sr. No.	Name of the Social Visit	Faculty Coordinator	Class (No. of Students)	Date
1.	Ghar Sant Ishwar Foundation	Asst. Prof. H. L. Kamble Asst. Prof. P. S. Tadkar	SE, TE, BE, Chemica (30)	02/11/2025

1. Ghar Sant Ishwar Foundation



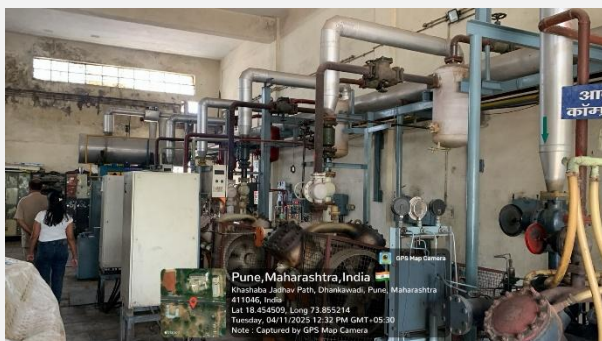
List of Industrial Visits organized during A. Y. (2025-26)

Sr.no	Name Of the Industry	Faculty Coordinator	Class (No. Of Students)	Date
1.	Exhibition on wastewater treatment at IFAT-2025, Mumbai	Dr. A V Mohod	SE, TE, BE, Chemical	15/10/2025
2.	Katraj Dairy, Pune	Mrs. K. N. Bawankar	TE Chemical	04.11.2025
3.	Sudarshan Chemicals Ltd Pune	Dr. A S Jadhav	TE Chemical	05/11/2025

1. Exhibition on wastewater treatment at IFAT-2025, Mumbai



2. Katraj Dairy, Pune



Achievements of this year:

Faculty

Awards/Recognition:

1. Dr. A V Mohod completed his second Post-Doctoral Research at CNR STIIMA, Italy in 2025-26.
2. Dr. A V Mohod Crosses 1247 total citations which is highest in the college, 16 h-index and 24 i-10 indexes.
3. Prof P S Tadkar completed the International Engineering Educator Certification Programme (IIEECP), Spring 2025, conducted by the IUCEE Foundation, enhancing his pedagogical and engineering education competencies.

Staff Achievements:

1. Mr. P M Warke, Dr. A V Mohod, Dr. M Y Naniwadekar and Dr. M B Mane got a Rs. 25 Lakh consultancy from ATE Huber Germany for treatment of industrial effluent
2. Dr. S B Ghugare was invited as Resource Person as evaluator for Seminar Competition on Occasion of Engineers' Day 2025 Event on 17 September 2025, by the Department of Chemical Engineering, AISSMSCOE, Pune
3. Dr. S B Ghugare completed the Invited Review of the research paper "Exergoeconomic and environmental impact assessment of a green residential building with solar chimney and evaporative cooling tower for sustainable space cooling and air ventilation" for the journal "Energy Conversion and Management: X" of Elsevier submitted on 16 July 2025.
4. Dr. S sharma Successfully completed CEEE – Certificate of Excellence in Engineering Education Program 2025 conducted in association with INAE (Indian National Academy of Engineering) as part of a faculty/teacher training initiative, offline: at IIT Bombay from –27 June 2025; Online: 15 Nov–5 Dec 2025 and awarded a ₹50,000 fellowship.

Research Publications

1. M V Bagal, B A Nandgawle, R V Thosar, A V Mohod, P R Gogate, Degradation of pesticides using hybrid processes based on cavitation and photocatalysis: A Review, Environmental Quality Management 33(4)(2024)459-486 (ISSN 1520-6483) (I.F-0.262) <https://doi.org/10.1002/tqem.22097> (Scopus)
2. A V Mohod, D Clemente, N Klanovicz, P Moreira, M Bagal, A Teixeira, R Giudici, Quantification of phenol degradation using hydrodynamic cavitation based packed bed reactor based on glass balls, Environmental quality management, 34(1) (2024) e22268) (ISSN 1520-6483) (I.F-0.262) <https://doi.org/10.1002/tqem.22268> (Scopus)
3. M Bagal, B Nandgawle, S Khalfay, R Thosar, A V Mohod, P R Gogate, Doehlert matrix-based optimization of degradation of Rhodamine B in a swirling flow photocatalytic reactor operated in circulation mode, Brazilian Journal of Chemical Engineering, (2024)1-12, (ISSN 0104-6632) (IF 1.5) <https://doi.org/10.1007/s43153-024-00505-4> (SCI, Scopus)
4. MV Bagal, V Rajan, S Shinde, BV Banerjee, V Gole, A V Mohod, Degradation of azo dyes using hydrodynamic cavitation and external oxidants, Advances in Environmental Technology 10 (1)(2024) 55-69, (ISSN 17443563) (IF 0.30) 10.22104/aet.2024.6092.1679 (Scopus)

5. M Bagal, V Mane, H Ambulkar, B Gawande, M Naniwadekar, K Bawankar, P Dange, A V Mohod, P Gogate, Degradation of rhodamine dye using a modified flow photocatalytic reactor in the presence of external oxidants, *The Canadian J of Chemical Engg*, 103 (7)(2025) 3058-3070, (ISSN 1939-019X) <https://doi.org/10.1002/cjce.25576> (IF 1.9) (SCI, WOS, Scopus)
6. Alessia Di Pasquale, Marina Zoccola, Ashish Mohod, Giulia Dalla Fontana, Anastasia Anceschi, Sara Dalle Vacche, From Waste to Technological Products: Bioplastics Production from Proteins Extracted from the Black Soldier Fly, 17(11) (2025)1582 (ISSN 2073-4360) 10.3390/polym17111582 (IF 4.9) (SCI, WOS, Scopus)
7. T Thakare, AV Mohod, PR Gogate, Ultrasound-assisted cooling crystallization of edaravone for improving the crystal characteristics, *The Canadian Journal of Chemical Engineering*, 104 (4) (2025) 1935-1949 <https://doi.org/10.1002/cjce.70110>
8. M Bagal, N Bokhale, P Gaddekar, B Banerjee, B Ramos, A Mohod, A Systematic Production of Medium-Chain Triglycerides Using Conventional and Advanced Methods, *Journal of The Institution of Engineers (India): Series E* 106 (2), 265-276.
9. Ashish V Mohod, Matteo Aniello, Marina Zoccola, Giulia Dalla Fontana, Parag Bhavsar, Sara Dalle Vacche, Sustainability in the Textile Sector: Wool Dyeing with Protein Hydrolysate from Black Soldier Fly, *Textiles* 6(1)(2026)29. <https://doi.org/10.3390/textiles6010029>
10. AV Mohod, P Bhavsar, L Gasco, N Scotti, N Ravasio, M Zoccola, *Hermetia illucens* biofactory: from waste to high-value technological products: a review, *Total Environment Engineering*, 6(2026)100071. <https://doi.org/10.1016/j.teengi.2026.100071>
11. Dr A S Jadhav published a paper on “Study of mono (2-ethylhexyl) phthalate as plasticizer” in *Eco. Env. & Cons.* 31 (4) : 2025; pp. (1699-1703) Copyright@ EM International Journal Index –WEB OF SCIENCE
12. Dr A S Jadhav published a paper on “SYNTHESIS OF EPDM COCONUT LEAVES ACTIVATED CARBON COMPOSITE “Vol.31, July Suppl Issue, 2025 S326-S335 Copyright@ EM International. Journal Index –WEB OF SCIENCE
13. Dr A S Jadhav published a paper on “Course Outcome: A Novel Model for Framing, Mapping, Assessment and Evaluation” in Volume 15 Issue 4 2026 in *Meerayan Journal Index –UGC Care*
14. Dr A S Jadhav published a paper on “Sources and Impacts of Greenhouse Gas Emissions in the Chemical Industry and Pathways Toward Sustainability” in *Gongcheng Kexue Xuebao* || Volume 11, No.04, 2026 || ISSN 2095-9389
15. Dr A S Jadhav published a paper on “Effective Teaching and Learning Practices: Strategies for Academic Success and Student Engagement” in *MEERAYAN Journal* published on 30 May 2025 in Vol 25, Issue 5, 2025- Index : UGC Care
16. Dr M Y Naniwadekar published a paper on- A comprehensive study of performance metrics and potato dehydration at various slice thickness using an IoT-based indirect solar dryer: An experimental approach, *Solar Energy*, Volume 288, 2025, ISSN 0038-092X(Science Direct)
17. Dr M Y Naniwadekar published the paper on Pharmaceutical Wastewater treatment by Advanced Oxidation Processes, *Journal of Technology*, Vol 13, Issue 6, 2025.
18. S Sharma “Development of cashew nutshell-based composite material and heat-absorber panel: a comprehensive review” in *Bulgarian Chemical Communications*, Volume 57, Special Issue B (pp. 260-273) June 2025 DOI: 10.34049/bcc.57.B.A0033.

Financial Support

1. Mr. P M Warke, Dr. A V Mohod, Dr. M Y Naniwadekar and Dr. M B Mane got a Rs. 25 Lakh consultancy from ATE Huber Germany for treatment of industrial effluent

Faculty Development Programme

1. Dr A S Jadhav successfully completed FDP of D Y Patil International University on “Application of Computational Techniques in Process and Manufacturing Industries “dated 15th-19th Dec 2025
2. Dr M Y Naniwadekar attended the ATAL FDP program on - Integrating Synergism among Chemical Processes and Technologies for Sustainable Development at Sardar Vallabhbhai National Institute of Technology, Surat from 10/02/2025 to 15/02/2025.
3. Dr M Y Naniwadekar attended the ATAL FDP program on – AI in Action: Transforming Healthcare and Education, Organized by SGGS Nanded from 08/09/2025 to 13/09/2025.
4. Mr. P M Warke attended the FDP on Applications of computational techniques in process and manufacturing industries at D Y Patil International universities, Pune from 15-19 Dec 2025.
5. Prof K B Gandhi attended FDP “Interdisciplinary Manufacturing Process Advances and Characteristics Technique” organized by the Department Mechanical Engineering, JCER, Belagavi from 22/07/2025 to 26/07/2025
6. Dr. S B Ghugare attended FDP on Interdisciplinary Manufacturing Process Advances and Characterization Techniques on 22-26/07/ 2025 (One Week) organized by Jain College of Engineering and Research, Udyambag, Belgavi
7. Mrs. K N Bawankar attended FDP on Energy Transition: Pathways to net zero emission from 18-22 July 2025 organized by Heritage institute of Technology, Kolkata.
8. Mrs. K N Bawankar attended a FDP on Universal Human Values-Curriculum Delivery and Evaluation on 11Aug 2025 organized by India College of Engg and Management in association with SPPU.
9. Mr P S Tadkar attended AICTE ATAL FDP on Emerging Sustainable Practices in Chemical Engineering organized by Datta Meghe College of Engineering, Navi Mumbai from 06/10/2025 to 11/10/2025
10. Mr P S Tadkar attended AICTE ATAL FDP on Hydrogen Energy System Clean and Green Future Avanthi Institute of Engineering and Technology from 13/10/2025 to 18/10/2025
11. Mr P S Tadkar attended FDP on Digital Marketing organized by Dayananda Sagar University, Bangalore in association with ExcelR Edtech Pvt. Ltd., from 22/09/2025 to 26/09/2025

Online Courses

1. Mrs. K N Bawankar attended webinar on Carbon di oxide capture, utilization and storage current status, challenges and future prospects from 17-18 Oct 2025 organized by IICHe Amravati Regional centre, Guntur
2. Dr. Sharma Got Elite in NPTEL course “Nanotechnology in Chemical Engineering” (8 weeks).

Industrial Training / MOU/STTP

1. Dr. S B Ghugare was invited as Resource Person as evaluator for Seminar Competition on Occasion of Engineers' Day 2025 Event on 17 September 2025, by the Department of Chemical Engineering, AISSMSCOE, Pune

Students Achievements

Sr. No.	Name of Student/Students	Event Name	Event Organised by	Prize/Rank /Achievement
1.	Samruddhi Suryavanshi	Wenyan Scholarship	BASF Chemicals India Pvt. Ltd.	Letter and Award Money
2.	Samruddhi Suryavanshi	Summer Internship 2025	IIT Indore	Certificate
3.	Samruddhi Suryavanshi	MNIT Institute Internship Program 2025	MALVIYA NIT Jaipur	Certificate
4.	Aarya Kulkarni	2 (MAH) AIR SQUARDMAN NCC NAGPUR	HQMC Nagpur	Certificate
5.	Pushkar Ladkat	Inter Collegiate Best Physique Competition	SPPU Pune city zonal	Gold Medal and Certificate
6.	Kaduskar Sfurti	IICHE Chemcon 2025	IICHE, Annamalai Tamil Nadu, India	Delivered Oral Presentation On Paper
7.	Ingale Yogeshwar	IICHE Chemcon 2025	IICHE, Annamalai Tamil Nadu, India	Delivered Oral Presentation On Paper
8.	Adarsh Birje	IICHE Chemcon 2025	IICHE, Annamalai Tamil Nadu, India	Delivered Oral Presentation On Paper
9.	Vishwajeet Londhe	IICHE Chemcon 2025	IICHE, Annamalai Tamil Nadu, India	Delivered Oral Presentation On Paper
10.	Priyanka Auti	IICHE Chemcon 2025	IICHE, Annamalai Tamil Nadu, India	Delivered Oral Presentation On Paper

11.	Desale Siddhi	IICHE Chemcon 2025	IICHE, Annamalai Tamil Nadu, India	Delivered Oral Presentation On Paper
12.	Rutuja Bachute	IICHE Chemcon 2025	IICHE, Annamalai Tamil Nadu, India	Delivered Oral Presentation On Paper
13.	Deep More	IICHE Chemcon 2025	IICHE, Annamalai Tamil Nadu, India	Delivered Oral Presentation On Paper
14.	Sneha Karande	IICHE Chemcon 2025	IICHE, Annamalai Tamil Nadu, India	Delivered Oral Presentation On Paper
15.	Vaishnavi Chakor	IICHE Chemcon 2025	IICHE, Annamalai Tamil Nadu, India	Delivered Oral Presentation On Paper
16.	Dnyaneshwari Bhor	IICHE Chemcon 2025	IICHE, Annamalai Tamil Nadu, India	Delivered Oral Presentation On Paper
17.	Mahii Agarwal	IICHE Chemcon 2025	IICHE, Annamalai Tamil Nadu, India	Delivered Oral Presentation On Paper
18.	Om Pathak	IICHE Chemcon 2025	IICHE, Annamalai Tamil Nadu, India	Delivered Oral Presentation On Paper
19.	Ms Samruddhi Suryawanshi			Got funding of Rs. 10000 per month for three months from Wenyan Fellowship for execution of the project Development and Characterization of Bioplastic from BSF Protein and Biopolymer for Sustainable Applications

20.	Ms. Samruddhi Suryawanshi	Summer Internship Program	IIT,Indore	Certificate
21.	Mr.Sushant Kishor Mache	Engineerings' Day Seminar	Department of Chemical Enginerring at AIISMS College of Engineering	Secured Third Prize

Program Outcomes (PO)

Engineering Graduates will be able to:

- **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary setting

- **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.