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Mechanical Engineering Department's Official Newsletter

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Mechanical Engineering Association

Department of Mechanical Engineering

KUMARAGURU COLLEGE OF TECHNOLOGY

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Mr. T. K. Sri Yashwanth

Mr. N. S. Barath

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From the Editors...

Dear Readers,

With great pleasure, we present this issue of our departmental newsletter, celebrating the academic and professional achievements of our faculty and students. This edition highlights the collective efforts that drive our department's pursuit of excellence in teaching, research, and outreach.

Our faculty continue to make significant contributions through paper presentations and publications, showcasing their research on esteemed platforms. Their role as manuscript reviewers reflects their expertise and commitment to upholding academic standards. Serving as resource persons, they have shared their knowledge in various forums, further strengthening our academic impact. Their active participation in programs and conferences reinforces our engagement with the broader academic and industry communities.

The department's outreach programs play a vital role in fostering societal impact, bridging the gap between academia and the community. Our students have also excelled in various activities, demonstrating their talent, enthusiasm, and commitment to holistic learning.

We extend my sincere gratitude to everyone who contributed to this issue, making it a true reflection of our collective efforts. Your support and dedication continue to inspire, and we look forward to many more milestones ahead.

Warm regards,

Editors....

PAPERS PRESENTED

Dr. V. Manivel Muralidaran, Assistant Professor – III, and **Dr. M. A. Vinayaga Moorthi,** Assistant Professor – III, presented their paper entitled "Comparative study of high-speed steel and carbide tool in drilling process on Aluminium Alloy 6061 using relational Approach" in the International Conference in Advancements, Innovations and Automation for Sustainability - 2024 organized by O.P. Jindal University, Raigarh, C.G. India conducted during 19-12-2024 and 20-12-2024.

PAPERS PUBLISHED

Dr. V. Manivel Muralidaran, Assistant Professor – III, published his paper "Assessing the impact of electric vehicle charging on power procurement costs: Implications for India's energy utilities" in the Tuijin jishu Journal of propulsion technology, a Scopus indexed journal.

Dr. P. S. Samuel Ratna Kumar, Assistant Professor – III, published his papers entitled "Aluminium air batteries for sustainable environment: A review" and "Investigation of Surface Erosion Characteristics of AA7075–Nano-hybrid Surface Composite using COVI Gene Algorithm" in the Journal of Alloys and Compounds Communications and in the Journal of Bio- and Tribo-Corrosion, respectively. Both are Scopus indexed journals.

Dr. A. P. Arun, Assistant Professor – III, published his paper entitled "Pure α-MnO2 and Ag decorated α-MnO2 nanorods for photocatalytic activity" in the Journal of Molecular Structure, a Scopus indexed journal.

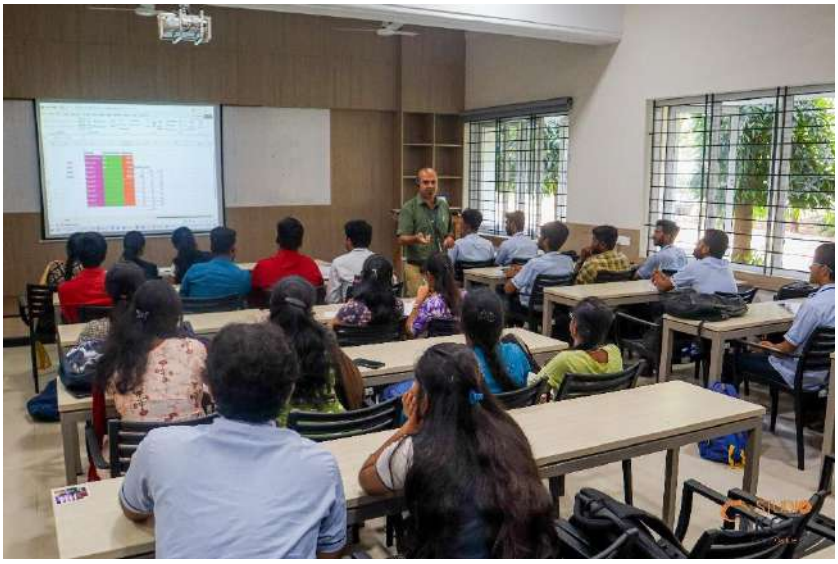
MANUSCRIPTS REVIEWED

Dr. B. N. Sreeharan, Assistant Professor – III, reviewed a manuscript titled "Process parameters settings of regulated metal deposition welding using multi-criteria optimisation for low alloy steel" for the Discover Applied Sciences Journal from Springer Nature.

OUTREACH PROGRAMME

Dr. S. Ramanathan, Assistant Professor – III, is with P.K. Fokam Institute of Excellence, Cameroon as a part of outreach programme. He interacted with the Secretary, Head of the Department of Computer Science Engineering and Faculty Members, discussed about the development of Laboratory with the Head/Laboratory in the Department of Mechanical Engineering, demonstrated the experiment in the Engineering Statics Laboratory of Department of Mechanical Engineering, discussed with the Secretary regarding teaching learning process of the two courses, explained the Syllabus, Course outcomes and Program outcomes of the course "Engineering Thermodynamics" and "Engineering Dynamics" to the Secretary and all the faculty members, interacted with the Head of the laboratory, Department of Mechanical Engineering to establish a research laboratory on heat transfer and fluid flow, interacted with the Secretary, Head of the Department of Mechanical Engineering and Faculty Members regarding finalizing the course timetable, discussed the basics of engineering dynamics with students and faculty members of Department of Mechanical Engineering, discussed the basics of engineering thermo dynamics with students and faculty members of Department of Mechanical Engineering, explained the Syllabus, Course outcomes and Program outcomes of the course to the students of "Engineering Dynamics" Department of Mechanical Engineering, interacted with the Secretary and Rector regarding the courses being handled and development of laboratory in the Department of Mechanical Engineering

FACULTY AS RESOURCE PERSON



Dr. B. N. Sreeharan, Assistant Professor – III, delivered a two-hour guest lecture on 27-01-2025 titled "Write Right", aimed at empowering students to transform their ideas into impactful research papers. The guest lecture was organized by KCT - IEEE Forum in collaboration with the Robotics and Automation Society.

PROGRAMMES PARTICIPATED

Dr. M. A. Vinayaga Moorthi, Assistant Professor - III, participated in an FDP on Advanced and Sustainable Manufacturing Technology from 06-01-2025 to 10-01-2025, organized by O.P. Jindal University, Raigarh, C.G. India. He also completed an online course on AI Bootcamp – for Marketing on 16-01-2025 organized by Infosys Limited.

Mr. P. D. Devan, Assistant Professor - II, participated in an FDP on Advanced Materials Processing, Characterization and Optimization Techniques from 06-01-2025 to 11-01-2025, organized by NIST University.

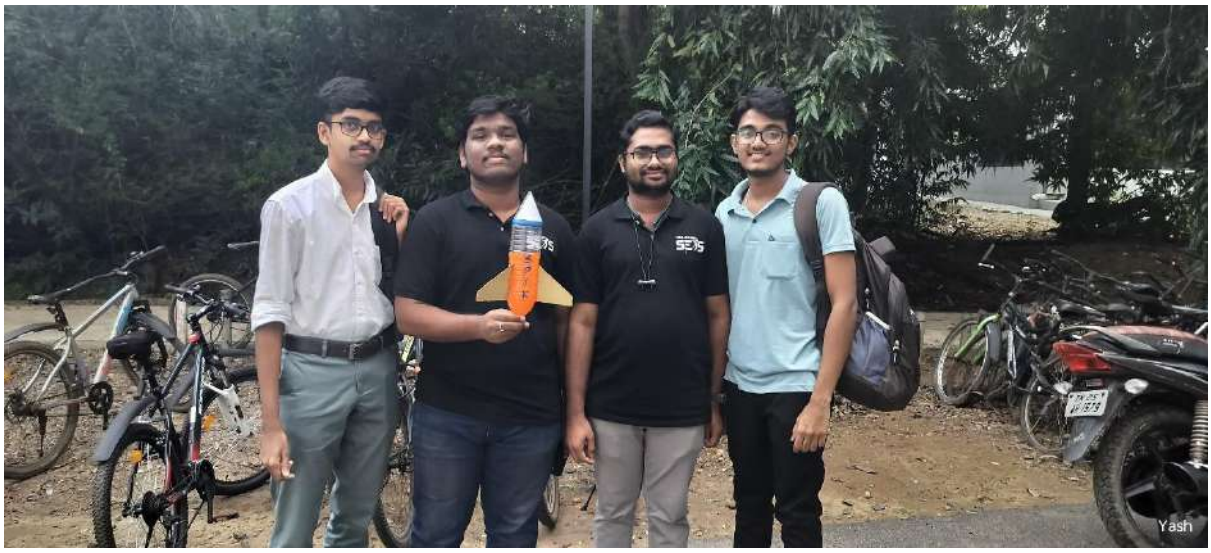
Dr. M. Thirumalai Muthukumaran, Assistant Professor - III, participated in an FDP on Advanced and Sustainable Manufacturing Technology from 06-01-2025 to 10-01-2025, organized by O.P. Jindal University, Raigarh, C.G. India.

Dr. B. N. Sreeharan, Assistant Professor - III, completed an online course titled “Statistical Analysis in Microsoft Excel” on 20-01-2025 organized by Infosys and Springboard. He also completed another online course titled “Power BI for Excel Users - Work Smarter, Grow Faster” on 23-01-2025 organized by Udemy online platform.

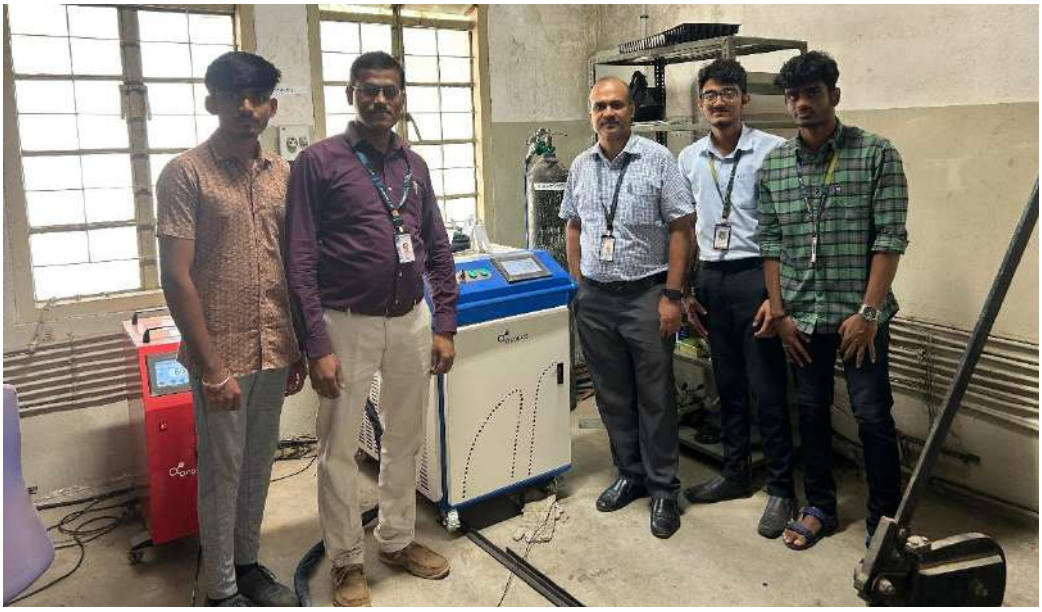
Dr. V. Manivel Muralidaran, Assistant Professor - III, participated in an FDP on “Innovations in Manufacturing: Bridging Academia and Industry 4.0 In a Virtual Environment” from 20-01-2025 to 25-01-2025, organized by St. Joseph's College of Engineering.

STUDENT ACTIVITIES

On January 18th, 2025, **Mr. T. K. Sri Yashwanth (23BME090)** from 2nd year Mechanical Engineering successfully participated in and completed a 1-day certified program on "Advanced Part Design and Assembly in SolidWorks", conducted by Skyy Skill Academy. This program provided hands-on experience in advanced CAD modeling and assembly techniques, enhancing his proficiency in SolidWorks.



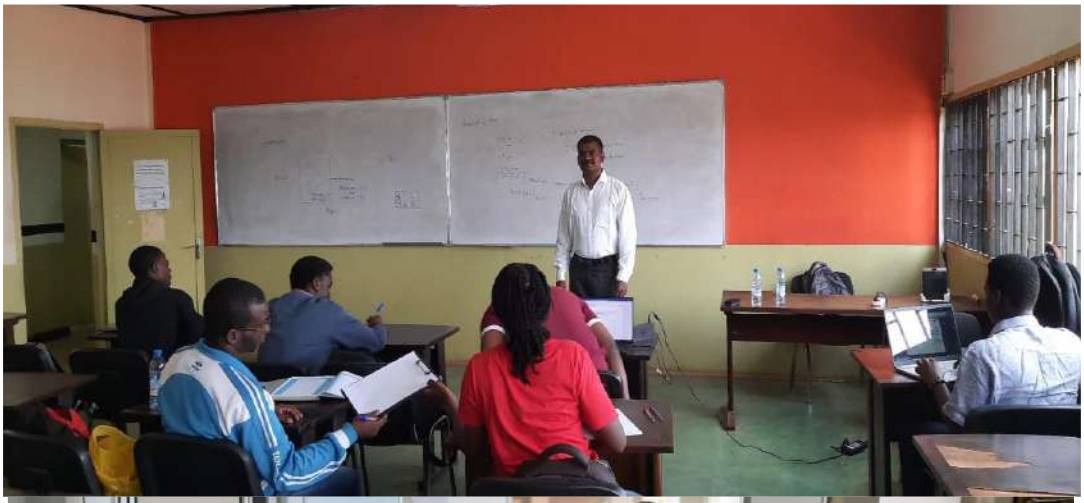
On January 5th, 2025, **Mr. R. V. Kavin (23BME045)** and **Mr. T. K. Sri Yashwanth (23BME090)** from the 2nd year Mechanical Engineering Department, along with **Mr. U. Suriya Prakash U (22BME114)** from the 3rd year Mechanical Engineering department, participated in the "Ignite the Future: Rocket Propulsion Workshop" at Shaastra, IIT Madras. During this insightful workshop, they gained valuable knowledge in rocket propulsion and space technology, working closely with experts and exploring advanced aerospace concepts.

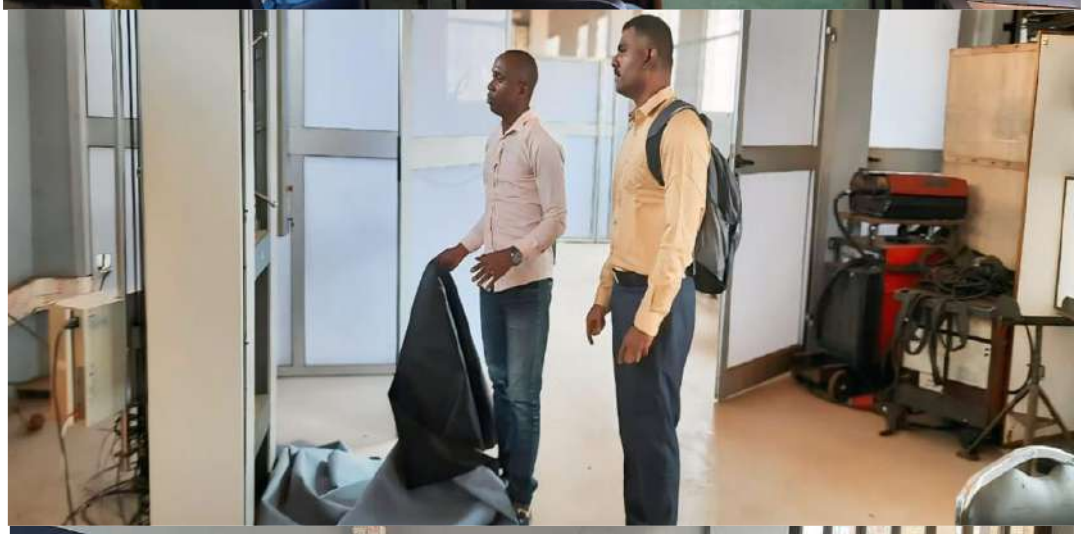


Under the guidance of Dr. V. Manivel Muralidaran, Assistant Professor – III and Dr. B. N. Sreeharan, Assistant Professor - III a team of 2nd year Mechanical Engineering students— **Mr. K. Praveen (23BME073), Mr. T. K. Sri Yashwanth (23BME090), Mr. N. S. Barath (23BME013),** and **Mr. G. Kishore (23BME048)** carried out an in-depth study on the latest laser welding machine.

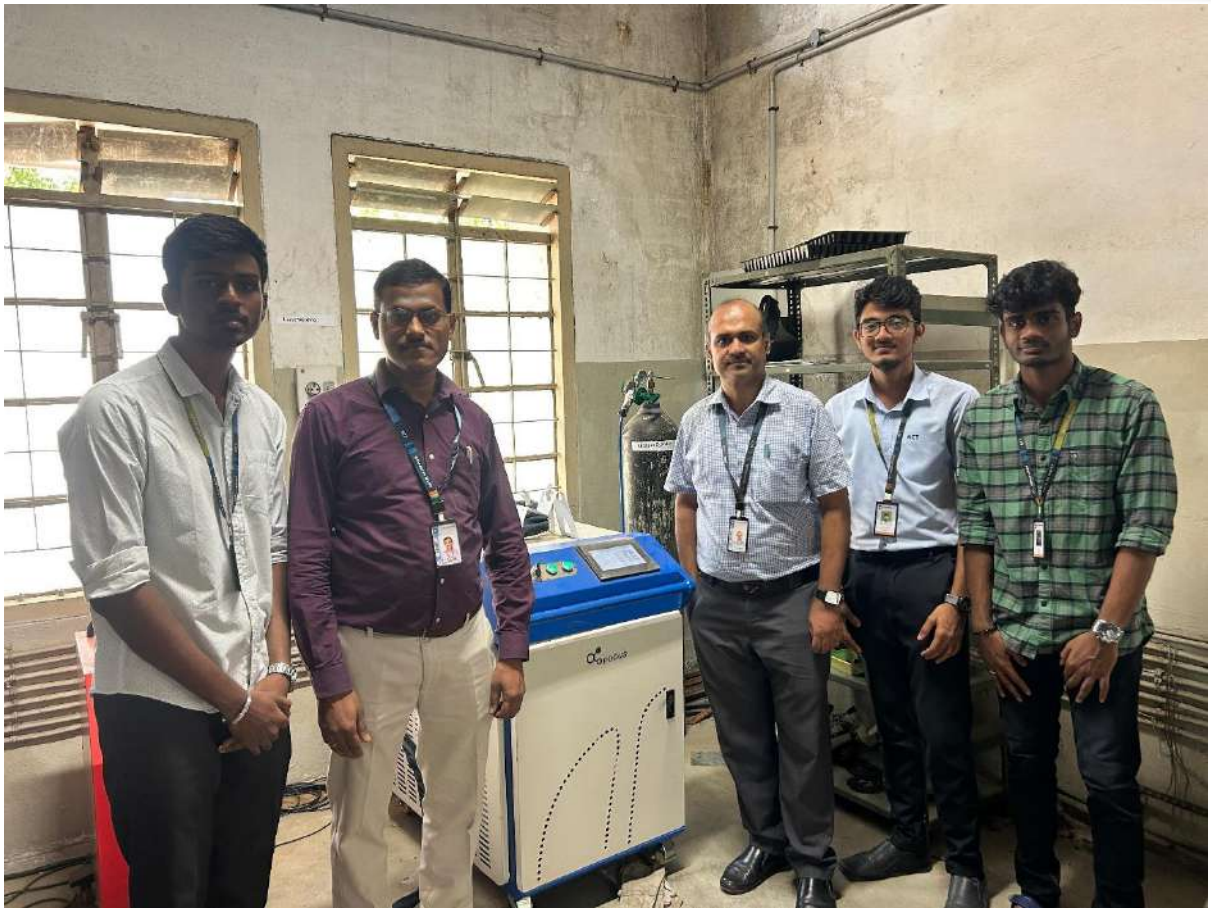
Mr. K. Praveen (23BME073), a 2nd year Mechanical Engineering student, secured the **1st position** in the Paper and Poster Presentation competition at Shaastra 2025, conducted by IIT Madras on January 5th, 2025. This prestigious competition provided a platform for students to showcase their research and technical expertise. Praveen's outstanding presentation and dedication distinguished him among the participants, demonstrating his commitment to innovation and academic excellence.

SNAP SHOTS

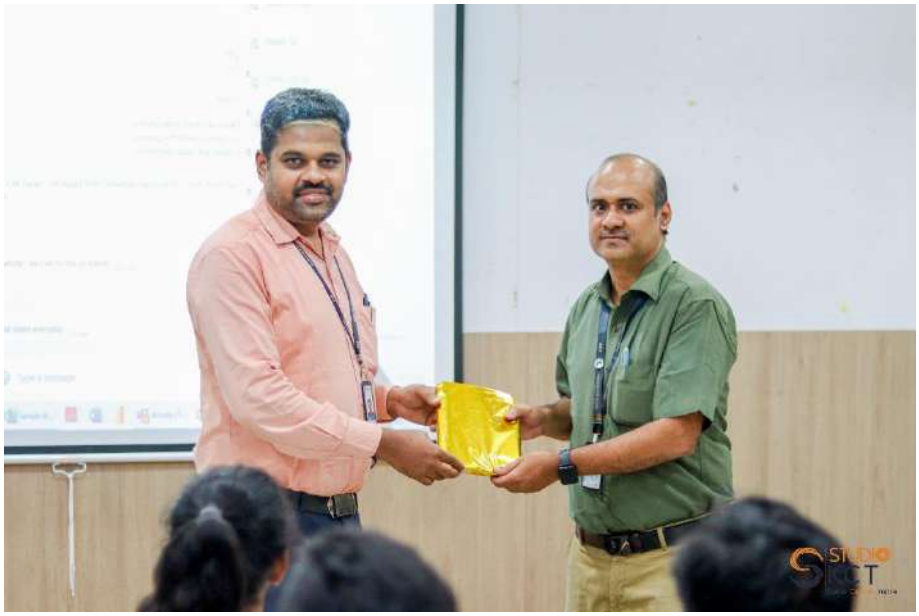




Dr. Ramanathan @ P.K. Fokam Institute of Excellence, Cameroon



2nd Year Students @ Welding Research Centre



Dr. Sreeharan as Guest Lecturer

KUMARAGURU college of technology

COIMBATORE – 641 049

Department of Mechanical Engineering

INSTITUTE VISION:

The vision of the college is to become a technical university of International Standards through continuous improvement.

INSTITUTE MISSION:

Kumaraguru College of Technology (KCT) is committed to providing quality Education and Training in Engineering and Technology to prepare students for life and work equipping them to contribute to the technological, economic, and social development of India. The College pursues excellence in providing training to develop a sense of professional responsibility, social and cultural awareness and set students on the path to leadership.

DEPARTMENT VISION:

To achieve global recognition for the programs of the department by promoting innovation, sustainability, and leadership, contributing to the society.

DEPARTMENT MISSION:

1. To promote innovation in the Mechanical Engineering through curriculum, focusing on sustainability and ethical practices.
2. To create an active learning ecosystem for acquiring knowledge and skills in Mechanical Engineering.
3. To facilitate research in mechanical systems and sustainable technologies that have an impact on industry and society.

B. E. MECHANICAL ENGINEERING

PROGRAM EDUCATIONAL OUTCOMES (PEO's):

PEO 1 : Graduates to pursue careers in Mechanical engineering and allied fields.
PEO 2 : Graduates to engage in the execution of multi-disciplinary engineering activities.
PEO 3 : Graduates to pursue professional development programs in Mechanical Engineering Science and Management.

PROGRAM OUTCOMES (PO's):

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Engineering tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
8. **Individual and teamwork:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
9. **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.
10. **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.
11. **Life-long learning:** Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSO's):

1. Apply the fundamentals of science and mathematics to solve complex problems in the field of design and thermal sciences.
2. Apply the concepts of production planning and industrial engineering techniques in the field of manufacturing engineering.

M. E. INDUSTRIAL ENGINEERING

PROGRAM EDUCATIONAL OBJECTIVES (PEO's):

PEO 1 : Graduates will be mid to higher level management / engineering professionals with responsibilities in engineering management, data analysis and business operations.

PEO 2 : Graduates will be engineering professionals, and technology leaders who would manage such functions as plant engineering, production, supply chain and quality management.

PEO3 : Graduates would function as educators or researchers in academic institutions.

PROGRAM OUTCOMES (PO's):

PO1 : An ability to independently carry out research /investigation and development work to solve practical problems.

PO2 : An ability to write and present a substantial technical report/document.

PO3 : Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.

PO4 : Apply knowledge and competencies in manufacturing, analytics, supply chain, quality and engineering management.

PO5 : Apply principles of industrial engineering to solve problems in industry.

PO6 : An ability to work as part of interdisciplinary teams, communicate effectively, model and design engineering systems optimally.