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Mechanical Engineering Department's Official Newsletter



KUMARAGURU COLLEGE OF TECHNOLOGY

Department of Mechanical Engineering

Mechanical Engineering Association

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EDITORS PORTFOLIO

From the Editors...

Dear Readers,

The department continues its forward stride in academic excellence, innovation, and industry engagement. This edition of our newsletter brings together the significant achievements and initiatives that highlight the collective efforts of our faculty, researchers, and students.

Our **Programmes Organized** during this period enriched student learning through exposure to modern technologies, entrepreneurial thinking, and expert industrial practices. Complementing this, our faculty members showcased their expertise as **Resource Persons** across institutions, accreditation activities, and international conferences—reflecting the department's academic leadership.

Research remains central to our identity. Faculty members actively contributed to global knowledge through **Paper Presentations**, **Journal Publications**, and **Book Chapter Publications** in reputed Scopus and Springer platforms. Several milestones—including the successful completion of a **Ph.D. Viva Voce**, the sanction of **Seed Money for a Research Initiative**, and the granting of a **Patent**—stand testimony to the vibrant research culture within the department.

Our connection with the industry strengthened further with multiple **Industry Linkages and Collaborative Engagements**, offering students and faculty meaningful exposure to manufacturing practices, automation, and operational excellence in leading companies.

Faculty upskilling through **FDPs, Webinars, Workshops, and Seminars** across emerging domains—Generative AI, advanced manufacturing, data literacy, and research management—ensured continuous professional growth.

We also take pride in launching the **ASME Student Chapter**, a milestone that will broaden our students' access to global technical communities and professional development pathways.

Our students shined through their participation in competitions, research events, and institutional activities—demonstrating enthusiasm, innovation, and leadership.

Together, these accomplishments reflect the department's unwavering commitment to nurturing knowledge, fostering innovation, and shaping responsible engineering professionals.

Warm regards,
Editors





DEPARTMENTAL ACTIVITIES

Programmes Organized

An **Entrepreneurial Awareness Session** titled **"Prototype to Profit Pathway"** was organized for the **2023–2027 and 2024–2028 batch Mechanical Engineering students**. The session was delivered by **Mr. Devakumar Nagarajan**, **Chief Executive Officer, Intero Pactec India Pvt. Ltd.**, and **President, Chinnavedampatti Industrial Association**. With **50 students** participating, the session provided valuable insights into transforming innovative prototypes into commercially viable products. Mr. Devakumar shared real-world entrepreneurial experiences, industry expectations, and strategic approaches to scaling engineering solutions into profitable ventures. And, they had interacted with the faculty members for the potential interactions between industries and institutions.



The event was effectively coordinated by **Dr. V. Muthukumaran**, Professor, **Dr. S. Balaji**, Assistant Professor – III, and **Mr. K. Manikanda Prasath**, Assistant Professor – II, ensuring a highly engaging and insightful experience for the students.







Faculty as Resource Persons

Faculty members continued to extend their expertise beyond the institution through various academic engagements:

- **Dr. C. Velmurugan**, Professor and **Mr. P. D. Devan,** Assistant Professor – II, served as **Resource Persons** for a **One-Day Visit and NBA Compliance Auditing** at **Sakthi Polytechnic College, Appakudal** on **30th December 2025**. Their contribution supported the institution in strengthening its accreditation readiness and academic quality standards.




- **Dr. M. Balaji,** Associate Professor, acted as a **Resource Person** for the **Institute-level IQAC activity on "Digitalization and Stock Verification"** for various laboratories across all departments at **KCT**. The programme was conducted from **21st to 28th January 2026**, enhancing the institution's digital workflow and inventory management processes.



- **Dr. S. Ramanathan,** Assistant Professor – III, contributed as a **Resource Person** at the **International Conference on Thermal Science and Sustainable Energy (ICTSE 2026)** held at the **National Institute of Technology (NIT), Warangal** on **23rd and 24th January 2026**. His participation highlighted the department's active engagement in global research discussions on sustainability and advanced thermal sciences.



Paper Presentation



Dr. S. Ramanathan, Assistant Professor III, presented his research paper at the **International Conference on Thermal Science and Sustainable Energy (ICTSE-2026)** organized by the **National Institute of Technology, Warangal** on **23rd and 24th January 2026**. His paper, titled **"Numerical Investigation of Heat Transfer in a 2D Sudden Expansion Channel with Partially Heated Bottom Wall,"** explored advanced computational approaches to analyze heat transfer characteristics in complex flow domains. This international-level presentation highlights the department's strong contributions to cutting-edge research in thermal engineering and sustainable energy systems.

Paper Publications

Faculty members have contributed significantly to high-quality research through reputable Scopus-indexed journals. These publications reflect the department's strong research culture and its focus on advancing materials engineering, robotics, and high-temperature applications.



Dr. P. S. Samuel Ratna Kumar, HoD, published the article titled *"High-entropy alloy CoCrFeMnNi weld overlay for additive manufactured IN718: a microstructural and molten-salt corrosion study for concentrated solar power plant applications"* in **Springer Nature**. This study, explores advanced alloy coatings for high-temperature solar power applications. **DOI:** https://doi.org/10.1007/s00339-025-09239-7

Dr. Samuel Ratna Kumar also published another article titled *"Investigation on Dynamic Performance of Aluminium–Steel Composite Foam based Redundant SCARA Robot"* in the **Nigerian Journal of Technological Development (Scopus Indexed)**. This study explores dynamic performance enhancements in robotic systems using composite structures.



Dr. S. Rajesh, Assistant Professor – II, published two research articles in **Materials Science Forum (Scopus Indexed)**:

- *"Experimental investigation on mechanical properties and characteristics of jute and hemp fiber composites manufactured by fusion deposition modelling"*
- *"Advancements in aluminium matrix composites: Applications and future trends in the automotive industry"*

These works contribute to sustainable composite materials and automotive innovation.

Book Chapter Publications

Faculty members have made noteworthy scholarly contributions through book chapter publications with reputed international publishers:



Dr. P. S. Samuel Ratna Kumar, HoD, published a book chapter titled **"Experimental Investigation on Mechanical Properties of Nitrile Rubber Coated Nylon 6,6 for Marine Robot Applications"** in the book **Aerospace and Robotics**, published by **Springer Nature**. *Pages:* 703–714, *ISBN:* 978-0135157336

- **Dr. V. Manivel Muralidaran,** Assistant Professor – III, **Dr. S. Thirumurugaveerakumar,** Associate Professor, **and Dr. S. Ramanathan,** Assistant Professor – III, jointly authored a book chapter titled **"Microstructure and Mechanical Properties of High Entropy Alloy (Al, Cr, Fe, Ni, Mn) Fabricated by Sintering and Vacuum Arc Melting"** in the **Proceedings of the 6th International Conference on Processing and Characterization of Materials**, published by **Springer Nature**. *Pages:* 80–89 *ISBN:* 978-981-96-7339-1









Dr. Manivel Muralidaran, also published a chapter titled **"Advanced Machine Learning Models for Accurate and Efficient Anomaly Detection in Scanned Visual Data"** in the book **Machine Learning for Medical Applications: Computer Vision, Image Processing, Disease Detection**, published by **De Gruyter**. *Pages:* 263–311, *ISBN:* 9783111503202

Ph. D. Viva Voce



The Department is delighted to announce that **Mr. B. Logesh,** Part-time Research Scholar has successfully completed his **Ph.D. Viva Voce** under **Anna University, Chennai** on **27th January 2026**. He pursued his doctoral research in **Part-Time** mode under the guidance of **Dr. M. Balaji**, Associate Professor. This achievement marks a significant academic milestone and reflects the scholar's dedication and scholarly competence.

Seed Money for Research Initiative

The Department proudly announces that **Seed Money for Research** has been sanctioned for a collaborative project led by **Dr. C. Velmurugan**, Professor, **Dr. N. Sangeetha**, Senior Associate Professor, **Dr. V. R. Muruganantham**, Associate Professor and **Dr. M. Thirumalai Muthukumaran,** Assistant Professor - III under the with a funding support of **₹1.08 lakhs**.

The research project, titled **"Market Survey and Gap Analysis for Sustainable Industrial Development in the Coimbatore Manufacturing Cluster,"** aims to identify opportunities, challenges, and strategic pathways for strengthening sustainability practices across industries in the region.

The expected outcomes of this research include:

- Contributions toward **Sustainable Development Goals (SDGs)**,
- **SCI and Scopus-indexed publications**,
- Stronger **industry and societal partnerships**.

This initiative reinforces the department's commitment to impactful research, regional development, and industry-academia collaboration.






Industry linkages and Collaborative Engagements

The Department continued to strengthen its ties with leading industries through visits, interactions, and collaborative meetings in January 2026. These engagements aim to enhance industry–academia partnership, support student learning, and explore avenues for joint initiatives.





Industry Visit – Shanthi Gears Limited
On **9th January 2026**, faculty members visited **Shanthi Gears Limited, C-Unit, Avanashi Road, Muthugoundenputhur, Coimbatore**. The team interacted with **Mr. Sultan Ibrahim, Senior General Manager and Business Head**, gaining insights into advanced gear manufacturing processes and exploring potential avenues for collaboration.
Faculty Lead: *Dr. B. Senthilkumar, Associate Professor*



- **Industry Interaction – Ultrafine Automations**
  On **9th January 2026**, a discussion was held at **Ultrafine Automations, Periyanaickenpalayam**, focusing on the **Scope of Utilization of the CNC EDM Drill Machine** for academic and research purposes. This interaction emphasized opportunities for student training and research support.



Faculty Team: *Dr. P. S. Samuel Ratna Kumar, HoD, Dr. M. A. Vinayaga Moorthi, Assistant Professor - III, and Dr. T. Karuppusamy, Assistant Professor - III*





Industry Visit – SALZER Industry
On **20th January 2026**, **IV-year Mechanical Engineering project students Harshit S. and Nakullesh M.** visited **SALZER Industry, Samichettipalayam, Coimbatore**. They interacted with **Mr. B. Mahendran (Assistant Vice President – Operations)** and **Mr. Yuvaraj (Superintendent, Contactor Assembly Division)** to gain practical exposure relevant to their project work.

Faculty Mentor: *Dr. M. Balaji, Associate Professor*





On **15th January 2026**, a collaborative meeting was held with the **Chinnavedampatti Industrial Association** to explore strategic partnerships. The discussion focused on bridging the gap between academic learning and practical industrial applications through joint initiatives, internships, and knowledge-sharing platforms.

Faculty Representative: *Dr. V. Muthukumaran, Professor*

Patent



Dr. M. Ramesh Kumar, Assistant Professor III, has been granted a **Patent** for his innovative work titled **"Steering Arrangement for an Autonomous Vehicle and a Method Thereof."** Filed under Application No. **202141061434** on **08 December 2025.** This invention contributes significantly to advancements in autonomous vehicle technology, offering enhanced steering mechanisms and improved operational safety. The patent reflects the department's continuous commitment to fostering innovation and developing cutting-edge engineering solutions.

Programmes Participated

Faculty members are actively engaged in a wide array of professional development programmes, enhancing their academic expertise and staying updated with emerging global trends.



Dr. S. Thirumurugaveerakumar, Associate Professor, successfully completed a **National-level FDP** on **"Generative AI and Agentic AI: Building and Orchestrating Autonomous Systems for Real-World Applications"**, organized by **Coimbatore Institute of Technology** from **5th to 9th January 2026**, conducted in **online mode**.

- **Dr. M. Balaji,** Associate Professor, participated in a **National-level FDP** on **"Stress Management and Productivity Enhancement Workshop"**, conducted by **NIT Hamirpur** from **5th to 10th January 2026**, held **online**.





Mr. S. Sivakumar, Assistant Professor II, completed an online course on **"Applied Computational Fluid Dynamics"**, conducted via **Coursera** on **18th January 2026**.

- **Dr. M. Thirumalai Muthukumaran,** Assistant Professor III and **Dr. N. Sangeetha,** Senior Associate Professor, participated in a **3-day International Seminar** on **"Research Grant Writing and Management"**, organized by the **Centre for Continuing Education (CCE), IISc Bengaluru** from **19th to 21st January 2026**, in **online mode**.






Dr. B. N. Sreeharan (Assistant Professor III) completed several **online courses** organized by **Maven Analytics** and **Coursera**, focusing on career development, AI literacy, and data skills:

- *Prompt Engineering Masterclass* – 10 Jan 2026
- *Networking & Applying for Jobs* – 11 Jan 2026
- *Building Your Personal Brand* – 11 Jan 2026
- *Building Your Personal Brand Portfolio* – 13 Jan 2026
- *Critical Thinking in the Age of AI* – 15 Jan 2026
- *Quality Methods* – 22 Jan 2026 (SAS via Coursera)
- *Finding Your Path in Data* – 3 Jan 2026
- *Gen AI Essentials* – 2 Jan 2026
- *Optimising Your Resume* – 6 Jan 2026

These engagements highlight the department's persistent efforts to promote continuous learning, research enhancement, and professional growth among its faculty members.

Students Activities

Students from the department were recognized for their active participation and contribution to various **institution-level activities** conducted on **26th January 2026** as part of the Republic Day celebrations. The following students received recognition for their enthusiastic involvement and support:

- **Haribala S (24BME038)**

- **Kesavdarshan (22BME048)**
- **Santhosh A (22BME090)**
- **Oscar Richerd (23BME064)**
- **Sivaguru (24BME099)**
- **Thilak S (24BME107)**
- **Vaeshnave M (24BME108)**
- **Arun Prasath S (24BME016)**
- **Ashwath P P (24BME018)**

These recognitions reflect the students' commitment to contributing to campus activities and upholding the values of responsibility, teamwork, and discipline.

Establishment of ASME Student Chapter

SETTING THE STANDARD

KUMARAGURU COLLEGE OF TECHNOLOGY STUDENT SECTION



The Department proudly announces the establishment of the **ASME (American Society of Mechanical Engineers) Student Chapter** during **January 2026**. This professional society chapter aims to enhance student engagement in global engineering practices, technical advancements, and professional development activities. **Mr. S. Subbiah** elected as the **Faculty Member** for the ASME Chapter, where he will guide and mentor students in organizing technical events, workshops, competitions, and knowledge-sharing platforms aligned with ASME's international standards. The establishment of this chapter marks a significant milestone in strengthening professional society involvement within the department.

SNAP SHOTS



Industry Interaction – Ultrafine Automations



Faculty interactions with President, CIA and with his team.

Vision, Mission, POs, PSOs and PEOs

KUMARAGURU college of technology
COIMBATORE – 641 049

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 of Mechanical Engineering

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.

** Focused SDGs are: 4, 8, 9, 12, 13, 17*

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 specified needs with appropriate consideration for public health and safety, and 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 modelling to complex engineering activities with an understanding of the limitations.

6. The Engineer and The World: Apply contextual knowledge to assess societal, health, safety, legal, cultural, and environmental issues, and demonstrate the knowledge of and need for sustainable development.

7. Ethics: Apply ethical principles and commit to professional ethics, responsibilities, and norms of engineering practice, including inclusive and diverse behavior.

8. Individual and Collaborative 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, including writing reports, design documentation, making presentations, and giving/receiving clear instructions.

10. Project Management and Finance: Demonstrate knowledge and understanding of engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects 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, including adaptability and tech awareness.

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.

PEO 3: 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.