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KUMARAGURU COLLEGE OF TECHNOLOGY

Department of Mechanical Engineering

Mechanical Engineering Association

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EDITORS PORTFOLIO

Dear Readers,

It gives us immense pleasure to present this edition of our Department Newsletter, showcasing the academic, research, professional and collaborative achievements of our faculty members and students.

This edition highlights the department's commitment to experiential learning and industry-oriented education through Guest Lectures, Student Programmes and Industry–Institute Initiatives. Technical sessions on Robotics and Automation and Heat Pump Technology, the HACK-A-BIT Final Review and the inauguration of the KCT–ISHRAE Student Chapter provided students with valuable opportunities to enhance their technical knowledge and gain industry exposure.

We are proud to feature the research contributions of our faculty through Journal Publications, Scholarly Paper Reviews and Book Publications. Their contributions as Resource Persons, along with participation in professional training programmes and certification courses, reflect their dedication to continuous learning, knowledge sharing and professional development.

The newsletter also highlights the inauguration of the Blue Star Limited Skill Development Centre, marking an important step towards strengthening industry–academia collaboration and providing students with practical exposure to advanced air conditioning and refrigeration technologies.

We sincerely appreciate the contributions of all faculty members, industry experts and students featured in this edition. We hope this newsletter provides valuable insights into the department's activities and achievements and inspires continued excellence in teaching, learning, research and innovation.

Warm regards,

Editors





Programs Organised







A three-day installation and training programme was organized for the newly procured EDM Smart Drill 4030 Machine from 17th to 19th September 2026 at the Production Process Laboratory. The programme was conducted by **Mr. Pachamuthuraja,** Service Engineer, Electronica India Limited, who provided hands-on training to the technical staff on machine installation, operating principles, tube selection, DM water requirements, drilling trials, troubleshooting and maintenance procedures. **Dr. M. A. Vinayagamoorthi,** Assistant Professor – III Coordinated the programme.



The industry–Institute Partnership Cell (IIPC) of the department coordinated by **Dr. M. A. Vinayagamoorthi, Assistant Professor III**, promotes industry–academia collaboration through internships, industrial visits and skill-development programmes. As part of this initiative, 89 second-year Mechanical Engineering students participated in an internship presentation and evaluation held on 11th August 2026, assessed by **Mr. P. D. Devan, Assistant Professor II**, and **Dr. M. A. Vinayagamoorthi, Assistant Professor III**. Students completed internships at reputed organizations, including STAM Digital Tooling, Titan Company, Ultraviolette Automotive, SAIL, Roots Industries, Simta Astrix, Sharjah Cement Factory (UAE), IPG Mould Tech., etc. The programme provided valuable industrial exposure, helping students connect classroom knowledge with practical manufacturing processes while enhancing their technical skills and industry readiness.





An Installation Ceremony of the KCT–ISHRAE Student Chapter was organized on 14th October 2026 at Quorum, KCT Campus. The ceremony was graced by **Mr. V. Pradeep Kumar,** Joint Managing Director, Velsons Engineers Private Limited, Coimbatore, and President of ISHRAE Coimbatore Chapter.



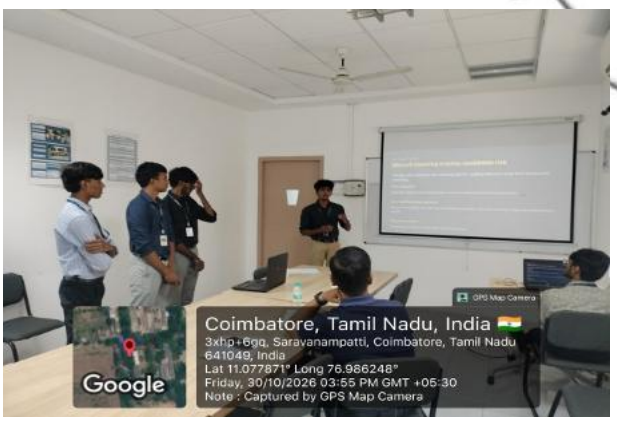






The event marked the formal establishment of the student chapter, providing students with opportunities to connect with industry professionals, explore advancements in heating, refrigeration and air conditioning, and participate in technical activities. The ceremony brought together ISHRAE student members, Department Association members and faculty representatives, encouraging professional development, technical knowledge sharing and industry–academia interaction. The programme was coordinated by **Mr. B. Jeeva, Assistant Professor II,** and **Mr. S. Sivakumar, Assistant Professor II.**





HACK-A-BIT – Final Review 2026 was organized on 30th October 2026 at A-Block under the theme "Innovative Machining for Smart Manufacturing" for II-year Mechanical Engineering students as part of the course 24MEI203 – Applied Machining and Manufacturing Techniques. Nine teams presented innovative projects featuring CAD models and prototypes related to digital twin manufacturing, machine-condition monitoring, fault detection, process improvement and mechanical design. The presentations were evaluated by industry experts **Mr. K. Manivannan,** Assistant Manager – Production, DECCAN Industries, and **Mr. K. Muralikrishnan,** Manager – Manufacturing, SPINTEC ENGINEERING PVT LTD, who provided valuable feedback on manufacturability, dimensional accuracy, quality, cost-effectiveness, safety and automation.



The event was coordinated by **Dr. T. Karuppusamy, Assistant Professor III**, and **Dr. M. A. Vinayagamoorthi, Assistant Professor III**, with **Mr. Anish S** and **Ms. Prathika S** as student coordinators, encouraging students to connect classroom learning with practical industrial challenges.



Guest Lecture



A technical session was organized on "Heat Pump Technology" on 30th October 2026 at Swami Vivekananda Hall, KCT, for second-year students of Mechanical, Aeronautical, Automobile and Mechatronics Engineering.



The session was delivered by **Dr. M. Mohanraj,** Director, MPS Engineering and Heat Pump Research Institute, Coimbatore.



The programme also included an introduction to the ISHRAE professional society, highlighting its role and opportunities for students. The technical session provided valuable insights into heat pump technology, its working principles and industrial applications, helping students connect theoretical knowledge with practical advancements in the field. The programme was coordinated by **Mr. B. Jeeva, Assistant Professor II,** and **Mr. S. Sivakumar, Assistant Professor II.**



A two-day industry expert session was organized on “Advancements in Robotics and Automation” on 30th September and 1st October 2026 at A107 Classroom for III-year Mechanical Engineering students as part of the course 24MEE002 – Robotics and Automation. The session was delivered by **Dr. O. S. Ramanujam,** Director – Strategic Growth, Technical Excellence & Transformation Advisory, Welspun Corp Limited, Gujarat.

The session provided valuable insights into industrial robotics, automation technologies, their applications in modern manufacturing, emerging industry trends and essential technical skills. It helped students connect theoretical concepts with real-world industrial practices and gain awareness of career opportunities in robotics and automation. The



programme was coordinated by **Dr. C. Velmurugan, Professor**, and **Mr. P. D. Devan, Assistant Professor II**.



Faculty as Resource Person





Dr. B. N. Sreeharan, Assistant Professor III, served as the Resource Person for a “Hands-on Research Workshop on Power BI for Academic Data Analytics and Decision-Making” for KCLAS faculty members on 28th October 2026. The workshop focused on the practical applications of Power BI in academic data analytics, visualization and informed decision-making, providing faculty members with valuable hands-on experience and enhancing their data-driven research skills.

Journal Publication



Dr. M. Balaji, Associate Professor, has published a review research article titled "Understanding the Importance of Sustainability Concepts in Printing Industries – A Review" in the Journal of Engineering and Technology for Industrial Applications (ITEGAM-JETIA), Volume 12, Issue 61, September–October 2026.



Dr. M. Thirumalaimuthukumaran, Assistant Professor III, has contributed to a research article titled "Hybrid Agro-Waste Reinforced PLA Smart Composites with Embedded NFC for Sustainable Lifecycle Monitoring" in the Journal of Polymer & Composites. 2026; 14(05):149-159.

Papers Reviewed



Dr. K. K. Arun, Assistant Professor III, reviewed the manuscripts as detailed below:

1. **HBRP Publication:** "Circular Economy in Manufacturing Industries: A Literature Review and Future Research Agenda" for the Journal of Advanced Research in Industrial Engineering, Volume 8, Issue 3, 2026.
2. **MAT Journals (15th October 2026):** "Computer Aided Analysis for the Topology Optimization of a Shackle" for the Journal of Mechanical and Mechanics Engineering.
3. **MAT Journals (23rd October 2026):** "Modal Vibration Sensitivity to Anisotropic Stiffness Degradation in Composite Laminates: Implications for Fatigue Damage Assessment" for the Journal of Mechanical and Mechanics Engineering.

Book Publication



Dr. V. R. Muruganantham, Associate Professor, has received a Certificate of Publication from Skyline Global Publications (SGP) in recognition of publishing his textbook titled "Industrial Relations Management" in its first edition. The book was published in 2026 and has been assigned ISBN 978-93-7085-046-0.

Faculty Upskilling





Dr. A. P. Arun, Assistant Professor III, and **Dr. M. Thirumalaimuthukumaran, Assistant Professor III**, participated in a one-week Short-Term Training Programme titled "CAD/CAM/CAE and AI-Driven Medical Technologies for Biomedical Device Development and Translational Research (MedTech BTR-2026)", conducted by the Indian Institute of Information Technology Design and Manufacturing (IIITDM), Kancheepuram, from 21st to 26th September 2026 in hybrid mode. The programme provided exposure to advanced CAD/CAM/CAE technologies, artificial intelligence applications in medical technology and biomedical device development, strengthening his knowledge of emerging engineering innovations and translational research.



Dr. B. N. Sreeharan, Assistant Professor III, successfully completed the online course "Data Analytics for Lean Six Sigma", authorized by the University of Amsterdam and offered through Coursera on 4th October 2026. The course enhanced his knowledge of data analytics and its applications in Lean Six Sigma methodologies, strengthening his expertise in data-driven decision-making and process improvement.



Dr. N. Sangeetha, Senior Associate Professor, successfully completed the "Multibody Simulation Onramp" self-paced training course offered by MathWorks Training Services on 17th October 2026. The 2.5-hour course provided insights into multibody system modelling and simulation, enhancing her understanding of simulation techniques and their applications in mechanical engineering.



Dr. P. S. Samuel Ratna Kumar, Assistant Professor III and Head of the Department, successfully completed the global course "Volunteering for an Inclusive Community for Professionals in Leadership Positions – Edition 2", offered by the Mahatma Gandhi Institute for Peace, Leadership and Development

(MGIPLD), Shanti Ashram, on 30th October 2026. The programme focused on transformational leadership, community engagement, social responsibility and the development of inclusive community initiatives. As part of the course, he completed seven hours of immersion at Shanti Ashram and participated in faculty-led sessions and field visits. This achievement recognizes his commitment to socially responsible leadership and community development.

MoU

The Inauguration of the Blue Star Limited Skill Development Centre was held on 6th October 2026 at SKT Hall, KCT. The centre was inaugurated by **Mr. Wilson Jebaraj,** Executive Vice President, and **Mr. Akshat Sharma,** Assistant Vice President, Blue Star Limited, in the presence of the institution's leadership and department representatives. The centre aims to provide students with hands-on training and practical exposure to advanced air conditioning and refrigeration technologies, strengthening their technical skills and industry readiness while promoting industry–academia collaboration.



SNAP SHOTS





Guest lecture on advancements in robotics and automation



Guest lecture on heat pump technology

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 AUTOMATION AND ROBOTICS

PROGRAM EDUCATIONAL OBJECTIVES(PEOs):

PEO1: Graduates will be on roles in implementing cutting edge automation technologies by integrating intelligent systems and driving advancements in industrial processes.

PEO2: Graduates will excel as professionals by applying concepts of industrial robotics and advanced engineering principles to develop innovative and sustainable solutions.

PEO3: Graduates will engage in lifelong learning as educators and researchers in the field of industrial automation.

PROGRAM OUTCOMES (POs)

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.

Students should be able to demonstrate a degree of mastery over the area as

PO3: per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.

PO4: Apply advanced engineering techniques, modern automation tools, and emerging technologies to solve complex industrial problems efficiently.

PO5: To collaborate effectively in interdisciplinary teams, demonstrating leadership and ethical responsibility in automation and robotics projects.

PO6: An ability to continuously engage in lifelong learning and professional development to adapt to technological advancements in industrial automation and robotics.