

MExpress

DECEMBER 2024

Mechanical Engineering Department's Official Newsletter

Volume No. 08 Issue No. 04



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Mechanical Engineering Association
Department of Mechanical Engineering
KUMARAGURU COLLEGE OF TECHNOLOGY



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From the Editors...

Dear Readers,

It is with immense pleasure that we present the month's departmental newsletter, a testament to the dedication, innovation, and accomplishments of our faculty and students. This edition captures the dynamic academic and professional activities that define our department's journey toward excellence.

Our faculty have made remarkable contributions through impactful paper presentations and publications, sharing their research and insights on national and international platforms. Their active involvement as resource persons and manuscript reviewers highlights their expertise and commitment to advancing knowledge in their respective fields.

The department's strong industry linkages continue to foster collaboration and innovation, enhancing both academic and practical perspectives. Faculty participation in various programs and events, including the prestigious CII-EDU-TECH Expo, underscores our commitment to staying at the forefront of emerging trends and technologies.

Our students have also displayed commendable enthusiasm and talent through their activities, exemplifying the vibrancy and potential that our department nurtures. Their achievements and involvement serve as a source of pride and inspiration.

This edition also features snapshots that vividly capture the essence of these events, offering a glimpse into the dynamic life within our department.

As we celebrate these accomplishments, we extend our heartfelt gratitude to everyone who contributed to this issue. Your unwavering support and dedication have been instrumental in bringing this edition to life.

Warm regards,

Editors....



PAPER PRESENTATIONS

Dr. V. Manivel Muralidaran, Assistant Professor – III, presented his paper entitled “Optimizing Friction Stir Welding of Aluminium-Magnesium Dissimilar Joints Utilizing the TOPSIS”, in the International Conference ICETAS 2024, organized by University of Technology Bahrain from 20-11-2024 to 22-11-2024.



PAPER PUBLICATIONS



Dr. K. K. Arun, Assistant Professor – III, published his paper entitled "Residual VGGNet for Unveiling Optimal Process Parameters of Oil Rig Welding Through Mathematical Modeling and Optimization" in IEEE Xplore Journal, a Scopus indexed journal. He also published another paper entitled “The Influence of TiO₂/Si₃N₄ Nano-Particles on the wear Properties of Aluminium hybrid composites through stir casting process” in the E3S Web of Conferences Journal, a Scopus indexed journal.

Dr. M. Balaji, Associate Professor, published his paper entitled “Comparative Studies on Adoption of Circular Economy Practices Across Indian Manufacturers” in the Lecture Notes in Multidisciplinary Industrial engineering, Springer Publications, Singapore, a Scopus indexed journal.



FACULTY AS RESOURCE PERSON



Dr. B. N. Sreeharan, Assistant Professor – III, was invited to be an External Examiner for assessing the fitters in the 58th State Level Skill Competition, organized by Government Industrial Training Institute, Coimbatore on 29-11-2024. Further, he provided the career guidance to students there through a guest lecture.

MANUSCRIPTS REVIEWED



Dr. V. Manivel Muralidaran, Assistant Professor – III, reviewed a manuscript titled “Carbon Partitioning and Carbide Precipitation during Q&P Process of 12%Cr Martensitic Stainless Steel” for the International Journal "Transactions of the Indian Institute of Metals".

Dr. B. N. Sreeharan, Assistant Professor – III, reviewed a manuscript titled “Study on the TIG welding of brass to steel” for the International Journal “Engineering Research Express”.



INDUSTRY LINKAGES



Dr. M. Balaji, Associate Professor, and **Dr. V. Manivel Muralidharan**, Assistant Professor – III, visited Woory Automotive India Private Limited, located in Maraimalai Nagar, Chennai on 07.11.2024, a leading manufacturer and supplier of automotive components, specializing in precision-engineered parts for the automotive industries.



Their major products include HVAC Actuator, PTC Heater, Control Head Unit, Clutch Coil, and other automotive application components and systems. Established in 1989, the company has a strong presence in the automotive supply chain, serving both domestic and international markets with high-quality products.

PROGRAMMES PARTICIPATED



Mr. S. Sivakumar, Assistant Professor II, participated in an FDP on Progress in Mechanical Engineering from 14-10-2024 to 19-10-2024, organized by SRM Institute of Science and Technology. He also participated in a FDP on Green Technology from 04-11-2024 to 09-11-2024, organized by Periyar University.

Dr. K. M. Senthilkumar, Associate Professor, participated in a Training on Innovation Professionals [Level 1] from 21-10-2024 to 24-10-2024, organized by Forge.



Departmental Activities



13-09-2024, organized by NPTEL.

Dr. V. R. Muruganatham, Associate Professor, completed a NPTEL Courses on Ethics in Engineering Practice from 19-08-2024 to 11-10-2024 and on Designing Learner-Centric E-Learning in STEM Disciplines from 19-08-2024 to 13-09-2024, organized by NPTEL. Further, Dr. Muruganatham, participated in an FDP on Engineering Graphics and CAD from 11-09-2024 to 19-09-2024, organized by Kumaraguru College of Technology and another FDP on Designing Learner-Centric E-Learning in STEM Disciplines from 19-08-2024 to

Dr. V. Manivel Muralidaran, Assistant Professor III, participated in an FDP on Technology and Organizational Behavior: Exploring the influence of technology on Organizational Behavior, Virtual teams and remote work of dynamics from 04-11-2024 to 09-11-2024, organized by SRM Institute of Science and Technology.



Dr. T. Karuppusamy, Assistant Professor III, completed NPTEL Course on Ethics in Engineering Practice from 19-08-2024 to 11-10-2024, and an FDP on Ethics in Engineering Practice from 19-08-2024 to 11-10-2024, organized by NPTEL.

Dr. M. Thirumalai Muthukumar, Assistant Professor III, participated in a Webinar on Mastering Nonlinear Structural Analysis with Ansys on 20-11-2024, and another Webinar on Ansys Discovery - Design Smarter & Simulate Faster on 27-11-2024, organized by ARK Infosolution Pvt. Ltd. Further, Dr. Thirumalai Muthukumar, completed a NPTEL Courses on Ethics in Engineering Practice from 19-08-2024 to 11-10-2024 and on Designing Learner-Centric E-Learning in STEM Disciplines from 19-08-2024 to 13-09-2024, organized by NPTEL. He also participated in FDPs on Ethics in Engineering Practice from 19-08-2024 to 11-10-2024 and Designing Learner-Centric E-Learning in STEM Disciplines from 19-08-2024 to 13-09-2024, organized by NPTEL.



Dr. M. Balaji, Associate Professor, participated in a FDP on Technology and Organizational Behavior: Exploring the influence of technology on Organizational Behavior, Virtual teams and remote work of dynamics from 04-11-2024 to 09-11-2024, organized by SRM Institute of Science and Technology.

Dr. M. A. Vinayaga Moorthi, Assistant Professor III, completed a NPTEL Course on Ethics in Engineering Practice from 19-08-2024 to 11-10-2024 and participated in an FDP on Ethics in Engineering Practice from 19-08-2024 to 11-10-2024, organized by NPTEL.



Departmental Activities



Dr. B. N. Sreeharan, Assistant Professor III, completed an online course on Microsoft Excel: Business Intelligence w/ Power Query & DAX on 11-11-2024, through Udemy and another course on Become a Data Scientist: Statistics for Data Science on 27-11-2024 conducted by Simplilearn, SkillUp. Further, Dr. Sreeharan, completed another course on Basics of Business Statistics on 21-11-2024 conducted by TimePro.

CII- EDU-TECH EXPO



Dr P. S. Samuel Ratna Kumar, Assistant Professor – III, coordinated the organization of the KCT stall and represented Kumaraguru Institutions in the CII- EDU-TECH EXPO 2024, held on 15-17 November 2024. He along with his team majorly highlighted the RIDE (Research, Innovation, Design & Entrepreneurship) of Kumaraguru Institutions.

STUDENT ACTIVITIES

Mr. K. Praveen, 23BME073, participated in a Hackathon conducted by KPR Institute of Engineering and Technology, Coimbatore from 08-11-2024 to 09-11-2024

SNAPSHOTS



Dr. Sreeharan, providing career guidance to the Students of Government ITI, Coimbatore



Dr. Samuel Ratna Kumar at CODISSIA Exhibition



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):

- P01 :** An ability to independently carry out research /investigation and development work to solve practical problems.
- P02 :** An ability to write and present a substantial technical report/document.
- P03 :** 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.
- P04 :** Apply knowledge and competencies in manufacturing, analytics, supply chain, quality and engineering management.
- P05 :** Apply principles of industrial engineering to solve problems in industry.
- P06 :** An ability to work as part of interdisciplinary teams, communicate effectively, model and design engineering systems optimally.