MExpress

August 2025

Mechanical Engineering Department's Official Newsletter

Volume No. 08 Issue No. 12

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Mechanical Engineering Association

Department of Mechanical Engineering

KUMARAGURU COLLEGE OF TECHNOLOGY

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CONTENTS

From the Editors…

Dear Readers,

From the Editor's Desk – 96th edition

As we turn the pages of the 96th issue of our departmental newsletter, we're reminded that excellence is not a destination, but a journey we walk together—with purpose and pride. This edition is a tribute to ideas sparked, goals achieved, and horizons expanded.

This edition reflects the dynamic spirit of the Department of Mechanical Engineering—where faculty, students, and alumni work together to inspire progress.

We celebrate impactful research, international publications, and knowledge-sharing sessions led by our faculty, alongside the vibrant achievements of our students in projects, competitions, and publications. Alumni contributions through mentorship, internships, and industry collaborations continue to strengthen our academic–industry bridge.

Each story in this issue is more than an update—it's a milestone in our shared journey of growth, innovation, and excellence.

To all who contribute and support, thank you for being part of this journey. Let's keep moving forward with passion and purpose.

Warm regards,

Editors…

PAPER PUBLICATIONS

Mr. S. Rajesh, Assistant Professor – II, has co-authored a research paper titled "Investigating the Parameters of Carbon Fiber Nylon Composites Using the Fused Deposition Modelling Process to Determine the Mechanical Characteristics and Properties of the Composites". The study, published in the Journal of Materials Engineering and Performance, examines the effects of nozzle temperature, bed temperature, and layer thickness on tensile, flexural, and impact strengths of carbon fibre nylon composites, aiming to optimize the FDM process for enhanced performance.

Dr. K. K. Arun, Assistant Professor – III, has contributed to impactful research through the following co-authored publications:

1. "A Grey Fuzzy Approach Based Machining Process Parameters Optimization for Al 6063 Alloy" – Published in the Journal of Ceramic Processing Research, the study optimizes surface roughness and material removal rate in end milling of Al-6063 alloy using grey relational analysis and fuzzy logic, achieving improved machining performance and efficiency.

2. "Optimal Charging Control of No-Insulation HTS Magnets using Pontryagin's Principle and Advanced Nizar Optimization Technique" – Presented at the 5th International Conference on Trends in Material Science and Inventive Materials (ICTMIM-2025) and published in IEEE Xplore, this work introduces a novel PMP-NOA framework that enhances charging time, temperature stability, and energy efficiency for High-Temperature Superconducting (HTS) magnets.

FACULTY UPSKILLING

Dr. B. N. Sreeharan, Assistant Professor – III, has demonstrated his commitment to continuous learning and expertise enhancement in data-driven decision-making by successfully completing the following courses through Coursera in July 2025:

- Business Statistics and Analysis Capstone – Offered by Rice University, completed on July 4, 2025.
- Statistics and Data Analysis with Excel: Advanced – Offered by Macquarie University, completed on July 13, 2025.

Mr. K. Manikanda Prasath, Assistant Professor - II, successfully completed the Foundations of Distribution and Logistics course offered by ASCM on July 16, 2025, covering 27 educational hours across key modules including Operations Management, Inventory Management, Channel Network Design, and Transportation Operations.

Mr. M. A. Vinayagamoorthi, Assistant Professor – III, successfully completed the Fundamental Skills in Engineering Design course offered by the University of Leeds through Coursera on July 28, 2025, strengthening his foundational knowledge in modern engineering design principles.

PROPOSAL SUBMITTED FOR RESEARCH FUND

Dr. V. Muthukumaran (Principal Investigator), **Dr. C. Velmurugan**, Professor and **Dr. T. Sathishkumar** (Co-Principal Investigators) submitted a proposal for research fund titled "Design, Development, Mechanical Characterization and In Vitro Testing of Mg-based Composites for Orthopaedic Implants in Bio Medical Knee Joint Applications," to the Anusandhan National Research Foundation (ANRF), New Delhi.

PAPER PRESENTATIONS

Dr. K. K. Arun, Assistant Professor - III, virtually presented his paper titled Advanced Neural Network Approach for Dental Lesion Identification through Multiclass Instance Segmentation at the 16th International IEEE Conference on Computing, Communication and Networking Technologies, held from 6–11 July 2025 at IIT Indore, in association with the IEEE Electronics Packaging Society and AICTE.

PROGRAMMES PARTICIPATED

Dr. C. Velmurugan, Professor, contributed to the proposal submitted for the establishment of a University Research Park in Technical Textiles under the TIDCO initiative, aimed at fostering innovation-driven economic growth in Coimbatore.

FACULTY RECOGNITION

Dr. K. K. Arun, Assistant Professor - III, has been appointed as a member of the editorial board for the journals of Lattice Science Publication (LSP) for the term 2025–26, in recognition of his academic contributions and commitment to scholarly publishing.

MANUSCRIPTS REVIEWED

Dr. C. Velmurugan, Professor, has been acknowledged for his expert contributions as a peer reviewer by leading journals:

1. Additive Manufacturing – For the manuscript titled "Reinforcement Learning-Enabled Design of Topological Interlocking Materials for Sustainable Multi-Material Additive Manufacturing", recognizing his role in upholding the journal's high peer-review standards.
2. Materials Letters – For the manuscript titled "Effect of Cooling Slope Casting on Microstructure and Wear Behaviour of A356-Mg_2Si-TiB_2 Hybrid Composites", in recognition of his support in maintaining the high standards of scholarly publishing.

Dr. V. Manivel Muralidaran, Assistant Professor - III, Department of Mechanical Engineering, Kumaraguru College of Technology, reviewed the manuscript titled Analysis of the Influence of Laser on High-entropy Alloy Cutting Based on Molecular Dynamics for the Journal of the Brazilian Society of Mechanical Sciences and Engineering (BMSE).

AWARDS

Dr. K. K Arun, Assistant Professor - III, was awarded a Certificate of Appreciation by the Journal of Engineering Research & Sciences for reviewing the article "Green Tariffs as Market Accelerators for Corporate Renewable Energy Adoption: A Comprehensive Review of U.S. Programs and their Impact on C&I Decarbonization" in their regular issue.

Mr. B. Jeeva, Assistant Professor – II, was honoured with the Faculty Contributor of the Year Award 2024–25 by the Kumaraguru Centre for Industrial Research & Innovation (KC.IRI) on 27 July 2025, in recognition of his significant technical support and contributions to industry research projects.

PROGRAMMES ORGANIZED

Mr. K. Manikanda Prasath, Assistant Professor - II, Mechanical Department, led the Financial Literacy & Investments Club of Kumaraguru (Flick) in organizing INVESTOPIA – Phases 1 and 2. Phase 1 took place on 23 July 2025 at KCLAS LH, where he guided participants through fundamental economic concepts influencing markets and the essentials of stock investing. Phase 2 was held on 30 July 2025 at the C Block Seminar Hall, during which he instructed participants on determining a company's true worth using proven valuation models and financial analysis.

INDUSTRY LINKAGE

Dr. V. Muthukumaran (Professor & Principal Investigator) and **Dr. S. Balaji** (Assistant Professor & Co-PI), visited Fluidtek, Coimbatore on 21st July 2025 as part of the ARDB2–Sponsored Project industry visit. Fluidtek, known for its expertise in hydraulic power packs, cylinders, and motion control solutions, caters to both industrial and research applications with high reliability and engineering flexibility. The visit aimed at technical consultation for the wind tunnel's hydraulic control system, inspection of product options, customization discussions for bespoke solutions, and exploring potential R&D collaborations.

DOCTORAL COMMITTEE MEETING ARRANGED

The Mechanical Engineering Department is holding the Annual Doctoral Committee Meeting for Ph.D. scholar **Mr. R Arun Kumar**, on Monday, June 23, 2025, at 9:00 A.M. in the Mechanical Engineering Seminar Hall and online via Google Meet. Further, **Mr. K. R Bhuvaneshwaran**, Ph.D. scholar in the Department of Mechanical Engineering, Kumaraguru College of Technology, presented his Pre-confirmation Seminar on Experimental Investigation on the Mechanical Properties of Fibre Reinforced Polymer Matrix Hybrid Composite Materials on 14 July 2025 at the Conference Hall, Department of Mechanical Engineering, in the presence of his supervisor **Dr. C. Velmurugan** and DC members.

The revised first Doctoral Committee meeting for **Mr. Binnu Kurian Mathew**, Ph.D. Research Scholar in the Department of Mechanical Engineering, was held on 15 July 2025 at 11:00 AM in

the Mechanical Engineering Seminar Hall, Kumaraguru College of Technology, to discuss changes in coursework papers, with faculty members and DC members in attendance.

The Zeroth Doctoral Committee meeting of **Mr. K Ajayavarma** was held on 17 July 2025 in hybrid mode at the Seminar Hall, Division of Mechanical Engineering, Karunya Institute of Technology and Sciences, with committee members attending to review his proposed research work.

The second Doctoral Committee meeting for **Mr. M Michael Jones**, Ph.D. Research Scholar, was held on 21 July 2025 at 2:30 PM, organized by the Department of Mechanical Engineering, SNS College of Technology, to review the progress of his research work.

STUDENT ACTIVITIES

Mr. S. Hareesh Kanth S, Mr. D. Melavasal Pandian, and Mr. M. A. Vinayagamoorthi, Assistant Professor – III, have published a research paper titled "Design and Structural Analysis of Glass Fiber Reinforced Composite for Two-Wheeler Mudguard" in the International Journal for Research in Applied Science & Engineering Technology (IJRASET). The study focuses on the design, simulation, and sustainability analysis of a glass fibre reinforced composite mudguard for automotive applications, demonstrating its superior mechanical strength, impact resistance, and potential for weight reduction compared to conventional materials, thereby contributing to enhanced vehicle efficiency and sustainability.

ALUMNI INTERACTIONS

Alumni Silver Jubilee Interaction Session – 1991–1995 Batch

The Department of Mechanical Engineering hosted the 30-Year Reunion of the **1991–1995** alumni batch on 25th July 2025 at the Mechanical Department, A107. The event brought together alumni, final-year, and third-year students for an engaging session blending career insights, personal growth, and industry updates.

Key Highlights:

- **Mentorship Guidance: Mr. Sanjeev Palaniswamy** stressed the importance of selecting the right mentors and offered guidance for students aspiring to higher studies.
- **Automobile Sector Insights: Mr. Rajesh** shared emerging opportunities in the automobile sector and discussed internship prospects.
- **Holistic Development:** Alumni highlighted physical and mental well-being, stress management, and work-life balance for long-term success.
- **Dealing with Failures:** Alumni shared personal stories of overcoming setbacks, encouraging resilience and perseverance.

The reunion strengthened the bond between alumni and the institution, creating pathways for mentorship, industry connections, and continued engagement to support student success.

Alumni Silver Jubilee Interaction Session – 1996-2000 Batch

The Department of Mechanical Engineering hosted the Silver Jubilee Alumni Interaction Session for the **1996–2000 batch** on 19th July 2025 at the Mechanical Department, A107. The event brought together alumni, current students, and faculty for an enriching exchange of ideas focusing on career guidance, academic growth, financial literacy, and personal development in a rapidly evolving professional landscape.

The session opened with a warm welcome and a brief introduction of the alumni, highlighting their professional achievements across sectors such as manufacturing, IT, automotive, finance, and entrepreneurship. This was followed by interactive discussions focusing on career guidance, academic growth, financial literacy, and personal development in today's fast-changing industrial and business environment.

Key themes included coping with failures, managing finances from a business perspective, pursuing higher studies, exploring emerging industrial opportunities, and strategic planning during the final year. Alumni also proposed collaborative initiatives such as internships, industrial visits, mentorship programs, startup workshops, and skill development activities.

The event was further enriched with an open Q&A session, where students sought advice on industry readiness, skill enhancement, and navigating career transitions. The alumni's candid sharing of workplace experiences, challenges, and success stories provided both inspiration and practical takeaways.

Planned collaboration with the alumni are

S.NO.	NAME OF THE ALUMNI	DESIGNATION & INDUSTRY DETAILS	NATURE OF COLLABORATION
1	Mr. MANICKAMOORTHY K.	DGM Of Operations	Internship for 3rd and 4th year students
2	Mr. KARUPPUSAMY	Deputy manager Lakshmi Machine works	Placement and Bos support in course development
3	Mr. MOHANASUNDARAM R.	Senior Project Manager Infosys Pvt ltd	Assured to give training on project management software to students
4	Mr. SRIOARAN R.	Head Motors ALSTOM	Agreed to provide students internship and industry-Academia collaboration.
5	Mr. CHIDHAMBRAM	Director, Oracle	Assured to give internships on software interested students
6	Mr. SIVAKUMAR K.	Vice President JP Morgan	Agreed for placement related discussions for our institutions based on his availability and time.
7	Mr. ILANCHEZHIAN S.	Senior Manager AKKODIS	Agreed to provide students internship and industry Academia collaboration in aerospace & EV field
8	Mr. SARAVANAKUMAR C.	Managing Director CSK Metal crafts	Assured industry visit and internship to solve problems in material handling and storage
9	Mr. KALYAN	Entrepreneur Textile Company	Agreed for entrepreneurial motivation to students in final year

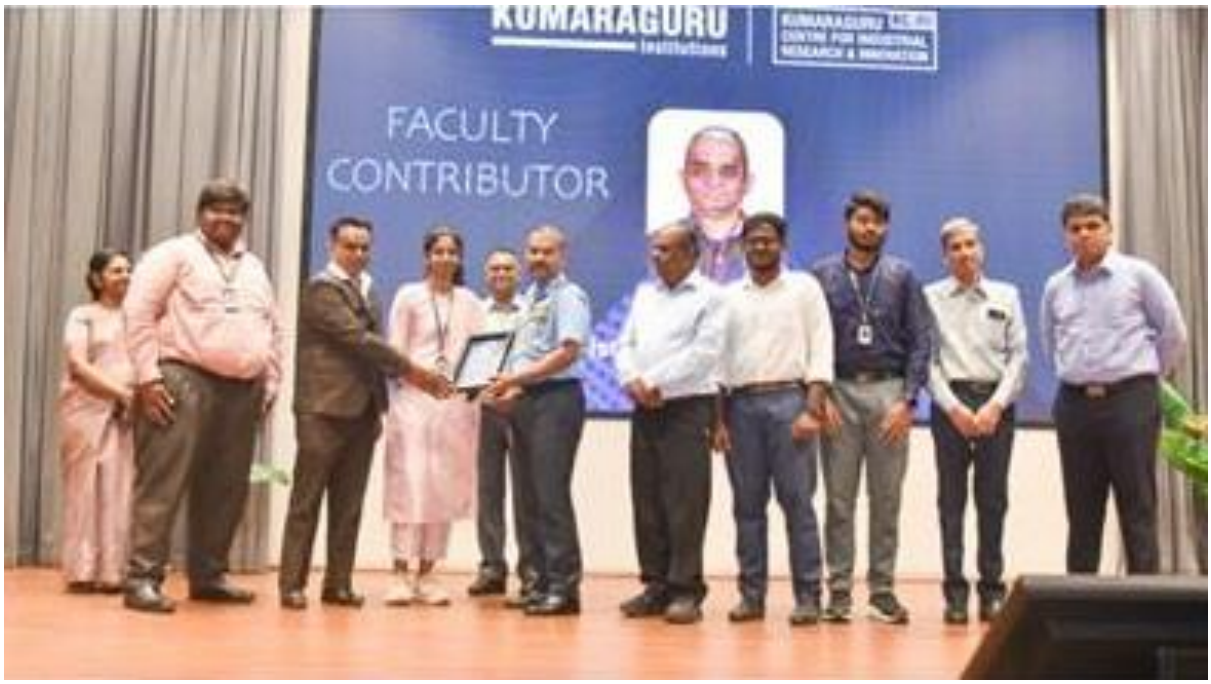
Alumni Guest Lecture – "Pursuing Higher Studies"

The Department of Mechanical Engineering organized an alumni guest lecture on "Pursuing Higher Studies" on 7th August 2025. The session was delivered by **Mr. Ranjithkumar A**, an alumnus of the 2018–2022 batch, currently pursuing a master's degree in Sustainable Energy Systems at KTH Royal Institute of Technology, Sweden.

Mr. Ranjithkumar shared valuable insights into preparing for higher education abroad, covering topics such as university shortlisting, statement of purpose (SOP) writing, securing recommendations, and scholarship opportunities. He also discussed application timelines, standardized test preparation, and adapting to new cultural and academic environments.

The interactive session enabled students to clarify doubts about study-abroad processes, equipping them with practical tips and strategies for a smooth transition to international higher studies.

SNAP SHOTS



Mr. Jeeva receiving his award along with his project team

Batch 1996-2000 during Alumni meet

Dr. Muthukumaran during his industry visit

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. **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.
6. **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.
7. **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.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **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.
11. **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.
12. **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.