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Learn Beyond

**KPR Institute of
Engineering and
Technology**

(Autonomous, NAAC "A")

EDITORIAL

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SPARK



VISION

To be recognized as a premier centre in the field of mechanical engineering education, research and development to meet the changing needs of industry and society.

MISSION

The Department of Mechanical Engineering is committed to,

- Provide fundamental and skill-based education in mechanical engineering through innovative practices in teaching and learning.
- Establish centers of excellence in collaboration with reputed industries, professional bodies and research laboratories.
- Promote entrepreneurship with leadership qualities, ethics, and human values for the society at large.

PROGRAM EDUCATION OBJECTIVES (PEO)

Graduates of BE Mechanical Engineering four years after graduation will:

- **PEO1:** Excel in their professional career with competencies in the field of mechanical and allied engineering.
- **PEO2:** Apply modern research and simulation tools to solve industrial and societal needs.
- **PEO3:** Practice professional and ethical values in respective organizations and society.

PROGRAM SPECIFIC OUTCOMES (PSO)

Graduates of Mechanical Engineering should:

- **PSO 1:** Design, develop and implement advanced mechanical systems by applying engineering principles for improved performance and less human effort.
- **PSO 2:** Apply quality tools to ensure quality, articulate maintenance principles and demonstrate managerial skills to comprehend the mechanical engineering processes, products and services.

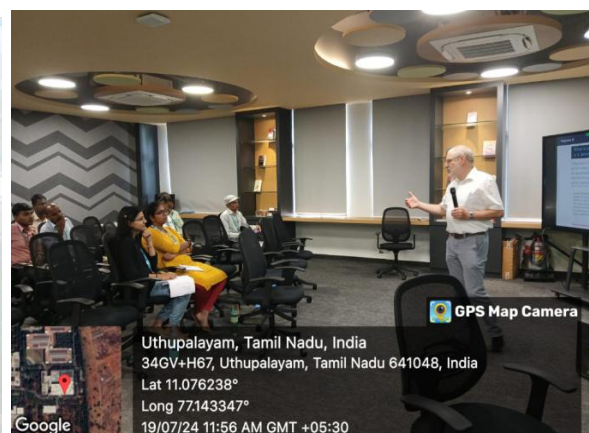
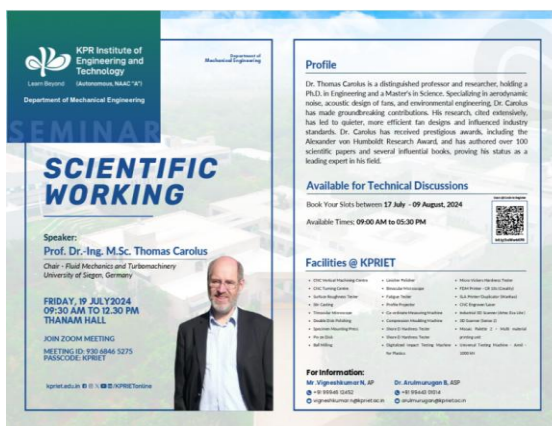
DEPARTMENT EVENTS

PROGRAMS ORGANIZED

- ✦ The Department of Mechanical Engineering at KPR Institute of Engineering and Technology organized a seminar titled "Guidance for Research Proposal Preparation, Information on Different Funded Projects and Agencies" on July 9, 2024, featuring Mr. Ranen Das, Chief Consultant, Ixora Limited, Mumbai, as the keynote speaker. The seminar provided valuable insights into preparing effective research proposals, identifying suitable funding opportunities, and understanding the requirements and evaluation criteria of various funding agencies. Mr. Das elaborated on the essential components of a successful proposal, emphasizing clarity, systematic presentation, alignment with funding priorities, and strategies to enhance the competitiveness of research submissions. He also highlighted the different funded research schemes available to academicians and researchers and shared practical examples of successful proposals. The interactive session and question-and-answer discussion enabled participants to clarify their doubts and gain practical guidance on securing research grants. The seminar enhanced participants' awareness of funding opportunities and strengthened their understanding of research proposal development, thereby encouraging faculty members and researchers from the Department of Mechanical Engineering to pursue innovative research projects and collaborative initiatives.



- The Department of Mechanical Engineering at KPR Institute of Engineering and Technology (KPRIET) organized a Scientific Working Seminar featuring Prof. Dr.-Ing. M.Sc. Thomas Carolus, Chair of Fluid Mechanics and Turbomachinery at the University of Siegen, Germany. Prof. Carolus, a distinguished researcher specializing in aerodynamic noise, acoustic design of fans, and environmental engineering, shared his extensive expertise and research insights with faculty members and students. With over 100 scientific publications and several influential books to his credit, he highlighted recent advancements in noise reduction, energy-efficient fan design, turbomachinery performance, and sustainable engineering solutions. The seminar provided participants with valuable exposure to international research practices and emerging developments in fluid mechanics and acoustic engineering. Technical discussions were also facilitated from July 17 to August 9, 2024, between 9:00 a.m. and 5:30 p.m., enabling participants to interact with the expert, exchange research ideas, and explore potential research collaborations. The programme demonstrated the Department of Mechanical Engineering's commitment to academic excellence, international collaboration, and research innovation, while highlighting KPRIET's advanced facilities, including CNC machines, 3D printers, and specialized testing equipment.



- The Department of Mechanical Engineering at KPR Institute of Engineering and Technology (KPRIET) organized a seminar titled "Technology Readiness Levels (TRLs) and Their Importance in Project Mapping" on 24 July 2024, from 2:45 p.m. to 4:00 p.m. at Veena Hall, KPRIET. The session was delivered

by Dr. Prashant R. Nair, Head and Vice-Chairman of the Internal Quality Assurance Cell (IQAC), Amrita Vishwa Vidyapeetham, Coimbatore, India. The seminar focused on the significance of Technology Readiness Levels in evaluating the maturity of research and innovation, covering the progression from fundamental research and experimental validation to technology demonstration and practical deployment. Dr. Nair highlighted the importance of integrating TRLs into project planning, monitoring research milestones, identifying technological gaps, and aligning academic research outcomes with industrial requirements and societal needs. The session provided faculty members and researchers with valuable insights into developing effective project roadmaps, assessing technology development stages, and enhancing the practical relevance and translational potential of their research. The programme was informative and interactive, strengthening participants' understanding of TRL-based project mapping and its role in promoting innovation, technology transfer, and industry-academia collaboration.



-  The Department of Mechanical Engineering at KPR Institute of Engineering and Technology (KPRIET) organized an Alumni Interaction programme under the MTMx Series on 1 August 2024, featuring Mr. Nandhakishore K, Senior Sales Executive at Mastercam India Pvt. Ltd., and an alumnus of the 2015–2019 Mechanical Engineering batch. The session focused on the importance of Computer-Aided Manufacturing (CAM) in modern industries

and its role in improving manufacturing productivity, precision, operational efficiency, and product quality. Mr. Nandhakishore shared his professional experiences and explained the applications of CAM technology across various industrial sectors, including automotive, aerospace, electronics, and consumer goods manufacturing. He provided valuable insights into CAM software, particularly Mastercam, and discussed its integration with Computer-Aided Design (CAD) systems and Computer Numerical Control (CNC) machines for efficient machining operations. The session highlighted how digital manufacturing technologies enable automation, minimize production errors, optimize machining processes, and support the development of complex engineering components. The interaction also provided students with practical industry knowledge, career guidance, and an understanding of the skills required to succeed in advanced manufacturing. The programme strengthened alumni-student engagement and reinforced the Department's commitment to industry-oriented learning and professional development.



- The Department of Mechanical Engineering at KPR Institute of Engineering and Technology (KPRIET) organized an alumni interaction programme titled "MTMx – Alumni Interaction Series: Women in Mechanical Engineering: A Key to Future Advancements" on 1 August 2024 at the II Classroom. Conducted as an on-campus institutional-level activity for students, the programme featured Ms. Dharani S, Graduate Engineer Trainee at Emerson

Process Management, who shared her professional experiences and insights into the evolving role of women in mechanical engineering. The session emphasized the importance of gender equality, diversity, and inclusivity in engineering education and industrial workplaces. The resource person discussed career opportunities, professional challenges, technical skill development, and the contributions of women to industrial innovation and technological advancement. The interaction provided students with practical guidance on career planning, workplace expectations, and the importance of continuous learning and professional confidence. A total of 69 students and one faculty member participated in the programme, which promoted meaningful interaction between alumni and students. The event aligned with SDG 4: Quality Education, SDG 5: Gender Equality, and SDG 9: Industry, Innovation and Infrastructure, reinforcing the Department's commitment to inclusive education, industry engagement, and the empowerment of future engineers.



Meet the Masters Experience

MTMx - Alumni Interaction Series



Women in Mechanical Engineering: A Key to Future Advancements

August 01, 2024

11:00 AM

kpriet.edu.in @ KPRIETonline



Ms. Dharani S

2020-24 Batch
Graduate Engineer Trainee
Emerson Process Management, Chennai



- Two Days Software Workshop on Ansys Workbench from 25th to 26th August 2023 Organized by Department of Mechanical Engineering in Association with Centre for Machining and Material Testing (CMMT). Key Highlights of the Workshop: Designed for Beginners to Intermediate Learners and Theory Session as well as Hands-on-Session will be Covered.

- The Two-day SolidWorks Workshop held on September 8th and 9th, 2023, marked a significant milestone for our organization and the participants from various institutions who attended. This workshop was designed to provide in-depth knowledge and hands-on experience with SolidWorks, a leading software tool in the field of engineering and design. A total of 63 external participants representing 14 different institutions participated.



FACULTY PUBLICATIONS

INTERNATIONAL JOURNALS:

- ✿ Muthukumaran, N. and Arulmurugan, B., 2024. Microstructural analysis and mechanical characterization of dissimilar welds between nickel-based and steel-based superalloys post-cryogenic treatment using hotwire GTAW. *JOURNAL OF ADHESION SCIENCE AND TECHNOLOGY*, 38(24), pp.4439-4466.
- ✿ KUMAR, P., RAJESWARI, M., SARAVANAKUMAR, P., ARUNKUMAR, S. and STALIN, P., 2024. STUDY ON A SOLAR WATER HEATER PERFORMANCE UNDER THE INFLUENCE OF NANOFLUID. *EMERG: Energy. Environment. Efficiency. Resources. Globalization*, 10(2), p.7.
- ✿ Natarajan, U. and Subramaniam, R.B., 2024. An experimental investigation on a CI engine with magnesium-doped zinc oxide nano-additives in fish oil biodiesel blends. *Journal of Thermal Analysis and Calorimetry*, 149(21), pp.11793-11805.
- ✿ Mani, S.K., Selvaraj, S., Sivanantham, G., Arockiasamy, F.S., Iyyadurai, J. and Mani, M., 2024. Advancements in chemical modifications using NaOH to explore the chemical, mechanical and thermal properties of natural fiber polymer composites (NFPC). *International Polymer Processing*, 39(4), pp.406-432.

STUDENTS ACHIEVEMENTS

The achievements of students from the Department of Mechanical Engineering in various events are displayed below.



Secured Runner up at Engine Kart Vehicle Championship Season-03



Secured 3rd Position in Robo Race at TechnoVIT 24 Line Follower, VIT Chennai



Secured 3rd Position at International silambam championship 2024