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Learn Beyond

**KPR Institute of
Engineering and
Technology**

(Autonomous, NAAC "A")

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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 and SAE collegiate club of KPRIET jointly organized an orientation program on SAE INDIA ACTIVITIES for SAE members on 18.11.2023 at the KPR Institute of Engineering and Technology. the welcome address was given by Dr. K. Ravikumar associate head of the department and followed by felicitation was done by Dr. S. Rameshbabu, Head of the department. Dr. K. Siva, Secretary, SAE INDIA Southern section and Chairman, SAE INDIA Coimbatore chapter gave a special address on this event. He started by deliberating the importance of engineers in global scenarios and the value of mechanical engineers in the current field. He insisted our SAE members be active participants in SAE INDIA activities planned for this year. He listed events from SAEINDIA starting with the Bicycle design competition, SAE BAJA 2024 in indoor, Effi-cycle event in the south, E-vehicle design and fabrication in 2024, and Tire 1 events at the institute level. this event can push our students' limits to zone and national levels. He assured his support for our team at any part of time.



- ✎ The industrial guest lecture on 'ANALYZE THE FLUID FLOW PHENOMENA USING CFD' has been organized by the Department of Mechanical Engineering on November 18, 2023, between 9.30 a.m. and 11 a.m. through google meet. Mr.

Bharathwaaj Ramani, Senior Design Engineer, Creative Synergies Consultancy India (P) Limited, Bangalore, has consented to be the guest speaker. The students are assembled in the II Mech Classroom and connected through Google Meet. Dr. P. Manoj Kumar, Associate Professor, Mechanical Engineering, welcomed the gathering and introduced the guest speaker to the gathering. The guest lecture is conducted to complement the students for the III semester subject 'Fluid Mechanics and Applications.' The guest speaker started the session by sharing his experience working with the tool Computational Fluid Dynamics (CFD). He shared the importance of learning CFD to solve real-time fluid flow and heat transfer problems. He explained the steps to be followed to solve complex engineering fluid flow problems using CFD with an example. He narrated about the underlying theory of CFD and the fundamental equations involved in CFD. The session was very useful for the students to understand the importance of CFD and the fundamentals behind the CFD solver.



- A two-day workshop on Geometric Dimensioning and Tolerancing (GD&T) using Fusion 360 for students can be a valuable learning experience. GD&T is a system for defining and communicating engineering tolerances, and Fusion 360 is 3D CAD modeling software. Throughout the workshop, make sure to provide participants with access to Fusion 360 and relevant learning

materials. It's important to balance theoretical and practical exercises, as well as engage in discussions about the practical applications of GD&T.



- The workshop demonstrated 3D printing and 3D scanning systems for external participants. Mr. P. Arunkumar delivered a lecture about introduction of additive manufacturing, classification of AM process, detailed explanation of each process, and 3D scanning process. Also, he demonstrated the system using CURA and Artec software with post processing.



- YANTRIK'23 - Mechanical Engineering organized a workshop on Electric vehicle on 12.10.2023. Approximately 100 external participants from other

colleges attended the workshop on Electric Vehicle with hands-on training. Dr.M.Makeshkumar, Associate Professor/ Mechanical Engineering delivered a workshop on 'Electric vehicles' and conducted hands-on training for the participants.



- Department of Mechanical Engineering Organized an inauguration of 'The institute of Indian foundrymen (IIF) students' chapter'. Industrial Expert Dr.V.S.Saravanan, Junior Vice president from Indo shell cast Pvt LTD, Coimbatore is inaugurated this Student chapter who is the Technical Advisor of Foundry chapter from Coimbatore. Around 94 students were attended this chapter inauguration from Mechanical department. Office Barriers for this chapter was declared during this inauguration. 43 students from second year mechanical are the students chapter member and got insights about casting technology which was most helpful to them since they have Manufacturing Technology - 1 [U21ME302] course in their curriculum.



FACULTY PUBLICATIONS

INTERNATIONAL JOURNALS:

- ✿ Naveen, R., **Kumar, M.**, Ramesh, M., Abinaya, R. and Prasath, M.S., 2023. An investigation on effect of ultraviolet (UV) rays on mechanical properties of epoxy laminates. *Materials Today: Proceedings*.
- ✿ **Murugesan, K.**, Vaithialingam, P., Raj, R.J.R. and Thangavel, S.K., 2023, October. Evaluation of mechanical performance of additive manufactured PA6GF30 alloy. In *AIP Conference Proceedings* (Vol. 2912, No. 1, p. 020012). AIP Publishing LLC.
- ✿ Naveen, R., **Kumar, M.**, Swarnalatha, A., Ezhilarasu, R., Prasath, M.S. and Ramesh, M., 2023. Corrosion Studies on Al6061 Alloy Based Hybrid Metal Matrix Composites. *International Journal of Vehicle Structures & Systems (IJVSS)*, 15(4), p.932.
- ✿ **Kumar, P.M.**, Meena, R.S., Sivaramakrishnan, S., Sudhakar, M., Thilagham, K.T., Kumar, K.S. and Surakasi, R., 2024. Study on the photovoltaic panel using nano-CeO₂/Water-based Nanofluid. *International Journal on Interactive Design and Manufacturing (IJIDeM)*, 18(8), pp.6215-6224.
- ✿ Selvaraj, G., Yessian, S., Ramalingam, S., Kumar, S.D., Gopal, G., Sharma, S., Kumar, A., Li, C. and Abbas, M., 2023. Investigation on topology-optimized compressor piston by metal additive manufacturing technique: Analytical and numeric computational modeling using finite element analysis in ANSYS. *Open Physics*, 21(1).
- ✿ **Balaji, D., Arulmurugan, B. and Bhuvaneswari, V.**, 2023. An overview of the additive manufacturing of bast fiber-reinforced composites and envisaging advancements using the patent landscape. *Polymers*, 15(22), p.4435.
- ✿ Amarnath, V., **Karthi, N.**, Kumar, Y., Akash, S. and **Rajeshkumar, L.**, 2023, December. Analysis of brake performance of an all-terrain vehicles by simulation and experimental techniques. In *AIP Conference Proceedings* (Vol. 2901, No. 1, p. 100034). AIP Publishing LLC.

- ✿ Noyon, M.A.R., Uddin, M.E., Dey, T.K., Jamal, M., **Sivanantham, G.** and Islam, R., 2024. Biodegradable composite from discarded hair keratin and graphene oxide with improved mechanical, thermal and barrier properties: an eco-friendly solution to waste materials. *Polymer International*, 73(3), pp.230-237.
- ✿ Raguramsingh, M., Suresh, M., **Arivazhagan, S.** and Ganapathy, T., 2023. Optimization of FSW parameters on bio-inspired jigsaw suture patterns to improve the tensile strength of dissimilar thermoplastics. *Materials Research Express*, 10(10), p.105303.
- ✿ Amarnath, V., **Vigneshkumar, N.**, Kumar, Y., Akash, S. and **Rajeshkumar, L.**, 2023, December. Performance analysis of a single slope forced convection solar dryer. In *AIP Conference Proceedings* (Vol. 2901, No. 1, p. 100033). AIP Publishing LLC.
- ✿ **Gokulkumar, S., Kannan, T., Karthi, N., Sathish, S., Prabhu, L., Aravindh, M. and Alex, J.**, 2023, February. Development and Characterization of Glycine Max Seed Powder Blended with Unidirectional Agave Fourcroydes Reinforced Epoxy Nanocomposite. In *International Symposium on Lightweight and Sustainable Polymeric Materials* (pp. 159-172). Singapore: Springer Nature Singapore.

STUDENTS ACHIEVEMENTS

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



Special Category Award in the “Innovate for Impact” Design Ideation at Kalam 23



Awarded for the event “INNOVATEX 2.0 LINE FOLLOWER & FULL THROTTLE” at Presidency University



Awarded for the event “Tech Fest” at IIT Bombay



Awarded for the event "TECHNICHE'23" at IIT Guwahati



Awarded for the event "AMPHIBOT - CONSCIENTIA'23" at Institute of Space Science and Technology



Awarded for the event "INVENTE'23" at SSN (Shiv Nadar University, Chennai)