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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 Techno-Cultural event FIESTAA'2024 was organized on 27.03.2024 and 28.03.2024. The Department of Mechanical Engineering has organized four events namely, Paper Presentation, Design Contest, Mr. Tool man, and a workshop on 'Reverse Engineering using 3D Scanning'. The Paper Presentation, and the workshop on 'Reverse Engineering using 3D Scanning' has been organized during the Forenoon of 27.03.2024. The Design Contest was organized during the Afternoon of 27.03.2024. The fourth event, Mr. Tool man was organized during the Afternoon of 28.03.2024. In total, 103 participants were registered from the institutions, in and round Tamil Nadu. There were 20 participants registered for Paper Presentation, 20 participants registered for Design Contest, 17 participants registered for Mr. Tool man, and 59 participants registered for Paper Presentation the workshop on 'Reverse Engineering using 3D Scanning'.



- The Department of Mechanical Engineering successfully conducted a two-day workshop on SolidWorks, Version 2.0, on March 14th and 15th, 2024. The workshop aimed to equip participants with the knowledge and skills to utilize SolidWorks for Computer-Aided Design (CAD). The workshop

attracted a total of 33 participants, consisting of both internal faculty and students, along with external participants. The balanced mix of experience levels ensured a dynamic learning environment.



- The workshop on AI tools in research writing, led by Dr. K.S. Sowmia Rani from Cactus Communication Mumbai, showcased the transformative impact of artificial intelligence on scholarly writing. Attendees gained valuable insights into the practical applications of AI tools across various research stages, from literature review to manuscript preparation. The event began with a demonstration of AI-powered literature review tools, illustrating their efficiency in identifying relevant literature, extracting key insights, and guiding research directions. Participants were impressed by the speed and accuracy with which these tools navigated vast scholarly databases.



## FACULTY PUBLICATIONS

### INTERNATIONAL JOURNALS:

- ✿ Kumar, R.V., **Kumar, K.R.** and Soms, N., 2024. MECHANICAL PROPERTIES AND FAILURE ANALYSIS OF PLA/COPPER COMPOSITES FABRICATED BY FUSED DEPOSITION MODELLING. *Journal of Mining & Metallurgy. Section B: Metallurgy*, 60(1), p.33.
- ✿ Natarajan, P., Mohanraj, M., **Kumar, M.** and **Sathish, S.**, 2024. Experimental investigation on mechanical and tribological analysis of pineapple leaf (*Ananas comosus*) and sisal (*Agave sisalana*) fibers reinforced hybrid epoxy composites. *International Polymer Processing*, 39(2), pp.134-142.
- ✿ Ajithkumar, S., **Arulmurugan, B.** and Meiyazhagan, R., 2025. Welding of nickel alloys interface by finite element modeling and artificial intelligence and envisage by patent landscape. *International Journal on Interactive Design and Manufacturing (IJIDeM)*, 19(10), pp.6853-6884.
- ✿ Almeshaal, M. and **Kumar, P.M.**, 2024. Study on enhancing groundwater quality in a coastal area of Saudi Arabia using a curved glass solar still. *Groundwater for Sustainable Development*, 25, p.101154.
- ✿ Alasiri, A. and **Kumar, P.M.**, 2024. Investigating the influence of solar distillation on improving the groundwater quality index in the southern region of Riyadh, Saudi Arabia. *Groundwater for Sustainable Development*, 25, p.101155.
- ✿ Prakash, K.B., Chinnasamy, S., Manimuthu, C. and **Kumar, P.M.**, 2024. Assimilation of a novel thermal collector and phase change material in photovoltaic/thermal system-an energy and exergy based comparative study. *Journal of Energy Storage*, 81, p.110461.
- ✿ Prabhu, L., Sathish, S., **Gokul Kumar, S.**, Dharani Kumar, S., Namburigha, K., Naveen Kumar, A., Ragul Kumar, M., Ravishankar, P.M., Saravanagowri, S.P. and Shobika, K.M., 2024, February. Experimental study on mechanical, chemical and acoustical properties of waste tea leaf fiber reinforced epoxy composites. In *Materials Science Forum* (Vol. 1112, pp. 13-25). Trans Tech Publications Ltd.

- ✿ Felix Sahayaraj, A.M.T.S., M, T.S., Sasi Kumar, M., **Sathish, S., Gokulkumar, S.,** Jenish, I. and **Makezhkumar, M., 2024.** Fire retardant potential of natural fiber reinforced polymer composites: A review. *Polymer-Plastics Technology and Materials*, 63(7), pp.771-797.
- ✿ **Sivanantham, G.,** Divakaran, D., Suyambulingam, I., Murugan, A., MR, S. and Siengchin, S., 2024. Physicochemical characterization of novel biomass-based microcrystalline cellulose derived from agro-industrial residues of Rosa indica petals. *Physiologia Plantarum*, 176(1), p.1.
- ✿ **Sivanantham, G.,** Pudukarai Ramaswamy, T., Selvaraj, S., Murugan, A., Sahayaraj Arockiasamy, F., Mani, S.K. and Uddin, M.E., 2024. Adapting a phenomenological model for predicting acoustical behaviour of Camellia sinensis/Ananas comosus/E-glass fibre-blended epoxy hybrid composites. *Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications*, 238(10), pp.1956-1980.
- ✿ **Kumar, N.M.,** Paulsingarayar, S., Nagaraja, S. and Kalaiselvan, S., 2024, April. Impact of Assorted Temperature on Yield and Surface Morphology of Multiple Layers of Carbon Nanotubes by Spurt Pyrolysis Techniques. In *Materials Science Forum* (Vol. 1119, pp. 101-110). Trans Tech Publications Ltd.

## STUDENTS ACHIEVEMENTS

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



### Awarded in SNS Alumni Trophy



### Best Skill pad Award in AIMS GO KART



Awarded for the event “ELECTRODASH” at SVNIT INSTITUTE



Awarded for the event “PRAGYAN'24 SUBMERGE” at NIT, Trichy



Awarded for the event “HAVANA'24” at Gandhi Institute of Technology and Management



Awarded for the event "RC PLANE COMPETITION" at NIT, Trichy



Awarded for the event "PETRICHOR'24" at IIT PALAKKAD



Awarded for the event "DRL KSHITIJ'24" at IIT Kharagpur