
Department of
MECHANICAL ENGINEERING



SPARK

NEWSLETTER



Learn Beyond

KPR Institute of
Engineering and
Technology

(Autonomous, NAAC "A")

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About SPARK · Issue 3

SPARK is the quarterly newsletter of the Department of Mechanical Engineering, KPRIET. This issue covers January – March 2025.

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KPR INSTITUTE OF ENGINEERING AND TECHNOLOGY

KPRIET, established in 2009, is recognized for its high standards in engineering and technology. Supported by 250+ dedicated faculty and advanced facilities, KPRIET offers comprehensive programs across undergraduate, postgraduate, and research levels. Its commitment to global standards is evident in its NBA accreditation and partnerships with international institutions.

KPRIET is a dynamic environment for cultivating skilled professionals equipped for modern challenges.

VISION & MISSION

Vision:

To become a premier institute of academic excellence by imparting technical, intellectual and professional skills to students for meeting the diverse needs of industry, society, the nation and the world at large

Mission:

- Commitment to offer value-based education and enhancement of practical skills. Continuous
- assessment of teaching and learning processes through scholarly activities. Enriching research
- and innovation activities in collaboration with industry and institutes of repute.
- Ensuring the academic processes to uphold culture, ethics and social responsibilities.



DEPARTMENT OF MECHANICAL ENGINEERING

The Department of Mechanical Engineering, established in 2009, is committed to advancing technical education through a robust curriculum and research-driven approach. With over 400 students, the department offers undergraduate, postgraduate, and Ph.D. programs. Supported by 30 faculty members, 80% with Ph.D. degrees, and NBA accreditation since 2023, it provides students with essential industry skills and global perspectives.



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



Provide fundamental and skill-based education in mechanical engineering through innovative practices in teaching and learning



Establish centres 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



Events Organized

6 programmes organized by the Department during January – March 2025

Inauguration of the Industry-Integrated Skill Development Course on Robotic Welding and Additive Manufacturing

12 February 2025 | Inauguration · Daffodil, Imperial Hall · in association with IWS, Kavin Inc. and ABB Value Provider · Chief Guest: Mr. Anand, Operations Head & Junior Managing Director, ABR Engineering · Convenor: Dr. S. Ramesh Babu · Coordinators: Dr. B. Arulmurugan and Dr. S. Dharanikumar



Event Brochure

The department launched its Industry-Integrated Skill Development Course on Robotic Welding and Additive Manufacturing. Chief guest Mr. Anand of ABR Engineering highlighted the importance of automation and additive manufacturing in modern industry. Developed with industry partners Kavin Inc. and ABB Value Provider, the course aims to bridge the skill gap through hands-on training in robotic welding and WAAM. Students gained insight into industrial applications, research prospects and career opportunities in smart manufacturing, and were inspired to embrace Industry 4.0.



Demonstration on 3D Printing and 3D Scanning at Alchemy Public School

14 February 2025 | Outreach Workshop · Alchemy Public School, Coimbatore · Convenor: Mr. P. Arunkumar, Centre for 3D Printing · Student Coordinators: Mr. R. Akash and Mr. B. Pranesh (II Year)



Event Brochure

Reaching beyond campus, the Centre for 3D Printing introduced 27 ninth-grade students at Alchemy Public School to the world of additive manufacturing. Through live demonstrations of Cura slicing software, an Ender 3 Pro 3D printer and an Artec Eva 3D scanner, students saw step by step how objects are designed, scanned and printed. The hands-on exposure sparked strong interest in innovation, design and emerging manufacturing technologies, and supported SDG 4: Quality Education.



MoU Signing Ceremony

17 February 2025 | MoU Signing · Thanam Hall · organised by the Industry Institute Partnership Cell and the Department of Mechanical Engineering



Event Brochure

KPRIET signed a Memorandum of Understanding at a ceremony organised by the Industry Institute Partnership Cell and the Department of Mechanical Engineering. The agreement strengthens collaboration between industry and academia, opening opportunities for joint training, internships, projects and professional development for students and faculty. The MoU marks another milestone in the institution's commitment to bridging academic excellence with industrial expertise.



Experiential Learning Visit to IIT Palakkad

26 February 2025 | Experiential Learning Visit · Indian Institute of Technology Palakkad, Kerala

Students visited IIT Palakkad for first-hand exposure to advanced manufacturing and materials research facilities. Interacting with faculty members and researchers, they explored research in additive manufacturing, precision engineering and tribology, and learned about real-world industrial and research challenges. The visit broadened students' understanding of emerging technologies and inspired many to consider higher studies, research collaboration and innovative engineering careers.



Financial Literacy Programme: Pratham, Pragati & Samriddhi

08 March 2025 | Financial Literacy Programme · IV ME A Classroom · Resource Person: Mr. C. K. Arivazhagan, Empanelled Trainer, National Stock Exchange (NSE)



Event Brochure

Students learned to manage money wisely in a financial literacy programme delivered by NSE-empanelled trainer Mr. C. K. Arivazhagan. The programme was structured in three progressive levels – Pratham for financial planning, Pragati for capital-market fundamentals and Samriddhi for active investing. Interactive sessions built students' understanding of budgeting, savings, investment strategies and informed decision-making, equipping them with life skills that complement their engineering education.



Industry Expert Lecture on ADAS Technology

10 March 2025 | Industry Expert Lecture · Thanam Hall · with the KPRIET–Bosch Joint Certification Centre (JCC) · Resource Person: Ms. Aishwarya Rajashekar, Head – JCCs, Technical Training Academy, Bosch Ltd., Bengaluru · Convenor: Dr. S. Ramesh Babu · Coordinator: Dr. M. Kumar



Event Brochure

In association with the KPRIET–Bosch Joint Certification Centre, students attended an expert lecture on Advanced Driver Assistance Systems by Ms. Aishwarya Rajashekar of Bosch. She explained the key components of ADAS – cameras, radar, LiDAR, sensors and electronic control units – and walked through the five levels of driving automation. Students gained valuable insight into vehicle intelligence, road safety and the future of autonomous driving, and into the skills needed for careers in automotive electronics.



Faculty Publications

10 journal articles

Journal Publications

1. Chitharaj, R., Perumal, H., Almeshaal, M. and Manoj Kumar, P. (2025) 'Optimizing performance of a solar flat plate collector for sustainable operation using box-behnen design (BBD)', *Sustainability*, 17(2), p. 461.
2. Jayakumar, N., Senthilkumar, G. and Kumar, M. (2026) 'Investigation on geometric, dimensional accuracy and surface roughness for 3D printed PLA via fused deposition modelling (FDM) process', *Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering*, 240(1), pp. 1019–1030.
3. Selvan, D.K., Ganesan, K. and Prasath, V.M.M. (2025) 'Experimental Investigation of Low-Cycle Corrosion Fatigue Behavior of AA5059 Aluminum Alloy in Air and 3.5% NaCl Solution Environments', *Fatigue & Fracture of Engineering Materials & Structures*, 48(4), pp. 1542–1558.
4. Mohammed Raffic, N., Ganesh Babu, K., Dharani Kumar, S. and Parrthipan, B.K. (2025) 'On search of optimal FDM parameter settings for reduced dimensional error using entropy-PCA-TOPSIS and regression machine learning techniques', *Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications*, 239(3), pp. 617–637.
5. Muthukumar, N., Arulmurugan, B. and Manoharan, M. (2025) 'Cryo-laser synergy: Enhancing metallurgical and mechanical excellence in Inconel 59-AISI 904L joints', *Heliyon*, 11(3).
6. Sivanantham, G., Divakaran, D., Suyambulingam, I., Priyadharshini, G.S., Munusamy, Y., Murali, A. and Han, S.S. (2025) 'Isolation and characterization of microcrystalline cellulose from rice stalk agro-waste and its application in enhancing inherent properties of PBAT biofilm', *Process Safety and Environmental Protection*, 196, p. 106864.
7. Gurusamy, M., Thirumalaisamy, R., Karuppusamy, M. and Sivanantham, G. (2025) 'Pistachio shell biochar as a reinforcing filler in short Turkish hemp fiber composites: a path toward sustainable materials', *Journal of Polymer Research*, 32(4), p. 110.
8. Thillikkani, S., Kumar, N.M., Francis Luther King, M., Soundararajan, R. and Kannan, S. (2025) 'Stir Casting Synthesis and Evaluation of SiC Nanoparticle-Reinforced AZ31 Magnesium Alloy Nanocomposites', *Automotive Technical Papers*, 369401.
9. 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.
10. Dilavar, S.N., Sailesh, A., Sahoo, M.R., Prasad, D.V.S.S.S.V., Kumar, K.S., Krishna, M.V., Anandkumar, R. and Nalinashini, G. (2025) 'Enhancing Mechanical Properties by Parameter Optimization in Fiber and Particle Reinforced Composites', *Journal of Polymer & Composites*, 13(2), pp. 75–85.

Student Achievements

Our students bring home prizes, medals and trophies



Competed in the Karting Endurance Championship (Season 05) @ Academy of Indigenous Motor Sports (AIMS)



Secured 1st place in Robo Race @ EXPELLIARMUS'25



Secured 1st place in RC Adventure @ JARVIS'25, Chennai Institute of Technology



Secured 3rd place @ Sri Eshwar College of Engineering, Coimbatore



Secured 1st place in CAD Modelling @ VARNAM'25, Karpagam Institute of Technology



Secured 1st place @ ZHAKRA'25, Kongu Engineering College

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