
Department of
MECHANICAL ENGINEERING



SPARK

NEWSLETTER



Learn Beyond

KPR Institute of
Engineering and
Technology

(Autonomous, NAAC "A")

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About SPARK · Issue 2

SPARK is the quarterly newsletter of the Department of Mechanical Engineering, KPRIET. This issue covers October – December 2024.

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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

2 programmes organized by the Department during October – December 2024

Industry Expert Lecture on Solar Power Plant Design and Management

03 October 2024 | Industry Expert Lecture · Elective Hall, Mechanical Department · Resource Person: Dr. Matheswaran Alagu, Technical Lead, RAALTECH Solutions & Head – Technical, O&M-Mas Solar Systems Pvt. Ltd.



Event Brochure

Dr. Matheswaran Alagu, an industry expert in solar power systems, gave students practical exposure to the design and operation of solar power plants. He covered photovoltaic energy conversion, panel installation, plant layout, system sizing, energy generation and performance monitoring, and explained the role of preventive maintenance and energy management in keeping plants efficient. He also discussed real-world challenges in integrating renewable energy into existing power systems. The lecture supported SDGs 7, 9, 11 and 12 and the department's focus on sustainable engineering.



Inauguration of the Mechanical Engineering Association 2024–25

15 November 2024 | Association Inauguration · Thanam Hall · Chief Guest: Mr. Abhinay Sridharan, Operations Manager – Aerospace & Defense Group, CIRCOR Flow Technologies India Pvt. Ltd., Coimbatore



Event Brochure

The Mechanical Engineering Association for 2024–25 was formally inaugurated by Mr. Abhinay Sridharan of CIRCOR Flow Technologies. Speaking on the aerospace and defence sectors, he highlighted emerging technologies, industrial practices, quality standards and the importance of innovation in modern manufacturing. He urged students to build technical competence, teamwork, problem-solving ability and a habit of continuous learning. The inauguration set the tone for a year of association activities that connect classroom learning with industry practice.



Faculty Publications

12 journal articles

Journal Publications

1. Ganesan, K., Selvan, D.K. and Marimuthu, G.S. (2024) 'Fatigue crack growth study on rolled and cryogenically treated AZ31B Mg alloy plate', *Theoretical and Applied Fracture Mechanics*, 133, p. 104530.
2. Manoj Mohan Prasath, V., Dharani Kumar, S. and Mohammed Raffic, N. (2025) 'Effects of multi-objective optimization of friction stir welding process parameter on mechanical and ballistic properties of AA5754 aluminum alloy', *Journal of Adhesion Science and Technology*, 39(6), pp. 879–909.
3. Nataraj, G. and Ramesh Babu, S. (2025) 'Enhancing mechanical properties of PLA-based bio composite filament reinforced with horse gram filler for 3D printing applications', *Journal of Vinyl and Additive Technology*, 31(2), pp. 453–468.
4. Arunkumar, P., Balaji, D., Radhika, N., Rajeshkumar, L., Rangappa, S.M. and Siengchin, S. (2025) 'Effect of infill pattern on mechanical properties of 3D printed PLA-Zn composites for drone frame structures: A topology optimization integrated application study', *Results in Engineering*, 25, p. 104107.
5. Rajan, C.S., Kumar, N.M., Kumar, K.V., Kannan, S. and Soundararajan, S. (2024) 'Investigation on Mechanical and Metallurgical Characterization of Micro-Alloyed Steel Produced by Friction Stir Welding (FSW)', *Automotive Technical Papers*, 358710.
6. Kumar, N.M., Thillikkani, S., Kannan, S., Soundararajan, S. and Bharti, K. (2024) 'Investigating Mechanical Performance of Load Vehicle Brake Liners Enhanced with Nanomaterials Using Finite Element Analysis', *Automotive Technical Papers*, 358710.
7. Sathesh Babu, M., Ramamoorthi, R., Gokulkumar, S. and Manickaraj, K. (2024) 'Mahua oil cake microcellulose as a performance enhancer in flax fiber composites: mechanical strength and sound absorption analysis', *Polymer Composites*, 46(3), pp. 2221–2240.
8. Ajithkumar, S. and Arulmurugan, B. (2024) 'Microstructure and mechanical properties of Inconel 686 fabricated by gas metal arc welding-based wire arc directed energy deposition: impact of cryogenic treatments', *Journal of Materials Science*, 59(40), pp. 19273–19302.
9. Ajithkumar, S. and Arulmurugan, B. (2025) 'Investigation of single and double pulse techniques on microstructure and mechanical anisotropy of Inconel 686 component fabricated by wire arc directed energy deposition', *Metals and Materials International*, 31(6), pp. 1648–1673.
10. Lalitha, B., Lakshmi, K., Karthick, A. and Manoj Kumar, P. (2024) 'Performance analysis of photovoltaic module using eutectic phase change material', *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, 46(1), pp. 14423–14435.
11. Murugesan, K., Lenin Singaravelu, D., Krishnan, R. and Palani, M.M.R. (2026) 'Experimental research on friction and wear behavior of dissimilar steel composite structure developed by wire arc-DED process for an automobile brake rotor application', *Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering*, 240(4), pp. 4494–4502.
12. Dharani Kumar, S., Nitin, M.S., Kumar, S.S., Muthukumaran, N. and Magarajan, U. (2025) 'Mechanical and ballistic performance of individual and synergistic filler reinforced glass fiber epoxy composites', *Polymer Composites*, 46(8), pp. 7555–7568.

Student Achievements

Our students bring home prizes, medals and trophies



Secured 2nd place in Robo Racer @ ANOKHA'24, Amrita Vishwa Vidyapeetham



Secured 2nd place in Drone Trix @ CONSCIENTIA'24, Indian Institute of Space Science and Technology, Kerala



Secured a Finalist position in the Fluid Power Society of India Quiz @ Fluid Power Challenge 2024



Honoured for the District Disaster Management Camp @ Indian Red Cross Society



Honoured in the PSG Tech Alumni Trophy @ PSG College of Technology, Coimbatore



Naveenkumar K
Secured 2nd place in Athletics @ Anna University Zonal Tournaments 2024–25

Faculty Achievements

Recognition earned by our faculty members



*Honoured as Runner-up @ Quality Conclave 2024,
Coimbatore Productivity Council – QCFI Coimbatore Chapter*



Dr. S. Gokulkumar

Invited as Resource Person for "AI Assistance in Research Writing" @ ResearchCare India Pvt. Ltd., 10 October 2024

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