
Department of
MECHANICAL ENGINEERING



SPARK

NEWSLETTER



Learn Beyond

KPR Institute of
Engineering and
Technology

(Autonomous, NAAC "A")

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About SPARK · Issue 4

SPARK is the quarterly newsletter of the Department of Mechanical Engineering, KPRIET. This issue covers April – June 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

3 programmes organized by the Department during April – June 2025

Designathon 2025: Innovate. Collaborate. Create.

26 April 2025 | Design Hackathon · Imperial Hall · in association with the IEEE Industry Applications Society (IAS) · Coordinators: Dr. M. Makeshkumar and Mr. S. Shiva Naveen



Event Brochure

The department and the IEEE Industry Applications Society organised Designathon 2025, an innovation challenge open to all departments. Teams tackled real-world problems through design thinking, ideation, prototyping and project presentations, applying core engineering principles to develop practical solutions. Mentors from academia and industry interacted with participants throughout the day, and the best teams were rewarded with cash prizes and special awards. The event fostered interdisciplinary collaboration, critical thinking and a culture of innovation and entrepreneurship.



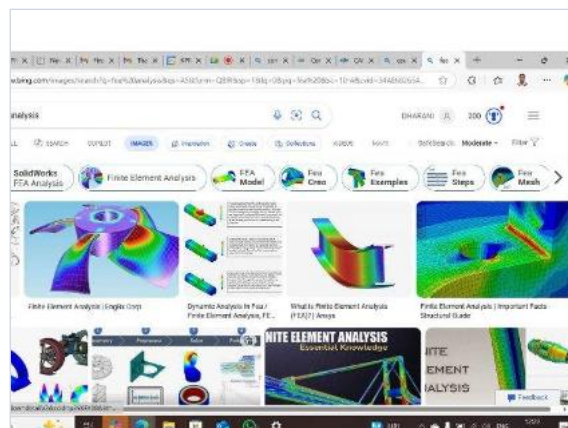
Guest Lecture on Vibration Analysis

29 April 2025 | Guest Lecture (Online) · for students of U21ME601 – Finite Element Analysis · Resource Person: Mr. Mohindh Ranga, CAE Engineer (Onward Technologies), deputed to Renault Nissan Technology and Business Centre India



Event Brochure

Students enrolled in Finite Element Analysis attended an online guest lecture on vibration analysis by CAE engineer Mr. Mohindh Ranga. He explained the fundamentals of mechanical vibrations, the analysis techniques used in industry and their role in structural evaluation, predicting dynamic behaviour and preventing failure, drawing on examples such as wheel impact analysis. The lecture bridged theory and practical engineering application and strengthened students' analytical skills, supporting SDG 4 and SDG 9.



Guest Lecture on FEA and CFD Applications

30 April 2025 | Guest Lecture (Online) · for students of U21ME601 – Finite Element Analysis · Resource Person: Mr. P. Balamurugan, Project Engineer, Einnel Technology, Chennai · Coordinator: Dr. S. Dharani Kumar



Event Brochure

Following a welcome by Dr. S. Dharani Kumar, Mr. P. Balamurugan of Einnel Technology explored the principles and industrial applications of finite element analysis and computational fluid dynamics – structural, thermal and dynamic simulations. He showed how virtual engineering helps optimise designs, reduce prototyping costs and accelerate product development, and outlined career opportunities in simulation engineering across the aerospace, automotive and energy sectors. An interactive Q&A session concluded the lecture.

Faculty Publications

5 journal articles and 3 book chapters

Journal Publications

1. Kumar, N.M., Ramalingam, S.K., Bharti, K., Nandhakumar, P.V. and Yuvaperiyasamy, M. (2025) 'A comprehensive study of microstructure and mechanical properties in friction stir welded AA 2024 and nano particle reinforced hybrid composites', *Turkish Journal of Engineering*, 9(2), pp. 313–322.
2. Sivanantham, G., Ayyappan, V., Loganathan, P., Mani, S.K., Vijaya, G.S., Raghunathan, V., Rangappa, S.M. and Siengchin, S. (2025) 'Sustainable hybrid composites from flax, vetiver, and *Luffa cylindrica*: Acoustic and structural performance', *Polymer Composites*, 46(14), pp. 12818–12834.
3. Prasath, V.M.M., Kumar, S.D. and Kumar, S.S. (2025) 'Influence of cryogenic treatment on mechanical and ballistic properties of AA5754 alloy friction stir welded joints', *Defence Technology*, 46, pp. 184–198.
4. Mohammed Raffic, N., Ganesh Babu, K., Dharani Kumar, S. and Parthipan, B.K. (2025) 'Surface roughness and printing time minimization in 3D printed aramid fiber reinforced polyamide parts through Taguchi-CoCoSo-Machine learning techniques', *Journal of Materials Engineering and Performance*, 34(11), pp. 9654–9680.
5. Vijayan, C.N., Ramasamy, K., Karuppusamy, M. and Sivanantham, G. (2025) 'Mechanical, tribological and corrosion behavior of stir compocast Al 6063 composites: impact of cenosphere reinforcement', *Surface Review and Letters*, p. 2550185.

Book Chapters

1. Sitharaj, A., Arulmurugan, B., Dharani Kumar, S., Idhayaraja, S., Manishraj, D. and Premkumar, N. (2024) 'Wire-Arc Directed Energy Deposition of Aluminum Alloys: A Review on Properties, Challenges, and Applications', in *International Conference on Additive Manufacturing*. Singapore: Springer Nature Singapore, pp. 99–115.
2. Sitharaj, A., Arulmurugan, B., Veeraraghavan, V., Idhayaraja, S., Vivekanandh, S.R., Kavin, M. and Kumaar, A.A. (2024) 'Hybridization in wire arc directed energy deposition of titanium alloys: a review', in *International Conference on Additive Manufacturing*. Singapore: Springer Nature Singapore, pp. 441–465.
3. Sitharaj, A., Arulmurugan, B., Karthi, N., Dhanushh, M.S., Deepak, S.R. and Ajay, M. (2024) 'Hybridization in metal additive manufacturing: Current status and future perspectives', in *International Conference on Additive Manufacturing*. Singapore: Springer Nature Singapore, pp. 467–482.

Student Achievements

Our students bring home prizes, medals and trophies



Secured 2nd place @ FORSCH'25, Anna University
Regional Campus, Coimbatore



Secured 3rd place (2nd Runner-up) @ XYNTRA'25



Secured 1st place @ NIBU FEIER, Aditya Institute of Technology

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