
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 2026.



CONTENTS



Issue 4 · April – June 2026

Events, research and achievements of the
Department of Mechanical Engineering

2

Editorial Board

4

KPR Institute of Engineering and Technology

5

Department of Mechanical Engineering

Vision and mission of the department

6

Events Organized

Workshops, expert talks, courses and
competitions

10

Faculty Publications

Journal articles, book chapters and
patents



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

7 programmes organized by the Department during April – June 2026

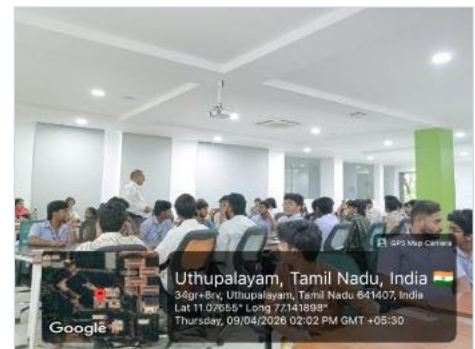
KONE Industry Expert Talk: Hoisting and Elevator Car

09 April 2026 | Expert Talk · Thanam Hall · Resource Person: Mr. C. V. S. Sashikanth, Deputy General Manager, KONE Elevators India Pvt. Ltd., Chennai · Convenor: Dr. M. Makeshkumar



Event Brochure

As part of the industry-supported open elective U21GEX07 – Vertical Transportation Systems, designed by KONE Elevators, 196 students attended an expert talk on hoisting systems and elevator cars. Mr. C. V. S. Sashikanth explained traction mechanisms, ropes, counterweights, machine components and safety features, and then turned to elevator car design, structural considerations, passenger comfort and regulations. Linking theory to real installations, he also shared industry trends and challenges in vertical mobility, motivating students to explore careers in this specialised field.



KONE Industry Expert Talk: Electrification & Signalization

16 April 2026 | Expert Talk · New 360 Hall · Resource Person: Mr. S. Dinesh, Deputy General Manager – Electrification, KONE Elevator India Pvt. Ltd. · Convenor: Dr. M. Makeshkumar



Event Brochure

The second KONE expert talk of the quarter focused on the electrical heart of the elevator. Speaking to 204 students, Mr. S. Dinesh detailed power supply systems, drives, motors, controllers, wiring architecture and energy-efficient electrical solutions, followed by signalization – call buttons, indicators, sensors, communication networks, control logic and safety circuits. He showed how these systems integrate with mechanical structures to deliver safe, seamless vertical mobility, and introduced smart controls, automated diagnostics, IoT integration and intelligent traffic management used in modern elevators.



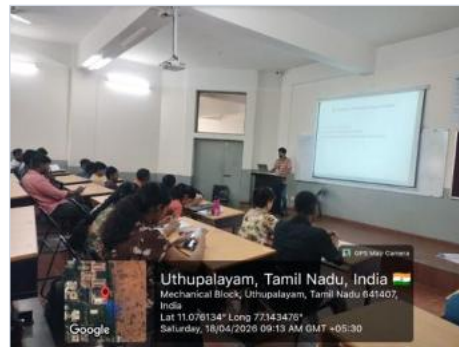
Sustainability Conclave 2026: Innovation for Social Impact & Problem to Prototype Challenge

18 April 2026 | Expert Talk & 3D Printing Competition · II & III Mech Classrooms / 3D Printing Lab · Convenor: Dr. N. Karthi · Coordinator: Dr. S. Gokulkumar



Event Brochure

Aligned with SDG 9 – Industry, Innovation and Infrastructure, the Sustainability Conclave 2026 brought together 65 students around the theme “Innovation for Social Impact”. An expert talk explored how sustainable design, scalable solutions and emerging technologies can build resilient infrastructure. In the Problem to Prototype Challenge that followed, teams identified real-world problems and converted their ideas into working 3D-printed prototypes. The event encouraged design thinking, teamwork and rapid prototyping, and several functional and conceptual prototypes showcased the students’ creativity and social awareness.



KONE Industry Expert Talk: Embedded Systems in Elevators

20 April 2026 | Expert Talk · New 360 Hall · Resource Person: Mr. S. Joe Infant, Associate Lead – Software, KONE Elevator India Pvt. Ltd., Chennai · Convenor: Dr. M. Makesh Kumar



Event Brochure

Completing the KONE expert lecture series for the quarter, Mr. S. Joe Infant spoke to 211 students on embedded systems in elevators. He explained how microcontrollers, sensors, firmware and software-based control architectures manage movement coordination, door operation, floor selection, fault detection and passenger safety, along with real-time monitoring and communication protocols. Smart diagnostics, predictive maintenance and software-driven safety mechanisms illustrated how embedded systems unite electrical, mechanical and software components into a single, reliable vertical transportation solution.



Technical Project Proposal Discussion

30 April 2026 | Expert Discussion · Imperial Hall · Visiting Expert: Dr. Kathiresan, HoD – Physics, PSNA College of Engineering and Technology · Coordinator: Dr. B. Arulmurugan

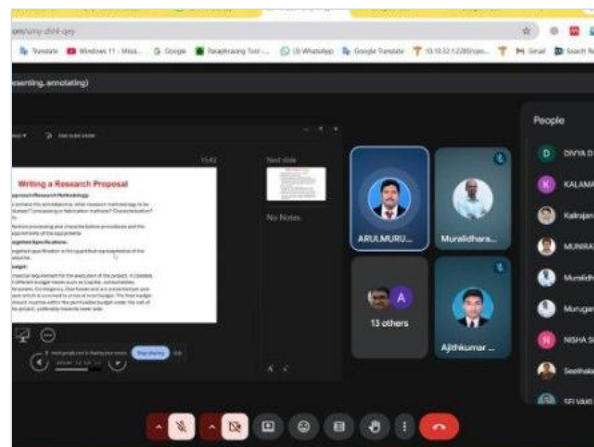
The department hosted Dr. Kathiresan, Head of Physics, PSNA College of Engineering and Technology, for a technical project discussion with Dr. P. K. Panda. The meeting explored ideas for a collaborative research proposal,

possible funding avenues and the complementary expertise and facilities of the two institutions. Such interactions help build the inter-institutional networks needed for competitive, externally funded research projects.

Seminar on “How to Write a Winning Project Proposal”

03 June 2026 | Seminar (Hybrid) · CARE Studio & Google Meet · Resource Person: Dr. P. K. Panda, Retired Scientist, National Aerospace Laboratories, Bengaluru · Coordinator: Dr. B. Arulmurugan

Forty-eight faculty members attended a seminar on writing successful research proposals by Dr. P. K. Panda, retired scientist of National Aerospace Laboratories, Bengaluru. He walked participants through problem identification, objectives, literature review, methodology, budgeting and expected outcomes, and explained how to align a proposal with the priorities of funding agencies. Practical tips, common pitfalls and examples from his own experience made the session highly practical. The interactive discussion that followed motivated faculty to pursue externally funded and collaborative research projects.



Academia–Industry Training Programme on Robotic Welding & Additive Manufacturing

06 – 19 June 2026 | Internship · CMMT Lab · Resource Person: Mr. S. Ramanathan, Technical Product Manager, Kavin Inc. · Coordinator: Dr. B. Arulmurugan



Event Brochure

Ten students from Nirmala College of Engineering, Technology and Management, Chalakudy, Kerala joined the department for a two-week Academia–Industry Training Programme on Robotic Welding and Additive Manufacturing. Delivered by industrial experts, R&D engineers and academicians, the programme covered robotic welding and automation, welding process optimisation, additive manufacturing, design for AM and Industry 4.0 trends through lectures, lab sessions and industrial case studies, including a visit to Kavin Inc.'s exhibition stall at CODISSIA. The participants left with stronger technical skills and valuable inter-institutional exposure.



Faculty Publications

5 journal articles, 2 book chapters and 2 patents

Journal Publications

1. Thirugnanasambandam, A., Amith, S.C., Mohan, M., Arularasu, R.S., Parmitha, P., Sameeha, M. and Dharani Kumar, S. (2026) 'Synthesis, characterisation, and corrosion performance of Mg–Zn alloy reinforced with YSZ and TiO₂ nanoparticles for biomedical applications', *International Journal of Metalcasting*. Available at: <https://doi.org/10.1007/s40962-026-01986-4>.
2. Iyyadurai, J., Arockiasamy, F.S., Sivanantham, G., Gopal, Y., Mani, S.K., Mani, M. and Sivanraju, R. (2026) 'Enhancing friction and wear performance of epoxy composites with sustainable Cissus quadrangularis stem fiber and nano silica fillers', *Scientific Reports*, 16. Available at: <https://doi.org/10.1038/s41598-026-51053-5>.
3. Rajasekaran, M., Krishnan, S., Balasubramanian, A. and Sitharaj, A. (2026) 'Microstructural evolution and mechanical enhancement of WAAM-fabricated Haynes 230 via cryogenic treatment', *Journal of Adhesion Science and Technology*. Available at: <https://doi.org/10.1080/01694243.2026.2672521>.
4. Dharani Kumar, S., Rusinek, A., Bernier, R. and Jankowiak, T. (2026) 'Mechanical characterization and constitutive modeling of AA2014-T6 and AA5059 alloys at intermediate temperatures and high strain rates', *Journal of Materials Engineering and Performance*. Available at: <https://doi.org/10.1007/s11665-026-14172-8>.
5. Dhamotharan, Balaji, D., Bhuvaneshwari, V., Sathishkumar, M. and Karthi, N. (2026) 'Fabrication and multi-scale mechanical characterisation of extruded PLA–tungsten carbide composites using fused filament fabrication', *Journal of Materials Research and Technology*. Available at: <https://doi.org/10.1016/j.jmrt.2026.06.136>.

Book Chapters

1. Dharani Kumar, S., Manoj Mohan Prasath, V., Mohammed Raffic, N., Arulmozhivarman, J., Sai Ramanan, E. and Rajeshkumar, L. (2026) 'Biopolymer-based materials for 3D printing applications', in *Applications of Biopolymers and Biocomposites*. Woodhead Publishing Series in Composites Science and Engineering. Cambridge: Woodhead Publishing. Available at: <https://doi.org/10.1016/B978-0-443-33391-0.00007-8>.
2. Sathish, S., Venkatesh, N., Sasi Kumar, M., Makesh Kumar, M., Subramanian, M. and Captan Prabakaran, A. (2026) 'Three-dimensional printing: the state of the art – introduction', in *3D Printing of Polymer Composites: Fibers, Particles and Matrix*. Woodhead Publishing Series in Composites Science and Engineering. Cambridge: Woodhead Publishing. Available at: <https://doi.org/10.1016/B978-0-443-40340-8.00024-9>.

Patents

1. Arunkumar, P. (2026) *Self-aligning shaft coupling with dynamic load compensation*. Indian Patent Application No. 202641046770 A, filed 12 April 2026. KPR Institute of Engineering and Technology.
2. Arunkumar, P. (2026) *Self-calibrating smart gear mechanism with wear compensation*. Indian Patent Application No. 202641046772 A, filed 12 April 2026. KPR Institute of Engineering and Technology.

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