



RAJADHANI INSTITUTE OF ENGINEERING AND TECHNOLOGY

Rajadhani Hills, Nagaroor, Attingal, Thiruvananthapuram,
Kerala, India 695102.
www.riet.edu.in



College code : RIE



DEPARTMENT OF MECHANICAL ENGINEERING

Established in 2009 with an initial intake of 60 students, the Department of Mechanical Engineering has consistently maintained a position of excellence among the engineering disciplines affiliated with APJ Abdul Kalam Technological University (KTU). The department offers a comprehensive Bachelor's degree program in Mechanical Engineering that continues to attract highly meritorious students. A team of dedicated and experienced faculty members fosters a vibrant academic and research environment, ensuring continued growth and innovation.

The department is equipped with advanced infrastructure, including modern laboratories, well-designed seminar and drawing halls, and a dedicated departmental library, all supporting effective teaching and learning. To enhance professional engagement, the department hosts both student and faculty chapters of the Indian Society for Technical Education (ISTE) and the SAE India Collegiate Club. The curriculum and activities are designed to enhance students' employability across diverse industry sectors. In addition, the department has signed Memorandum of Understanding (MoUs) with leading organizations such as Inter CAD Systems Pvt. Ltd., Barola Technologies, Taneja Aerospace and Aviation Limited, Barola Aerospots, CADD Centre, and MAKS Automations Pvt. Ltd. These collaborations aim to provide students with valuable exposure to industrial practices and emerging technologies, bridging the gap between academic learning and professional applications.

Voice of ACME

Institute Vision

Groom the Youth as Innovative, Creative and Empathetic Technologists, Hospitality Professionals, Managers and Entrepreneurs for Social Transformation.

Institute Mission

- M1 : To encourage holistic development of students with well balanced curricular, co-curricular and extra-curricular activities.
- M2 : To promote ethical and value-oriented teaching, research and consultancy among faculty and students for social transformation.
- M3: To interact with industrial organizations, governmental agencies, engineering, hospitality, and business enterprises for collaborative learning.

Department Vision

To be a preferred destination to produce technocrats in Mechanical Engineering fostering academic excellence, research, industry readiness with human values for social transformation.

Department Mission

- M1 : To impart quality education through activity based learning and leading -edge technology.
- M2 : To provide holistic education inculcated with research activities, human and ethical values, societal and industrial commitment, personality development and team spirit
- M3 : To foster strong industry- institute interaction to develop employable skills and enrich experiential learning through capstone projects.



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Program Specific Outcomes (PSOs)

- **Mechanical Design** – Capable to Design Mechanical Systems with updated software tools and equipment's/Processes to meet desired Specifications and requirements within realistic constraints to solve real time mechanical/societal problems.
- **Managing Efficiency** - Develop Capabilities to address the challenges in the Energy Sector and Develop Energy Efficient Systems.
- **Industrial Application** - Manage the Resources in an Organization more effectively and efficiently in the Dynamic Industrial Environment.

Program Educational Objectives (PEOs)

- PEO 1 : Graduate shall have strong core and interdisciplinary knowledge, skills and professional accomplishment towards employment in allied industries, higher studies and research.
- PEO 2: Graduates shall utilise latest tools and rapidly changing technologies to analyse, design and develop sustainable systems, testing and manufacturing for real life applications
- PEO3 : Graduates shall practice multidisciplinary approach, ethics, good communication, team spirit to evolve as competent technocrats and entrepreneurs.

Major Internships, projects and Internships



AURIFEROUS CHAMBER OF
MECHANICAL ENGINEERING

Auriferous Chamber for Mechanical Engineering ACME is a prestigious hub at our college dedicated to fostering innovation and excellence in mechanical engineering. It serves as a collaborative platform connecting alumni, faculty, and students to share knowledge, resources, and experiences. ACME provides opportunities for mentorship, industry engagement, and cutting-edge projects, bridging the gap between academia and industry. It stands as a testament to our commitment to advancing mechanical engineering and building a thriving community of engineering professionals.



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PROGRAM OUTCOMES

1. **Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
2. **Problem Analysis:** Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
3. **Design/Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the environmental considerations.
4. **Conduct Investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of the information to provide valid conclusions.
5. **Modern Tool Usage:** Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and Team Work:** Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective and give and receive clear instructions.
11. **Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary.
12. **Life-Long Learning:** Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.



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Department Activites



Third and fifth-semester Mechanical Engineering students actively participated in the Project Exhibition held at Sarvodaya Central Vidyalaya, Nalanchira, on October 20, 2023. This event provided a vital platform for the students to showcase their practical understanding and innovative prototypes developed during their academic studies. Their exhibits spanned various domains of mechanical engineering, demonstrating sophisticated projects in areas like renewable energy systems, automation, thermal engineering, and machine design, garnering significant interest and appreciation from the school students, faculty, and other attendees for their creativity and technical execution.



Third and fifth-semester Mechanical Engineering students exhibited their projects at the exhibition held at Kairali Vidyalaya, Kollam, on November 26, 2023. This event served as a crucial opportunity for the students to translate theoretical knowledge into tangible, working models and prototypes. The projects demonstrated a practical application of core mechanical engineering concepts, likely featuring innovations in areas such as sustainable energy solutions, automation and robotics, and design and fabrication. Their participation provided valuable exposure for the students and inspired the younger audience at Kairali Vidyalaya with the potential of engineering.



Third and fifth-semester Mechanical Engineering students actively participated in the Project Exhibition held at MGM School, Varkala, on December 1, 2023. This exhibition was a valuable opportunity for the students to demonstrate their technical acumen by presenting working models and innovative prototypes based on their academic curricula. The students effectively engaged with the school community, explaining the underlying principles and potential real-world impact of their designs, which served to inspire the younger students about future opportunities in the field of engineering and technology.



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Department Activities



Mr. Sujith Kumar, a structural and fluid analysis trainer from Tech KSHETRA, in association with ACME, jointly organized a successful one-day workshop on Structure and Fluid analysis using ANSYS on October 13, 2023. This specialized, hands-on training focused on utilizing the industry-leading ANSYS software for Computer-Aided Engineering simulations, which are essential for modern product design and validation. The sessions provided deep insight into Finite Element Analysis for structural behavior and Computational Fluid Dynamics for analyzing fluid flow and heat transfer, thereby significantly boosting the participants' proficiency in applying professional simulation tools to optimize complex mechanical systems.



Faculty members of the Mechanical Engineering Department at the college recently undertook a commendable project involving the design and creation of a handmade trolley specifically tailored for the housekeeping staff. This initiative highlighted the department's commitment to applying engineering principles to solve real-world, localized challenges within the institution. The project went beyond theoretical studies, providing a practical demonstration of fabrication skills, ergonomics, and material optimization to produce a functional, durable, and user-friendly trolley that significantly aids the staff in their daily duties.



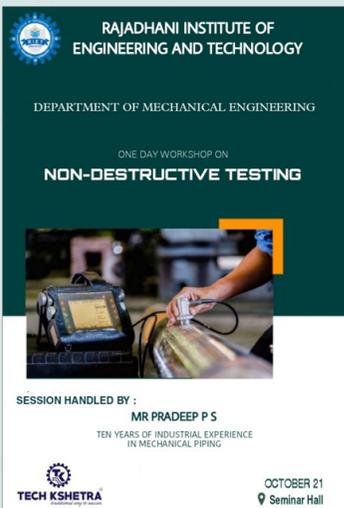
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Department Activites



To bridge the gap in the curriculum, a one-day workshop on "Non-Destructive Testing (NDT) methods" was organized at RIET on October 21, 2022. Mr. Pradeep P S from TECH KSHETRA delivered the insightful session, which was attended by pre-final and final-year students of Mechanical Engineering. The workshop provided essential practical knowledge of techniques like Ultrasonic Testing, Radiography, and Magnetic Particle Inspection, offering students crucial exposure to industry-standard quality assurance processes not extensively covered in their regular coursework, thereby preparing them better for professional roles.

To bridge the gap in the curriculum and expose students to future industry trends, an expert talk on Revolution 4.0 (Industry 4.0) was held on November 3, 2022, at the Lobby Seminar Hall, RIET.

Mr. Ahmed Sharique S, the Cluster Manager from CAD Centre, delivered the insightful session. The session focused on the transformative changes brought about by the Fourth Industrial Revolution, and how these technologies are reshaping modern manufacturing, supply chains, and the skills required of future mechanical engineers.





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Celebrations



The Onam celebration in our department was a delightful and engaging event, reflecting the true essence of Kerala's cultural heritage. The day began with the creation of a beautiful "Pookalam" (flower carpet) in the department, which added color and vibrancy to the atmosphere. Various cultural activities, including traditional dances, music, and a friendly tug-of-war, brought everyone together in a spirit of camaraderie 2023 onam celebration.

The 2023 Christmas celebration in our department was a truly festive and joyful occasion, filled with warmth and togetherness among the faculty and students. The department was beautifully decorated with twinkling Christmas trees, vibrant lights, and festive ornaments, successfully creating a cheerful and immersive atmosphere. The event featured a variety of engaging activities, including the highly anticipated Secret Santa gift exchange, spirited carol singing that echoed through the halls, and concluded with a delicious Christmas-themed feast, making the day a memorable highlight of the semester.





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Paper Publication by Faculty

1. Dr. Bindu S S, "Ergonomics analysis of virtual assembly of exercise using CATIA", Journal for Re Attach Therapy and Developmental Diversities, 6, 1396-1401 (2023):2589-7799
2. Mr. Ullas S, "Ergonomics analysis of virtual assembly of exercise using CATIA", Journal for Re Attach Therapy and Developmental Diversities, 6, 1396-1401 (2023): 2589-7799
3. Mr. Krishnakumar K, "Ergonomics analysis of virtual assembly of exercise using CATIA", Journal for Re Attach Therapy and Developmental Diversities, 6, 1396-1401 (2023): 2589-7799
4. Mr. Joe Jeba Rajan K, "Ergonomics analysis of virtual assembly of exercise using CATIA", Journal for Re Attach Therapy and Developmental Diversities, 6, 1396-1401 (2023): 2589-7799
5. Mr. Sree Raj M P, "Ergonomics analysis of virtual assembly of exercise using CATIA", Journal for Re Attach Therapy and Developmental Diversities, 6, 1396-1401 (2023): 2589-7799
6. Dr. Bindu S S, "Development and performance evaluation of a dual-stage atmospheric water harvesting system", International Journal of Research and Analytical Reviews (IJRAR), 10, 772-776 (2023): 2349-5138
7. Mr. Sree Raj M P, "Development and performance evaluation of a dual-stage atmospheric water harvesting system", International Journal of Research and Analytical Reviews (IJRAR), 10, 772-776 (2023): 2349-5138
8. Manoj A, "Development and performance evaluation of a dual-stage atmospheric water harvesting system", International Journal of Research and Analytical Reviews (IJRAR), 10, 772-776 (2023): 2349-5138
9. Sree Mahesh M P, "Development and performance evaluation of a dual-stage atmospheric water harvesting system", International Journal of Research and Analytical Reviews (IJRAR), 10, 772-776 (2023): 2349-5138
10. Mr. Manoj A, "Ergonomics analysis of virtual assembly of exercise using CATIA", Journal for Re Attach Therapy and Developmental Diversities, 6, 1396-1401 (2023): 2589-7799
11. Mr. Sree Raj M P, "Design and Finite Element Analysis of Disc Brake Rotors Using MildSteel, Cast Iron, and Epoxy Fiber Reinforced Polymer", The international Journal of Analytical and experimental Modal Analysis (IJAEMA), 15, 1708-1716 (2023): 0886-9367
12. Sourav R Vimal, "Design and Finite Element Analysis of Disc Brake Rotors Using Mild Steel, Cast Iron, and Epoxy Fiber Reinforced Polymer", The international Journal of Analytical and experimental Modal Analysis (IJAEMA), 15, 1708-1716 (2023): 0886- 9367
13. Joe Jeba Rajan K, "Design and Finite Element Analysis of Disc Brake Rotors Using Mild Steel, Cast Iron, and Epoxy Fiber Reinforced Polymer", The international Journal of Analytical and experimental Modal Analysis (IJAEMA), 15, 1708-1716 (2023): 0886-9367
14. Mr. Manoj A, "A Voice-Controlled Intelligent Wheelchair System for the Disabled", The international Journal of Analytical and experimental Modal Analysis (IJAEMA), 15,1717-1722 (2023): 0886-9367
15. Mr. Krishnakumar K, "A Voice-Controlled Intelligent Wheelchair System for the Disabled", The international Journal of Analytical and experimental Modal Analysis (IJAEMA), 15, 1717-1722 (2023): 0886-9367
16. Mr. Manoj A, "Strength evaluation and behaviour studies of hybrid natural fiber reinforced composites using compression moulding", The international Journal of Analytical and experimental Modal Analysis (IJAEMA), 15, 1722-1727 (2023): 0886-9367.



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Faculty Conference Publications

1. Mr.Sree Raj M P,has presented a paper titled “Thermal and Structural Behavior of Disc Brakes Under Dynamic Braking Conditions” in the International conference on Emerging Trends in Engineering Management and Applications held at PET Engineering College ,Thirunelveli on 06/06/2023.
2. Mr. Niju V S,has presented a paper titled “Thermal and Structural Behavior of Disc Brakes Under Dynamic Braking Conditions” in the International conference on Emerging Trends in Engineering Management and Applications held at PET Engineering College ,Thirunelveli on 06/06/2023.
3. Mr. Sree Mahesh M P,has presented a paper titled “Innovative Approach to WaterHarvesting: Design and Fabrication of an Atmospheric Water Generator” in the International conference on Emerging Trends in Engineering Management andApplications held at PET Engineering College ,Thirunelveli on 06/06/2023.
4. Mr. Vijil J,has presented a paper titled “Innovative Approach to Water Harvesting:Design and Fabrication of an Atmospheric Water Generator” in the Internationalconference on Emerging Trends in Engineering Management and Applications held atPET Engineering College ,Thirunelveli on 06/06/2023.
5. Mr. Krishnakumar K,has presented a paper titled “Empowering Mobility: A Voice-Controlled Wheelchair Prototype for Disabled Users” in the International conferenceon Emerging Trends in Engineering Management and Applications held at PET Engineering College ,Thirunelveli on 06/06/2023.
6. Mr. Ullas S,has presented a paper titled “Empowering Mobility: A Voice-ControlledWheelchair Prototype for Disabled Users” in the International conference on Emerging Trends in Engineering Management and Applications held at PET Engineering College ,Thirunelveli on 06/06/2023.
7. Mr. Joe Jeba Rajan K,has presented a paper titled “Smart Detection of Cracks inRailway Tracks Using Sensor-Based Technology"” in the International conference onEmerging Trends in Engineering Management and Applications held at PETEngineering College ,Thirunelveli on 06/06/2023.
8. Mr. Manoj A,has presented a paper titled “Strength evaluation and behaviour studiesof hybrid natural fibre reinforce composites by using compression moulding” in the International conference on Emerging Trends in Engineering Management and Applications held at PET Engineering College ,Thirunelveli on 06/06/2023.
9. Dr. Bindu S S,has presented a paper titled “Strength evaluation and behaviour studies of hybrid natural fibre reinforce composites by using compression moulding” in the International conference on Emerging Trends in Engineering Management and Applications held at PET Engineering College ,Thirunelveli on 06/06/2023.
10. Mr. Krishnalal M S,has presented a paper titled “Design and Implementation of solar powered with IoT enabled portable irrigation system” in the International conference on Emerging Trends in Engineering Management and Applications held at PET Engineering College ,Thirunelveli on 06/06/2023.
11. Mr. Sourav R Vimal,has presented a paper titled “Design and Implementation of solarpowered with IoT enabled portable irrigation system” in the International conference on Emerging Trends in Engineering Management and Applications held at PET Engineering College ,Thirunelveli on 06/06/2023.



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FDP 2023

1. Mr. Vijil J, Assistant Professor of Mechanical engineering department has attended ISTE sponsored Faculty Development Programme on “3D printing and product development” from 29/11/2023 to 05/12/2023.
2. Mr. Sourav R Vimal, Assistant Professor of Mechanical engineering department has attended ISTE sponsored Faculty Development Programme on “3D printing and product development” from 29/11/2023 to 05/12/2023.
3. Mr. Ullas S, Assistant Professor of Mechanical engineering department has attended ISTE sponsored Faculty Development Programme on “3D printing and product development” from 29/11/2023 to 05/12/2023.
4. Mr. Krishnakumar K, Assistant Professor of Mechanical engineering department has attended ISTE sponsored Faculty Development Programme on “3D printing and product development” from 29/11/2023 to 05/12/2023.
5. Mr. Sreeraj M P, Assistant Professor of Mechanical engineering department has attended ISTE sponsored Faculty Development Programme on “3D printing and product development” from 29/11/2023 to 05/12/2023.

Semester Toppers



Midhun Raj with SGPA- 9.0 (S8)



Akshay MS with SGPA-8.26 (S6)



Adhithyan TS with SGPA-8.5 (S4)



Vaishnav SS with SGPA- 8.24 (S2)