RAJADHANI INSTITUTE OF ENGINEERING AND TECHNOLOGY

AUTONOMOUS

Rajadhani Hills, Nagaroor, Attingal, Thiruvananthapuram, Kerala, India 695102.

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Voice of ACME

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 Aerosports, 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.

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 utilize latest tools and rapidly changing technologies to analyze, 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.

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.

Major Internships, Projects

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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 presentations 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 environments.
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.

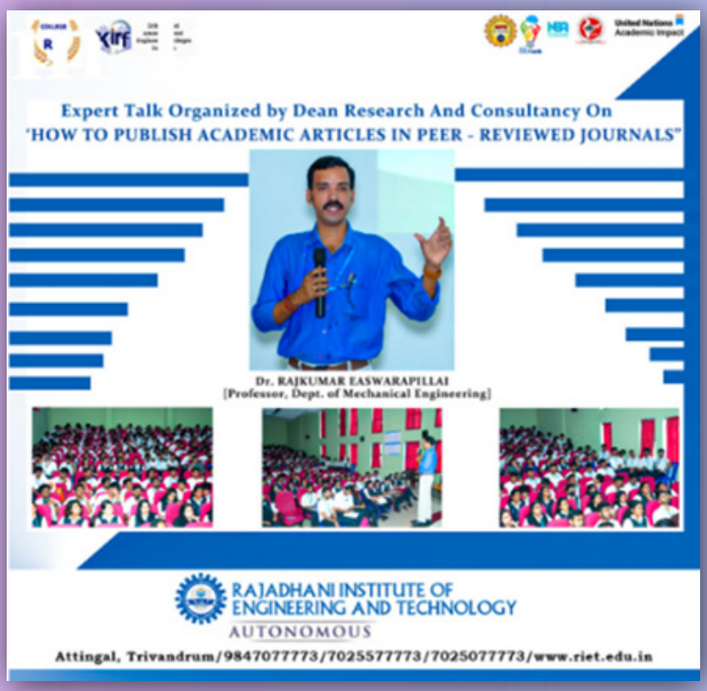
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Department Programs





The Department of Mechanical Engineering, under ACME (Auriferous Chamber of Mechanical Engineering), organized a Student Talk on 21 July 2025 by Mr. Ashik Ashok and Mr. Ananthagiri S on “Legends on Wheels.” The session highlighted iconic automobiles and their impact on engineering excellence, design, safety, affordability, and modern mobility. An interactive discussion followed, inspiring students’ interest in automotive history and future mobility innovations.



A knowledge-enhancing session on “How to Publish Academic Articles in Peer-Reviewed Journals” was conducted on 15 July 2025 by Dr. Rajkumar Easwara Pillai. He explained the importance of peer-reviewed journals in maintaining research quality and credibility. The session covered journal selection, paper structure, research ethics, and avoiding plagiarism. It concluded with an interactive Q&A on publication timelines, open access, and topic selection, leaving participants better prepared and confident to publish in reputed journals.

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Department Programs





To bridge the gap in curriculum and provide students with updated knowledge in emerging fields, the Department of Mechanical Engineering, in association with ACME (Auriferous Chamber of Mechanical Engineering), ISTE, and the SAE India Collegiate Club of RIET, organized an Expert Talk on “Renewable Energy Across Disciplines” on 20th July 2025 at the Mini Auditorium, RIET. The resource person for the session was Mr. Rahul Sivakumar, Co-founder of Consult FOX, Berlin, Germany. In his address, he provided a comprehensive overview of renewable energy systems, their multidisciplinary nature, and their critical role in ensuring a sustainable future.



Prof. S. Sivakumar, Visiting Faculty in the Department of Mechanical Engineering, guided final-year students with innovative project ideas on 20 July 2025. Through interactive sessions, he introduced contemporary engineering challenges and emerging trends such as renewable energy systems and automation. His guidance on conceptualization, design, feasibility analysis, and implementation helped students develop technically sound and creative project outcomes.

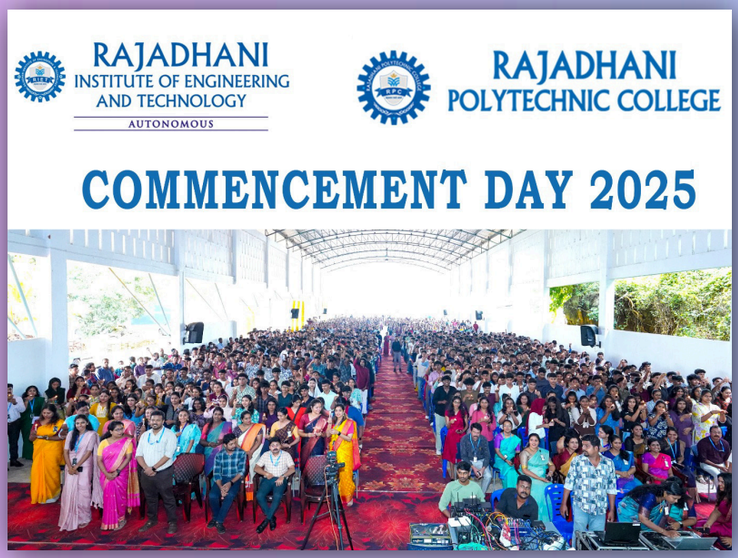
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Department Programs





A one-day workshop on Flight Mechanics was conducted on 20th July 2025 to provide students with a clear understanding of aircraft motion and performance principles. The program covered fundamental aerodynamic forces, airfoil concepts, angle of attack, and lift generation, followed by sessions on aircraft performance parameters such as steady flight, climb, descent, range, and endurance. It also addressed aircraft stability and control, including longitudinal, lateral, and directional stability, control surfaces, flight envelopes, autopilot systems, and UAV behavior. Through interactive demonstrations, graphical analysis, and simulation-based hands-on activities, participants gained practical insights into flight dynamics. The workshop concluded with a discussion, feedback session, and certificate distribution, successfully enhancing students' interest and knowledge in aviation and aeronautical engineering.



Commencement Day 2025 was celebrated at Rajadhani Institute of Engineering and Technology and Rajadhani Polytechnic College on August 18, 2025, marking a milestone for the graduating class. The ceremony featured distinguished dignitaries, including Chairman Dr. Biju Ramesh and Dr. M. Abdul Rahman, who urged students to uphold professional ethics and pursue excellence. The event highlighted the institution's commitment to nurturing future-ready engineers and celebrated the academic achievements of its graduates.

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Department Programs





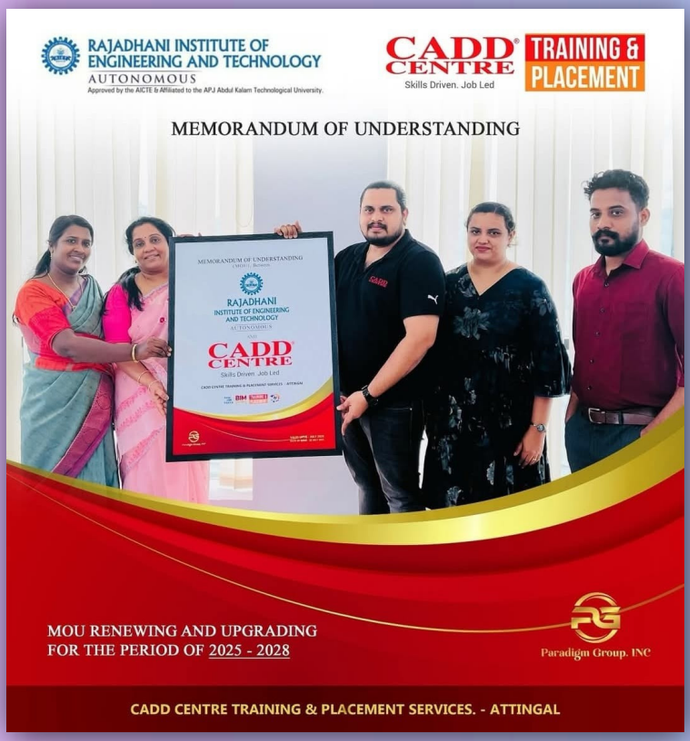
In July 2025, the Department of Mechanical Engineering at RIET (Autonomous) hosted two high-impact expert talks: a session on "From Chips to Layers" by Dr. Vipin Gopan (CEO, Kinesys Tech Solutions) exploring the shift from subtractive to additive manufacturing, and a lecture on "Missile & Helicopter Aviation Maintenance" by IAF veteran Wing Commander U Sathyan (Rtd). These programs provided students with specialized industry insights ranging from modern 3D printing technologies to high-precision military aerospace engineering.





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Collaborations



To strengthen industry-academia ties and enhance student employability, **Rajadhani Institute of Engineering and Technology (RIET), Trivandrum**, has renewed and upgraded its **Memorandum of Understanding (MoU)** with **CADD Centre Training & Placement Services, Attingal**. Valid for the **2025–2028** period, this strategic collaboration focuses on providing students with advanced engineering and design training alongside dedicated placement support. By leveraging Autodesk-authorized expertise, the partnership ensures that students gain the professional skills necessary to meet the evolving demands of the global design industry.

In a significant move toward digital innovation, RIET signed a new MoU with BIM Café Learning Hub on July 23, 2025, to integrate Building Information Modeling (BIM) into its technical curriculum. This collaboration aims to provide industry-oriented learning and hands-on training in modern architectural and engineering digital tools. By partnering with specialized training hubs, the institute reinforces its commitment to fostering innovation and preparing future-ready engineers for the complexities of contemporary construction and infrastructure projects.



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Celebrations



The Department celebrated **Onam** with great enthusiasm and cultural spirit, showcasing the rich traditions and heritage of Kerala. Faculty members and students actively participated in the celebrations, which included traditional decorations and festive activities, fostering unity, joy, and cultural harmony within the department. The event provided a refreshing break from routine academics while strengthening interpersonal bonds and promoting a sense of togetherness among all participants.

Ayudha Pooja was celebrated with devotion and traditional fervor in the Mechanical Engineering Laboratory of **Rajadhani Institute of Engineering and Technology (RIET)**, highlighting the importance of tools, machines, and technology in engineering education. Faculty members, lab staff, and students participated in the pooja, seeking blessings for the safe, efficient, and successful use of laboratory equipment. The event emphasized respect for engineering tools, workplace safety, and the harmonious blend of tradition with modern technical learning, fostering a sense of unity and cultural values within the department.





The Department celebrated **Christmas** with warmth and festive spirit, creating a joyful and welcoming atmosphere on campus. Faculty members and students came together to mark the occasion through decorations and cheerful interactions, promoting unity, goodwill, and mutual respect. The celebration reflected the values of sharing and harmony, strengthening camaraderie within the department and adding a festive touch to academic life.

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Faculty Achievements







1. **Self-Leveling Wheelchair with Telescopic Limbs:** The department celebrates the successful design registration of this innovative assistive technology (Design No. 469360-001), developed by Dr. Rajkumar Easwarapillai, Mr. Sree Raj M P, Dr. Bindu S S, Mr. Sree Mahesh M P, Mr. Joe Jeba Rajan K, Mr. Amal J Anil, and Mr. Aswin S. The design reflects a strong commitment to inclusive engineering and mobility solutions for differently abled individuals.

2. **Sensor-Based Monitor Mount Bracket:** We are proud to announce the registration of this ergonomic and sensor-integrated design (Design No. 476401-001), achieved by Dr. Rajkumar Easwarapillai, Dr. Bindu S S, Ms. Lekshmi B S, Mr. Sree Raj M P, Mr. Joe Jeba Rajan K, Mr. Sree Mahesh M P, and Mr. Aswin S. This device redefines workspace safety. It uses integrated sensors to detect human proximity and automatically halts nearby robotic systems to prevent accidents. It's the perfect balance of ergonomic flexibility and smart safety for collaborative environments.

3. **Six-Axis Robotic Arm:** Congratulations to Dr. Rajkumar Easwarapillai, Mr. Sree Raj M P, and Mr. Aswin S for securing the design registration (Design No. 474512-001) for this advanced automation project, which demonstrates expertise in robotic systems, mechanical design, and industrial automation. The claimed portion of the design of the SIX-AXIS ROBOTIC ARM consists of a fully articulated, compact automation system designed for precision tasks in manufacturing environments. With six independently controlled joints, it offers a wide range of motion—allowing for rotation, tilting, bending, and swiveling—to perform operations requiring high dexterity and repeatability.

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Congratulations to Dr. Rajkumar Easwarapillai, Professor of Mechanical Engineering at RIET Trivandrum, for being honored with the Swami Vivekanand National Spirit Award 2025. This prestigious Certificate of Excellence recognizes his exceptional contributions to engineering education, innovative research in design optimization, and over two decades of professional leadership in advancing modern engineering practices. International Teacher Excellence Award: Our department is proud to celebrate Dr. Rajkumar Easwarapillai, Professor at RIET, for being honored with the "International Teacher Excellence Award 2025" by the Tretayug Foundation in recognition of his outstanding dedication to education and his lasting impact on students.

Student Project Exhibition Outreach Program at KPM Model School, Mayyanad



A Project Exhibition was conducted at KPM Model School, Mayyanad, Kollam, on 29th November 2025, with active participation from III and Final Year students. The exhibition served as a platform for students to demonstrate their technical knowledge and creativity by presenting innovative working models and engineering concepts. The exhibits reflected practical problem-solving approaches and real-world applications, fostering scientific curiosity among school students. The interaction between exhibitors and visitors promoted knowledge sharing, hands-on learning, and awareness of engineering education, making the event both educational and inspiring for all participants.The event also strengthened the institution–school connect by encouraging early exposure to engineering disciplines among young learners. Overall, the exhibition provided a valuable experiential learning opportunity for the participants while promoting innovation, teamwork, and social outreach.

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Internship & Industrial Visits



On September 27, 2025, the S8 Mechanical Engineering students of Rajadhani Institute of Engineering and Technology conducted a one-day industrial visit to Kerala Agro Machinery Corporation Ltd. (KAMCO) at its prime manufacturing center in Athani, Ernakulam. The visit provided the final-year students with invaluable insights into the large-scale assembly of power tillers and the precision engineering required for high-performance agricultural machinery.



From December 1, 2025, to December 5, 2025, the S8 Mechanical Engineering students of Rajadhani Institute of Engineering and Technology completed a focused five-day industrial internship at MAKS Automation Pvt. Ltd. in Kollam. During this period, students gained hands-on experience in the assembly and troubleshooting of advanced industrial packaging systems and conveyor solutions. The internship successfully bridged the gap between academic theory and real-world application, equipping the future engineers with practical skills in industrial automation and precision manufacturing.



On December 5, 2025, the S4 Mechanical Engineering students of Rajadhani Institute of Engineering and Technology conducted a one-day industrial visit to Kerala Agro Machinery Corporation Ltd. (KAMCO) at its prime manufacturing center in Athani, Ernakulam. The students observed the specialized manufacturing processes and assembly lines dedicated to power tillers and reapers, gaining a deeper understanding of mass production techniques. This exposure to a leading Public Sector Undertaking allowed them to witness firsthand the integration of mechanical design with automated agricultural solutions.

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Internship & Industrial Visits



On August 2, 2025, the S5 Mechanical Engineering students of Rajadhani Institute of Engineering and Technology (RIET) conducted a productive one-day industrial visit to HMT Machine Tools Ltd. in Kalamassery, Ernakulam. The visit provided the students with a comprehensive look at the manufacturing of high-precision equipment, including CNC slant bed turning centers and heavy-duty lathes. They also had the unique opportunity to explore the industrial foundry and heat treatment plants, witnessing the transformation of raw materials into sophisticated machine components. This exposure to one of India's premier machine tool manufacturers significantly enhanced their understanding of manufacturing technology and large-scale engineering operations.



Manjunath S M, Bithul B, Amal Krishna P, Anzal N, Jayashankar M Biju, Suraf Suresh, Afzal S, and Hijas Ahamed— of final year Mechanical Engineering department attended the **DST-SERB Sponsored Two-Day National Seminar** on the theme *"Innovate, Integrate, Elevate: Advanced Materials for Industrial Applications"* held on **21st and 22nd August 2025**. The seminar provided valuable exposure to cutting-edge material technologies and fostered knowledge exchange on advanced materials driving industrial innovation, thereby enhancing the students' technical awareness and research orientation.

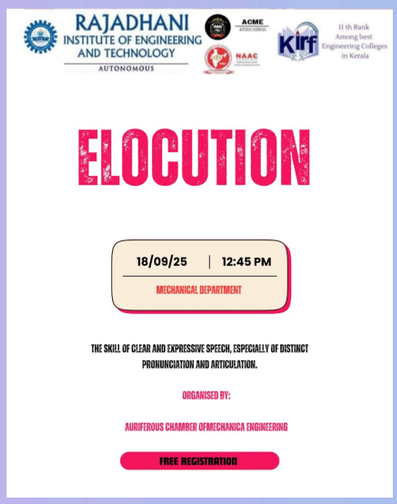


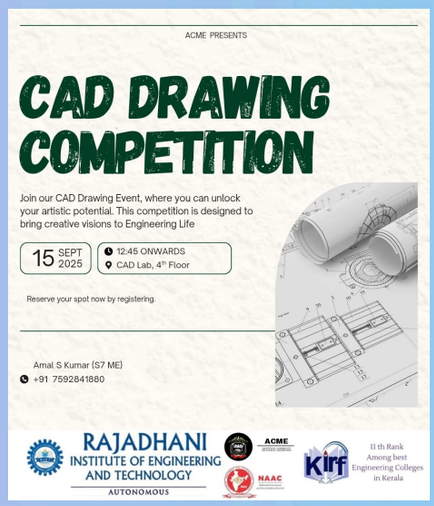
Industrial visit trip 2022-2026 Batch

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Department Programmes













In commemoration of Engineers' Day 2025, the Department of Mechanical Engineering at Rajadhani Institute of Engineering and Technology) organized a series of engaging competitions designed to showcase student creativity and technical prowess. The celebrations kicked off on September 15th with a high-stakes CAD Drawing Competition in the CAD Lab, where students translated imaginative visions into precise engineering designs. This was followed on September 16th by an Essay Writing Competition themed around storytelling and imagination, and an Elocution Competition on September 18th that challenged participants to demonstrate clarity and expressive speech. Organized by the Auriferous Chamber of Mechanical Engineering (ACME), these events successfully fostered a spirit of innovation and professional excellence among the budding engineers of the 2025 academic year.

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During the 2025 academic year, the Department of Mechanical Engineering at Rajadhani Institute of Engineering and Technology (Autonomous) hosted a series of technical and creative programs organized by the Auriferous Chamber of Mechanical Engineering (ACME). The initiatives included a CAD Drawing Competition held on September 15th to test design precision, an Essay Writing Competition on September 16th focused on storytelling, and an Elocution Competition on September 18th centered on expressive speech. Additionally, the department presented a technical "Master Workshop on Go-Karting" by Team MECKARTANS on December 18th, which offered students specialized insights into automotive engineering and activity points. These events provided a comprehensive platform for students to develop both their professional communication and hands-on technical skills.



The Department of Mechanical Engineering recently hosted an insightful guest lecture by Mr. Ravishankar, a CADD Engineer from CAD Desk Trivandrum, on "Innovative CADD Softwares in the Mechanical Engineering Field." The session highlighted how cutting-edge tools like SolidWorks, Fusion 360, and Autodesk Inventor are revolutionizing industries through AI-powered design and cloud collaboration. By bridging academia with current trends in automotive and aerospace engineering, the interactive talk inspired students to explore modern technologies and provided valuable career guidance.

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Department Programmes





The Department of Mechanical Engineering at Rajadhani Institute of Engineering and Technology organized a comprehensive two-day Faculty Development Program on December 15th and 16th, focusing on "Fusion 360 for Mechanical Design". Held at the CAD Lab, the program featured Adil N S, a professional BIM Modeller, as the guest speaker, providing faculty members with hands-on expertise in industry-standard software. This initiative aimed to bridge the gap between academic theory and modern engineering practices, ensuring the department remains at the forefront of technological advancements in mechanical design.

Text Book Publications

1. Dr.Rajkumar Easwarapillai, , Dr.Bindu, S.S., Raj, S., Rajan, J. J., & Aswin, S. (2025, July), Industrial automation (1st ed.). SCI Publisher.
2. Dr.Rajkumar Easwarapillai, R., Dr.Bindu, S.S., Raj, S., & Shareef, A. (2025, August), Fundamentals of robotics (1st ed.). Crown Publisher.
3. Dr.Rajkumar Easwarapillai, R., & Aswin, S. (2025, September), Computer aided fixture design (1st ed.). SCI Publisher.
4. Dr.Rajkumar Easwarapillai, R., Dr.Bindu, S.S, Raj, S., & Aswin, S. (2025, November), Machine drawing with real-time projects (1st ed.). SCI Publisher.
5. Dr.Rajkumar Easwarapillai, Dr.Bindu, S.S., Raj, S., Kumar, K. K., Vikraman, A. V. J., & Aswin, S. (2025, August), Fundamentals of engineering graphics (1st ed.). Crown Publisher.
6. Dr.Rajkumar Easwarapillai, R., Dr.Bindu, S.S, Raj, S., & Aswin, S. (2025, December), Introduction to CNC machines (1st ed.). SCI Publisher.