



PANIMALAR ENGINEERING COLLEGE

Accredited by NBA and Affiliated to Anna University
Approved by All India Council For Technical Education, New Delhi
POONAMALLEE, CHENNAI- 600 123.

DEPARTMENT OF MECHANICAL ENGINEERING

NEWSLETTER-THE TORQUE

.... Ready to be driven



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9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



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VISION

The Department of Mechanical Engineering will be globally recognized as a pioneer for its excellence in teaching and research in the field of Mechanical and allied Engineering disciplines.

MISSION

M1: To provide world-class education and pioneering research opportunities, enabling students and faculty to contribute meaningfully to society through innovation and excellence.

M2: To advance engineering and science by fostering technological innovation, academic excellence, and strong industry collaborations for impactful research and technology transfer.

M3: To develop skilled, innovative, and entrepreneurial graduates who drive national and global sustainable development.

Programme Educational Objectives(PEO)

PEO1: Technical Competence and Problem-Solving:
Achieve success in careers that deal with the design, simulation and analysis of engineering systems, experimentation and testing, manufacturing, technical services, and research to implement effective solutions for real-world engineering challenges.

PEO2: Career Growth and Leadership:
To actively embrace impactful leadership roles in the practice of Mechanical Engineering in industry and government organizations (including both traditional and emerging technical areas) as well as in public service organizations.

PEO3: Innovation, Research and Ethical Excellence:
Conduct multi-disciplinary research and development (via graduate study or industry) resulting in tangible applications that advance technology and foster innovation in order to compete successfully in the global economy.

PEO4: Lifelong Learning and Societal Contribution:
Commit to continuous learning, adapting core knowledge, and competing in the ever-changing multicultural global enterprise to ethically contribute to society.

Programme Outcomes (PO)

PO1: Engineering Knowledge:

Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.

PO2: Problem Analysis:

Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)

PO3: Design/Development of Solutions:

Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)

PO4: Conduct Investigations of Complex Problems:

Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).

PO5: Engineering Tool Usage:

Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)

PO6: The Engineer and The World:

Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7)

PO7: Ethics:

Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)

PO8: Individual and Collaborative Team work:
Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

PO9: Communication:

Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation,

PO10: Project Management and Finance:

Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.

PO11: Life-Long Learning:

Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

PROGRAM SPECIFIC OUTCOMES (PSO'S):

PSO1: Fundamental Domain Knowledge:
Design mechanical systems in various fields of machine elements, thermal, manufacturing, industrial and inter disciplinary fields using engineering/technological tools.

PSO2: Usage of software programs: Resolve new challenges in Mechanical Engineering using modern computer tools and software programs.

PSO3: Continual learning and Research: Develop intellectual and technical solution to complex mechanical problems through continual learning and research.

Knowledge and Attitude Profile (WK)

WK1: Understanding of natural and social sciences.

WK2: Mathematics, numerical analysis, data analysis, and computing.

WK3: Engineering fundamentals.

WK4: Specialized engineering knowledge.

WK5: Engineering design and operations, including sustainability.

WK6: Engineering practice (technology).

WK7: Role of engineering in society, sustainability, and professional responsibility.

WK8: Current research literature and critical thinking.

WK9: Ethics, professional responsibilities, and inclusive behaviour.

WORKSHOP EVENTS

DESIGN 2 MANUFACTURE WORKSHOP

The Department Of Mechanical Engineering, Panimalar Engineering College, Organized A Two-Day Design To Manufacture Workshop For 2nd And 3rd Year Students On 1st And 2nd September 2025. The Main Aim Is To Provide Students With Foundational Knowledge In Product Design, Computer-Aided Design (CAD), And Advanced Manufacturing Technologies Such As 3D Printing.



Day 1 Highlights (1st September 2025)

Morning Session:

The Workshop Commenced In The Idea Lab, Where All Participants Assembled.

Welcome Address: Delivered By Dr. M. Puviyarasan, Highlighting The Importance Of Design-To-Manufacturing Skills In Modern Industries.

The Inaugural Speech Was Delivered By **Dr. L. Karthikeyan, Head Of The Department**, Who Shared Valuable Insights On The Vast Scope Of **Additive Manufacturing**. He Highlighted Its Growing Importance In Revolutionizing Modern Industries And Emphasized Its Role In Shaping Future Technologies. The Address Motivated Students To Explore The Potential Of This Field And Its Applications.



Our Team Conducted An Introductory Session To Equip Students With Foundational Knowledge In Designing And Manufacturing. The Session Provided Insights Into Essential Concepts, Helping Them Gain Clarity On The Basics. It Enabled The Students To Build An Initial Understanding Of Design And Production Processes.



Some Of Our Teammates Shared Their Internship Experiences To Guide The Juniors In Understanding Industry Expectations. They Emphasized The Requirements Set By Companies And The Importance Of Meeting Them. The Session Also Focused On Equipping Students With Modern Technical And Core Skills.

Afternoon Session

The Focus Of The Afternoon Session Was **Fusion 360 Software Training**. Students Were Introduced To Fundamental 2D Sketching Techniques And Gradually Advanced To 3D Modeling Practices. This Session Enabled Them To Gain Practical Exposure To Digital Design Tools Widely Used In The Industry.



Day 2 Highlights (2nd September 2025)

Students Presented Their Practice Models. Training On **Ultimaker Cura Software** Equipped Them With The Ability To Convert CAD Designs Into STL Formats For 3D Printing.



Each Student Successfully Prepared Their Design For Printing, Linking **Digital Design With Hands-On Fabrication**.



Valedictory Session

Certificates were distributed by Dr. L. Karthikeyan (HoD) and Dr. M. Puviyarasan (Coordinator).



Conclusion

The **Two-Day Design to Manufacture Workshop**, conducted on 1st and 2nd September 2025 by the Department of Mechanical Engineering, Panimalar Engineering College, was a grand success. It effectively combined **theoretical concepts with practical exposure**, equipping students with skills in **Fusion 360, Cura software, and 3D printing operations**. The workshop fostered **creativity, problem-solving, and industry readiness** among the participants.

DRONE PILOTING AND DRONE TECHNOLOGY- A SEMINAR



The Department of Mechanical Engineering at Panimalar Engineering College, in association with Vayuratha Pvt. Ltd., organized a one-day seminar titled “**Drone Piloting and Drone Technology**” on 11th July 2025. Hosted in the department’s Smart Classroom and coordinated by the Drone Club, the program aimed to enhance students’ understanding of Unmanned Aerial Vehicles (UAVs) and their growing industrial applications. The event began with welcome remarks by **Dr. I. John Solomon** and an overview of seminar objectives by **Dr. Gunasekeran**, who highlighted the significance of drone regulations, career opportunities, and advancements in UAV technology.

The technical sessions were delivered by experts from Vayuratha Pvt. Ltd., including **Mr. Balamurugan**, Marketing Executive, who introduced the company’s objectives and the market expansion of drone technology. **Mr. Godwin**, a DGCA-certified piloting trainer, briefed students on licensing procedures, training requirements, and the use of drones in agriculture, surveillance, disaster response, and logistics. Following this, **Mr. Shyam**, UAV specialist, explained drone components, design elements, control systems, and simulation-based piloting, along with case studies demonstrating AI and IoT integration in UAVs. Continuous interactions allowed students to engage with the speakers and gain clarity on technical and career-oriented aspects of drone technology.

The seminar drew enthusiastic participation from second-year students and Drone Club office bearers from the third year, demonstrating growing interest in emerging technology. Students benefitted from insights on UAV classifications, DGCA regulations, real-world applications, and skills that support pilot certification and internships. The program concluded with a vote of thanks, acknowledging the speakers from Vayuratha Pvt. Ltd., faculty coordinators, and student participants. Overall, the seminar served as an enriching platform to inspire budding engineers to explore the evolving field of drone-based innovations and future opportunities.



GENERATIVE DESIGN using Autodesk Fusion 360



The Department of Mechanical Engineering, Panimalar Engineering College, conducted a two-day hands-on workshop on “Generative Design using Autodesk Fusion 360” on 30th and 31st July 2025 at the CAD/CAM Laboratory. Led by Mr. Rishi Nethaji K, Application Engineer from USAM Technology Solutions, Chennai, the workshop offered valuable insights into advanced generative design methods and their industrial relevance.



A total of 15 faculty members and 60 students participated in the 12-hour session, which covered the Fusion 360 interface, fundamentals of generative design, defining constraints, loads and materials, and hands-on creation of optimized 3D models. Participants also explored industry use cases, cost optimization, and sustainability aspects, supported by Q&A and problem-solving activities. The workshop received highly positive feedback, enabling attendees to develop practical skills, understand

TWO-DAY DESIGN TO MANUFACTURE WORKSHOP

The Department of Mechanical Engineering, Panimalar Engineering College, organized a two-day Design to Manufacture Workshop on 13–14 August 2025 at the Idea Lab, coordinated by Dr. M. Puviyarasan, for 2nd- and 3rd-year students to introduce product design, CAD, and 3D printing. Day 1 featured a welcome by Dr. Puviyarasan and an inaugural address by Dr. L. Karthikeyan (HoD) on the potential of additive manufacturing, followed by sessions on manufacturing basics and Autodesk Fusion 360 training, including 2D sketching and 3D modeling.



On Day 2, students presented their models, prepared STL files using Ultimaker Cura, and gained hands-on experience in 3D printing—learning filament loading, bed leveling, and supervised model printing.



ALUMNI TALK SERIES

The Department of Mechanical Engineering organized an **Alumni Talk Series** on **14 July 2025** for III-year Mechanical Engineering students under the subject Design of Machine Elements (DoME). The session focused on the theme **“Product Development – Stages and Steps,”** demonstrating the systematic approach involved in transforming a raw concept into a market-ready product. The event aimed to enhance students’ understanding of product development cycles, including ideation, design considerations, prototyping, testing, and feedback incorporation.



The session was handled by **Mr. S. Gurumoorthy**, an alumnus of the department and currently working as an Assistant Engineer in the Product Development division at Walkaroo International Pvt. Ltd. Drawing from his industrial experience, he explained real-time challenges encountered in product development, emphasizing the significance of innovation, material selection, cost analysis, and customer requirements. Students actively interacted during the session, gaining valuable insights into industry expectations and skill sets required in product-based sectors. The event successfully contributed to **SDG 4 – Quality Education**, by providing students with practical exposure and motivating them toward industry-oriented learning.

The Alumni Talk Series on **“Product Development – Stages and Steps”** proved highly beneficial to the III-year Mechanical Engineering students by bridging classroom concepts with industrial practices. The session enhanced students’ awareness of the structured processes involved in product development and highlighted the importance of innovation, cost effectiveness, and customer-centric design. The insights shared by the alumnus encouraged students to develop industry-oriented thinking and motivated them to pursue skill development relevant to modern product-based industries. Overall, the event was well-received and contributed significantly to strengthening professional preparedness among students.



The Department of Mechanical Engineering organized an online Alumni Talk Series on 24 July 2025 for IV-year Mechanical Engineering students under the Design of Machine Elements (DoME) domain on the theme “Facing the Schneider Electric Interview.” The session aimed to prepare students for recruitment by strengthening technical skills, problem-solving ability, and communication. The resource person, Mr. Abhishek, Software Developer at Schneider Electric Ltd., shared insights on the company’s interview process, including aptitude, technical, and HR rounds. He emphasized the importance of strong fundamentals, logical thinking, and practical project experience. The session enhanced student confidence and guided them towards effective placement preparation.

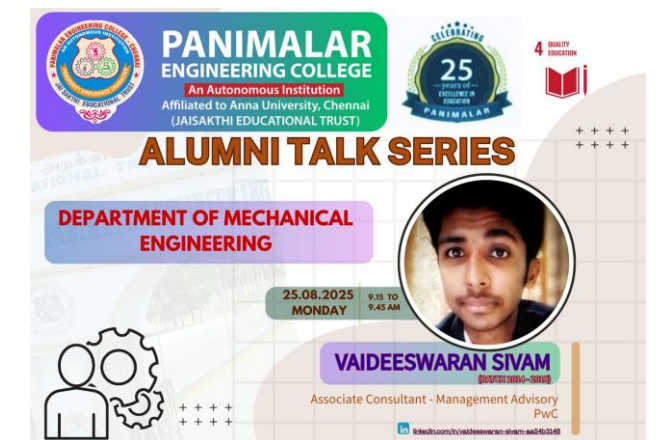
The Department of Mechanical Engineering organized an Alumni Talk Series on 29 July 2025 for IV-year students on the theme **“Opportunities in Software for Mechanical Engineers”** to create awareness about interdisciplinary career paths and the growing demand for programming skills.



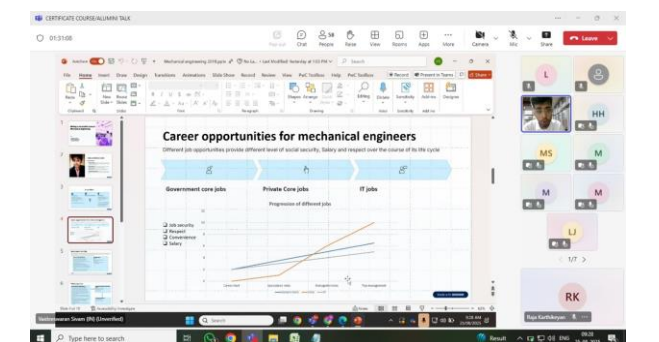
The resource person, **Mr. Jhondy Brittle**, an alumnus of the department and Java Developer at Cognizant, shared his transition journey into the IT sector and highlighted essential competencies such as programming fundamentals, logical reasoning, and adaptability. He also offered guidance on industry expectations, training platforms, and certifications, motivating students to explore software-based roles and enhance their employability in the evolving technology landscape.



The Department of Mechanical Engineering organized an online Alumni Talk Series on 25 August 2025 for first-year Mechanical Engineering students to help them understand industry expectations and career opportunities early in their academic journey. The resource person, **Mr. Vaideeswaran Sivam**, Associate Consultant – Management Advisory at PwC and an alumnus of the department, shared his career experiences and highlighted the importance of communication skills, problem-solving ability, adaptability, and continuous learning.



He also explained the consulting domain and its expectations while encouraging students to plan their skill development progressively. The session saw active participation and contributed to **SDG 4 – Quality Education**, motivating students to make informed academic and career decisions.



Industrial Visit

The Department of Mechanical Engineering organized an **Industrial Visit** on **09-08-2025 (Saturday)** for II & III year Mechanical Engineering students. The primary objective of the visit was to provide students with **practical exposure**, industrial awareness, and insights into manufacturing practices, equipment usage, industrial workflow, and safety standards.

1) WITTMANN BATTENFELD

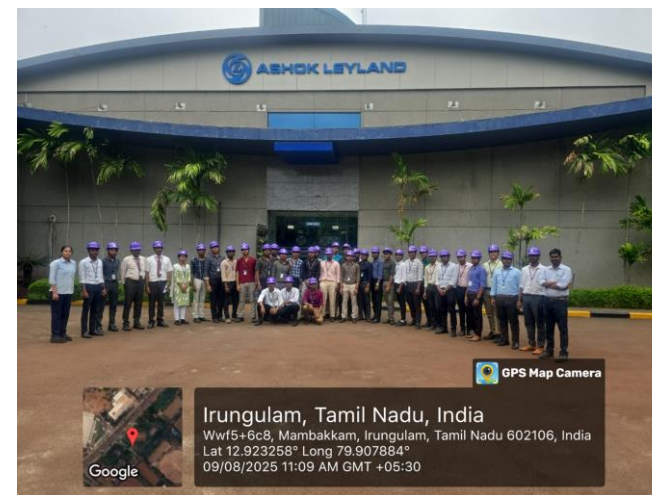
India Pvt. Ltd, Chennai

III Mechanical Engineering students visited Wittmann Battenfeld India Pvt. Ltd., Chennai, on 09-08-2025, where they were introduced to the concepts of injection moulding and polymer processing. The company demonstrated various automated manufacturing systems, including robotics integration, moulding machines, and auxiliary equipment used for high-accuracy plastic component production. Students gained insights into industrial automation, workflow control, material handling, and industrial safety. The visit enhanced their understanding of the application of automation in modern manufacturing industries.



2) Ashok Leyland – Foundry Division, Sriperumpudur

Students of III Mechanical Engineering visited the Ashok Leyland Foundry Division on 09-08-2025 to understand the casting and machining processes involved in automotive component production. The team observed various stages of foundry operations such as pattern making, mould preparation, metal melting, pouring, cooling, fettling and final machining. They were also briefed about the materials used, quality testing procedures, and safety measures followed inside the industry. This visit helped students understand the large-scale industrial workflow and the role of modern equipment in producing high-precision components.



3) Indo Cool Composite Private Limited, Ranipet

II Mechanical Engineering students visited Indo Cool Composite Private Limited, Ranipet, on 09-08-2025 to explore the manufacturing process of advanced composite materials. They observed various stages of composite production including mould preparation, resin mixing, curing, trimming, and quality inspection. Students learned about the advantages of composite materials, their lightweight properties, and applications in automotive industries. The visit helped students connect theoretical learning on composite materials with real industrial practices.



4) UCAL Limited, Maraimalai Nagar

II Mechanical Engineering students visited **UCAL Limited, Maraimalai Nagar**, on **09-08-2025**, with the objective of gaining exposure to the production of fuel management systems and various automotive components. During the visit, students were introduced to the company's core manufacturing activities, including component design, machining, and assembly. They observed advanced CNC machining operations and automated assembly lines handling high-precision parts used in engines and fuel systems.



Furthermore, students witnessed different quality inspection procedures such as component testing, calibration, and packaging, ensuring each product meets industry standards. Industry experts elaborated on the importance of precision engineering in automotive components and highlighted the role of modern technologies in improving performance and reliability. The visit offered students valuable hands-on exposure to real-time industrial processes, safety practices, and quality control systems, bridging the gap between theoretical knowledge and practical applications.

"Engineering is the closest thing to magic that exists in the world"