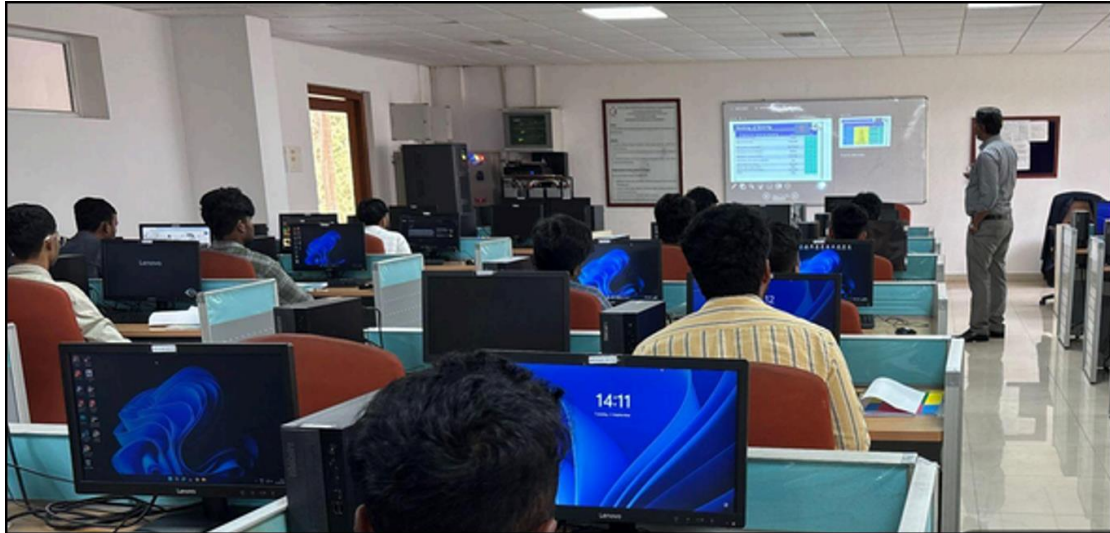


DEPARTMENT OF MECHANICAL ENGINEERING

Activities for the year 2025-26

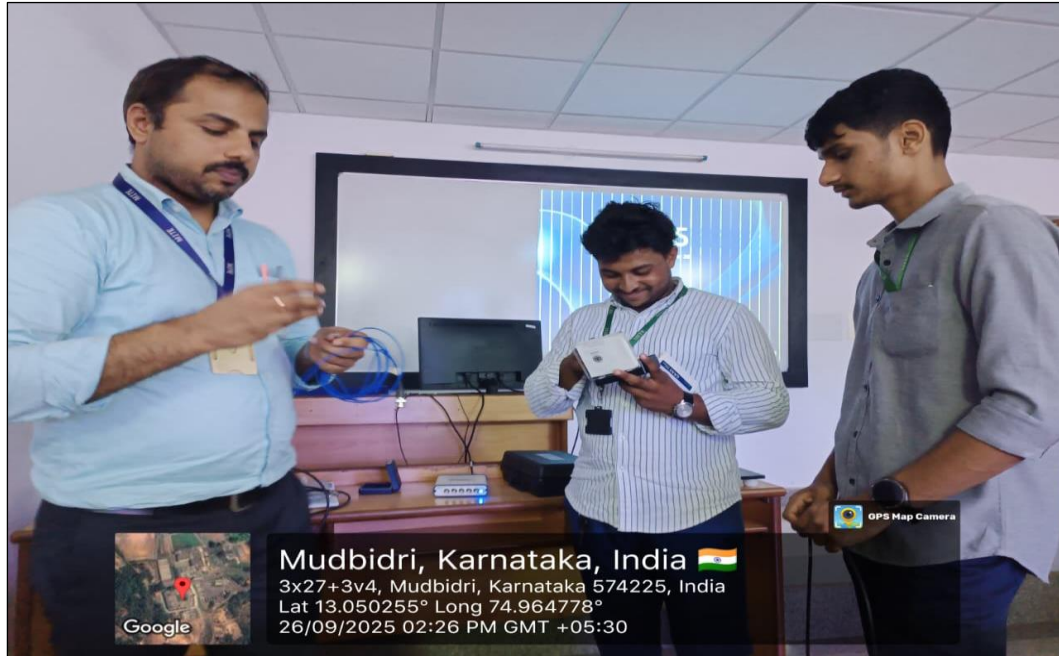
1. Total Quality Management Tools for Engineering Applicants



The Department of Mechanical Engineering successfully organized a three-day workshop on “TQM Tools for Engineering Applications” from 1st to 3rd September 2025 under the theme Innovation and Design Thinking. The workshop was conducted by Mr. Raghavendra V, Deputy Manager – Quality Assurance, Toyota Industries Engine Pvt. Ltd., Bengaluru, and witnessed active participation from students and faculty members. The primary objective of the workshop was to introduce students to the importance of Total Quality Management (TQM) and its practical applications in modern engineering industries. Through engaging sessions and real-world examples from the automotive sector, the resource person emphasized the significance of data-driven decision-making and continuous improvement in engineering processes. Students were exposed to the Seven Basic Quality Tools, which serve as powerful instruments for identifying, analyzing, and solving quality-related problems.

Participants gained hands-on understanding of tools such as Pareto Charts, Cause-and-Effect (Fishbone) Diagrams, Control Charts, Histograms, Scatter Diagrams, Check Sheets, and Flowcharts. The sessions demonstrated how these tools can be effectively used to prioritize issues, identify root causes, monitor process stability, analyze data trends, and improve manufacturing efficiency. Practical illustrations related to engine development and automotive manufacturing made the concepts easy to understand and highly relevant to mechanical engineering applications. The workshop encouraged students to move beyond theoretical knowledge and adopt a systematic approach to quality improvement. It highlighted the importance of proactive problem-solving, process optimization, and operational excellence in engineering practice. By the end of the program, participants had developed valuable analytical skills and a deeper appreciation for quality management methodologies.

2. Data Acquisition and Virtual Instrumentation using LabVIEW



MathWorks The Department of Mechanical Engineering at Mangalore Institute of Technology & Engineering (MITE), Moodbidri, hosted an impactful one-day hands-on technical workshop titled “Data Acquisition and Virtual Instrumentation using LabVIEW” on September 26th, 2025. Organized under the aegis of the Internal Quality Assurance Cell (IQAC), MITE, this career-focused initiative aimed to bridge traditional classroom concepts with modern, industry-oriented practices in measurement systems. The workshop featured Mr. Ajith Kumar, Senior Assistant Professor from the Department of Aeronautical Engineering, as the expert resource person. The interactive training provided students with essential core exposure to data acquisition architectures, advanced sensors, signal conditioning, and graphical programming paradigms, establishing a solid foundation for their future technical paths.

Held inside the Advanced Mechatronics Lab, the specialized sessions immersed participants in an experiential, multi-track learning environment. Under expert faculty guidance, students actively designed virtual instruments, developed functional block diagrams, and programmed data acquisition system (DAQ) modules using LabVIEW software. They gained practical experience executing real-time data collection, physical property visualization, and data analysis through hands-on experiments. Crucially, the training elevated critical thinking and system integration competencies, directly addressing key engineering outcomes and Sustainable Development Goals related to quality education and industry innovation. The workshop concluded with outstanding participant feedback, as students praised the direct relevance of the exercises to modern engineering practices. By demystifying virtual instrumentation, MITE has successfully empowered its students with vital tool-usage skillsets necessary for professional excellence.

3. Introduction Hands-on Training on Foundry & Casting Practices



The Department of Mechanical Engineering at Mangalore Institute of Technology & Engineering (MITE), Moodbidri, hosted a one-day interactive workshop titled “Hands-on Training on Foundry & Casting Practices” On October 3, 2025. Held at the campus’s Foundry & Forging Lab within the Mechanical Block, the program was organized in collaboration with MITE-IQAC under the global framework of SDG 9: Industry, Innovation, and Infrastructure. The primary objective of the workshop was to provide students with essential practical exposure to industrial manufacturing workflows, with a specific focus on casting processes, mould preparation, gating design, pouring techniques, and defect identification.

The underlying curriculum was built around three key educational targets:

- To provide participants with direct, practical exposure to the sequential stages of mould preparation, melting, and pouring. To familiarize students with the principles of gating design alongside methods to accurately identify and minimize common casting defects.
- To develop an application-oriented mindset regarding casting practices and their operational relevance across various manufacturing industries.

The forenoon session provided a robust introduction to foundational casting concepts. The instructional timeline covered an introduction to casting, the theory of mould preparation, principles of gating design, and the core methodologies governing melting and pouring practices. The afternoon session transitioned entirely into a practical, immersive laboratory environment. Under direct guidance, participants engaged in hands-on mould preparation and witnessed the physical melting and pouring of an aluminum alloy. This was followed by the cooling and shakeout of the mould, practical identification of casting defects, and an interactive discussion segment that finalized with closing comments.

4. The Start-Up Financial Blueprint: From Idea to Investment



The Department of Mechanical Engineering and Aeronautical Engineering at Mangalore Institute of Technology & Engineering (MITE) jointly organized a transformative one-day workshop titled "The Start-up Financial Blueprint: From Idea to Investment" on October 8th, 2025. Aimed at imparting crucial financial literacy to future technocrats, the session was led by esteemed Chartered Accountant CA Vishveshwara Perya, Managing Partner at P R Shetty and Associates. More than 80 students actively participated in this cross-disciplinary initiative designed to seamlessly bridge the gap between engineering and business finance. The workshop introduced participants to various forms of business organizations, standard double-entry bookkeeping, the Golden Rules of Accounting, and foundational concepts of assets, liabilities, and equity. By emphasizing the strategic value of financial intelligence, the seminar demonstrated how fiscal awareness uniquely equips modern engineers to manage industrial projects and confidently launch entrepreneurial ventures.

During the interactive sessions, students dived into the structure and practical interpretation of core financial reports, including Balance Sheets, Income Statements, and Cash Flow Statements. Under expert guidance, participants applied ratio analysis tools to evaluate business profitability and efficiency, while performing hands-on exercises to calculate break-even points and contribution margins using sample datasets. Crucially, the program incorporated real-world case studies and insightful discussions on corporate frauds to sensitize students to business ethics, governance, and transparent reporting. The workshop concluded with outstanding participant feedback, as students reported a massive boost in their confidence to interpret corporate financial health. By demystifying start-up financial architectures, MITE has successfully empowered its engineers with vital commercial skills for their future managerial endeavors.

5. Heat Transfer Problem Solving on MAT Lab



The Department of Mechanical Engineering at Mangalore Institute of Technology & Engineering (MITE), Moodabidri, hosted an engaging one-day hands-on technical workshop titled "Heat Transfer Problem Solving on MAT Lab" on November 7th, 2025. Specifically designed for third and final-year Mechanical Engineering students, the comprehensive training program aimed to bridge the critical gap between complex theoretical principles and modern computational applications. The technical session was inaugurated by Dr. Prashantha Acharya, Head of the Department of Mechanical Engineering, who highlighted the crucial importance of simulation tools in addressing intricate engineering issues. Led by Mr. Avinash Hegde, an expert Assistant Professor from MITE with an extensive background in thermal subjects and computational modeling, the initiative successfully empowered participants to elevate their analytical workflows and programming skills to align with current industry expectations.

Throughout the interactive workshop, students were first introduced to MATLAB's user interface, basic syntax, and matrix operations before quickly transitioning into practical engineering applications. Under expert guidance, participants developed functional scripts to analyze one-dimensional steady-state heat conduction, transient conduction via explicit and implicit methods, convection correlations, and heat exchanger performance metrics. By writing scripts, debugging code, and generating graphical plots to visualize temperature distributions and thermal gradients, the engineers gained vital experience in computational thinking. The event concluded with exceptionally positive student feedback, highlighting a substantial boost in computational confidence and an ideal balance between theory and simulation. This successful initiative underscores MITE's ongoing dedication to providing future-focused, skill-driven technical education that prepares its students for professional excellence.

6. *Design of Fluid Power Circuits using MATLAB*



The Department of Mechanical Engineering at Mangalore Institute of Technology & Engineering (MITE), Moodabidri, hosted an impactful two-day workshop titled "Design of Fluid Power Circuits using MATLAB" on November 17th and 18th, 2025. Organized in association with MathWorks and CoreEL Technologies Pvt. Ltd., the intensive training program was specifically designed for fifth and seventh-semester students from the Mechanical and Mechatronics Engineering streams. The technical event was highlighted the critical value of computer-aided simulation in modern industrial automation. The workshop aimed to bridge the traditional gap between classroom theoretical principles and modern engineering practices by introducing students to complex computational modeling frameworks.

Participants gained valuable hands-on experience in the modeling, simulation, and analysis of hydraulic and pneumatic systems using MATLAB and Simulink. Guided through structured training tracks, the young engineers actively explored various modeling paradigms, learning to construct functional fluid power circuits, implement hydraulic actuation controls, and map complex pneumatic logic circuits. Under expert guidance, students successfully simulated system performance and optimized circuit parameters to maximize operational efficiency and control accuracy. The event concluded with exceptionally positive feedback, as students reported a substantial boost in their design confidence and computational tool-usage capabilities. This successful initiative perfectly underscores MITE's ongoing dedication to delivering advanced, industry-aligned technical skillsets that effectively prepare its graduates for professional engineering excellence.

7. *Computational Methods for Thermodynamic Problems Using MATLAB*



The Department of Mechanical Engineering at Mangalore Institute of Technology & Engineering (MITE), Moodabidri, hosted an impactful one-day workshop titled "Computational Methods for Thermodynamic Problems Using MATLAB" on November 22nd, 2025. Organized under the aegis of MITE-IQAC, the initiative specifically targeted third-semester Mechanical Engineering students to enhance their understanding of core thermodynamic principles through advanced computational techniques. The workshop focused on bridging the traditional gap between classroom theory and practical computational problem-solving.

Throughout the interactive sessions inside the CAED Laboratory, participants gained vital hands-on experience by navigating the MATLAB environment and exploring complex thermal equations. Under expert guidance, the young engineers actively applied the Zeroth and First Laws of Thermodynamics to both open and closed systems, modeled heat and work interactions, and learned to accurately interpret pressure-volume (p-v) diagrams. The intensive training track included practical problem-solving demonstrations involving diverse air and steam processes, which substantially boosted the students' computational confidence and analytical engineering competencies. The event concluded with highly positive student feedback, highlighting a successful integration of theoretical frameworks with numerical exercises. This career-oriented initiative perfectly underscores MITE's ongoing dedication to delivering advanced technical skill sets that prepare future technocrats for professional industry challenges.

8. *Fundamentals of Static Structural Analysis of Mechanical Components Using ANSYS Workbench*



The Department of Mechanical Engineering at Mangalore Institute of Technology & Engineering (MITE), Moodbidri, hosted an impactful one-day hands-on technical workshop titled "Fundamentals of Static Structural Analysis of Mechanical Components Using ANSYS Workbench" on November 7th, 2025. Organized under the aegis of MITE's Internal Quality Assurance Cell (IQAC), the career-focused initiative aimed to bridge traditional classroom learning with modern computer-aided simulation protocols. The specialized training sessions were directly led and coordinated by Dr. Prashantha, an expert Assistant Professor with an extensive background in materials science and finite element analysis (FEA). The workshop was explicitly designed to give future technocrats essential practical exposure to advanced simulation workflows, preparing them to seamlessly meet the rigorous analytical and modeling expectations of today's fast-evolving manufacturing and design industries.

Throughout the event, participants were deeply immersed in a well-balanced learning track inside the CAAD laboratory. Students first navigated fundamental FEA engineering concepts and the core project workspace before transitioning into practical software operations using ANSYS Design Modeler. Under expert faculty guidance, the young engineers practiced geometry importing, material assignment, precise meshing, and the application of realistic boundary conditions for standard tensile and flexural specimens. Advanced afternoon modules further expanded their software competencies through focused demonstrations on reducing structural stress concentrations alongside hands-on practice with mesh convergence techniques. Ultimately, the immersive training enabled students to confidently interpret real-world simulation data such as stress, strain, and deformation to make informed design decisions. This highly successful workshop concluded with exceptional student feedback, highlighting MITE's continuous commitment to aligning academic excellence with modern industrial tool usage and sustainable developmental skill sets.

9. Advanced Machining



The Department of Mechanical Engineering at MITE, Moodbidri, in association with GTTC, Mangalore, organized a one-day hands-on workshop titled “Advanced Machining” On December 1, 2025. Coordinated by GTTC training staff and supported by MITE faculty, the program provided practical exposure to modern industrial workflows, CNC machining, tooling, measurements, and parameter configuration. The key objectives focused on demonstrating advanced processing principles like EDM, ECM, and CNC operations, determining appropriate machining parameters across various materials, and observing how parameter adjustments impact machined surface quality. The technical schedule was delivered across two comprehensive sessions:

Session 1 - Focused on fundamental theory, covering CNC machining concepts, tools, and industrial applications. Students attended Q&A segments and witnessed live demonstrations of controller interface navigation, safety protocols, tool movements, and axis programming basics.

Session 2 - Shifted entirely to immersive practical activities, prioritizing safety practices, equipment setup, and process parameter measurements. Participants independently executed complete machining cycles from initial setup to completion, gaining critical exposure to real-time operations and performance evaluations.

10.ANSYS Workbench: Geometry to Results in 1D, 2D & 3D Structural, Thermal, and Modal Analysis



The Department of Mechanical Engineering at Mangalore Institute of Technology & Engineering (MITE), Moodabidri, hosted an intensive three-day hands-on workshop titled "ANSYS Workbench: Geometry to Results in 1D, 2D & 3D Structural, Thermal, and Modal Analysis" from April 18th to 21st, 2026. Organized under the aegis of MITE's Internal Quality Assurance Cell (IQAC), the career-focused initiative aimed to seamlessly bridge classroom theoretical concepts with advanced computer-aided engineering simulation workflows. The technical program featured Mr. Ravi Reddy, a distinguished Lead Engineer in Aero Engines, as the primary resource person. The interactive training sessions provided students across multiple engineering streams with a vital competitive edge, immersing them deeply in industry-standard product validation and predictive simulation paradigms.

Throughout the comprehensive training tracks inside the CAD laboratory, participants navigated a structured curriculum covering multi-dimensional mechanical modeling and analysis. Students moved progressively from setting up 1D beam simulations and 2D axisymmetric thermal profiles to mastering intricate 3D solid structural and modal deformation tasks. Under the expert guidance of Mr. Reddy, the aspiring engineers practiced accurate geometry importing, material mapping, optimized structural meshing, boundary constraint definition, and post-processing interpretation. By evaluating safety factors, thermal distributions, and natural frequency structural behaviors, the young professionals successfully enhanced their analytical problem-solving competencies. The highly successful event concluded with outstanding participant feedback, highlighting a substantial surge in computational design confidence while cementing MITE's ongoing commitment to cultivating career-ready engineering excellence.

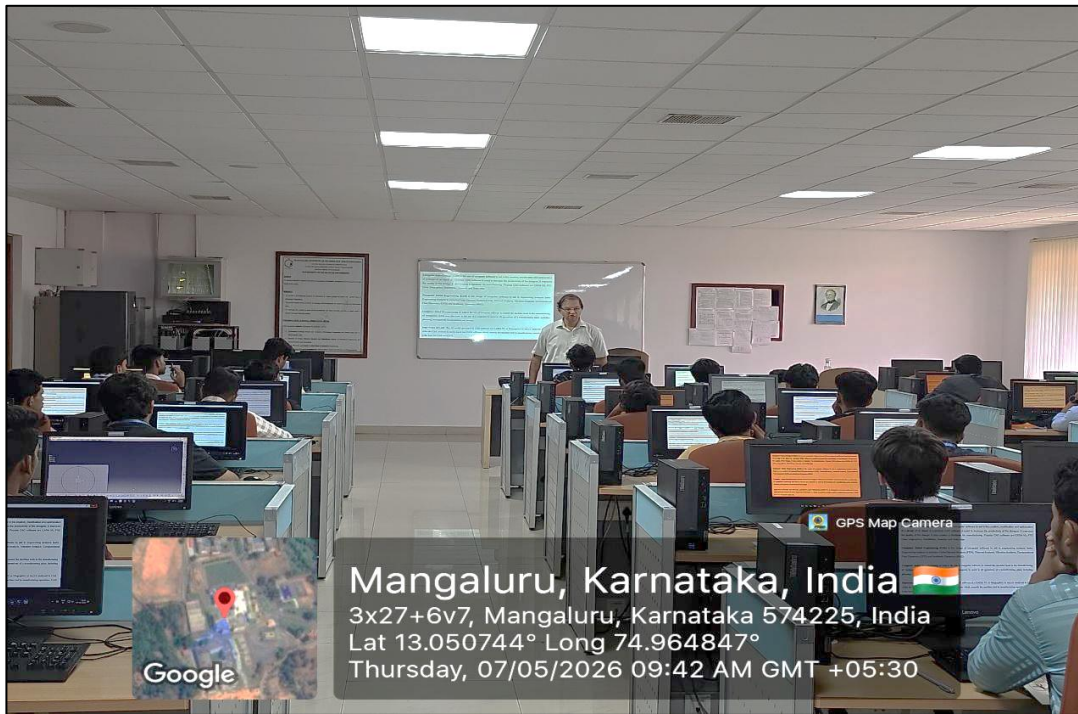
11. Mastering Robotics: Teach Pendant to Smart Component Programming



The Department of Mechanical Engineering at Mangalore Institute of Technology & Engineering (MITE), Moodabidri, successfully organized an enriching one-day hands-on workshop titled "Mastering Robotics: Teach Pendant to Smart Component Programming" on May 4th, 2026. Specifically curated for sixth-semester Mechanical Engineering students, the primary objective of this intensive training program was to bridge the crucial gap between abstract theoretical principles and practical engineering applications in modern automation. The workshop commenced with an inspiring inaugural session emphasizing the transformative role of robotics in maximizing industrial precision, productivity, and safety across manufacturing sectors. Led by the expert resource person, Ms. Nishmitha, an Assistant Professor from MITE's Department of Mechatronics, the session provided students with comprehensive introductory insights into robotic architectures, motion control frameworks, and their diverse industrial applications, including pick-and-place operations and material handling.

Transitioning from the classroom to the laboratory, the workshop successfully immersed participants in experiential learning through dual morning and afternoon training tracks. Students initially navigated robot programming fundamentals, coordinate referencing systems, and tool center points using the teach pendant. Later, inside the specialized robotics laboratory, they interacted directly with real industrial robots to execute precise tasks such as robot jogging, joint movement control, and pick-and-place routines under expert faculty guidance. This direct interaction drastically improved the participants' technical competency and confidence while highlighting career avenues in smart manufacturing. The successful event concluded with outstanding student feedback, cementing MITE's proactive stance on equipping future engineers with essential, industry-aligned automation skillsets.

12. CATIA V5 Foundation & Product Design



The Department of Mechanical Engineering at Mangalore Institute of Technology & Engineering (MITE), Moodabidri, recently hosted an intensive three-day hands-on technical workshop titled "CATIA V5 Foundation & Product Design" from May 7th to May 9th, 2026. Organized in association with ISTE and MITE-IQAC, the comprehensive training program was conducted in collaboration with MSM Consultancy Services, Bengaluru, specifically targeting second-year Mechanical Engineering students. Led by Mr. Prashantha S, an expert Design Engineer from MSM Consultancy Services, the workshop aimed to provide crucial practical exposure to industry-oriented computer-aided design (CAD) modeling and product development methodologies. Through a balanced combination of brief theoretical insights and intensive laboratory sessions, the initiative successfully sought to introduce the core interface of CATIA V5, elevate students' 2D and 3D design competencies, and bridge the traditional gap between classroom learning and modern industrial applications.

Throughout the event, participants were deeply immersed in various specialized workbenches, including Sketcher, Part Design, Assembly Design, Drafting, and Surface Design. Guided step-by-step through real-world modeling exercises, students moved from creating basic geometric profiles to developing intricate mechanical assemblies and generating precise manufacturing drawings according to standard engineering drafting protocols. The advanced modules also offered valuable, highly relevant exposure to surface modeling techniques vital for the aerospace and automotive sectors. Ultimately, this immersive training significantly boosted the participants' confidence, giving them a robust foundation in modern product development workflows while substantially enhancing their overall industry readiness. The successful completion of this workshop highlights MITE's ongoing commitment to providing enriching, career-focused technical experiences for its aspiring engineers.

13. Model-Based Systems Engineering (MBSE) using MATLAB



The Department of Mechanical Engineering and Mechatronics at Mangalore Institute of Technology & Engineering (MITE) successfully organized a two-day workshop on "Model-Based Systems Engineering (MBSE) using MATLAB" on October 10 and 11, with the participation of 75 students and three faculty members. The workshop featured expert sessions by Dr. Deb Singdeo, Senior Engineer at MathWorks, and Dr. Riyaz A. Rahiman, Senior Application Engineer at CoreEL Technologies Pvt. Ltd., who introduced participants to the fundamentals of Systems Engineering, Model-Based Systems Engineering (MBSE), MATLAB-Simulink tools, system architecture, lifecycle modeling, functional simulation, requirements validation, testing, verification, deployment, and automatic code generation for embedded systems. Through hands-on training, participants gained practical experience in developing system lifecycle models, creating functional flow block diagrams, simulating engineering systems, validating system requirements, and understanding the complete V-model development lifecycle, thereby bridging the gap between theoretical concepts and industrial applications. The workshop was coordinated by Dr. Shivaramu H. T., Senior Assistant Professor, Department of Mechanical Engineering, and Dr. Kirankumar M. V., Senior Assistant Professor, Department of Mechatronics. Participants appreciated the industry-oriented sessions and practical exposure, highlighting the programme's role in enhancing their technical competence, digital engineering skills, and industry readiness.

14.Industrial Visit-Carl Zeiss India Pvt. Ltd. Bengaluru



The Department of Mechanical Engineering at Mangalore Institute of Technology & Engineering (MITE), Moodabidri, organized an insightful industrial visit for 24 mechanical engineering students to Carl Zeiss India Pvt. Ltd. in Bengaluru on April 3rd, 2026. Coordinated by Mr. Swaroop, Assistant Professor, this experiential learning initiative was designed to give students a comprehensive overview of advanced dimensional metrology and its critical role in modern manufacturing environments. The primary objective of the excursion was to bridge the gap between academic theory and real-world precision engineering, allowing students to observe how abstract textbook concepts such as "Limits, Fits, and Tolerances" are directly implemented on the factory floor. By exploring high-accuracy measurement solutions, the future engineers gained an understanding of how strict quality standards ensure the absolute structural integrity of complex mechanical components like engine blocks, turbine blades, and gears.

During the extensive facility tour led by Mr. Abhijeeth Ranjan, Regional Head of Carl Zeiss India, the participants were introduced to state-of-the-art metrology hardware and software frameworks. A major highlight of the visit was a live demonstration of Bridge-type Coordinate Measuring Machines (CMMs), specifically the high-performance ZEISS PRISMO and MICURA series. Students observed continuous tactile "VAST" scanning probes map thousands of coordinate data points across complex geometries, which were seamlessly processed using specialized ZEISS CALYPSO quality control software. This direct exposure to automated, ultra-precise, micron-level measuring equipment gave students an invaluable appreciation for real-time industrial data analysis. Ultimately, the visit successfully expanded the students' career perspectives in smart manufacturing, reinforcing MITE's ongoing dedication to delivering practical, career-ready technological exposure.

15.Industrial Visit-Virya Autonomous Technologies Pvt. Ltd. Bengaluru



The Department of Mechanical Engineering at Mangalore Institute of Technology & Engineering (MITE), Moodabidri, organized an educational industrial visit for 24 mechanical engineering students to Virya Autonomous Technologies Pvt. Ltd. in Bengaluru on April 4th, 2026. Coordinated by Mr. Swaroop, Assistant Professor, the excursion provided an invaluable opportunity for future engineers to witness the real-world convergence of traditional mechanical design and advanced robotics. As a pioneering company under the Maini Group, Virya Autonomous Technologies specializes in cutting-edge autonomous mobility and electric vehicle (EV) technology. Led by Mr. Prasanta Kumar M, Academic Executive Head, the comprehensive facility tour successfully bridged the gap between theoretical classroom concepts and the rapidly evolving field of smart autonomous systems, offering students a firsthand look at the practical application of kinematics, structural packaging, and automated material handling workflows.

During the visit, the participants explored the specialized manufacturing and assembly units where Virya develops its flagship AMR 10 and AMR 50 series. Students observed the intricate mechanical engineering required to build rugged Autonomous Mobile Robots (AMRs) capable of transporting heavy loads up to 5,000 kg across varied terrains. The engineers also demonstrated EV powertrain integration, structural packaging for electronic sensors, and the rigorous validation testing required for autonomous airport buggies and warehouse bots. This immersive experience highlighted the essential interdisciplinary skills—combining CAD design, structural analysis, and robotics—crucial for modern mechanical engineers in the Industry 4.0 era. The highly successful visit concluded with positive student feedback, reinforcing MITE's continuous commitment to equipping graduates with industry-aligned technological competence.