



A Report on **One-day Industrial Visit to**  
**“Chronic Foundation and Advance Mechanical Services Pvt. Ltd, Bengaluru”**  
**Organized by Industry Relations**  
**In Association with Department of CSE-AI and ML, MITS**  
**on 23.04.2026.**

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**Mode of Conduct: Offline**

**No. of Students: 42**

**Faculties Accompanied: Mr. BSH. Shayeez Ahamed, Assistant Professor, Department of CSE (AI and ML) and Dr. Kezia Saini, Assistant Professor, Department of Mathematics, MITS.**

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### **Introduction:**

On 23rd April 2026, a group of 42 students from I B.Tech CSE (AI and ML), Madanapalle Institute of Technology & Science, Madanapalle, Andhra Pradesh, undertook an industrial visit to **Chronic Foundation, Bengaluru** and **Advance Mechanical Services Private Limited, Bengaluru**. The primary objective of this educational tour was to bridge the gap between theoretical classroom knowledge and practical industrial applications by exposing students to real-world software development environments, automation technologies, manufacturing systems, and interdisciplinary applications of Artificial Intelligence and Machine Learning in modern industries. The visit offered students valuable insights into IT solutions, industrial automation, precision engineering, and the growing integration of AI-driven technologies across sectors.

**The first phase of the industrial visit was conducted at Chronic Foundation, Bengaluru**, an organization focused on practical technology education, sustainable innovation, and skill-oriented industrial exposure for students. The visit provided students with valuable insights into renewable energy systems, electric mobility solutions, and hands-on engineering applications aligned with modern sustainability goals. The session began with an overview of Chronic Foundation's commitment to promoting emerging technologies, sustainable engineering practices, and industry-ready technical education.

- Chronic Foundation emphasizes experiential learning through exposure to renewable energy technologies, electric vehicle systems, and practical engineering solutions.
- Students were introduced to sustainable development concepts and the growing importance of green technologies in addressing energy and environmental challenges.
- The organization highlighted the significance of innovation in solar power generation, electric mobility, and future-ready technological adaptation.

### **Key Learning Areas Explored:**

#### **Solar Panel Technology and Renewable Energy Systems:**

A major focus of the visit was the detailed explanation of solar panel technology, including design, functionality, and practical applications.

- Students learned how photovoltaic (PV) cells convert sunlight into electrical energy.
- Different components of solar energy systems such as solar modules, inverters, batteries, and charge controllers were explained.
- Demonstrations covered the installation process, panel alignment, energy optimization, and maintenance procedures.
- Students understood the practical significance of solar energy in residential, industrial, and commercial sectors.

#### **EV Bikes (Electric Vehicles) and Green Mobility:**

The organization also provided in-depth exposure to electric bikes (EV bikes) as a sustainable transportation solution.

- Students were introduced to EV bike architecture, including battery systems, motors, controllers, charging mechanisms, and safety components.
- The working principles of electric mobility and the transition from conventional fuel-based vehicles to eco-friendly alternatives were explained.
- Experts discussed the environmental benefits, efficiency, and future market potential of EV technologies.

#### **Installation and Assembly Demonstration:**

A practical highlight of the visit was the demonstration of **installation and assembly processes** for both solar systems and EV components.

- Students observed step-by-step assembly of EV bike components.
- Battery integration, wiring systems, controller setup, and testing procedures were demonstrated.
- Solar panel mounting structures, electrical connections, and system calibration were showcased.
- Safety protocols, maintenance standards, and troubleshooting practices were emphasized throughout the session.

### **Battery Technology and Energy Storage Systems:**

A major technical focus of the visit was on battery systems, which are central to both solar energy storage and electric vehicles.

- Students were introduced to different battery types used in modern systems, including lithium-ion batteries, lead-acid batteries, and rechargeable energy storage technologies.
- Experts explained battery structure, charging cycles, energy density, voltage management, thermal safety, and lifespan considerations.
- Battery Management Systems (BMS) were discussed as critical for performance monitoring, safety, and efficiency optimization.
- Practical applications of batteries in solar backup systems, EV bikes, and portable energy devices were demonstrated.
- Safety precautions related to battery handling, charging, maintenance, and recycling were also emphasized.

**The second phase of the industrial visit was conducted at Advance Mechanical Services Private Limited, Bengaluru,** a pioneering organization delivering advanced engineering, automation, and manufacturing solutions with decades of expertise in modern industrial technologies. The visit provided students with a comprehensive understanding of how cutting-edge engineering services integrate with Artificial Intelligence, automation, and smart manufacturing across multiple industrial sectors.

### **Introduction to the Organization:**

The session began with an overview of the company's diversified technological ecosystem and its contributions to industries such as automotive, aerospace, heavy engineering, construction, and education.

- Advance Mechanical Services specializes in CAD/CAM/CAE/PLM and Design Engineering, offering end-to-end engineering solutions that support product design, simulation, lifecycle management, and industrial innovation.
- The company serves major sectors including automotive, aerospace, and heavy engineering, demonstrating how precision engineering drives national and global industrial growth.
- Students were introduced to the role of digital engineering tools in transforming traditional manufacturing into intelligent, data-driven production systems.

### **CAD/CAM/CAE/PLM & Design Engineering:**

Students learned how Computer-Aided Design (CAD), Computer-Aided Manufacturing (CAM), Computer-Aided Engineering (CAE), and Product Lifecycle Management (PLM) are used to design, simulate, test, and optimize products before physical production.

This session highlighted the importance of virtual prototyping, simulation accuracy, and digital transformation in reducing cost and development time.

### **Additive Manufacturing (3D Printing):**

A detailed presentation was given on additive manufacturing products that accelerate research and development while significantly reducing product development cycles. Students observed how rapid prototyping supports innovation by enabling quick model creation, testing, and product refinement.

### **Robotic Automation Solutions:**

As an ABB Value Provider, Advance Mechanical Services demonstrated custom robotic automation systems used in industrial production and process optimization. Students explored robotic arms, automation workflows, and industrial applications that improve precision, productivity, and workplace safety.

### **Industrial Internet of Things (IIoT):**

The company showcased IIoT Kits for education and industrial IIoT solutions that connect machines, sensors, and systems for real-time monitoring and predictive maintenance. This segment was especially relevant for CSE (AI and ML) students as it connected AI, sensor networks, and industrial analytics.

### **Centres of Excellence for Educational Institutions:**

In collaboration with Honeywell Academy, Advance Mechanical Services establishes Centers of Excellence in colleges and universities to bridge academic learning with industrial requirements. Students were encouraged to understand how such initiatives prepare them for future-ready skills in automation, AI, and engineering technologies.

### **Cross-Fix Prototyping Tooling:**

Students were introduced to Cross-Fix prototyping tools designed for sheet metal assembly, showcasing practical industrial solutions for product development and manufacturing efficiency.

### **BIM (Building Information Modeling) Services:**

The organization also provides BIM solutions to the construction sector, illustrating how digital modeling improves planning, design coordination, and infrastructure management.

## **Advanced Manufacturing – Service Robots & Drones:**

A major highlight of the visit was the company's role as a manufacturing partner of Xtend Robotics, producing service robots for industrial and commercial applications.

Additionally, students learned about drone manufacturing for surveillance applications, showcasing the integration of AI, robotics, and aerospace technologies in emerging markets.

Advance Mechanical Services emphasized the convergence of software intelligence, AI, automation, robotics, and mechanical engineering.

### **Conclusion:**

The industrial visit to Chronic Foundation, Bengaluru and Advance Mechanical Services Private Limited, Bengaluru was a highly enriching and transformative learning experience for I B.Tech CSE (AI and ML) students. It successfully provided practical exposure to software engineering, AI applications, industrial automation, and mechanical systems. By witnessing the implementation of advanced technologies across sectors, students gained a deeper understanding of how AI and ML can contribute to software innovation, industrial productivity, and future technological advancements.

The visit strengthened students' academic learning, broadened career perspectives, and inspired them to explore interdisciplinary opportunities in the rapidly evolving technological landscape.

### **Outcomes:**

1. Students enhanced their understanding of software development and enterprise technology systems.
2. Students gained practical exposure to Artificial Intelligence, Machine Learning, and cloud applications.
3. Students developed awareness of industrial automation and Industry 4.0 technologies.
4. Students understood the integration of AI with mechanical and manufacturing sectors.
5. Students gained career insights into software, automation, and interdisciplinary engineering fields.

### **UN-SDG Mapping:**

SDG 4 – Quality Education

SDG 8 – Decent Work and Economic Growth

SDG 9 – Industry, Innovation, and Infrastructure

SDG 12 – Responsible Consumption and Production

SDG 17 – Partnerships for the Goals