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A Report on Industrial Visit to "HMT Machine Tools Limited, Bengaluru" Organized by Department of Mechanical Engineering On 28.08.2026

Report Submitted by: Dr. G. Veeresalingam, Assistant Professor, Department of Mechanical Engineering.
Number of Students: 33 (IVth Year-Mechanical)
Faculty Coordinators: Dr. G. Veeresalingam, Assistant Professor; Dr. A. Pruthvi Deep, Assistant Professor, Dept. of Mechanical Engineering and Mrs. K. Anitha, Assistant Professor, Dept. of Civil Engineering.
Mode of Conduct: Offline
Report Received on 08.09.2026.

Purpose of the Visit

The industrial visit was organized to provide students with practical exposure to manufacturing operations and to relate classroom concepts in manufacturing technology, materials, machining, production and material handling to actual industrial practice. The visit enabled the students to observe the sequence of operations followed in a large engineering organization and to understand the importance of safety, quality and process control in manufacturing.

Sections Visited and Observations

1. Foundry Section

Students observed important foundry operations beginning with melting and casting activities. The use of an induction furnace for melting was explained. The group also observed moulding related activities and gained an understanding of the role of moulding sand in producing cast components. Subsequent cleaning and finishing operations, including sand blasting, were also discussed. The visit helped students connect the complete casting sequence from metal melting and mould preparation to cleaning and inspection of the cast product.

2. Marking and Machining Sections

In the marking and machining areas, students were introduced to the importance of dimensional accuracy, reference surfaces and proper marking before machining. Various machining operations and machine tools used for producing accurate engineering components were observed. Particular attention was given to the universal milling machine and its usefulness for performing different milling operations. The interaction also highlighted the need for correct work holding, tool selection, measurement and inspection during component manufacture.

3. Assembly Section

The assembly section demonstrated how individual manufactured components are brought together into functional engineering systems. Students were able to appreciate the importance of dimensional control, alignment, inspection and coordinated assembly procedures. A particularly interesting exposure was the discussion of a **manipulator** developed for material handling applications associated with nuclear reactor environments. This illustrated how mechanical design, manufacturing, actuation and controlled handling can be integrated for applications where direct human handling may be difficult or undesirable.

Learning Outcomes

- Understood the practical sequence of foundry operations and the role of induction melting, moulding and sand blasting.
- Observed industrial marking and machining practices and the application of a universal milling machine.
- Recognized the importance of accuracy, inspection, work holding and process planning in manufacturing.
- Gained exposure to industrial assembly practices and specialized material handling equipment.
- Related theoretical concepts in manufacturing and mechanical engineering to real industrial applications.

Relevance to Sustainable Development Goals (SDGs)

SDG	Goal	Relevance of the Visit
SDG 4	Quality Education	Provides experiential learning by connecting classroom knowledge with industrial practice.
SDG 8	Decent Work and Economic Growth	Creates awareness of industrial skills, professional practices, productivity and employment-oriented engineering competencies.
SDG 9	Industry, Innovation and Infrastructure	Exposes students to manufacturing infrastructure, machine tools, engineering systems and specialized industrial innovation.

Overall Outcome

The industrial visit to HMT, Bengaluru was informative and useful for the participating students. It provided direct exposure to foundry, machining and assembly operations and helped students understand how different manufacturing processes are integrated in an industrial environment. The visit also gave the students an opportunity to observe specialized engineering applications beyond routine classroom examples. Overall, the programme strengthened practical understanding, industrial awareness and the connection between academic learning and professional engineering practice.

Acknowledgement

The Department of Mechanical Engineering expresses its sincere gratitude to the management and personnel of HMT, Bengaluru for providing the opportunity to visit the facility and for explaining the various manufacturing and assembly activities.

The department also gratefully acknowledges the support and encouragement extended by the Hon'ble Chancellor, Vice-Chancellor, Registrar, Principal, Head of the Department of Mechanical Engineering, faculty coordinators, and the management of MITS in facilitating the industrial visit. The active participation and cooperation of the students are also sincerely appreciated.