Department of Mechanical Engineering

Industrial Visit Report – Kumar Pumps & Motors, Tenali

II/IV B.Tech Regular and Lateral Entry Students of Mechanical Engineering Department were taken to Sri Lakshmi Ganapathi Engg. Works, Tenali for industrial visit on 08-09-2025 to acquire knowledge by seeing practically the things happening in Sri Lakshmi Ganapathi Engg. Works. Initially the Supervisory team explained demo lecture on Preparation and machining of castings for Pumps and Motors. As a part of visit 39 students and 2 faculty (Dr. A.V.S Ramprasad and Dr. S. S. Rao) have visited.

Sri Lakshmi Ganapathi Engineering Works (SLGEW), Tenali, is a jobbing foundry with an integrated machine shop serving agricultural equipment, pump/valve housings, automotive

subcomponents and general engineering parts. The foundry typically handles grey cast iron and SG iron (and, where required, non- ferrous alloys in smaller batches). The machine shop undertakes rough and finish machining, sub- assembly and quality inspection to customer drawings.

Sri Lakshmi Ganapathi Engineering Works, located in Tenali, is a well-established engineering firm known for its expertise in foundry operations. The foundry division specializes in the production of high-quality metal castings for various industrial applications. The division employs advanced techniques and equipment to produce castings that meet stringent quality standards. The foundry operations at Sri Lakshmi Ganapathi Engineering Works encompass a series of meticulously planned and executed steps to ensure the production of precise and reliable castings. The following sections observed by students and details observed by students in each section are provided below.

Foundry Section

- Introduction to foundry processes – mould preparation, core making, melting, and pouring.
- Observed use of cupola/induction furnace for metal melting.
- Demonstration of moulding sand preparation and properties (strength, permeability).
- Exposure to pattern making techniques and materials used.
- Observed pouring of molten metal into moulds with safety precautions.
- Insight into solidification process, fettling, and finishing operations.
- Quality control measures in castings (defect inspection, dimensional accuracy).

Machine Shop Section

- Introduction to the machine shop layout and workflow.
- Demonstration of lathe operations (turning, facing, taper turning, thread cutting).
- Observation of milling, drilling, and shaping machines in operation.
- Exposure to CNC turning/machining centers (if available).
- Explanation of cutting tool materials and tool holding devices.

- Discussion on jigs and fixtures for batch production.
- Inspection methods for finished components.
- Maintenance and safety practices in machine shop operations.

All the students were taken to the molding section, where they observed the machine molding process followed by the metal pouring section, witnessing the pouring of molten metal into the prepared molds. Subsequently, they observed the separation of semi-finished products and the removal of gating system parts separately. The prepared semi-finished parts were then subjected to an air blast device to separate the carbon particles. Additionally, students gained an understanding of the core-making machine, witnessing the injection of core sand. In the core preparation section, they examined how to correct a damaged core, which is necessary for placement in the prepared mold. The process of preparing molten metal in an electric induction furnace was also observed, along with a clear visualization of how impurities were removed from the molten metal.

All the students were taken to the machine shop, to closely observe the functioning of the machine shop, which plays a vital role in converting raw castings into precise and usable pump components. The visit provided insights into various machining operations such as turning, facing, drilling, shaping, and milling, along with their importance in achieving dimensional accuracy and surface finish. Students observed the systematic arrangement of machines and the workflow adopted to enhance productivity. They gained practical exposure to the working principles of lathe machines, milling machines, drilling machines, and shaping machines, and also learned about different cutting tools and their applications. Special emphasis was given to safety measures followed in the shop floor, as well as the importance of quality inspection for ensuring defect-free components.

Overall, the visit helped students understand how theoretical concepts in manufacturing are applied in real-time industrial practice.

At last, Dr. AVS Ramprasad, Associate Professor and Dr. S. S. Rao, Professor thanked management of Sri Lakshmi Ganapathi Engg. for accepting and providing guidance for the industrial visit.

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