



Sarvajanik University
Sarvajanik College of Engineering & Technology, Surat



INDUSTRIAL VISIT REPORT

ON

JMT INDIA INC

ORGANIZED BY

DEPARTMENT OF MECHANICAL ENGINEERING

Place of Visit: Plot no I/170, Road no I/8, Via Laxmi textile park, GIDC, Sachin, Surat, Gujarat 394230.

Date of Visit: 22nd AUGUST, 2026

Target Students: B.Tech. 2nd Year Students (Total visited: 40)

Faculties attended: Prof. (Dr.) Satish Dokiarti, Prof. (Dr.) Piyush T. Patel

About Jay Metal Tech:

Jay Metal Tech, established in 2001, is an ISO 9001 certified organization engaged in manufacturing and supplying Industrial Valves and Castings. The company's product range includes products like Propeller Shaft Casting, Pump Casting, Railway Pin Insulator and Sluice Valve, Butterfly Valve, Check Valve, Clutch Pressure Plate and Propeller Shaft Casting crafted from high grade material like stainless steel, carbon & alloy steel, cast iron, ductile (S.G.) iron, non ferrous metal and others.



Their advanced manufacturing unit enables the production of ductile and gray iron castings ranging from 300 grams to 5000 kilograms, utilizing heat treatment, surface treatment, and machining processes. Approved by the Power Grid Corporation of India (PGCIL) as a supplier of SG Iron castings, Jay Metal Tech is known for its high-quality, durable products and customer-focused approach.

PURPOSE OF THE VISIT:

The visit to Jay Metal Tech was organized to provide students with practical, first-hand exposure to various foundry operations and manufacturing practices. The visit enabled students to understand key processes such as sand preparation and testing, pattern preparation, core making, mould preparation, metal melting, pouring techniques, and quality control practices.

It also helped bridge the gap between theoretical knowledge and its practical application in an industrial foundry environment.

INDUSTRIAL VISIT REPORT

OUTLINES OF THE VISIT:

The visit was conducted in a systematic and structured manner to help students clearly understand the complete casting process and its industrial applications. The sequence of activities experienced during the visit is as follows:

Raw Material Preparation → Sand Preparation & Testing → Pattern Preparation → Core Making (if required) → Mould Preparation → Mould Assembly & Closing → Metal Melting → Metal Pouring → Solidification & Cooling → Shakeout → Fettling & Finishing → Inspection → Machining (CNC/VMC/Milling/Lathe) → Final Product.

The process begins with the preparation and selection of suitable raw materials, followed by sand preparation through proper mixing, conditioning, and testing to achieve the required moulding properties and ensure good casting quality.



Pattern making is the initial casting stage in which accurate component geometry is developed with necessary allowances, while patterns, dies, and related tooling are prepared and maintained to support precise moulding and production at JMT Industries.

Cores are separately prepared and accurately positioned in moulds to create internal holes, cavities, passages, and other features that cannot be formed by the external mould alone.



In mould preparation, moulding sand is compacted around the pattern, the pattern is removed, runners, gates, risers and vents are provided, required cores are positioned, and the mould halves are accurately aligned and closed to ensure defect-free casting.



INDUSTRIAL VISIT REPORT

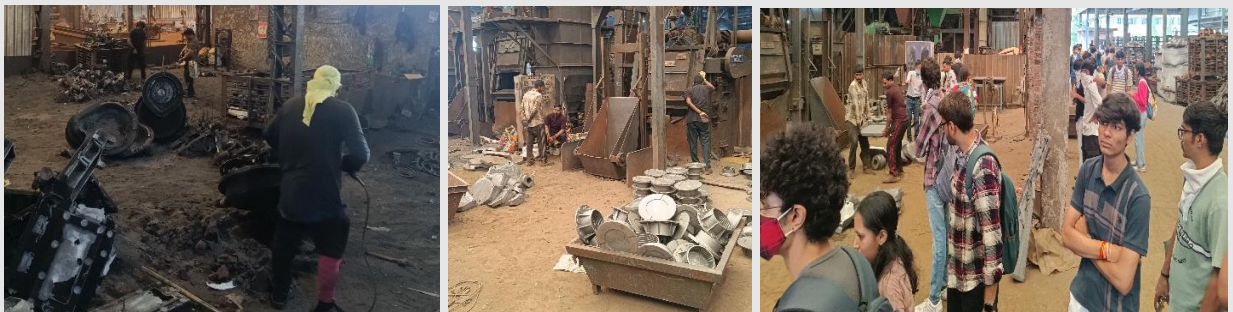
Metal melting involves charging suitable raw materials into the furnace and melting them under controlled temperature, composition, cleanliness, and process conditions to produce molten metal of the required grade for casting.



Molten metal is poured through the gating system into the mould cavity, allowed to solidify and cool, after which the mould is opened or broken during shakeout and the casting is removed for removal of gates, runners, risers, and moulding residues.



After shakeout, the cast component passes through finishing operations. Finishing and fettling operations involve removing gates, runners, risers, flash, and surface irregularities from the casting to achieve the required shape, surface finish, and dimensional accuracy.



JMT Industries uses CNC and lathe machines to accurately produce the required dimensions, tolerances, holes, slots, surfaces, and finishes on selected features of cast components.



INDUSTRIAL VISIT REPORT



All the students expressed their thanks for organizing such an industrial visit for the enrichment of their knowledge.

OUTCOMES OF THE VISIT:

Students gained a practical understanding of the complete casting process, ranging from raw material handling to final finishing. They also enhanced their knowledge of industrial practices related to pattern design, mould preparation, and core-making techniques.

We are sincerely thankful to the management and staff members for their generous cooperation, and willingness to share their knowledge and experience with us throughout the visit. We express our sincere thanks to Hon. Director of industry and Hon. Principal **Dr. Hiren Patel (SCET)** for permitting the visit. We also thank to **Dr. Nitin Vibhakar** (Head of the Mechanical Department, SCET) for all kinds of support extended and for encouraging us.

Report Prepared and Compiled by:
Prof. (Dr.) Piyush T. Patel,
Prof. (Dr.) Satish Dokiparti.