

A Report

On

“Industrial Visit – RBD Engineers Pvt. Ltd. ”

For the Students of Mechanical Engineering Department. (Semester – IV)

On 12th October 2023. (Thursday)

- **Objective:** “Training and Exposure on the working of a Semi-Automatic, and Manual Lathe machine, Drilling machine, Chain driven material transfer mechanism, Annealing furnace, Punching Press related to the subject of Manufacturing Technology in Sem IV.”
 - **Venue:** “RBD Engineers Pvt. Ltd., Khatraj Taluka-Kalol, Gandhinagar, Gujarat.
- **Number of Students:** 35 Present out of 44 registered Students
(IV semester, Mechanical Engineering)
- **Faculty Coordinator’s:**
 1. Mr. Bhagyadeep B. Kalal (Asst. Prof. Mechanical Engg. Dept.)
 2. Mr. Vivek V. Parikh (Asst. Prof. Mechanical Engg. Dept.)
 3. Mr. Shail N. Shah (Asst. Prof. Mechanical Engg. Dept.)

1.1 OVERVIEW:

The number of students who attended the visit was 35 accompanied by 3 faculty members.

On the day of visit, the faculty left the college campus at 8:45 AM and reached the venue at 9:45 AM. The students were divided into 2 batches and were called at same timings. Batch 1 and Batch 2 at 9:45AM. Plant visit was completed upto 11:30 AM and we reached back to LJJET at 12:30 PM.

Initial the Procedure were briefed by Industry expert Mr. Anil Prajapati, HR Department and then Production Person were allotted to explain about the different departments of the company.

Under their guidance and along with 3 faculties, students were then led to visit Manufacturing unit of plant.

To put it briefly, following sections of the RBD engineers were visited.

- Machining unit having lathe,drilling,grinding
- Heat treatment such as annealing
- Stores,Inventory and assembly unit
- CNC machines
- Deburring machine
- Press

1.2 Features of Company:

- The Founders and the current Management have a combined experience of more than 3 decades of Gray Iron metal, foundry technology and automotive clutch components and have kept them updated with latest trends in the foundry industry to ensure that all of our castings/components meet customer specifications and satisfaction.
- Company products are manufactured at their state-of-the-art manufacturing facility (RBD Engineers Pvt. Ltd.) at Khatraj, near Ahmedabad, strategically located to attain high efficiency in thir processes maintaining a very high quality in our products.
- Company provides high quality, wide range of clutch components for Automotive & Tractor Industry, Off- Road, Construction, Earth Moving Equipments and parts for Industrial Applications.

MECHANICAL ENGINEERING DEPARTMENT

- Sustained customer satisfaction due to reliability, competitive pricing, on time every time deliveries, engineering solutions and sound technical support of over 3 decades, has earned us the repute of the being the most preferred supplier for our Domestic as well as International Customers like UK, US. etc.
- An in-house melting facility caters to the requirements of castings for automotive clutches like pressure plates, clutch covers, release bearings and other engineering components. These castings are machined using in-house CNC & conventional machining facilities. Our foundries are equipped with latest manufacturing processes & testing facilities to meet the stringent demand of the automotive industry. Zero defect parts and 100% customer satisfaction on all aspects of business is our constant endeavor.
- Every component manufactured is "OEM Engineered" according to the design and specification given by the customer.

Product manufactured:

Manufacturers of fully machined, "ready to assemble" Cast Iron/Ductile Iron Clutch Components for Automotive (Car's, SUV's, LCV's, MCV's, HCV's) and Farm Equipment (Tractors, Loaders, Dumpers, Earth Moving Equipments, Construction and Mining Equipment).

Product manufacture:

- Diaphragm and Spring Boss Type Pressure Plates from 160mm through 430mm.
- Clutch Covers from 280mm to 380 mm.
- Release Bearing Sleeves.
- Bearing Cages.
- Adaptors Rings, Intermediate Plates, Spider Hubs, Adjusting Rings.
- Bell Housings SAE 1 through SAE 6.
- PTO's and Flywheels.
- Clutch Bodies, Bearing Housings etc. for Stationary Engine PTO's.
- Flywheel Saver Rings.
- Gear Cases

- Input Flanges
- Yoke Shafts
- Pan Hard Link
- Drawbars
- Brackets
- Engineering Components.
- Piston Air Cylinder & Hydraulic Cylinder bodies.
- Piston Follower.
- End Caps & Covers.

1.3 Manufacturing and Machine department:

Student explored the Practical aspects of all machines which they have studied in manufacturing technology. They were exposed to much advanced manufacturing facility.

Plant having these features:

They use modern foundry technology to assure very high quality, precision castings at a very competitive price. All tooling and fixtures are designed and manufactured in house using CAD/CAM.

1. Moulding Facility

Simultaneous Jolt and Squeeze machines - Equivalent to ARPA 300

Squeeze and Joling Machines

Intensive Sand Mixers

Sand Muller

Track - Trolley System

Sand Sievers

2. Melting Facility (Furnace)

Induction 500 Kg. Inductotherm Make - 1 no.

Induction Furnace - 350 kg - Inductotherm make. - 1 no.

Cupola Furnace - 1.25 MT/ Hr. capacity - 2 nos.

3. Fettling Facility

Rotary table type shot blasting machines.

Pedestal grinders.

Portable pneumatic grinders.

4. Pattern Shop Facility

All patterns are developed in house using on BFW make VMC, and ACE make CNC employing latest CAD/CAM techniques.

5. Machining Facility

CNC Turning centers.

Vertical Machining Center (VMC).

Lathes.

Drilling Machines.

Milling Machines.

Dynamic Balancing Machine.

6. Quality Control: - RBD Engineers is ISO/TS 16949:2002 certified company.

Quality Control Metal Testing facilities - The foundry has following metal testing facility to check , control and certify:

Mechanical Properties

Universal Testing Machine.

Hardness Tester.

Chemical Composition and Temperature

On Line Carbon Silicon Analyzer.

Dip Type Pyrometers for temperature measuring.

Complete Lab for wet analysis to determine basic chemical elements.

Microstructure

Metallurgical Microscope (100-1000X).

Sand Testing Facilities

Sand Testing Equipment.

Quality Control Facilities for Dimensional Check

Height Gauges, Verniers, Micrometers, slip gauges, air gauges etc.

Special Purpose Gauges.

Surface roughness measuring instrument.

1.4 Photography

Photography was prohibited inside plant premises, so group photo was taken outside the plant.



L. J. INSTITUTE OF ENGINEERING AND TECHNOLOGY – AHMEDABAD.
MECHANICAL ENGINEERING DEPARTMENT



SUMMARY AND OUTCOME OF THE VISIT

The visit enabled the students to

- Recognize the Plant layout of the industry
- Identify input and output for the process.
- Understand the concept of Assembly lines, FMS and 5S.
- Understand how the product of the plant interfaces to the world.
- Understand Industrial level of operation of different machines which they have studied.

Below are listed feedbacks of few of the students

1. Practical exposure to student.
2. The visit has helped them to understand their already learned subject.

ACKNOWLEDGEMENT

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