

Industry Visit Report

1. Title of the Visit:

One-Day Industry Visit to Jamna Auto Private Limited, Malanpur, District Bhind (M.P.)

2. Date of Visit: 22nd January 2026

3. Organized By:

Mr. Prabhu Dayal Arya ¹

Assistant Professor

Department of Mechanical Engineering

(For B.Tech Mechanical Engineering Students)

Mr. Vinod Rathore ²

Assistant Professor

Department of Mechanical Engineering



4. Objective of the Visit: The primary objective of the industry visit was to:

- Bridge the gap between theoretical knowledge and industrial practices
- Provide exposure to real-time manufacturing and heat treatment processes
- Understand mechanical operations such as **Punching, Quenching, Tempering, Heating** and other related processes used in the automobile component industry
- Familiarize students with industrial quality standards and production workflows

5. Participants:

- B.Tech Mechanical Engineering Students
- Faculty Coordinators from the Department of Mechanical Engineering

6. Resource Persons / Industry Experts: The visit was coordinated and guided by the following officials of Jamna Auto Private Limited:

- **Mr. Mahendra Singh**, Deputy Manager (HR)
- **Mr. Narendra Kakwani**, Quality Head
- **Mr. Abhishek Pandey**, Technical Expert
- **Mr. Mohit**, Production Engineer

7. Brief Profile of the Industry Jamna Auto Private Limited is a leading manufacturer of suspension systems and automotive components, primarily catering to commercial vehicle manufacturers. The Malanpur unit is equipped with advanced manufacturing facilities, heat treatment plants, and quality inspection systems, making it an ideal learning platform for mechanical engineering students.

8. Description of Activities: The visit began with a formal welcome and safety briefing by **Mr. Mahendra Singh (Deputy Manager – HR)**. Students were briefed about the company profile, organizational structure, and safety protocols to be followed inside the plant.



8.1 Mechanical Operations Explained: The students were taken through various sections of the manufacturing plant, where detailed explanations and live demonstrations were provided on the following operations:

Key operations used in the manufacturing process include:

- **Cutting and Shearing:** Raw spring steel bars are cut to specific lengths based on design requirements.
- **Center Punching/Drilling:** Holes are punched or drilled in the center of the leaves to accommodate the center bolt.
- **Heating:** The steel leaves are heated in an oil-fired or induction furnace, usually to temperatures between 850°C and 950°C, to make them malleable for forming.
- **Eye Rolling (Master Leaf):** The ends of the main (master) leaf are heated and rolled to form eyes, which allow for attachment to the vehicle chassis.
- **Cambering (Forming):** The heated leaves are bent to the required curvature (arc) using hydraulic presses or specialized cambering machines.
- **Quenching:** The formed leaves are rapidly cooled in an oil bath (around 200°C–280°C) to harden the steel.
- **Tempering:** The hardened leaves are reheated to a lower temperature (around 540°C–680°C) to reduce brittleness and improve toughness.
- **Shot Peening:** This critical operation involves blasting the surface with steel shots to induce compressive stress, which enhances fatigue resistance and prevents cracks.
- **Surface Treatment & Painting:** Leaves are coated with anti-rust, powder coating, or paint for corrosion protection.

- **Assembly & Scragging:** The individual leaves are assembled with the center bolt and clips, followed by a "scragging" process (pre-setting) to test and set the final load capacity. For parabolic springs, which are increasingly popular in India for weight reduction, specialized CNC tapering machines are used.

- **Hardening Process**

The purpose of hardening to improve surface hardness and wear resistance of components was explained. Students learned about heating steel above critical temperature followed by rapid cooling.

- **Quenching Operation**

Different quenching media such as water and oil were discussed. The effect of quenching on mechanical properties like hardness and brittleness was clearly demonstrated.

- **Normalization Process**

The process of heating metal above the critical range and allowing it to cool in air was explained, highlighting its role in grain refinement and stress relief.

- **Other Operations**

Additional processes such as forging, machining, inspection, and finishing operations were shown. The importance of process control and dimensional accuracy was emphasized.



9. Learning Outcomes: After the visit, students were able to:

- Understand industrial heat treatment processes practically
- Relate classroom concepts of material science and manufacturing to real applications
- Gain awareness of industrial safety practices
- Appreciate the role of quality control in automobile manufacturing



Attendance Sheet

B.Tech. (Mechanical Engineering)

Industry Visit Jamna Auto

Date: 22/01/2026 First Year / Second Semester

S.No	Roll no	Name of Student	Signature
1.	BETN1ME25001	Sameer Khan	Sameer
2.	BETN1ME25002	Sumit	Sumit
3.	BETN1ME25003	Dhananjay Singh Jat	Dhananjay
4.	BETN1ME25004	Gauri Pitre	Gauri
5.	BETN1ME25005	Abhishek Rathore	Abhishek
6.	BETN1ME25007	Devraj Singh Tomar	Devraj
7.	BETN1ME25008	Himanshu Goyal	Himanshu
8.	BETN1ME25009	Rudra pratap singh	Rudra
9.	BETN1ME25010	Suryansh Singh Kushwah	Suryansh
10.	BETN1ME25011	Sanchit Kapoor	ABSENT
11.	BETN1ME25012	Anant Singh Rajawat	Anant
12.	BETN1ME25013	Sahil Sharma	Sahil Sharma
13.	BETN1ME25014	Padma Adithya	ABSENT
14.	BETN1ME25015	Anmol Yadav	ABSENT
15.	BETN1ME25016	Jaideep Baghel	Jaideep
16.	BETN1ME25017	Rohit Baghel	Rohit
17.	BETN1ME25018	Nikhil Baghel	Nikhil
18.	BETN1ME25019	D Haresh	ABSENT
19.	BETN1ME25020	Ankush Gurjar	Ankush
20.	BETN1ME25021	Vishal Yadav	Vishal
21.	BETN1ME25022	Monish Khan	Monish Khan
22.	BETN1ME25022	Paloju Harshith	ABSENT

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22/01/26



Attendance Sheet

B.Tech. (Mechanical Engineering)

Industry Visit Jamna Auto

Date: 22/01/2026 2nd Year / IVth Semester

S.No	Roll no	Name of Student	Signature
1.	BETN1ME24001	Abhay Singh Gurjar	Abhay
2.	BETN1ME24004	Manjul Chaubey	Manjul
3.	BETN1ME24005	Mohit Rathore	Mohit
4.	BETN1ME24006	Sahil Pal	Sahil
5.	BETN1ME24008	Yuvraj Singh Kaurav	Yuvraj
6.	BETN1ME24009	Chinmay Chauhan	Chinmay
7.	BETN1ME24011	Vikram Singh	Vikram
8.	BETN1ME24013	Jagan Mahor	Jagan
9.	BETN3ME25D01	Kalluri Thrinadh	Kalluri
10.	BETN1ME23007	Kunal Chaudhary	Kunal
11.	BETN1ME23005	AM PATEL	AM PATEL
12.	BETN1ME23008	Ndukwe J. J	Ndukwe
13.	BETN1ME23002	Abhishek Singh Tomar	Abhishek
14.	BETN1ME23006	Utkarsh Patel	Utkarsh
15.			
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10. Conclusion: The one-day industry visit to Jamna Auto Private Limited, Malanpur, was highly informative and beneficial for B.Tech Mechanical Engineering students. The exposure to real-time mechanical operations such as hardening, quenching, normalization, and quality inspection enhanced students' practical understanding and motivated them toward industry-oriented learning.

11. Acknowledgement: The Department of Mechanical Engineering sincerely thanks the management and staff of **Jamna Auto Private Limited**, especially **Mr. Mahendra Singh, Mr. Narendra Kakwani, Mr. Abhishek Pandey**, and **Mr. Mohit**, for their valuable time, guidance, and support in making the visit successful.

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