

## Industrial Visit Report: HL Mando Anand India Pvt. Ltd.

IV sem MECH A



**Date:** 17.04.2025

**Participants:** B.Tech Mechanical, IV Semester A Section - 49 students

**Accompanied by:** Faculty members, Dr. G. Rajesh and Dr. S. Ravikumar

**Location:** HL Mando Automotive India Private Limited (Plant 1)

S1A & S5, Sipcot Industrial Park, Vengadu Village,  
Pillaipakkam Post, Sriperumbudur Taluk, TN 602 105, India

## Company profile:

**HL Mando Anand** is a leading manufacturer of automotive components in India, formed through a joint venture between HL Mando Corporation (South Korea) and the Anand Group (India). The company specializes in producing critical vehicle systems such as braking, suspension, and advanced Electronic Power Steering units. The Chennai facility is a state-of-the-art manufacturing hub featuring cutting-edge technology for the research, development, and mass production of Dual Pinion EPS systems. These systems are primarily integrated into premium and high-performance vehicles, where superior steering response and driver feedback are essential. HL Mando Anand has established an excellent reputation for innovation, quality, and adherence to international standards, making it an ideal industrial partner for educational visits focused on automotive engineering advancements.

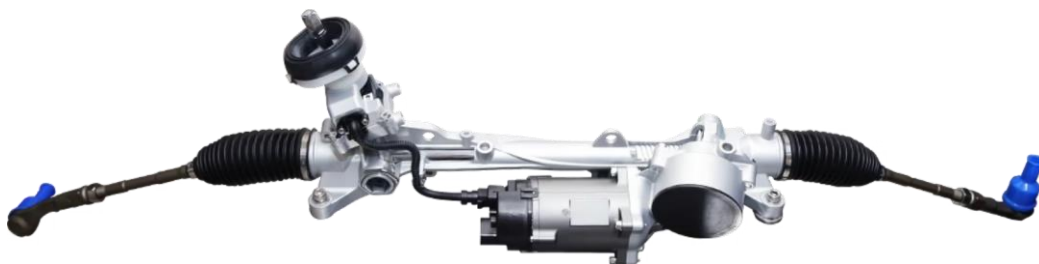
## Detailed Visit Highlights: DPEPS Technology and Production

The visit encompassed a comprehensive tour of the DPEPS production line, shedding light on the sophisticated technology and manufacturing methodologies involved:

**Introduction to DPEPS Technology:** The dual pinion mechanism features two rack-and-pinion gears; one connected directly to the steering wheel, the other connected to an assist motor. This design enhances steering feel, control precision, and responsiveness compared to traditional EPS systems.

**Assembly line Overview:** Students observed the sequential integration of steering column components, brushless DC motors, sensors, and Electronic Control Units (ECUs) to form the highly integrated dual pinion steering assembly.

The facility demonstrated embedding of advanced brushless DC motors and ECUs, highlighting the synergy between mechanical components and electronic control algorithms supporting variable steering assistance.



Exposure to CNC machining processes, robotic arm-assisted assembly, and automated torque-tightening ensured high dimensional accuracy and consistency essential for safety-critical steering components.

**TESTING:** Live demonstrations of calibration, performance testing, and safety validation protocols illustrated rigorous quality assurance methods. Parameters such as torque accuracy, noise and vibration levels, and system responsiveness were carefully evaluated to meet automotive safety standards.

## **Learning Outcomes and Educational Impact**

The industrial exposure enabled students to garner valuable technical insights and practical knowledge relevant to automotive engineering disciplines:

- Comprehensive understanding of the mechanical and electronic integration inherent in Dual Pinion EPS systems.
- Insights into the application of automation technologies ensuring consistent precision and enhanced safety in high-volume manufacturing environments.
- Appreciation of control algorithms, sensor feedback loops, and embedded electronics that govern real-time steering assistance and system adaptability.
- Familiarity with lean manufacturing, total quality management, and continuous improvement principles that streamline production efficiency and uphold stringent quality standards.

This real-world industrial context enriched students' conceptual frameworks and underlined the critical role of multidisciplinary engineering approaches in advanced automotive system development.

## **Acknowledgements**

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A special thanks is due to Dr. A.S. Selvakumar, Head of the Department, Mechanical Engineering, for his guidance. We also acknowledge the efforts of our dedicated faculty coordinators, Dr. G. Rajesh and Dr. S. Ravikumar, whose organization and mentorship ensured that the students gained maximum educational value from this industrial exposure.