Industrial visit to Rane Madras Ltd., for SAE student members coordinated by the SAEISS MWC division

Date of Visit: **05/04/2025**

Organizer: **SAEISS MWC Division & BSAR Crescent Inst. of Science and Technology**

Department: B.Tech (Mechanical Engineering & Automobile Engineering)

Semester: IV & VI sem students

As part of the curriculum and to bridge the gap between theoretical knowledge and industrial practices, the students from the mechanical sciences visited Rane Madras Ltd., a key manufacturer of steering and suspension systems in India. The visit provided valuable insight into the real-world functioning of a leading Tier-1 auto component supplier.

Objectives of the Visit

- To observe the manufacturing and assembly processes of steering and suspension components.
- To understand the application of automation and quality control in a production environment.
- To explore the practices related to lean manufacturing and Kaizen in an actual industrial setup.
- To interact with professionals and gain exposure to industry expectations.

About Rane Madras Ltd.

Rane Madras Ltd. is a part of the Rane Group, a reputed manufacturer of steering and suspension systems for passenger cars, commercial vehicles, tractors, and off-highway vehicles. With a strong focus on safety, quality, and customer satisfaction, Rane Madras supplies components to major OEMs in India and abroad.

During the visit, the following key areas were covered:

- Raw Material Storage and Inspection Area
- Steering Gear Manufacturing Unit
- Suspension Components Assembly Line
- CNC and Automated Machining Section
- Quality Control and Testing Laboratory
- Packaging and Dispatch Area

Key Observations

- The plant uses advanced CNC machines and semi-automated assembly lines for high precision and consistency.
- Quality control is carried out at multiple levels: incoming material, in-process, and final product.

- Lean manufacturing principles like 5S, Kanban, and Kaizen are visibly implemented across the plant.
- There is a strong emphasis on employee safety and sustainability through practices like PPE usage and waste segregation.
- The use of poka-yoke (error-proofing techniques) in assembly lines helps reduce human error

Learning Outcomes

- Practical understanding of how engineering drawings and specifications are translated into real components.
- Insights into modern manufacturing technologies and quality assurance techniques.
- Appreciation of the importance of teamwork, safety, and process discipline in an industrial setting.
- Exposure to career opportunities in the manufacturing and automotive sectors.

Conclusion

The visit to Rane Madras Ltd. was a highly enriching experience that enhanced our understanding of automotive component manufacturing. It helped us connect theoretical concepts with practical applications and motivated us to pursue careers in core engineering fields.

We thank Rane Madras Ltd. for hosting us and providing such a valuable learning opportunity. We also extend our gratitude to our faculty coordinator, Dr. M.A. Sai Balaji Asso. Prof. Mechanical Engineering, Dr.Aravind Pandian Asst.Prof. Automobile Engg., and Mr. Arunachalam, Sr. Manager, Renault Nissan Ltd., I.V. coordinator of the SAEISS MWC division for organizing this industrial visit.

Industrial Visit Photographs:

Students training under virtual reality regarding safety aspect