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A Report on Industrial Visit to "Sathanur Hydro-Electric Power Station"

Organized by Department of Electrical & Electronics Engineering

In Association with IIIC and ISTE Chapter, MITS

Date: 17.10.2025

Report Submitted by: Dr. Balaji Damodhar T S, Assistant Professor, Department of Electrical & Eletcronics Engineering.

Participants: B. Tech-III Yr / I Sem-EEE Students
Total No of participants: 41
Faculties Accompanied: Dr. Balaji Damodhar T S; Dr. Sarath Kumar Misra; Mr. Shahenshah Syed.
Mode of Conduct: Offline
Report Received on 18.10.2025.

Introduction:

On 17th October 2025, a group of B.Tech. III Year/I Sem -EEE students from Madanapalle Institute of Technology, Madanapalle, Andhra Pradesh, embarked on an industrial visit to the Sathanur Hydro-Electric Power Station. The purpose of the visit was to provide students with practical insights into the operation, maintenance, and functioning of a hydro-electric power plant.

Objectives of the Visit:

- Gain practical knowledge about the generation of electricity through hydropower.
- Understand the components and working principles of a hydro-electric power station.
- Learn about the environmental impact and sustainability aspects of hydro-electric power generation.
- Explore career opportunities and potential roles in the field of hydro-electric power generation.
- Explore the Research Possibilities and the technical problems associated with the hydro-electric power plants.

Overview of Sathanur Hydro-Electric Power Station:

Sathanur Hydroelectric Power Plant is located at Sathanur, Near Thiruvannamalai, Tamil Nadu, India. Location coordinates are: Latitude = 12.1833, Longitude = 78.8505. This infrastructure is Hydro Power Plant type with a design capacity of 7.5 MW. It has 1 unit.
The first unit was commissioned in 1999. It is operated by Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO).

Technical Details of Plant:

PLANT FEATURES:
Plant Capacity: 7.5 MW
Land for Plant: 17,750 acres
Type of plant: Vertical Kaplan
Length of penstock: 40m
Penstock (Internal diameter): 2.60m
Height of dam: 36.28m

Activities during the Visit:

The visit commenced with a guided tour of the power station facilities. Students were accompanied by the team experienced engineers headed by Er. K Suresh, Assistant Executive Engineer, who provided detailed explanations about each stage of electricity generation.

Students attended informative presentations covering topics such as the working principle of hydro-electric turbines, control systems, and safety protocols implemented at the power station. Students were encouraged engage in discussions with the power station staff. This provided valuable insights into the practical challenges faced in hydro-electric power generation. Students had the opportunity to observe the functioning of turbines, generators, and other equipment firsthand.

An environmental impact of hydro-electric power generation was discussed, emphasizing the importance of sustainable practices and mitigating adverse effects on ecosystems.

Sustainable Development Goal (SDG) Mapping

Focus Area	Related SDG	SDG Badge
Renewable energy generation through hydropower	Affordable and Clean Energy	SDG 7
Environmental sustainability and ecosystem protection	Climate Action	SDG 13
Technical education, skill development, and research exposure	Quality Education	SDG 4
Industrial collaboration and career awareness	Industry, Innovation and Infrastructure	SDG 9

Program Outcomes (PO) Mapping

Activity Aspect	Related PO
Understanding hydro-electric power generation systems	**PO1 – Engineering Knowledge**
Observing plant operations, turbines, and control systems	**PO2 – Problem Analysis**
Environmental impact discussion	**PO7 – Environment and Sustainability**
Interaction with industry professionals	**PO8 – Ethics & PO9 – Individual and Team Work**
Research and innovation discussion	**PO12 – Life-long Learning**

Conclusion:

The Industrial Visit to the Sathanur Hydro Power Plant, Sathanur was highly successful. Students have received insight of the whole plant right from the technical details, processing, generation & transmission of electricity. The whole process was explained in detail by the Assistant Executive Engineer with detailed description about each equipment with their specifications. A doubt solving session and interactive was held in the Control Room. This kind of industrial exposure helps them to absorb the theoretical aspects of Power Plant and Power Electronics Engineering more efficiently.

Acknowledgments:

We thank our college management, Vice Chancellor, Registrar, Principal, Vice-Principal-Administration and the HoD for giving us the permission to experience such an insightful Industrial visit to Sathanur Hydro-Electric Power Station. We extend our sincere thanks to the management and staff of the Sathanur Hydro-Electric Power Station for their hospitality and cooperation in organizing this Industrial visit.