

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

INDUSTRIAL VISIT REPORT

HYDRO ELECTRIC POWER PLANT, ANATHASAGARAM, SPSR NELLORE (Dt.)

Date of Visit: 23rd February 2026

Batch: II & III Year Electrical and Electronics Engineering (EEE) Students.

Number of Students: 58

Faculty Accompanied: 2

Departure from College: 9:10 AM

Reached to Hydel Power Plant, Somasila : 11:20 AM

INTRODUCTION:

On 23rd February 2026, a group of 58 II & III Year Electrical and Electronics Engineering (EEE) students, accompanied by 2 faculty members, visited Hydro Electric Power Plant, Somasila, Anathasagaram, Nellore as part of their industrial exposure program.

The journey commenced from the college campus at 9:10 AM by bus, and the team reached the Plant by 11:20 AM after a smooth ride. The students, with great enthusiasm, were eager to explore and gain insights into the functioning of the Hydro electric Power plant.



PURPOSE OF VISIT

The main objective of the industrial visit to the Hydroelectric Power Plant at Ananthasagaram, Nellore, was to provide students with practical exposure to hydro power generation and its operational procedures. The visit aimed to bridge the gap between theoretical concepts studied in subjects such as Power Systems, Electrical Machines, Renewable Energy Sources, and Switchgear & Protection, and their real-time application in a working power plant.

PLANT BRIEFING SESSION

A power plant briefing session was conducted by the Plant Engineer and technical staff at the Hydroelectric Power Plant, Ananthasagaram, Nellore, where students were introduced to the overall functioning and operation of the hydro power station. The session covered the complete energy conversion process from water storage in the reservoir to electricity generation and its transmission to the grid. The roles of major equipment such as turbines, generators, excitation systems, transformers, switchgear, and protective devices were clearly explained. The engineers also discussed safety precautions, preventive maintenance practices, load regulation methods, and synchronization procedures to ensure reliable and efficient power generation. The session provided valuable practical exposure and enhanced the students' understanding of real-time hydroelectric plant operations.

WORKING OF HYDEL POWER PLANT

The working of a hydroelectric power plant involves converting the potential energy of stored water into electrical energy. At the Hydroelectric Power Plant, Ananthasagaram, Nellore, water stored in the reservoir is released through intake gates and directed through penstocks toward the turbine. The high-pressure water rotates the turbine blades, which in turn drive the generator to produce electricity. The generated voltage is then stepped up using power transformers for transmission to the grid.

The power plant includes key components such as hydraulic turbines, generators, excitation systems, governors, control panels, transformers, circuit breakers, and protective relays, which help regulate, protect, and monitor the power generation process. The system ensures proper load management, voltage regulation, frequency control, and protection against faults to maintain continuous and reliable power supply. Regular maintenance, monitoring of temperature and vibration levels, lubrication systems, and safety inspections are carried out to ensure efficient and safe plant operation.



Fig: Control Panel of Somasila Hydel Plant, Nellore

STUDENT LEARNING AND EXPERIENCE

During the visit, the students gained valuable practical knowledge:

- Layout and general arrangement of the hydroelectric powerhouse
- Working principle of hydraulic turbines and synchronous generators
- Energy conversion process from potential energy to electrical energy
- Functioning of excitation system, governor system, and control panels
- Operation of step-up transformers and grid synchronization process
- Protection mechanisms used in hydro plants for fault detection and isolation
- PLC SCADA and control room monitoring systems
- Safety procedures and earthing systems followed at the power plant
- Preventive maintenance practices and efficiency monitoring techniques

FACULTY OBSERVATIONS

The faculty members noted that the visit helped students:

- Enhance their technical knowledge of hydroelectric power generation beyond classroom concepts.
- Understand industrial standards, operational procedures, and safety practices followed in power plants.
- Gain motivation for higher studies and career opportunities in the power and renewable energy sector.



A group photo was taken with the students and faculty members at Entrance of Power Plant.



A Photo with Taken Control Panel In-charge member along with Students and Staff.

CONCLUSION

The industrial visit to the Hydroelectric Power Plant, somasila, Ananthasagaram, Nellore, was highly informative and beneficial for the students. The Department of Electrical and Electronics Engineering expresses sincere gratitude to the Plant Engineer and technical staff for their valuable cooperation and guidance, and to the management for their support in successfully organizing this educational visit.