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Kamalnayan Bajaj Institute of Engineering and Technology, Baramati.

Department of Mechanical Engineering

Report on

"Industrial Visit to Veer Dam & Mahati Hydro Power Station, Shirwal, Satara"

Course: Turbo Machinery
Class: BE Mechanical Engineering (2025–26 Sem-I)
Date of Visit: 28 October 2025
Coordinators: Ms. Mona Yadav & Mr. U. R. Kate

1. Objective of the Visit

The visit was organized under the Turbo Machinery course to provide practical exposure to hydraulic turbines and hydroelectric power generation. It aimed to connect classroom concepts of energy conversion and turbomachinery with real industrial systems.

2. Overview of Veer Dam

At Veer Dam, officials explained the dam's structure, operation, and role in irrigation, water supply, and flood control. Students observed spillway gates and water discharge systems, gaining insight into how hydraulic forces are controlled and utilized. This helped reinforce concepts of fluid mechanics.

3. Mahati Hydropower Station

At the Mahati Hydropower Station, engineers described the process of converting the potential energy of stored water into electrical energy. Water flowing through penstocks drives hydraulic turbines, which convert kinetic energy into mechanical energy, later transformed into electrical energy by generators. The working of reaction turbines, blade design, and efficiency considerations were discussed in relation to the Turbo Machinery syllabus.

4. Mechanical Systems and Plant Operation
Students observed turbine assemblies, governors for speed control, and essential auxiliary systems such as lubrication, cooling, and vibration monitoring. Control panels and automation systems used for load and performance monitoring were also explained, showing the integration of mechanical and control systems.

5. Maintenance and Safety
Engineers discussed operational challenges like sedimentation, seasonal water flow variations, and equipment wear. Preventive maintenance practices and safety procedures followed in the powerhouse were highlighted.

6. Learning Outcomes
The visit enabled students to understand:

- Practical working of hydraulic turbines
- Real-time energy conversion in hydropower plants
- Role of governing and auxiliary systems
- Importance of maintenance and safety in power plants

7. Conclusion
The industrial visit effectively supported the learning objectives of the Turbo Machinery course by providing real-world exposure to hydropower generation and turbine operation, strengthening the link between theory and practice.