

A Report

On

**“Industrial Visit –UKAI HYDROPOWER PLANT”**

For the Students of Mechanical Engineering Department. (Semester – V)

On 28<sup>th</sup> Sep 2019. (Saturday)

- **Objective:** “To Understand Practical Aspects of Hydropower Plant”
- **Venue:** Ukai Hydropower Plant Tapi River
- **Number of Students:** 165 (Semester V, Mechanical Engineering)
- **Faculty:**

1. Ms. Mili Trivedi (Asst. Prof. Mechanical Engg. Dept.)
2. Mr. Mehul Kodiya (Asst. Prof. Mechanical Engg. Dept.)
3. Mr. Kartik Trivedi (Asst. Prof. Mechanical Engg. Dept.)
4. Mr. Hardik Shah (Asst. Prof. Mechanical Engg. Dept.)
5. Mr. Rahul Thakkar (Asst. Prof. Mechanical Engg. Dept.)
6. Mr. Sandip Delvadia (Asst. Prof. Mechanical Engg. Dept.)
7. Mr. Hemang Dhamelia (Asst. Prof. Mechanical Engg. Dept.)
8. Mr. Sagar Choksi (Asst. Prof. Mechanical Engg. Dept.)

9. Mr. Parth Thakkar (Asst. Prof. Mechanical Engg. Dept.)

## **1.1 OVERVIEW:**

The number of students who enrolled the visit was 165 along with 10 faculty members. On the day of visit, the students and the faculty left the college campus at 12:00 AM on 28 September 2019 and reached the venue at 09:30 AM on 29 September 2019. The students and faculty travelled on Four bus hired by LJIET. Plant visit was completed at 5:10 PM and we reached back to LJIET at 02:30 AM on 29 September 2019.

Commencement of Visit begins with the introduction and working of Hydropower plant by Plant incharge Deputy Engineer P.V. Patel. He explained to faculties about detail working of plant and provides access to 4 different unit of Kaplan Turbine. Then after faculties explain same things to students in different groups.

Following sections of the Plant were visited by faculties and Students.

- Turbine room
- Control room
- Governing Mechanism of Hydraulic Turbine
- Penstock Manhole
- Shell and tube Heat exchanger for oil cooling

## **1.2 Hydropower plant Details:**

The Ukai Hydro Power Station is located at Ukai Dam on Tapi River in Tapi District.

<b>Turbine type</b>	<b>Reaction turbine (Kaplan turbine)</b>
<b>No. of turbine unit</b>	04
<b>No. of runner vanes</b>	06
<b>No. of guide vanes</b>	24

<b>Turbine speed</b>	150 RPM
<b>Total installed capacity of plant</b>	300 MW
<b>Total head (Maximum)</b>	345 feet
<b>Penstock Diameter</b>	8 m
<b>Weight of turbine with shaft And runner disc</b>	140 MT
<b>Bearing</b>	Turbine guide bearing 1 no having 8 nos. pads. Material (White metal)
<b>Generator Make</b>	Bharat Heavy Electrical Ltd.

Table no 1: Technical specification of Hydropower plant

### 1.3 Photography





**Picture no.1 Snap of visit**

## **SUMMARY AND OUTCOME OF THE VISIT**

The visit enabled the students to

- To understand practical aspects of turbine.
- To understand controlling aspect of mechanical components like governor, Data acquisition system etc.
- From visit students can easily correlate theories with practical.

Below are listed feedbacks of few of the students :

1. Practical exposure to student.
2. They requested to arrange similar visit in the next semester with different domain.
3. The visit has helped them to understand their already learned subject.
4. Motivation to Research.

### **ACKNOWLEDGEMENT**

The coordinators are grateful to the College authorities, Management and the Vice President – Dr. Manish Shah (LJK Trust) for supporting them to carry out such a program and for providing the support. Secondly, the coordinators would like to thank Dr. A.C. Suthar – Director (L.J.I.E.T.), who encouraged the coordinators for this program. Also, the coordinators extend their gratitude to the Head of the Department Mrs. Prexa Parikh, who has played a major role by being there at the time of need. Last but not the least; the students did a wonderful job and the coordinators are proud of each of their students.

UKAI HYDROPOWER PLANT