

INDUSTRIAL VISIT REPORT



GUJARAT STATE ELECTRICITY LTD.

NAME OF THE INDUSTRY: THERMAL POWER STATION, WANAKBORI (GSECL)

DATE: 17th, March 2023

VENUE: WANAKBORI, GUJARAT.

NO. OF STUDENTS PARTICIPATED: 56 (EC, EE, ME Students)

FACULTY MEMBERS: 03

Prof. Rohit Parmar

Dr. Pradeep Shah

Prof. Chintan Patel

The Industrial visit at Thermal Power Station, Wanakbori (GSECL) was organized by the Department of Electronics & Communication Engineering in association with Electrical Engineering and Mechanical Engineering department of G H Patel College of Engineering & Technology, Vallabh Vidyanagar for B.E. 2nd year students.

Thermal Power Station, Wanakbori (GSECL) has 7 units each of 210 MW and one unit of 800 MW. So, the total installed capacity of the plant is 2270 MW. Following sections of the WTPS had been visited.

- 1) Training Center
- 2) Coal and ash handling plant
- 3) Boiler section
- 4) Turbine/Generator floor
- 5) Electrical control room (Unit No.1)
- 6) Cooling tower
- 7) Switch yard (220 kV & 400 kV)



At the training center, Mr. B A Patel explained the working cycle of the thermal power station. Students visited various small-scale models of equipment used in the power plant. We collected very important practical data like temperature, pressure, the quantity of coal, etc. used for power generation.

We visited the coal and ash handling plant where Mr. Himanshu Parlekar, Deputy Engineer and EE-GCET alumnus of 2002 batch guided us for the visit to powerhouse. The 210 MW unit was operated at full load, generating around 210 MW power when we visited. It was consuming 150-160 tons of coal per hour to generate electricity. So, a bulk amount of coal is transported by railway and with the help of a Wagon Tripler coal is transferred to the coal storage area. To start the ignition of the boiler residual furnace oil (RFO) or light diesel oil (LDO) is used which is transported by tanker wagon by railway. After the combustion of coal in a boiler furnace, ash is produced which is collected and treated by an ash handling plant. The ash is used for many industrial applications like the production of cement, ceramic, etc.

At the boiler section, we visited the FD fan, ID fan, PA fan, APH, boiler furnace area, and other auxiliary devices essential for boiler operation. Each boiler unit has 2 FD fans, 2 ID fans, and 2 PA fans.

At the turbine/generator floor, students visited the HP, IP, and LP sections of the turbine coupled with the generator. Superheated steam at 140 kg/cm² pressure and 545° C temperature is fed to the turbine. The generator has a capacity of 210 MW at 15.75 kV, 9050 A.

The control room of the power plant is the brain of the entire plant. We visited the control room of unit no. 3. It is equipped with a DCS facility provided by ABB Ltd. All the important data were displayed in real-time mode like MW, MVAR, frequency, power factor, phase current, etc. on the display screen.

There are 7 natural draught cooling towers (NDCT) used for cooling of circulating water of the condenser. Water is sprayed at a height of 21 meters in the tower and due to the natural draught of air, its temperature is reduced by 10° C and this water is pumped into condenser tubes for condensation of steam exhausted from the LP turbine.

Mr. Naitik Gandhi, Junior Engineer and EE-GCET alumnus of the 2016 batch accompanied us to the switchyard of WTPS. Switchyard consists of two sections, 220 kV and 400 kV. The voltage of units no. 1, 2, and 3 is stepped up from 15.75 kV to 220 kV and the power is transmitted at 220 kV level. There are 7 outgoing transmission lines at 220 kV voltage level. The voltage of units no. 4, 5, 6, and 7 is stepped up from 15.75 kV to 400 kV and the power is transmitted at 400 kV level. There are 4 outgoing transmission lines at 400 kV voltage level.

The visit was very fruitful as we observed each of the energy conversion stages used in the power plant starting from the fuel section to the switch yard. We collected very important information like practical data which are not available in books and other literature. Many of our doubts are cleared by the discussion with experts of the plant.

Students interacted with GCET alumnus working at the end, and with the thanks note from Prof. Rohit Parmar and the Group Photo visit ended at around 3:30 pm.

This visit was organized in association with ISTE student chapter.

PHOTOGRAPHS:







SIGNATURE LIST

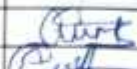



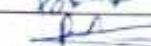













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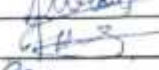
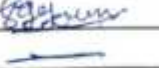
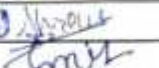
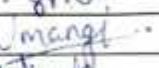


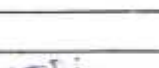
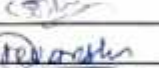
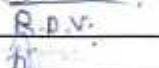
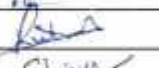


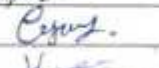













List for Industrial Visit

Name of Industry: Thermal Power Plant, Wanakbori

Date of Visit: 17/03/2023

Sr. No.	Enrl No.	Name	Signature
1	12102050501001	Aditya Mehta	
2	12102050501002	Solanki Akash	
3	12102050501004	Patel Arjankumar Jitendrabhai	
4	12102050501005	Dangar Bhautik Mayabhai	
5	12102050501006	Devkumar Bhatt	
6	12102050501009	Pundlik Sunil Kulkarni	
7	12102050501011	Rushang Prjapati	
8	12102050501013	Sapan Thakor	
9	12102050501014	Kuswaha Shivamsingh R	
10	12102050501015	Tanay patel	
11	12102050501016	Tapan Vankar	
12	12102050501018	Gajera Yash Shaileshbhai	
13	12202050503002	Sarvaiya Bhargav Yogeshbhai	
14	12202050503003	Joshi Ketulkumar Ajitkumar	
15	12202050503004	Meet Bhandari	
16	12202050503005	Rushi Pandya	
17	--	Prof. Chintan Patel	
18	--	Prof. Jignesh Patel	
19	12102060501001	Savsani Arazu Sanjaykumar	
20	12102060501002	Aryan.M.Bhandari	
21	12102060501005	Dhruv Vadiwala	
22	12102060501006	Patel Diya Manish	
23	12102060501007	Harmandeep Singh Bunet	
24	12102060501009	Jay Dharmendrabhai patel	
25	12102060501012	Kunj Jigneshbhai Pandya	
26	12102060501013	Madhur Paliwal	
27	12102060501014	Patel Malank Parimakuar	
28	12102060501015	Maulik Rupavatiya	
29	12102060501016	Meghan Mayank parekh	

30	12102060501020	Neel Topiwala	
31	12102060501021	Soni Nirajkumar Harikrushna	
32	12102060501023	Akshit Rana	
33	12102060501024	Sanjay golani	
34	12102060501025	Patel saumya shantilal	
35	12102060501026	Shreya Raj	
36	12102060501027	Patel Smit Pankajbhai	
37	12102060501029	Umangi Brahmabhatt	
38	12102060501030	Vraj modi	
39	12102060501031	Vrunda Paghadar	
40	12102060501032	Yash Sobhashana Kishorbhai	
41	--	Prof. Pradip Shah	
42	--	Dr. Samir Trapaniya Rohit Parmar	
43	12102090501002	Dev Shelat	
44	12102090501003	Ramani Devanshu Sureshkumar	
45	12102090501005	Ramani Dishant Vijaybhai	
46	12102090501006	Kalathiya Harsh sanjaybhai	
47	12102090501013	Rutvik Kalathiya	
48	12102090501014	Shiven Mehta	
49	12102090501015	Maaz Vahora	
50	12202090503001	Aakash Parekh	
51	12202090503002	Ajay Mistry	
52	12202090503007	Gheewala jay	
53	12202090503008	Kanani Karm Hareshkumar	
54	12202090503009	Kathan Dave	
55	12202090503011	Mayurkumar	
56	12202090503016	Varun Mishra	
57	12102090501004	Jhansi Prajapati	
58	12102090501011	Gadhvi Pradeep	
59	12102050501003	Aman Ansari	
60	12102050501007	Hatvi Anshu	
61	12102060501010	Riddhi Chavha	