



UKA TARSADIA  
university  
Imparting Knowledge, Assisting Wisdom, Transforming Lives.

# Industrial Visit

<b>Organization</b>	Hydro Power Station
<b>Academic Year</b>	2019-20
<b>Date of Visit</b>	28 <sup>th</sup> Feb 2020
<b>Course</b>	B. Tech - Chemical
<b>Semester</b>	8 <sup>th</sup>
<b>No. of Students</b>	43
<b>No. of Faculties</b>	3
<b>Name of Organizer</b>	Prof. Jitendra Kumar Prof. Shalinee Gupta Prof. Susmit Ilame



# GUJARAT STATE ELECTRICITY CORPORATION LIMITED

Ukai Thermal Power Station, Ukai Dam, Taluka Fort Songadh, DistTapi- 394680. Ph. 91-2624-233215, 233257  
Fax: 91-2624-233300, 233315 e-mail: ukalceg@gebmil.com Website: www.gsecl.in  
CIN: U40100GJ199350C01998

CCUT/SE (Oper.)/MTP/T-13/502

Date: 12 FEB 2020

To,

The Principal,  
Chhotubhai Gopalbhai Patel,  
Institute Of Technology,  
Maliba, Campus, Gopal Vidyanagar,  
Bardoli-Mahuwa Road, Di-Sur

Sub: Permission for Visit of Hydro Power Station, Ukai.

Ref: your letter No.: CGPIT/Industrial Visit/2019-20/187. Dtd: 05.02.2020.

Dear Sir,

We are pleased to grant permission to Students of BE Chemical Engg. For visit of Hydro Power Station as mentioned below.

Sr. No.	Visit of	Date	Time	No. of Student	Faculty members
01	Hydro Power Station	28.02.2020	09.00. to 13:00.	45	02

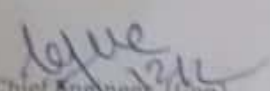
Please plan your visit accordingly. Please contact respective power station security gate on reaching Ukai.

**This permission is subject to further conditions as stated here under**

- 01 This permission is granted on assuming that situation will be normal. In case of any emergency or decided by the competent authority this permission shall stand cancelled without assigning any reason thereof.
- 02 No lodging and Boarding facility will be provided by GSECL.
- 03 Photography is strictly prohibited.
- 04 Mobile is not allowed strictly
- 05 The visit shall be at your own risk and cost.
- 06 You have to keep your identity card during the visit of HPS.
- 07 GSECL will not be responsible for any accident during visit.
- 08 No one of permitted personal is allowed to visit at Boiler level to avoid chances of accident  
If any i.e. Visit to Boiler level is strictly prohibited.
- 09 All the safety, security and discipline rules and regulations applicable at the time of visit shall have to be followed.
- 10 Please submit the list of visitors at Security Gate.
- 11 Children below 10 Years are not allowing for plant visit.

Thanking you,

Yours faithfully,

  
Chief Engineer (Gen)  
GSECL, TPS, UKAI

Copy to: (By E-MAIL)

- 01 CISF HPS Main Gate.
- 02 SE (Oper.), TPS, Ukai
- 03 SE (Hydro), HPS, Ukai..... Kind atten EE (Hydro) It is requested to please  
Arrange for guide the visitors on **Dtd: 28.02.2020,**

**Mode of Travel**

Annexure 1

Details of Journey	Mode of Travel	Bus Driver Details	Person Handling
UTU to Ukai	BUS	Sanjay Bhai 7228984817	Jitendra Kumar Shalinee Gupta Susmit Ilame
Ukai to UTU			

Annexure 3

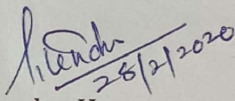
**Accompanying Faculty**

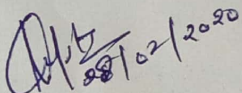
SR. NO	Staff Name	Contact Details	Alternate Contact in case of Emergency
1	Mr. Jitendra Kumar	Jitendra.kumar@utu.ac.in;7567663127	-----
3	Mrs. Shalinee Gupta	Shalinee.gupta@utu.ac.in;7073052800	-----
2	Mr. Susmit Ilame	Susmit.ilame@utu.ac.in; 8601164573	-----

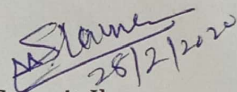
Annexure 5

**Undertaking Letter of Staff**

We here by undertake that the Industry Visit is purely Academic related. We shall undertake full responsibilities of student's action and behavior at all times during the course of Industrial Visit Training. We further undertake not to breach the safety guidelines of Uka Tarsadia University at any cost.

  
Mr. Jitendra Kumar

  
Mrs. Shalinee Gupta

  
Mr. Susmit Ilame

## DEPARTMENT: CHEMICAL ENGINEERING

8<sup>th</sup> Semester Students List

Sr. No.	Enrollment No	Name of the student	Gender
1	201503102010020	Pathey Jatinkumar Pandya	Male
2	201503102010037	Sarju Rakeshbhai Mori	Male
3	201603102010001	Harshit Sanjaybhai Khunt	Male
4	201603102010002	Dixit Shubhashbhai Gumasana	Male
5	201603102010003	Chinmay Yogeshkumar Manjrawala	Male
6	201603102010005	Bhimesh Shivshankarbhai Pimpore	Male
7	201603102010006	Dhwani Anil Aggarwal	Female
8	201603102010007	Mohitkumar Ghanshyambhai Variya	Male
9	201603102010008	Jigneshkumar Natubhai Savaliya	Male
10	201603102010009	Parth Prakashbhai Patel	Male
11	201603102010010	Pareshkumar Subhashbhai Patel	Male
12	201603102010011	Sagar Chhanabhai Dabhi	Male
13	201603102010012	Khushal Subhash Faldu	Male
14	201603102010014	Rameshbhai Markhibhai Karangiya	Male
15	201603102010015	Vivekkumar Jigneshbhai Patel	Male
16	201603102010016	Dhruv Jayantibhai Patel	Male
17	201603102010018	Aditya Jagdishbhai Patel	Male
18	201603102010019	Fenilkumar Ashokbhai Vavadiya	Male
19	201603102010020	Manthan Bharatbhai Patel	Male
20	201603102010021	Rohankumar Mukeshbhai Parekh	Male
21	201603102010022	Uditkumar Jitendrakumar Patel	Male
22	201603102010024	Dhaval Rameshkumar Bhatt	Male
23	201603102010025	Bhavinkumar Janakkumar Patel	Male
24	201603102010026	Darshit Umeshbhai Goti	Male
25	201603102010027	Ayaz Faruk Saleh	Male
26	201603102010028	Keval Pravinbhai Bhadiyadra	Male
27	201603102010029	Meetkumar Kiritkumar Bhut	Male
28	201603102010030	Keyurkumar Jamanbhai Hirpara	Male
29	201603102010031	Miteshkumar Rajendrakumar Mistry	Male
30	201603102010032	Hardik Rajeshbhai Dholakiya	Male

31	201603102010033	Roman Bharatbhai Korat	Male
32	201603102010034	Unik Manishbhai Bhalani	Male
33	201603102010035	Ravi Ramji Gupta	Male
34	201603102010036	Abhaykumar Maheshbhai Patel	Male
35	201603102010037	Raj Dalpatbhai Patel	Male
36	201603102010039	Yagnesh Hasmukhbhai Savaliya	Male
37	201603102010040	Mayankkumar Dhanjibhai Movaliya	Male
38	201603102010041	Harish Birja Singh Singh	Male
39	201603102010042	Ankit Dineshbhai Prajapati	Male
40	201603102010045	Dhrumil Ashvinbhai Borad	Male
41	201603102010046	Nayan Gopalbhai Changani	Male
42	201603102010047	Nidhi Jaysukhbhai Kothiya	Female
43	201603102010048	Ronil Rasikbhai Mendapara	Male
44	201603102010049	Archit Jitendrabhai Patel	Male
45	201603102010050	Raj Maganbhai Kapuriya	Male
46	201603102010051	Ravi Arvindbhai Jadvani	Male
47	201603102010052	Nirav Hargovindbhai Vaishnav	Male
48	201603102010053	Jatinkumar Ukabhai Savani	Male
49	201603102010054	Darshankumar Ashokbhai Gabani	Male

**Undertaking Letter of Students**

We the students of chemical Engineering Department, CGPIT, Uka Tarsadia University, Bardoli, do here by undertake that, we are going for **Industrial Visit** for **HYDRO POWER STATION, GSECL TPS Ukai**. Organized on date 28/02/2020. Departure date 28/02/2020, Time: 8.30AM Onwards from CGPIT, UTU & Arrival on date 28/02/2020, Time 4.00 PM at CGPIT, UTU. Faculty & Staff of CGPIT, UTU will not be held responsible for any mishap/eventualities during the trip.

**8<sup>th</sup> Semester Students List.**

Sr. No.	Enrollment No	Name of the student	Sign
1	201503102010020	Pathey Jatinkumar Pandya	Pathey
2	201503102010037	Sarju Rakeshbhai Mori	Sarju
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11	201603102010010	Pareshkumar Subhashbhai Patel	Paresh
12	201603102010011	Sagar Chhanabhai Dabhi	Sagar
13	201603102010012	Khushal Subhash Faldu	- AB -
14	201603102010014	Rameshbhai Markhibhai Karangiya	- AB -
15	201603102010015	Vivekkumar Jigneshbhai Patel	Vivek
16	201603102010016	Dhruv Jayantibhai Patel	Dhruv
17	201603102010018	Aditya Jagdishbhai Patel	Aditya
18	201603102010019	Fenilkumar Ashokbhai Vavadiya	Fenil
19	201603102010020	Manthan Bharatbhai Patel	Manthan
20	201603102010021	Rohankumar Mukeshbhai	Rohan

		Parekh	
21	201603102010022	Uditkumar Jitendrakumar Patel	<u>Udit</u>
22	201603102010024	Dhaval Rameshkumar Bhatt	<u>Dhaval</u>
23	201603102010025	Bhavinkumar Janakkumar Patel	<u>Bhavinkumar</u>
24	201603102010026	Darshit Umeshbhai Goti	<u>Darshit</u>
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26	201603102010028	Keval Pravinbhai Bhadiyadra	<u>Keval</u>
27	201603102010029	Meetkumar Kiritkumar Bhut	<u>Meet</u>
28	201603102010030	Keyurkumar Jamanbhai Hirpara	<u>Keyur</u>
29	201603102010031	Miteshkumar Rajendrakumar Mistry	<u>Mitesh</u>
30	201603102010032	Hardik Rajeshbhai Dholakiya	<u>Hardik D.</u>
31	201603102010033	Roman Bharatbhai Korat	<u>Roman</u>
32	201603102010034	Unik Manishbhai Bhalani	<u>Unik Bhalani</u>
33	201603102010035	Ravi Ramji Gupta	<u>Ravi</u>
34	201603102010036	Abhaykumar Maheshbhai Patel	<u>Abhay</u>
35	201603102010037	Raj Dalpatbhai Patel	<u>Raj Dalpat</u>
36	201603102010039	Yagnesh Hasmukhbhai Savaliya	<u>Yagnesh Savaliya</u>
37	201603102010040	Mayankkumar Dhanjibhai Movaliya	<u>AB</u>
38	201603102010041	Harish Birja Singh Singh	<u>AB</u>
39	201603102010042	Ankit Dineshbhai Prajapati	<u>Ank</u>
40	201603102010045	Dhrumil Ashvinbhai Borad	<u>Dhrumil</u>
41	201603102010046	Nayan Gopalbhai Changani	<u>Nayan</u>
42	201603102010047	Nidhi Jaysukhbhai Kothiya	<u>Nidhi</u>
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45	201603102010050	Raj Maganbhai Kapuriya	<u>Raj</u>
46	201603102010051	Ravi Arvindbhai Jadvani	<u>Ravi</u>
47	201603102010052	Nirav Hargovindbhai Vaishnav	<u>AB</u>
48	201603102010053	Jatinkumar Ukabhai Savani	<u>Savani Jatin</u>
49	201603102010054	Darshankumar Ashokbhai Gabani	<u>Darshan</u>



# About Ukai Hydro Power Station

The river Tapi is the second largest west flowing river in India. The Tapi river has its origin at Mulati in Betul District of Madhya Pradesh. The river has a total length of 720 km out of which 208 km lies in the Madhya Pradesh, 323 km in the Maharashtra and 189 km in Gujarat. It ultimately meets the Arabian Sea approximately 19.2 km west of surat in Gujarat. Ukai is the largest Multipurpose Project undertaken by the state and is only next to Narmada Project, so far as benefits are concerned. The Ukai Hydro Power Station is located at Ukai Dam on Tapi river in Tapi district. There are 4 units of hydro turbine each of 75MW with a total installed capacity of 300MW. All the above units are of BHEL make. Commissioning dates of unit no. 1to 4 are 08/07/1974, 13/12/1974, 22/04/1975 and 04/03/1976 respectively.

There are three basic stages of hydro power station to generate electricity.

- (1) Spillway
- (2) Turbine
- (3) Generator

Spill Way: Specification of Spill Way is given below

1	Spill Way Channel	Length = 1524 Meter, Width = 259 Meter, Depth = 18.29 Meter
2	Spill Way Gates	Numbers = 22 nos, Types = Radial Gates, Area = 15.545 m × 14.783 m., Weight = 100 Tones Each.
3	Discharge Capacity	49490 m <sup>3</sup> /sec., Maximum=59920 m <sup>3</sup> /sec
	Over all Crest Length	425.195 m.



## Turbine



Specification of turbine is given below

1	Type	Reaction Type, Kaplan, Vertical Shaft, Feathering propeller type.
2	Make	Bharat Heavy Electricals LTD.
3	Head	1) 47.8 m (156.82 ft.) Rated Head. 2) 57.2 m (18.66 ft.) Max head. 3) 34.4 m (112.86 ft.) Min head.
4	Output power	1) 1,05,000 Metric HP 2) 1,20,750 Metric HP Max
5	Speed	150 RPM (clockwise rotation)
6	Run away Speed	1) 300 RPM with cam 2) 350 RPM Without Cam
7	Water Discharge	6000 cusec (101 m <sup>3</sup> /sec) at 75 MW.
8	Nos. of guide Vanes	24 nos.
9	Size of guide vanes	6660 mm × 19.4 mm
10	Main shaft dia.	900 mm
11	Runner hub dia.	3160mm
12	Runner blades	6 nos. Each having Weight of 5 tones & design to withstand 1700 tones hydraulic.
13	Spiral inlet dia.	6500 mm
14	Largest transport item of turbine	Inner top cover half size 6.1m × 3.5m × 3.0m
15	Efficiency	98 % at the full water level.
16	Weight of turbine with shaft And runner disc	140 MT
17	Bearing	Turbine guide bearing 1 no having 8 nos. pads.

### Generator



Chief Control Engineer explained all the component of control room. They give brief information regarding monitoring, controlling, observing. There we had observed different control rooms for different turbine sections. All the control of the whole generation system was controlled by that control room containing different control switches

and digital panels. Later they discussed about the various activities about plant in nearby areas. Then we were study about the generation of power with Hydro turbine and seen the turbine generator coupling for power



generation and learn about generator generation capacity of 75 MW. There are 4 units of hydro turbine each of 75MW with a total installed capacity of 300MW. All the above units are of BHEL make.

#### Student industrial visit photo

