Dr. Ambedkar College, Deekshabhoomi, Nagpur

Department of Physics

Session 2024-25

Name of the Program : A guest lecture at Koradi Thermal Power Station

Date of the Program : 7/10/2024

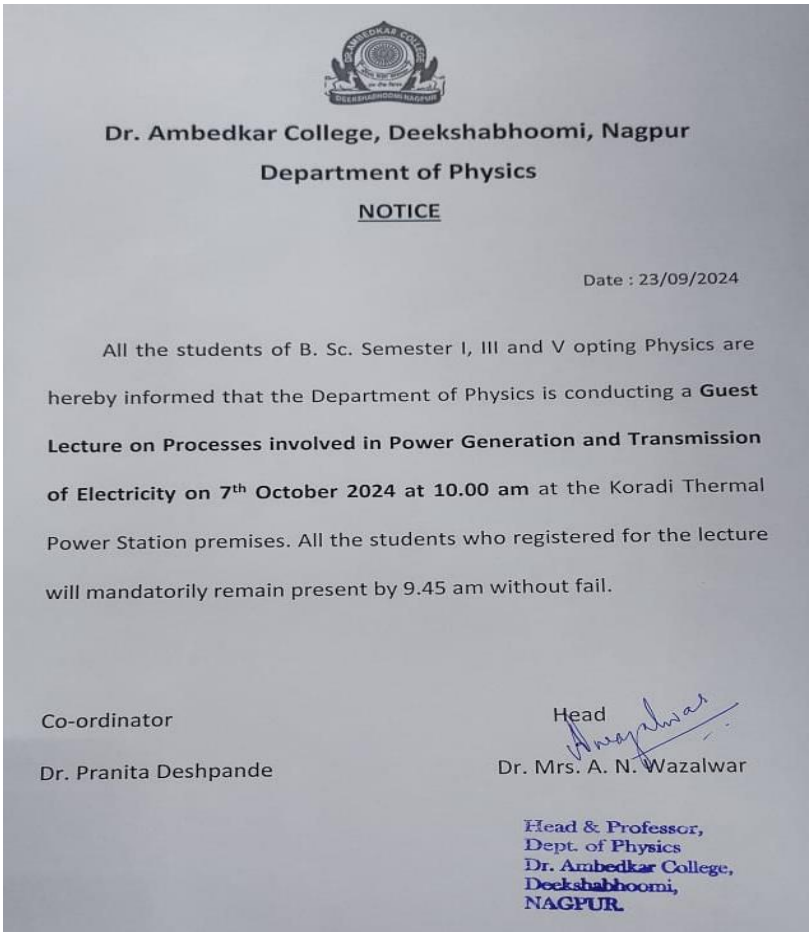
Number of participants : 48

Hosted by : Department of Physics

Resource Person : Mr.Vishal Ambagade

Registration Link : https://docs.google.com/forms/d/e/1FAIpQLSe7Hr_J5HRGZJ-FYOPvYN0nbNe9-Xeg65CgkpDplpwLQB5kfw/viewform

Notice



Dr. Ambedkar College, Deekshabhoomi, Nagpur

Department of Physics

NOTICE

Date : 23/09/2024

All the students of B. Sc. Semester I, III and V opting Physics are hereby informed that the Department of Physics is conducting a **Guest Lecture on Processes involved in Power Generation and Transmission of Electricity on 7th October 2024 at 10.00 am** at the Koradi Thermal Power Station premises. All the students who registered for the lecture will mandatorily remain present by 9.45 am without fail.

Co-ordinator

Dr. Pranita Deshpande

Head

Dr. Mrs. A. N. Wazalwar

Head & Professor,
Dept. of Physics
Dr. Ambedkar College,
Deekshabhoomi,
NAGPUR.

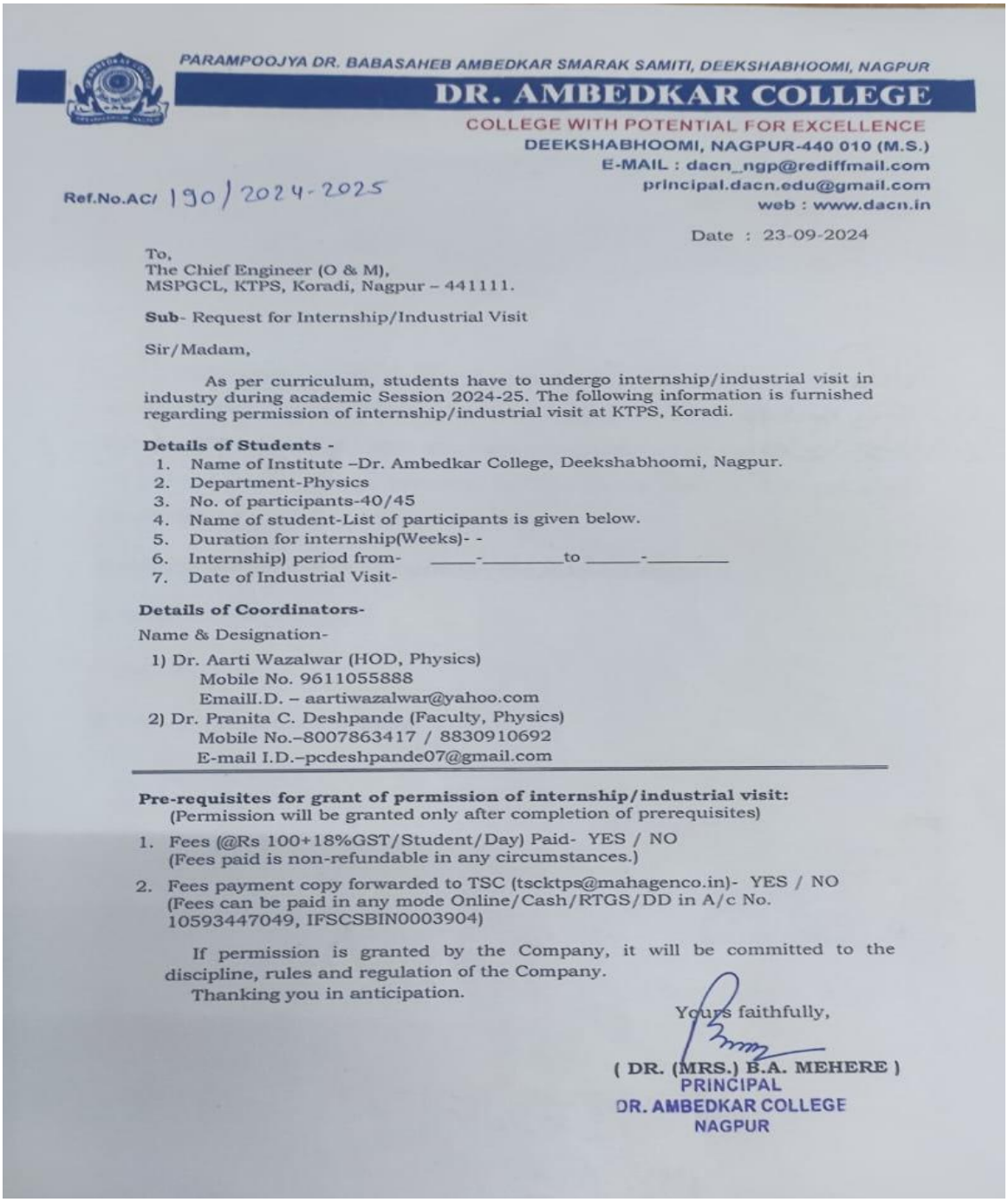
Program objectives:

1) To learn the functioning of a coal based steam power plant.

2) To help students to connect what they learn in the classroom with the real world.

3) To provide an opportunity to use different teaching techniques and technologies.

Permission letter



PARAMPOOJYA DR. BABASAHEB AMBEDKAR SMARAK SAMITI, DEEKSHABHOOMI, NAGPUR

DR. AMBEDKAR COLLEGE

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E-MAIL : dacn_ngp@rediffmail.com

principal.dacn.edu@gmail.com

web : www.dacn.in

Ref.No.AC/ 190 / 2024-2025

Date : 23-09-2024

To,
The Chief Engineer (O & M),
MSPGCL, KTPS, Koradi, Nagpur – 441111.

Sub- Request for Internship/Industrial Visit

Sir/Madam,

As per curriculum, students have to undergo internship/industrial visit in industry during academic Session 2024-25. The following information is furnished regarding permission of internship/industrial visit at KTPS, Koradi.

Details of Students -

1. Name of Institute –Dr. Ambedkar College, Deekshabhoomi, Nagpur.
2. Department-Physics
3. No. of participants-40/45
4. Name of student-List of participants is given below.
5. Duration for internship(Weeks)- -
6. Internship) period from- _____-_____to _____-_____
7. Date of Industrial Visit-

Details of Coordinators-

Name & Designation-

1) Dr. Aarti Wazalwar (HOD, Physics)
Mobile No. 9611055888
EmailI.D. – aartiwazalwar@yahoo.com

2) Dr. Pranita C. Deshpande (Faculty, Physics)
Mobile No.–8007863417 / 8830910692
E-mail I.D.–pcdeshpande07@gmail.com

Pre-requisites for grant of permission of internship/industrial visit:
(Permission will be granted only after completion of prerequisites)

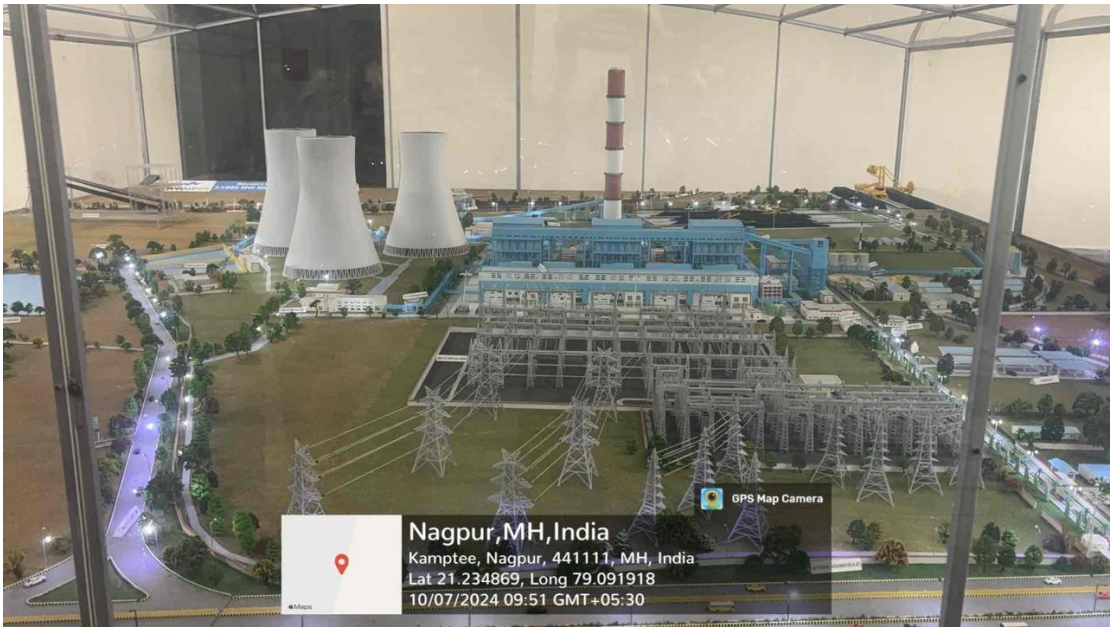
1. Fees (@Rs 100+18%GST/Student/Day) Paid- YES / NO
(Fees paid is non-refundable in any circumstances.)
2. Fees payment copy forwarded to TSC (tscktps@mahagenco.in)- YES / NO
(Fees can be paid in any mode Online/Cash/RTGS/DD in A/c No. 10593447049, IFSCSBIN0003904)

If permission is granted by the Company, it will be committed to the discipline, rules and regulation of the Company.
Thanking you in anticipation.

Yours faithfully,

(DR. (MRS.) B.A. MEHERE)
PRINCIPAL
DR. AMBEDKAR COLLEGE
NAGPUR

The Department of Physics at Dr. Ambedkar College, Nagpur had organized a guest lecture at Koradi Thermal Power Station, Nagpur on 7/10/2024 for the students of B. Sc. (First year - Final year). Theprogram was organized with the prior permission and guidance of Head,Department of Physics, Dr. A. N. Wazalwar. It was coordinated by Dr. P. C. Deshpande.



Around 48 students opted Physics visited KTPS (3 × 660 MW) coal based steam power plant. The program started with a security rules briefing during which we were given oral instructions from the security department of the KTPS. Then after we reached at the core area of the thermal power station where KTPS instructors provided us helmets and instructed about the important safety rules to comply with at all times. The resourse person was Mr. Vishal Ambagade, Additional Executive Engineer (ISC) who explained the working of different parts.

Various Thermal Power Plant Units :

1. Coal Handling Plant
2. Ash Handling Plant
3. Boiler
4. Super heater
5. Air Pre-heater
6. Pulvorisor
7. Turbine
8. Chimney
9. Feed Pump
10. Generator (Alternator)
11. Switch Yard
12. Exciter
13. Condenser
14. Transformer
15. Wagon Tippler

Function :

A thermal power plant generates electricity by burning fossil fuels such as coal, oil, or gas. The heat produced by the burning fuel is used to create steam, which then drives a turbine to generate electricity. The steam is cooled and condensed back into water, which is reused in the process.

A thermal power plant's function is to convert heat energy from various fuel sources into electricity:

1) **Fuel combustion**: A boiler is fired with fuel like coal, oil, or natural gas to generate high-pressure, high-temperature steam.

2) **Steam turbine**: The steam is used to drive a turbine, which rotates its blades.

3) **Electricity generation**: A generator attached to the turbine produces electricity.

4) **Steam condensation**: The steam is condensed into water for reuse.

5) **Repeat**: The cycle is repeated.

Thermal power plants can be powered by a variety of fuel sources, including fossil fuels, geothermal, solar, and nuclear power. They can also use waste heat and industrial processes.

The coal was brought from Western Coal Field (WCL Khaparkheda Unit) and it would be crushed to increase the gross calorific value. The water used for cooling and all other materials were bought from the nearby Pench river and Koradi dam. The instructors explained us about wagon tippler, where coal (from the coal field) on wagons is dumped into an apron feeder. This coal is then crushed into the required size and stored in the coal handling plant. We were also educated about the transformers, cooling towers, boilers and the chimneys. The height of the chimney was 210 metres.

We were explained how KTPS madeits prime objective to keep the environment clean and hence the use of electrostatic precipitators. At the end we were also educated about the working of 4.8 kWhydroelectric plant, installed by the power plant management, as a green energy initiative. It was a great experience to actually take a look at whatever we had studied in theory could be materialised into the practical. Our knowledge were enriched about the coal to electricity cycle in detail. KTPS generate 660 MWatt electricity upto the year 2022 which will be distributed to the Vidarbha region. Now in 2024, it becomes (660 × 3 = 1980 MWatt) generator which transfer electricity not only in Vidarbha region but to the eastern Maharashtra as well. It gave us a new perspective about our subjectPhysics and strengthened our concepts of Power Station Practices. We hope that this lecture will help us in our future practical life and bring a positive change in our thinking and practical behavior regarding the education and specially incore science learning.

Attendance

Dr. Ambedkar College, Deekshabhoomi, Nagpur

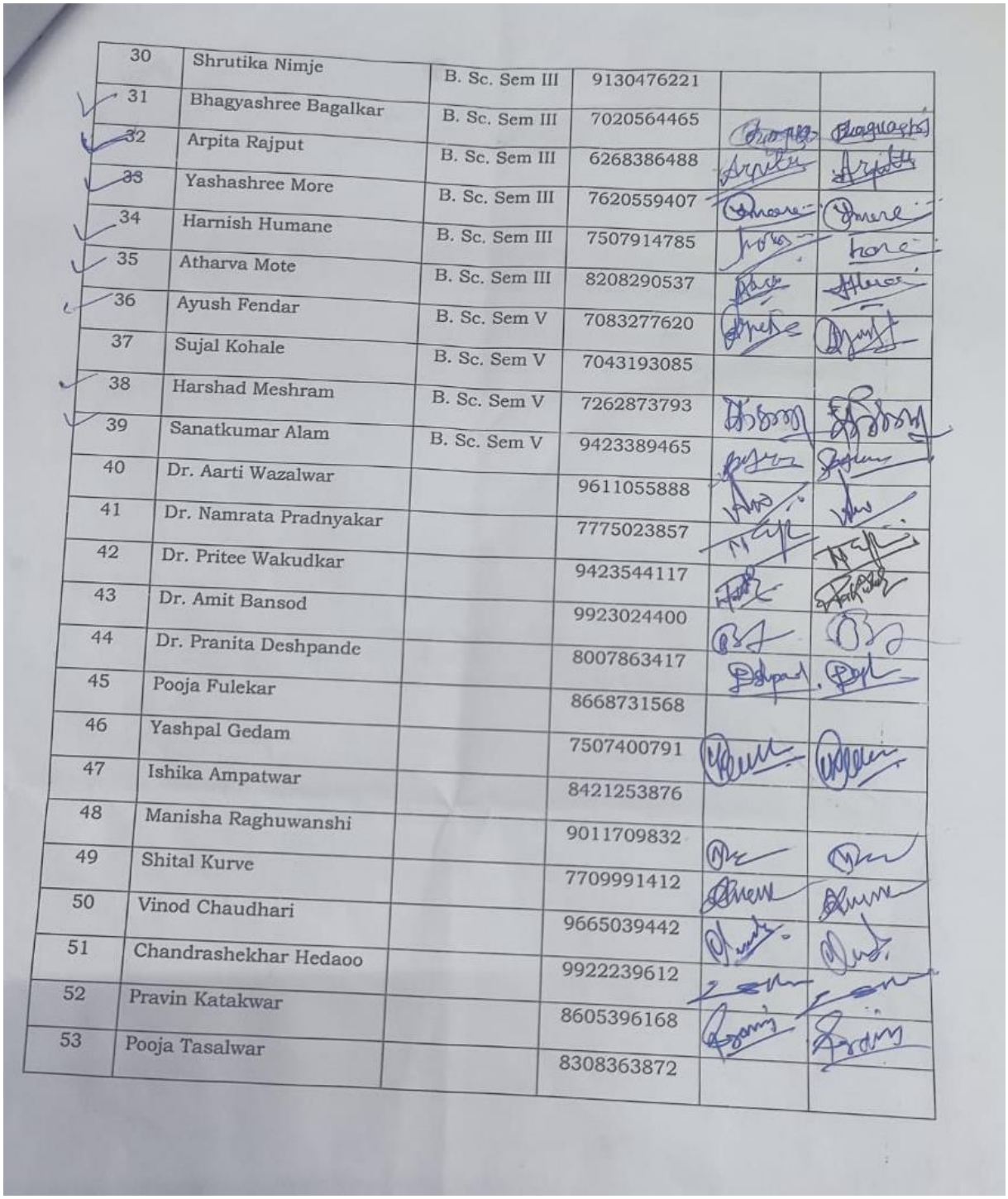
Department of Physics

Session 2024-25

Attendance for Industrial Visit at Koradi Thermal Power Station, Nagpur

List of participants (7th October 2024)

Sr. No.	Name of participant	Class	Contact no.	Sign-in	Sign-out
1	Prajwal Injewar	B. Sc. Sem I	8010417195		
2	Priyal Gudadhe	B. Sc. Sem I	9028514557		
3	Harshalata Gawate	B. Sc. Sem I	9823451999		
4	Astha Bhoskar	B. Sc. Sem I	9307263079		
5	Parnashri Bhagat	B. Sc. Sem I	9325065539		
6	Yashashree Gandham	B. Sc. Sem I	9028970837		
7	Mahekpreet Rai	B. Sc. Sem I	9579701711		
8	Diksha Meshram	B. Sc. Sem I	8407984842		
9	Manaswi Bhatankar	B. Sc. Sem I	9373645020		
10	Kapil Fulzele	B. Sc. Sem I	8010264960		
11	Anushka Chake	B. Sc. Sem I	7385278284		
12	Khushbu Shingru	B. Sc. Sem I	8767261664		
13	Vikas Shukla	B. Sc. Sem I	8793935323		
14	Sakshi Uikey	B. Sc. Sem I	9356797650		
15	Rudranand Bharti	B. Sc. Sem I	8830124673		
16	Nitish Kamble	B. Sc. Sem I	8308290048		
17	Vinit Panghate	B. Sc. Sem I	8624964790		
18	Sankalp Patil	B. Sc. Sem I	9325535994		
19	Ashwini Lanje	B. Sc. Sem I	8329033805		
20	Tejaswini Pahade	B. Sc. Sem I	7499479793		
21	Nidhi Tayade	B. Sc. Sem I	9699739441		
22	Payal Bhide	B. Sc. Sem III	7721980795		
23	Pranjali Lanjewar	B. Sc. Sem III	8421086826		
24	Khushi Moharle	B. Sc. Sem III	9689146248		
25	Mohini Shende	B. Sc. Sem III	8668671569		
26	Aditi Shahane	B. Sc. Sem III	8605760489		
27	Samiksha Naik	B. Sc. Sem III	9322839731		
28	Disha Shende	B. Sc. Sem III	9404538413		
29	Vaishnavi Lamse	B. Sc. Sem III	8767354208		



30	Shrutika Nimje	B. Sc. Sem III	9130476221		
31	Bhagyashree Bagalkar	B. Sc. Sem III	7020564465		
32	Arpita Rajput	B. Sc. Sem III	6268386488		
33	Yashashree More	B. Sc. Sem III	7620559407		
34	Harnish Humane	B. Sc. Sem III	7507914785		
35	Atharva Mote	B. Sc. Sem III	8208290537		
36	Ayush Fendar	B. Sc. Sem V	7083277620		
37	Sujal Kohale	B. Sc. Sem V	7043193085		
38	Harshad Meshram	B. Sc. Sem V	7262873793		
39	Sanatkumar Alam	B. Sc. Sem V	9423389465		
40	Dr. Aarti Wazalwar		9611055888		
41	Dr. Namrata Pradnyakar		7775023857		
42	Dr. Pritee Wakudkar		9423544117		
43	Dr. Amit Bansod		9923024400		
44	Dr. Pranita Deshpande		8007863417		
45	Pooja Fulekar		8668731568		
46	Yashpal Gedam		7507400791		
47	Ishika Ampatwar		8421253876		
48	Manisha Raghuwanshi		9011709832		
49	Shital Kurve		7709991412		
50	Vinod Chaudhari		9665039442		
51	Chandrashekhar Hedaoo		9922239612		
52	Pravin Katakwar		8605396168		
53	Pooja Tasalwar		8308363872		

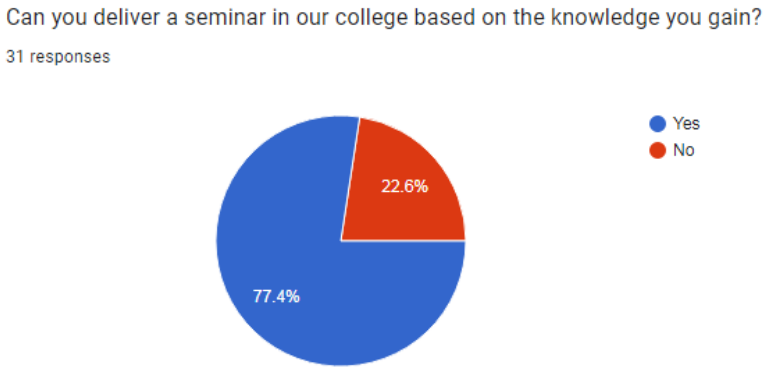
Learning Outcomes

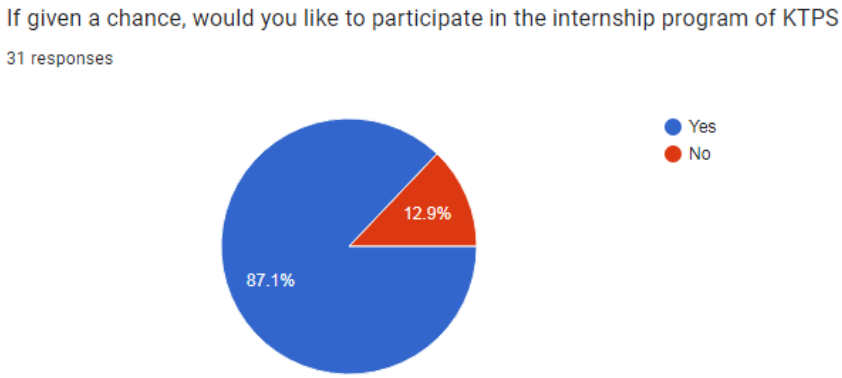
1. Practical knowledge: Students can gain a practical understanding of how a power plant works, including the stages of power generation and distribution.

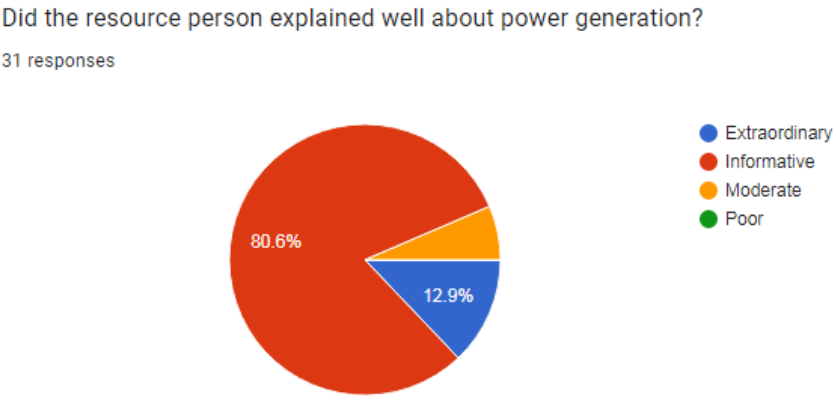
2. Theoretical concepts: Students can apply theoretical concepts to real-world scenarios

3. Environmental impact: Students can learn about the environmental impact of power generation, including emissions control technologies and renewable energy integration.

Feedback







Submitted to

Dr. A. N. Wazalwar
Head of the Department of Physics,
Dr. Ambedkar College, Deekshabhoomi, Nagpur.