Dr. D. Y. Patil Unitech Society's

DPU

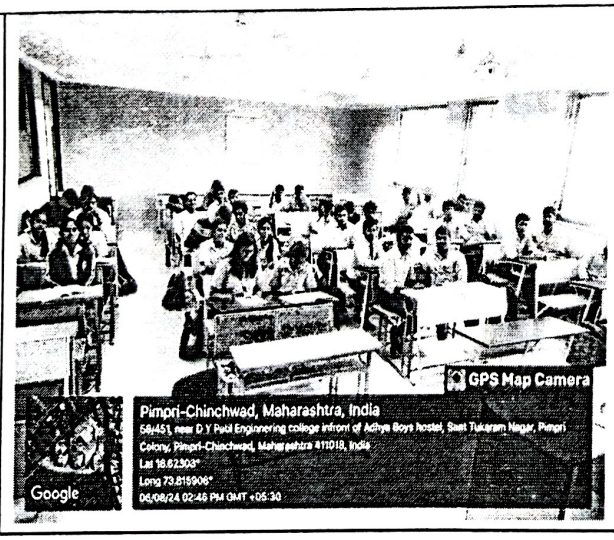
Dr. D. Y. Patil Institute of Technology

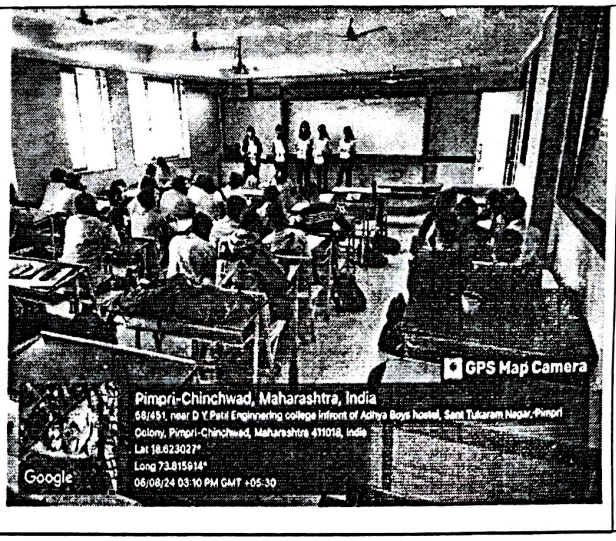
Pimpri, Pune

Department of Electrical Engineering

Activity: "Innovative Teaching Learning Pedagogy"

Date & Day: 06/08/2024, Tuesday
Activity Name: Powering the Future: A Flipped Exploration of Thermal Energy Systems
Subject : Power Generation Technologies
Venue: Class Room
Activity conducted by: Mr. Sachin Jadhav
Objectives: • Explain the basic working principles of nuclear, diesel, and gas power plants. • Analyze the efficiency and thermodynamic cycles associated with each system. • Identify site selection criteria and environmental concerns. • Compare single-cycle and combined-cycle plant designs. • Solve heat balance problems and propose efficiency improvements
Photographs:





Department of Electrical Engineering

Outcome:

Students will be able to

- Describe the fundamental principles and working mechanisms of nuclear, diesel, and gas power plants.
- Explain the thermodynamic cycles (e.g., Rankine, Diesel, Brayton) used in these power generation technologies.
- List and compare the major components of nuclear, diesel, and gas power plants.
- Identify suitable site selection criteria and key safety and environmental considerations for each plant type.

Mapping of Pedagogy with POs and PSOs:

PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	Po11	PO12	PSO1	PSO2	PSO3
3	2	1	-	-	2	-	2	2	2	-	3	3	-	2

Mapping of POs and PSOs with Justification:

POs and PSOs Mapped	Justification
PO1: Engineering Knowledge	Students engage with fundamental concepts of nuclear, diesel, and gas power plants through pre-class materials and problem-solving, applying core engineering principles of thermodynamics, fluid mechanics, and materials science.
PO2: Problem Analysis	Active discussions enable critical problem identification and analysis of real-world energy issues.
PO3: Design/Development of Solutions	Group activities encourage designing solutions considering environment and societal impact.
PO6: Engineer and Society	Classroom debates on thermal energy's societal roles enhance understanding of broad impacts.

PO8: Ethics	Students evaluate ethical implications of energy choices and technology applications.
PO9: Individual and Team Work	Collaboration during class strengthens teamwork skills.
PO10: Communication	Students communicate ideas effectively through presentations and documentation.
PO12: Life-long Learning	Pre-class learning cultivates habit of lifelong, autonomous learning.
PSO1	The activity involves exploring thermal energy systems which often require modeling and simulation (e.g., thermal-electrical system interactions). Students apply technical and analytical skills to understand system behavior and performance.
PSO3	Thermal energy systems intersect with electrical engineering. This activity fosters a multidisciplinary understanding, blending mechanical, thermal, and electrical engineering concepts.

Course Coordinator **DAC** **HOD**