

BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK
DEPARTMENT OF MECHANICAL ENGINEERING



LESSON PLAN

SUBJECT: POWER STATION ENGINEERING (TH 3)

FACULTY: RUTUPARNA SAHU

ACCADEMIC SESSION: 2023-24

SEMESTER: 6TH

SEC- B

Sd/-

HOD (Mechanical Engg.)

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DISCIPLINE: Mechanical Engineering	SEMESTER: 4th B		NAME OF TEACHING FACULTY: RUTUPARNA SAHU
SUBJECT: (TH-3) POWER STATION ENGINEERING	No. of Days/ per week class allotted: 04 periods per week MONDAY-1Period, WEDNESDAY-1Period, THURSDAY-1Period,FRIDAY-1 Period		Semester From Date: 16-01-2024 To Date: 26-04-2024 No. of weeks: 15 weeks
Week	Class Day	No of period available	Theory Topics
1ST	17/01/2024	1	Discussion of Syllabus and Introduction of power station engineering
	18/01/2024	1	1.0 INTRODUCTION: 1.1 Describe sources of energy
	19/01/2024	1	1.2 Explain concept of Central and Captive power station. 1.3 Classify power plants.
2ND	22/01/2024	1	1.4 Importance of electrical power in day today life. 1.5 Overview of method of electrical power generation.
	24/01/2024	1	2.0 THERMAL POWER STATIONS: 2.1 Layout of steam power stations
	25/01/2024	1	2.2 Steam power cycle. Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency.
3RD	29/01/2024	1	2.3 Explain Rankine cycle with P-V, T-S & H-s diagram and determine thermal efficiency, Work done, work ratio, and

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			specific steam Consumption.
	31/01/2024	1	2.4 Solve Simple Problems.
	01/02/2024	1	2.4 Solve Simple Problems. 2.5. List of thermal power stations in the state with their capacities.
	02/02/2024	1	2.6 Boiler Accessories: Operation of Air pre heater, Operation of Economiser, Operation Electrostatic precipitator
4TH	05/02/2024	1	2.6 Operation of super heater.
	07/02/2024	1	2.6 Need of boiler mountings and operation of boiler
	08/02/2024	1	2.7 Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages.
	09/02/2024	1	2.8 Steam prime movers: Advantages & disadvantages of steam turbine, Elements of steam turbine
5TH	12/02/2024	1	Content beyond syllabus- Compounding of steam turbine (velocity compounding, pressure compounding, pressure-velocity compounding)
	15/02/2024	1	2.8 Governing of steam turbine
	16/02/2024	1	2.8 Performance of steam turbine: Explain Thermal efficiency, Stage efficiency and Gross efficiency.
6TH	19/02/2024	1	2.9 Steam condenser: Function of condenser, Classification of condenser.
	21/02/2024	1	2.9 Function of condenser auxiliaries such as hot well, condenser extraction pump, air extraction pump, and circulating pump.

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	22/02/2024	1	2.10 Cooling Tower: Function and types of cooling tower, and spray ponds
	23/02/2024	1	2.11 Selection of site for thermal power stations.
7TH	26/02/2024	1	Class test-1
	28/02/2024	1	3.0 NUCLEAR POWER STATIONS: 3.1 Classify nuclear fuel (Fissile & fertile material).
	29/02/2024	1	3.2 Explain fusion and fission reaction.
	01/03/2024	1	3.3 Explain working of nuclear power plants with block diagram
8TH	04/03/2024	1	3.4 Explain the working and construction of nuclear reactor .
	06/03/2024	1	3.5 Compare the nuclear and thermal plants.
	07/03/2024	1	Content beyond syllabus- Types of nuclear reactor (working principle of PWR,BWR)
9TH	11/03/2024	1	3.5 Compare the nuclear and thermal plants.
	13/03/2024	1	3.6 Explain the disposal of nuclear waste.
	14/03/2024	1	3.7 Selection of site for nuclear power stations. 3.8 List of nuclear power station.
	15/03/2024	1	4.0 DIESEL ELECTRIC POWER STATIONS: 4.1 State the advantages and disadvantages of diesel electric power stations
10TH	18/03/2024	1	4.2 Explain briefly different systems of diesel electric power stations: Fuel storage and fuel supply system
	20/03/2024	1	4.2 Fuel injection system, Air supply system, Exhaust system,
	21/03/2024	1	4.2 Cooling system, Lubrication system, starting system, governing system.
	22/03/2024	1	4.3 Selection of site for diesel electric power stations
			4.4 Performance and thermal efficiency of diesel electric

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			power stations.
11TH	27/03/2024	1	5.0 HYDEL POWER STATIONS: 5.1 State advantages and disadvantages of hydroelectric power plant
	28/03/2024	1	5.2 Classify and explain the general arrangement of storage type hydroelectric project and explain its operation
12TH	03/04/2024	1	5.3 Selection of site of hydel power plant. 5.4 List of hydro power stations with their capacities and number of units in the state.
	04/04/2024	1	5.5 Types of turbines and generation used.
	05/04/2024	1	5.6 Simple problems
13TH	08/04/2024	1	5.6 Simple problems
	10/04/2024	1	5.6 Simple problems
	12/04/2024	1	6.0 GAS TURBINE POWER STATIONS 6.1 Selection of site for gas turbine stations. 6.2 Fuels for gas turbine
14TH	15/04/2024	1	6.3 Elements of simple gas turbine power plants
	18/04/2024	1	6.4 Merits, demerits and application of gas turbine power plants.
	19/04/2024	1	revision
15TH	22/04/2024	1	Class test-2
	24/04/2024	1	revision
	25/04/2024	1	revision
	26/04/2024	1	revision