

**LESSON PLAN-6<sup>TH</sup> SEMESTER (2023)**

Subject- **POWER STATION ENGINEERING**

Name of the Faculty- **Somanath Sethy**

MONTH	CHAPTER /UNIT	COURSE TO BE COVERED	CLASSES REQUIRED	REMARKS (IF ANY)
	<b>Chapter-1</b>	<b>INTRODUCTION:</b>	<b>05</b>	
	<b>1.1</b>	Describe sources of energy.	2	
	<b>1.2</b>	Explain concept of Central and Captive power station.	1	
	<b>1.3,1.4</b>	Classify power plants, Importance of electrical power in day today life	1	
	<b>1.5</b>	Overview of method of electrical power generation.	1	
	<b>Chapter -2</b>	<b>THERMAL POWER STATIONS</b>	<b>20</b>	
	<b>2.1</b>	Layout of steam power stations	1	
	<b>2.2</b>	Steam power cycle. Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency.	1	
	<b>2.3</b>	Explain Rankine cycle with P-V, T-S & H-s diagram and determine thermal efficiency, Work done, work ratio, and specific steam Consumption	2	
	<b>2.4</b>	Solve Simple Problems.	2	
	<b>2.5</b>	List of thermal power stations in the state with their capacities	1	
	<b>2.6</b>	Boiler Accessories: Operation of Air pre heater, Economiser, Electrostatic precipitator and super heater. Need of boiler mountings and operation of boiler.	2	
	<b>2.7</b>	Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages.	2	
	<b>2.8</b>	Steam prime movers: Advantages & disadvantages of steam turbine,.	1	
		Elements of steam turbine, governing of steam turbine	1	
		Performance of steam turbine: Explain Thermal efficiency, Stage efficiency and Gross efficiency.	2	
	<b>2.9</b>	Steam condenser: Function of condenser, Classification of condenser. function of condenser auxiliaries such as hot well, condenser extraction pump, air extraction pump, and circulating pump.	3	
	<b>2.10</b>	Cooling Tower:	2	
	<b>2.11</b>	Cooling Tower: Function and types of cooling tower, and spray ponds , Selection of site for thermal power stations.		
	<b>Chapter-3</b>	<b>NUCLEAR POWER STATIONS:</b>	<b>10</b>	
	<b>3.1</b>	Classify nuclear fuel (Fissile & fertile material)	1	
	<b>3.2</b>	Explain fusion and fission reaction	2	
	<b>3.3</b>	Explain working of nuclear power plants with block diagram.	2	
	<b>3.4</b>	Explain the working and construction of nuclear reactor	2	
	<b>3.5</b>	Compare the nuclear and thermal plants.	1	
	<b>3.6</b>	Explain the disposal of nuclear waste.	1	
	<b>3.7,3.8</b>	Selection of site for nuclear power stations and List of nuclear power stations	1	
	<b>Chapter-4</b>	<b>DIESEL ELECTRIC POWER STATIONS:</b>	<b>10</b>	

4.1	State the advantages and disadvantages of diesel electric power stations.	1	
4.2	Explain briefly different systems of diesel electric power stations: Fuel storage and fuel supply system, Fuel injection system, Air supply system, Exhaust system, cooling system, Lubrication system, starting system,.	6	
4.3	governing system ,Selection of site for diesel electric power stations.	1	
4.4	Performance and thermal efficiency of diesel electric power stations	2	
<b>Chapter-5</b>	<b>HYDEL POWER STATIONS:</b>	<b>10</b>	
5.1	State advantages and disadvantages of hydroelectric power plant.	2	
5.2	Classify and explain the general arrangement of storage type hydroelectric project and explain its operation	3	
5.3,5.4	Selection of site of hydel power plant and List of hydro power stations with their capacities and number of units in the state.	2	
5.5	Types of turbines and generation used	1	
5.6	Simple problems	2	
<b>Chapter-6</b>	<b>GAS TURBINE POWER STATIONS</b>	<b>05</b>	
6.1	Selection of site for gas turbine stations	1	
6.2	Fuels for gas turbine	1	
6.3	Elements of simple gas turbine power plants	2	
6.4	Merits, demerits and application of gas turbine power plants.	1	

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 (H.O.D; ME)

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