

GOVERNMENT POLYTECHNIC KENDRAPARA				
LESSON PLAN-6 TH SEMESTER (SUMMER 2025)				SESSION 2024-2025
Subject- [TH.3] POWER STATION ENGINEERING				
Name of the Faculty- SUNIL KUMAR SETHY				
MONTH	CHAPTER /UNIT	COURSE TO BE COVERED	CLASSES REQUIRED	REMARKS (IF ANY)
	Chapter-1	INTRODUCTION:	05	
	1.1	Describe sources of energy.	2	
	1.2	Explain concept of Central and Captive power station.	1	
	1.3,1.4	Classify power plants, Importance of electrical power in day today life	1	
	1.5	Overview of method of electrical power generation.	1	
	Chapter -2	THERMAL POWER STATIONS	20	
	2.1	Layout of steam power stations	1	
	2.2	Steam power cycle. Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency.	1	
	2.3	Explain Rankine cycle with P-V, T-S & H-s diagram and determine thermal efficiency, Work done, work ratio, and specific steam Consumption	2	
	2.4	Solve Simple Problems.	2	
	2.5	List of thermal power stations in the state with their capacities	1	
	2.6	Boiler Accessories: Operation of Air pre heater, Economiser, Electrostatic precipitator and super heater. Need of boiler mountings and operation of boiler.	2	
	2.7	Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages.	2	
	2.8	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	
	2.9	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	
	2.10	Cooling Tower:	2	
	2.11	Cooling Tower: Function and types of cooling tower, and spray ponds , Selection of site for thermal power stations.		
	Chapter-3	NUCLEAR POWER STATIONS:	10	
	3.1	Classify nuclear fuel (Fissile & fertile material)	1	
	3.2	Explain fusion and fission reaction	2	
	3.3	Explain working of nuclear power plants with block diagram.	2	
	3.4	Explain the working and construction of nuclear reactor	2	
	3.5	Compare the nuclear and thermal plants.	1	
	3.6	Explain the disposal of nuclear waste.	1	
	3.7,3.8	Selection of site for nuclear power stations and List of nuclear power stations	1	

	Chapter-4	DIESEL ELECTRIC POWER STATIONS:	10	
	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	
	Chapter-5	HYDEL POWER STATIONS:	10	
	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	
	Chapter-6	GAS TURBINE POWER STATIONS	05	
	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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