

LESSON PLAN	
DHABALESWAR INSTITUTE OF POLYTECHNIC	
Name of the Faculty: S K JENA	Academic Year: SUMMER - 22
Course No.: TH-3	Course Name: POWER STATION ENGINEERING
Program: Diploma	Branch: MECHANICAL

Sl. No.	Period /Class	Unit	Topic to be covered
1.	1.	1	Introduction of PSE ,Describe sources of energy
2.	2.	1	Explain concept of Central and Captive power station, Classify power plants
3.	3.	1	Importance of electrical power in day today life Overview of method of electrical power generation.
4.	4.	1	Over view on Chapter 1
5.	4.	2	Steam Power Plant: Layout of steam power plant
6.	5.	2	Steam power cycle, Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency
7.	6.	2	Solve related Simple Problems on carnot cycle
8.	8.	2	Explain Rankine cycle with P-V, T-S & H-s diagram
9.	9.	2	Determine thermal efficiency, Work done , work ratio, and specific steam Consumption
10.	10.	2	Solve related Simple Problems on Rankine cycle
11.	11.	2	Solve related Simple Problems on Rankine cycle , List of thermal power stations in the state with their capacities
12.	12.	2	Boiler Accessories: Air pre heater, Economiser
13.	13.	2	Electrostatic precipitator and superheater, Need of boiler mountings
14.	14.	2	Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages
15.	15.	2	Steam prime movers: Advantages & disadvantages of steam turbine
16.	16.	2	Elements of steam turbine, Compounding and governing of steam turbine
17.	17.	2	Performance of steam turbine: Explain Thermal efficiency, Stage efficiency and Gross efficiency
18.	18.	2	Solve related Simple problems
19.	19.	2	Steam condenser: Function of condenser, Classification of condenser (explain jet and Surface condensers)
20.	20.	2	function of condenser auxiliaries such as hot well, condenser extraction pump, air extraction pump, cooling water and circulating pump
21.	22.	2	Cooling Tower: Function and types of cooling tower
22.	23.	2	Natural and Mechanical draft cooling Tower, Spray ponds
23.	24	2	Selection of site for thermal power stations.

24.	25.	2	Revision of Unit / Class -2
25.	26.	3	Nuclear Power Plant: Classify nuclear fuel (Fissile & fertile material).
26.	27.	3	Explain fusion and fission reaction
27.	28.	3	Explain working of nuclear power plants with block diagram
28.	28.	3	Explain the working and construction of nuclear reactor
29.	29.		Explain construction and working of moderator, reflector, coolant, control rod
30.	30.	3	Explain the working and construction of nuclear reactor
31.	31.	3	Compare the nuclear and thermal plant
32.	32.	3	Explain the disposal of nuclear waste
33.	33.	3	Selection of site for nuclear power stations
34.	34.	3	List of nuclear power stations
35.	35.		Revision of Unit / Class -3
36.	36.	4	Diesel engine power plant: State the advantages and disadvantages of diesel power station
37.	37.	4	Explain briefly different systems of diesel power station
38.	38.	4	Fuel storage, fuel supply system & Fuel injection system
39.	39.	4	Air supply system & Exhaust system
40.	40.	4	Cooling system & Lubrication system
41.	41.	4	Starting system
42.	42.	4	Governing system
43.	43.	4	Selection of site for diesel electric power stations
44.	44.	4	Performance and thermal efficiency of diesel electric power stations.
45.	45.		Revision of Unit / Class -4
46.	46.	5	Hydel Power Station: State advantages and disadvantages of hydroelectric power plant
47.	47.	5	Classify and Explain the general arrangement of storage type hydroelectric project
48.	48.	5	Explain operation of hydroelectric project
49.	49.	5	Selection of site of hydel power plant.
50.	50.	5	List of hydro power stations with their capacities and number of units in the state
51.	51.	5	Types of turbines and generation used.
52.	52.	5	Simple problems on Hydel Power Station
53.	53.	5	Simple problems on Hydel Power Station
54.	54.	5	Revision of Unit / Class -5
55.	55.	6	GAS TURBINE POWER STATIONS- Selection of site for gas turbine stations.
56.	56.	6	Fuels for gas turbine, Elements of simple gas turbine power plants
57.	57.	6	Elements of simple gas turbine power plants
58.	58.	6	Merits, demerits and application of gas turbine power plants
59.	59.	6	Revision of Unit / Class -6
60.	60.	6	Revision on Semester Questions