

GOVT. POLYTECHNIC, NAYAGARH
LESSON PLAN
6th SEMESTER MECHANICAL ENGINEERING (2022-23)
SUBJECT- POWER STATION ENGINEERING (TH.3)
(w.e.f 14/02/2023)

Name of Faculty: Himanshu Patra , Lect. (PTGF)

TOTAL PERIODS-60
THEORY-4P/WEEK

Sl No.	week	Day	Topics to be covered
1	1st	1st day	INTRODUCTION: Describe sources of energy.
		2 nd day	Explain concept of Central and Captive power station.
		3 rd day	Classify power plants.
		4 th day	Importance of electrical power in day today life
Sl No.	week	Day	Topics to be covered
2	2nd	1 st day	Overview of method of electrical power generation
		2 nd day	THERMAL POWER STATIONS
		3 rd day	Layout of steam power stations
		4 th day	Steam power cycle.
Sl No.	week	Day	Topics to be covered
3	3rd	1 st day	Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency.
		2 nd day	Explain Rankine cycle with P-V, T-S & H-s diagram and determine thermal efficiency, Work done, work ratio, and specific steam Consumption
		3 rd day	Solve Simple Problems.
		4 th day	List of thermal power stations in the state with their capacities.
Sl No.	week	Day	Topics to be covered
4	4th	1 st day	Boiler Accessories
		2 nd day	Operation of Air pre heater, Operation of Economiser, Operation Electrostatic precipitator and Operation of super heater
		3 rd day	Need of boiler mountings
		4 th day	operation of boiler
Sl No.	week	Day	Topics to be covered
5	5th	1 st day	Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages
		2 nd day	Natural draught, Forced draught & balanced draught) with their advantages & disadvantages
		3 rd day	Steam prime movers
		4 th day	Advantages & disadvantages of steam turbine
Sl No.	week	Day	Topics to be covered
6	6th	1 st day	Elements of steam turbine
		2 nd day	governing of steam turbine
		3 rd day	Performance of steam turbine
		4 th day	Explain Thermal efficiency, Stage efficiency and Gross efficiency.
Sl No.	week	Day	Topics to be covered

7	7 th	1 st day	Assignment evaluation and discussion
		2 nd day	Steam condenser Function of condenser,
		3 rd day	Classification of condenser
		4 th day	function of condenser auxiliaries
Sl No.	week	Day	Topics to be covered
8	8 th	1 st day	hot well, condenser extraction pump
		2 nd day	air extraction pump, and circulating pump.
		3 rd day	Cooling Tower
		4 th day	Function and types of cooling tower,
Sl No.	week	Day	Topics to be covered
9	9 th	1 st day	spray ponds
		2 nd day	Selection of site for thermal power stations
		3 rd day	NUCLEAR POWER STATIONS
		4 th day	Classify nuclear fuel (Fissile & fertile material)
Sl No.	week	Day	Topics to be covered
10	10 th	1 st day	Explain fusion and fission reaction.
		2 nd day	Explain working of nuclear power plants with block diagram .
		3 rd day	Explain the working and construction of nuclear reactor
		4 th day	Compare the nuclear and thermal plants.
Sl No.	week	Day	Topics to be covered
11	11 th	1 st day	Explain the disposal of nuclear waste.
		2 nd day	Selection of site for nuclear power stations
		3 rd day	List of nuclear power stations.
		4 th day	DIESEL ELECTRIC POWER STATIONS:
Sl No.	week	Day	Topics to be covered

12	12 th	1 st day	State the advantages and disadvantages of diesel electric power stations.
		2 nd day	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, governing system.
		3 rd day	Selection of site for diesel electric power stations.
		4 th day	Performance and thermal efficiency of diesel electric power stations.
Sl No.	week	Day	Topics to be covered
13	13 th	1 st day	HYDEL POWER STATIONS: State advantages and disadvantages of hydroelectric power plant
		2 nd day	Classify and explain the general arrangement of storage type hydroelectric project and explain its operation
		3 rd day	Selection of site of hydel power plant.
		4 th day	List of hydro power stations with their capacities and number of units in the state.
Sl No.	week	Day	Topics to be covered
14	14 th	1 st day	Types of turbines and generation used
		2 nd day	Simple problems.
		3 rd day	GAS TURBINE POWER STATIONS : Selection of site for gas turbine stations.
		4 th day	Fuels for gas turbine
Sl No.	week	Day	Topics to be covered
15	15 th	1 st day	Elements of simple gas turbine power plants
		2 nd day	Merits, demerits and application of gas turbine power plants
		3 rd day	Doubt clearance and Revision
		4 th day	Revision

P. Kastur
13/02/2023

Lect (PT&P) Mechanical