

LESSON PLAN

DEPARTMENT OF MECHANICAL ENGINEERING, ITT, CHOUDWAR

SUBJECT: POWER STATION ENGINEERING

Periods: 4 per week

NAME OF FACULTY: SRIKANTA KUMAR PANIGRAHI, LECTURER(MECH)

SEMESTER: 6th No. of weeks: 15

Week	Class Day	Theory / Practical Topics
1 st	1 st	INTRODUCTION: Describe sources of energy
	2 nd	Explain concept of Central and Captive power station
	3 rd	Classification power plants.
	4 th	Importance of electrical power in day today life.
2 nd	1 st	Overview of method of electrical power generation.
	2 nd	THERMAL POWER STATIONS: Layout of Modern steam power stations
	3 rd	Steam power cycle. Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency.
	4 th	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	1 st	Solve Simple Problems.
	2 nd	List of thermal power stations in the state with their capacities.
	3 rd	Boiler Accessories: Operation of Air pre heater,
	4 th	Operation of Economiser, Operation Electrostatic precipitator
4 th	1 st	Operation of super heater.
	2 nd	Need of boiler mountings and operation of boiler
	3 rd	Draught systems-Natural draught
	4 th	Forced draught & balanced draught
5 th	1 st	Its advantages & disadvantages.
	2 nd	Steam prime movers: Advantages & disadvantages of steam turbine,
	3 rd	Elements of steam turbine, Governing of steam turbine.
	4 th	Compounding of steam turbine
6 th	1 st	Performance of steam turbine: Explain Thermal efficiency, Stage efficiency and Gross efficiency.
	2 nd	Steam condenser: Function of condenser, Classification of condenser.
	3 rd	Function of condenser auxiliaries such as hot well, condenser extraction pump, air extraction pump, and circulating pump.
	4 th	Cooling Tower: Function and types of cooling tower,
7 th	1 st	Spray ponds, Selection of site for thermal power stations.
	2 nd	NUCLEAR POWER STATIONS: Introduction, Compare the nuclear and thermal plants, its advantages & disadvantages.
	3 rd	Classify nuclear fuel (Fissile & fertile material)
	4 th	Various terminology relating to Nuclear Power.
8 th	1 st	Explain fusion and fission chain reaction.
	2 nd	Selection of site for nuclear power stations.
	3 rd	Explaining the various components of nuclear reactor
	4 th	Explaining PWR & BWR.
9 th	1 st	Selection of site for nuclear power stations.
	2 nd	List of nuclear power stations.
	3 rd	Explain the disposal of nuclear waste.
	4 th	DIESEL ELECTRIC POWER STATIONS:

		State the advantages and disadvantages of diesel electric power stations.
10 th	1 st	Comparison with Thermal power plant
	2 nd	Explain briefly different systems of diesel electric power stations: Fuel storage and fuel supply system
	3 rd	Fuel injection system
	4 th	Air supply system, Exhaust system
11 th	1 st	Cooling system,
	2 nd	Lubrication system
	3 rd	Starting system, governing system
	4 th	Selection of site for diesel electric power stations
12 th	1 st	Performance and thermal efficiency of diesel electric power stations
	2 nd	HYDEL POWER STATIONS: Introduction, State the advantages and disadvantages of hydroelectric power plant.
	3 rd	Comparison with Thermal power plant
	4 th	Classification and explaining the general arrangement of storage type hydroelectric project
13 th	1 st	Explaining the operations of other types of hydroelectric project
	2 nd	Selection of site of hydel power plant.
	3 rd	List of hydro power stations with their capacities and number of units in the state.
	4 th	Brief idea about the types of turbines and generation used.
14 th	1 st	Micro, Mini & Small Hydro power projects
	2 nd	Solving Simple nuclear problems.
	3 rd	Solving Simple nuclear problems.
	4 th	GAS TURBINE POWER STATIONS Introduction
15 th	1 st	Selection of site for gas turbine stations, Fuels for gas turbine
	2 nd	Elements of simple gas turbine power plants
	3 rd	Operation of Gas Turbine Power Station
	4 th	Merits, demerits and application of gas turbine power plants.
		Remedial class
		Remedial class



Sign. of Faculty