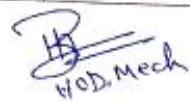


Discipline: <u>MECHANICAL</u>	Semester: <u>6th</u>	Name of the Teaching Faculty: <u>ER. BIKASH MURMU</u> <u>Sr.Lecturer Mechanical</u>
Subject: <u>POWER</u> <u>STATION ENGG.</u>	No. of days/per week class allotted: <u>4</u>	Semester From date: 14-9-23 To date: No of weeks: 15
Week	Class Day	Theory Topics:
1 st	1 st	INTRODUCTION: Sources of energy.
	2 nd	Concept of Central and Captive power station.
	3 rd	Classification of Power Plants.
	4 th	Importance of Electric Power in day to day life.
2 nd	1 st	Overview of method of electrical power generation
	2 nd	STEAM POWER PLANT: Layout of steam power plant.
	3 rd	Steam power cycle (Rankine cycle)
	4 th	P-V, T-S & H-s diagram of Rankine cycle.
3 rd	1 st	Thermal efficiency, Work done, Work ratio, Specific steam Consumption.
	2 nd	Simple Numerical Problems based on Rankine cycle
	3 rd	Reheat cycle and Regenerative cycle
	4 th	combination of Reheat and Regenerative cycle, advantages and disadvantages of these processes
4 th	1 st	List of thermal power stations in the state with their capacities.
	2 nd	Boiler Accessories: Air pre heater, Economiser, Electrostatic precipitator and superheater.
	3 rd	Boiler mountings, Different mountings and their uses
	4 th	Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages.
5 th	1 st	Steam prime movers: Advantages & disadvantages of steam turbine, Elements of steam turbine
	2 nd	Compounding of steam turbine
	3 rd	Governing of steam turbine.
	4 th	Performance of steam turbine: Thermal efficiency, Stage efficiency and Gross efficiency.


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	Steam condenser: Function of condenser, Classification of condenser (jet and surface condensers)	1 st 2 nd 3 rd 4 th	Lubrication system Starting system, Governing system
6 th	Function of condenser auxiliaries such as hot well, condenser extraction pump, air extraction pump, cooling water and circulating pump	1 st 2 nd 3 rd 4 th	Cooling Tower: Function and types of cooling tower, Various types of cooling tower (Natural draft cooling tower and Mechanical draft cooling tower) Selection of site for thermal power stations.
7 th	Revision of Chapter-II	1 st 2 nd 3 rd 4 th	NUCLEAR POWER PLANT: Classification of nuclear fuel (Fissile & fertile material) Nuclear Fusion & Fission Reaction.
8 th	Construction and working of nuclear power plant: Components of nuclear reactor such as fuel, moderator, reflector, reactor vessel. Function of the components.	1 st 2 nd 3 rd 4 th	Components of nuclear reactor: coolant, control rod, Shielding, Principle and working of Pressurized Water Reactor(PWR) Principle and working of Boiler Water Reactor(BWR)
9 th	Comparison between nuclear and thermal plants. Disposal methods of nuclear waste.	1 st 2 nd 3 rd 4 th	Selection of site for nuclear power stations. List of nuclear power stations.
10 ^a	DIESEL ENGINE POWER PLANT: Brief explanation about different systems of diesel power plant.	1 st 2 nd 3 rd 4 th	Fuel storage and fuel supply system, Fuel injection system, Air supply system Exhaust system, Cooling system

	1 st 2 nd 3 rd 4 th	Lubrication system Starting system, Governing system
11 ^b	State the advantages and disadvantages of diesel plant	1 st 2 nd 3 rd 4 th
	Selection of site for diesel electric power stations	1 st 2 nd 3 rd 4 th
	Performance and thermal efficiency of diesel electric power stations.	1 st 2 nd 3 rd 4 th
	HYDEL POWER PLANT: Principle of hydro-electric power generation,	1 st 2 nd 3 rd 4 th
12 ^b	Classification of hydel power plant	1 st 2 nd 3 rd 4 th
	General arrangement of storage type hydroelectric project	1 st 2 nd 3 rd 4 th
	Components of hydroelectric power plant	1 st 2 nd 3 rd 4 th
	Working of hydroelectric power plant	1 st 2 nd 3 rd 4 th
13 ^b	Turbines used in hydroelectric power plant	1 st 2 nd 3 rd 4 th
	State advantages and disadvantages of hydroelectric power plant.	1 st 2 nd 3 rd 4 th
	Selection of site of hydel power plant.	1 st 2 nd 3 rd 4 th
	List of hydro power stations with their capacities and number of units in the state.	1 st 2 nd 3 rd 4 th
	Simple problems.	1 st 2 nd 3 rd 4 th
	GAS TURBINE POWER STATIONS	1 st 2 nd 3 rd 4 th
	Selection of site for gas turbine stations.	1 st 2 nd 3 rd 4 th
	Fuels for gas turbine	1 st 2 nd 3 rd 4 th
	Elements of simple gas turbine power plants	1 st 2 nd 3 rd 4 th
	Merits, demerits and application of gas turbine power plants	1 st 2 nd 3 rd 4 th

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