

Discipline – MECHANICAL ENGG.	Semester – 6th	Name of Teacher – SABYASACHI JAGANNATH MISHRA
Subject – POWER PLANT ENGINEERING	No. of days/week class allotted --- 4	Semester from date 05.04.2021 to date 30.06.2021 No. of weeks - 15
Week	Class Day	Theory/Practical Topics
1st	1 st	Introduction to power plant engineering
	2 nd	1. sources of energy
	3 rd	Concept of central and captive power station
	4 th	Classification of power plants
2nd	1 st	2. Introduction to steam power plant
	2 nd	Lay out of steam power plant and steam power cycle
	3 rd	Rankine cycle with P-V, T-S & H-s diagram
	4 th	Determine thermal efficiency, Work done
3rd	1 st	work ratio and specific steam Consumption.
	2 nd	Simple problems
	3 rd	Simple problems
	4 th	Explain reheat cycle and regenerative cycle
4th	1 st	Combination of reheat and regenerative cycle.
	2 nd	Boiler Accessories: Air pre heater, Economizer
	3 rd	Electrostatic Precipitator and superheater.
	4 th	Need of boiler mountings
5th	1 st	Draught systems (Natural draught, Forced draught & balanced draught) With their advantages & disadvantages.
	2 nd	Steam prime movers: Advantages & disadvantages of steam turbine
	3 rd	Elements of steam turbine, Compounding and governing of steam turbine.
	4 th	Performance of steam turbine: Explain Thermal efficiency, Stage efficiency and Gross efficiency.
6 th	1 st	Simple problems.
	2 nd	Simple problems.
	3 rd	Simple problems.
	4 th	Steam condenser: Function of condenser, Classification of condenser (explain jet and surface condensers)

7 th	1 st	function of condenser auxiliaries such as hot well,
	2 nd	condenser extraction pump, air extraction pump
	3 rd	cooling water and circulating pump.
	4 th	Cooling Tower: Function and types of cooling tower
8 th	1 st	Describe the various types of cooling tower (Natural draft cooling tower and Mechanical draft cooling tower)
	2 nd	3. Introduction to Nuclear Power plant
	3 rd	Classify nuclear fuel (Fissile & fertile material)
	4 th	Explain fusion and fission reaction.
9 th	1 st	Explain nuclear reactor: Components of nuclear reactor such as fuel, moderator
	2 nd	reflector, coolant, control rod
	3 rd	Shielding, reactor vessel & their function.
	4 th	Explain the working principle of PWR
10 th	1 th	Explain the working principle of BWR power plant.
	2 nd	Compare the nuclear and thermal plants.
	3 rd	Explain the disposal of nuclear waste.
	4 th	4. Introduction to Diesel engine power plant
11 th	1 st	State the advantages and disadvantages of diesel plant.
	2 nd	Explain briefly different systems of diesel power plant:
	3 rd	Fuel storage and fuel supply system,
	4 th	Fuel injection system, Air supply system
12 th	1 st	Exhaust system, Cooling system
	2 nd	Lubrication system, Starting system
	3 rd	Governing system
	4 th	5. Introduction toHydel Power Plant:
13 th	1 st	State advantages and disadvantages of hydroelectric power plant
	2 nd	Classification
	3 rd	Explain the general arrangement of storage type hydroelectric project
	4 th	Explain its operation.
14 th	1 st	Operation of hydroelectric power plant
	2 nd	Revision and previous year questions
	3 rd	Revision and previous year questions
	4 th	Revision and previous year questions

15 th	1 st	Revision and previous year questions
	2 nd	Revision and previous year questions
	3 rd	Revision and previous year questions
	4 th	Revision and previous year questions

Learning Resources:

- 1.** Power plant engineering, Laxmi Publication -- R.K Rajput
- 2.** Power plant engineering, TMH -- P.K.Nag
- 3.** Power plant engineering, Khanna Publisher -- Nagpal G.R

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