Discipline – **MECHANICAL ENGG.**	Semester – **6th**	Name of Teacher – **BHAGABAN PARIDA & MANASWINI KAR**
Subject – POWER PLANT ENGINEERING	No. of days/week class allotted --- **4**	Semester from date 14.02.23 to date 23.05.23 No. of weeks - **15**
Week	**Class Day**	**Theory/Practical Topics**
1st	1st	Introduction to power plant engineering
	2nd	1. sources of energy
	3rd	Concept of central and captive power station
	4th	Classification of power plants
2nd	1st	2. Introduction to steam power plant
	2nd	Lay out of steam power plant and steam power cycle
	3rd	Rankine cycle with P-V, T-S & H-s diagram
	4th	Determine thermal efficiency, Work done
3rd	1st	work ratio and specific steam Consumption.
	2nd	Simple problems
	3rd	Simple problems
	4th	Explain reheat cycle and regenerative cycle
4th	1st	Combination of reheat and regenerative cycle.
	2nd	Boiler Accessories: Air pre heater, Economizer
	3rd	Electrostatic Precipitator and superheater.
	4th	Need of boiler mountings
5th	1st	Draught systems (Natural draught, Forced draught & balanced draught) With their advantages &disadvantages.
	2nd	Steam prime movers:Advantages & disadvantages of steam turbine
	3rd	Elements of steam turbine, Compounding and governing of steam turbine.
	4th	Performance of steam turbine: Explain Thermal efficiency, Stage efficiency and Gross efficiency.
6th	1st	Simple problems.
	2nd	Simple problems.
	3rd	Simple problems.
	4th	Steam condenser: Function of condenser, Classification of condenser (explain jet and surface condensers)

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

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

14/02/23

Teaching Faculty

HOD(Mech)