

GOVT. POLYTECHNIC BOLANGIR		LESSON PLAN
Discipline : Mechanical	Semester: 6th	Name of the Teaching Faculty : <i>S.S. Tripathy</i>
Subject : POWER STATION ENGINEERING	No. of Days / per week class allotted : 4	Semester From date : 05.02.2025 To Date : 17.05.2025 No. of Weeks: 15
Week	Class Day	Topics
05 Feb to 08 Feb	1st	Describe sources of energy.
	2nd	Explain concept of Central and Captive power station.
	3rd	Classify power plants.
	4th	Importance of electrical power in day today life.
10 Feb to 15 Feb	1st	Layout of steam power stations
	2nd	Steam power cycle. Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency.
	3rd	Explain Rankine cycle with P-V, T-S & H-s diagram and determine thermal efficiency, Work done, work ratio, and specific steam Consumption.
	4th	Solve Simple Problems
17 Feb to 22 Feb	1st	List of thermal power stations in the state with their capacities.
	2nd	Boiler Accessories: Operation of Air pre heater, Operation of Economiser, Operation Electrostatic precipitator and Operation of super heater. Need of boiler mountings and operation of boiler
	3rd	Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages.
	4th	Steam prime movers: Advantages & disadvantages of steam turbine, Elements of steam turbine, governing of steam turbine. Performance of steam turbine: Explain Thermal efficiency, Stage efficiency and Gross efficiency.
24 Feb to 01 Mar	1st	Steam condenser: Function of condenser, Classification of condenser. function of condenser auxiliaries such as hot well, condenser extraction pump, air extraction pump, and circulating pump.
	2nd	Cooling Tower: Function and types of cooling tower, and spray ponds
	3rd	Selection of site for thermal power stations.
	4th	Classify nuclear fuel (Fissile & fertile material)
03 Mar to 08 Mar	1st	Potential application areas of a shaper machine
	2nd	Explain fusion and fission reaction.
	3rd	Explain working of nuclear power plants with block diagram .
	4th	Explain the working and construction of nuclear reactor .
10 Mar to 15 Mar	1st	Explain the disposal of nuclear waste.
	2nd	Selection of site for nuclear power stations.
	3rd	List of nuclear power stations.
	4th	Major components and their functions
17 Mar to 22 Mar	1st	State the advantages and disadvantages of diesel electric power stations.
	2nd	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.
	3rd	Selection of site for diesel electric power stations.
	4th	Performance and thermal efficiency of diesel electric power stations.
24 Mar to 29 Mar	1st	State advantages and disadvantages of hydroelectric power plant.
	2nd	Classify and explain the general arrangement of storage type hydroelectric project and explain its operation.
	3rd	Selection of site of hydel power plant.
	4th	List of hydro power stations with their capacities and number of units in the state.

31 Mar to 05 Apr	1st	Types of turbines and generation used.
	2nd	Simple problems.
	3rd	GAS TURBINE POWER STATIONS
	4th	Selection of site for gas turbine stations.
07 Apr to 12 Apr	1st	Fuels for gas turbine
	2nd	Elements of simple gas turbine power plants
	3rd	Merits, demerits and application of gas turbine power plants.
	4th	
14 Apr to 19 Apr	1st	REVISION
	2nd	DOUBT CLEARING
	3rd	REVISION
	4th	DOUBT CLEARING
21 Apr to 26 Apr	1st	REVISION
	2nd	REVISION
	3rd	DOUBT CLEARING
	4th	DOUBT CLEARING
28 Apr to 03 May	1st	REVISION
	2nd	REVISION
	3rd	DOUBT CLEARING
	4th	DOUBT CLEARING
05 May to 10 May	1st	REVISION
	2nd	REVISION
	3rd	DOUBT CLEARING
	4th	DOUBT CLEARING
12 May to 17 May	1st	REVISION
	2nd	REVISION
	3rd	DOUBT CLEARING
	4th	DOUBT CLEARING

G. Srinivasan
3/02/25