

LESSON PLAN (Summer-2026)

VENUS GROUP OF EDUCATIONAL & RESEARCH INSTITUTES, BAHANAGA, BALASORE-756042

Discipline: Mechanical Engg.	Semester: 6th	Name of the Teaching Faculty: MANORANJAN PATRA
Subject: Power Station Engg.(PSE)	No. of days per week class allotted: 5	Semester From date: 22.12.2025 To date: 18.04.2026 No. of Weeks: 15
Week No.	Class Day	Theory/Practical Topics
1st	1st	Discussion of Subjects, Syllabus, Time tables, Reference Books etc...
	2nd	CHAPTER: 1 1.0 INTRODUCTION. Introduction to Power Station Engg. and details about energy
	3rd	1.1 Describe Sources of energy
2nd	1st	1.2 Explain Concept of Central & Captive Power Station 1.3 Classify Power Plants
	2nd	1.4 Importance of electrical power in day today life
	3rd	1.5 Overview of method of electrical power generation
	4th	2.0 THERMAL POWER STATIONS: 2.1 Layout of steam power stations.
	5th	2.2 Steam power cycle. Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency.
3rd	1st	Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency.
	2nd	Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency.
	3rd	2.3 Explain Rankine cycle with P-V, T-S & H-s diagram and determine thermal efficiency, Work done, work ratio, and specific steam Consumption.
	4th	2.3 Explain Rankine cycle with P-V, T-S & H-s diagram and determine thermal efficiency, Work done, work ratio, and specific steam Consumption.
	5th	2.4 Solve Simple Problems.
4th	1st	2.5. List of thermal power stations in the state with their capacities. 2.6 Boiler Accessories:
	2nd	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	2.7 Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages.
	4th	2.7 Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages.
	1st	2.8 Steam prime movers: Advantages & disadvantages of steam turbine, Elements of steam turbine,

5th	2nd	governing of steam turbine.
	3rd	Performance of steam turbine: Explain Thermal efficiency, Stage efficiency and Gross efficiency.
	4th	Performance of steam turbine: Explain Thermal efficiency, Stage efficiency and Gross efficiency.
	5th	2.9 Steam condenser: Function of condenser, Classification of condenser.
6th	1st	function of condenser auxiliaries such as hot well, condenser extraction pump,
	2nd	air extraction pump, and circulating pump.
	3rd	2.10 Cooling Tower: Function and types of cooling tower,
	4th	and spray ponds
	5th	2.11 Selection of site for thermal power stations.
7th	1st	3.0 NUCLEAR POWER STATIONS: 3.1 Classify nuclear fuel (Fissile & fertile material)
	2nd	3.1 Classify nuclear fuel (Fissile & fertile material)
	3rd	3.2 Explain fusion and fission reaction
8th	1st	3.3 Explain working of nuclear power plants with block diagram
	2nd	3.4 Explain the working and construction of nuclear reactor
	3rd	3.5 Compare the nuclear and thermal plants.
	4th	3.6 Explain the disposal of nuclear waste.
9th	1st	3.6 Explain the disposal of nuclear waste.
	2nd	3.7 Selection of site for nuclear power stations.
	3rd	3.8 List of nuclear power stations.
	4th	4.0 DIESEL ELECTRIC POWER STATIONS: 4.1 State the advantages and disadvantages of diesel electric power stations.
10th	1st	4.2 Explain briefly different systems of diesel electric power stations: Fuel storage and fuel supply system,
	2nd	Fuel injection system, Air supply system, Exhaust system,
	3rd	cooling system, Lubrication system,
	4th	starting system, governing system.
	5th	4.3 Selection of site for diesel electric power stations.
11th	1st	4.4 Performance and thermal efficiency of diesel electric power stations.
	2nd	4.4 Performance and thermal efficiency of diesel electric power stations.
	3rd	4.4 Performance and thermal efficiency of diesel electric power stations.
	4th	5.0 HYDEL POWER STATIONS: 5.1 State advantages and disadvantages of hydroelectric power plant.
	5th	5.2 Classify and explain the general arrangement of storage type hydroelectric project and explain its operation.

12th	1st	5.2 Classify and explain the general arrangement of storage type hydroelectric project and explain its operation.
	2nd	5.3 Selection of site of hydel power plant.
	3rd	5.4 List of hydro power stations with their capacities and number of units in the state.
	4th	5.4 List of hydro power stations with their capacities and number of units in the state.
13th	1st	5.5 Types of turbines and generation used.
	2nd	5.6 Simple problems.
	3rd	5.6 Simple problems.
	4th	5.6 Simple problems.
	5th	6.0 GAS TURBINE POWER STATIONS
14th	1st	6.1 Selection of site for gas turbine stations
	2nd	6.2 Fuels for gas turbine
	3rd	6.2 Fuels for gas turbine
	4th	6.3 Elements of simple gas turbine power plants
	5th	6.3 Elements of simple gas turbine power plants
15th	1st	6.4 Merits, demerits and application of gas turbine power plants.
	2nd	6.4 Merits, demerits and application of gas turbine power plants.