

**GOVERNMENT POLYTECHNIC JAJPUR**

A/ P: Ragadi, Block: Korei, Dist.: Jajpur, Odisha- 755019

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**LESSON PLAN**

Discipline:	Semester:	Name of the Teaching Faculty:
Mechanical	6th	Gitanjali Sethi
Subject: Power Station Engineering	No. Of Days/Week Class Allotted	Semester From Date: 10.02.22 To Date: 30.06.22 No. of Weeks - 15
Week	Class Day	Theory/Practical Topics
1st	1st	<b>(Chapter – 1) Introduction</b> Overview of different sources of energy.
	2nd	Applications of different sources of energy.
	3rd	Introduction to Power Plants. Classification of power plants.
	4th	Concept of Central and Captive power station, Importance of electrical power in day today life.
2nd	1st	Various methods of electrical power generation
	2nd	<b>(Chapter – 2) Thermal power stations</b> Layout of steam power station
	3rd	Explanations of Carnot vapor power cycle with P-V, T-s diagram and determination of thermal efficiency.
	4th	Numericals on Carnot vapor power cycle
3rd	1st	Explanations of Rankine cycle with P-V, T-s and H-s diagram and study of performance of steam power plant
	2nd	Determination of the thermal efficiency, work done, work ratio and specific steam Consumption for Rankine cycle
	3rd	Numericals on Rankine cycle, List of thermal power station in state with their capacities.
	4th	Boiler mountings –Need , Types and their functions
4th	1st	Boiler Accessories: Operation of Air preheater, Economizer, Super heater, Electrostatic precipitator
	2nd	Boiler Draught systems with advantages and Disadvantages
	3rd	Classification of Boiler Draught
	4th	Steam prime movers: advantages and Disadvantages of steam turbine. Elements of steam turbine ,Classifications
5th	1st	Working of steam turbines. Performance of steam turbine– Explanation of Thermal efficiency, Stage efficiency and Gross efficiency.
	2nd	Governing of steam turbine.
	3rd	Steam condenser: Function of condenser, Classification of condenser.
	4th	Working of Various Condensers

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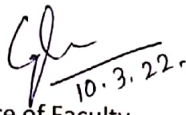
6 <sup>th</sup>	1st	Function of condenser auxiliaries such as hot well, condenser extraction pump, air extraction pump, and circulating pump.
	2nd	Cooling Tower: Function and types of cooling tower, and spray ponds
	3rd	Selection of site for thermal power stations. List of thermal power stations in the state with their capacities
	4th	Review class
7 <sup>th</sup>	1st	<i>Assignment Evaluation &amp; Class Test</i>
	2nd	<b>(Chapter – 3) Nuclear power stations</b> Introduction to Nuclear Power plant. List of nuclear power stations. Classification of nuclear fuels (Fissile & fertile material).
	3rd	Nuclear energy.
	4th	Fusion and Fission reactions.
8 <sup>th</sup>	1st	Elements of nuclear power plants & Block diagram and their functions
	2nd	Working of nuclear power plants with block diagram
	3rd	Working and construction of nuclear reactor
	4th	Compare the nuclear and thermal plants.
9 <sup>th</sup>	1st	Explain the disposal of nuclear waste.
	2nd	Selection of site for nuclear power stations
	3rd	Review class
	4th	<b>(Chapter – 4) Diesel electric power stations</b> Introduction to diesel electric power stations. Advantages and disadvantages of diesel electric power stations.
10 <sup>th</sup>	1st	Components of diesel electric power stations.
	2nd	Fuel storage and fuel supply system
	3rd	Fuel injection system and Air supply system
	4th	Exhaust system and Starting system
11 <sup>th</sup>	1st	Cooling and lubrication system
	2nd	Governing system. Selection of site for diesel electric power stations
	3rd	Performance and thermal efficiency of diesel electric power stations
	4th	Review class
12 <sup>th</sup>	1st	<i>Assignment Evaluation &amp; Class Test</i>
	2nd	<b>(Chapter – 5) Hydel power stations</b> Introduction to hydroelectric power plant and its advantages and disadvantages.
	3rd	General arrangement of storage type hydroelectric project and its operation.
	4th	Selection of site of hydel power plant, List of hydro power stations with their capacities and number of units in the state

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13 <sup>th</sup>	1st	Types of hydro-turbines and generator used
	2nd	Sample Problems
	3rd	Review class
	4th	<b>(Chapter – 6) Gas turbine power stations</b> Introduction to gas turbine power station. Merits, demerits and application of gas turbine power plants
14 <sup>th</sup>	1st	Fuels for gas turbine. Selection of site for gas turbine stations
	2nd	Elements of simple gas turbine power plants
	3rd	Working of gas turbine power station
	4th	Comparison between different types of power station
15 <sup>th</sup>	1st	<i>Assignment Evaluation &amp; Class Test</i>
	2nd	<i>Discussion of previous year Question papers</i>
	3rd	<i>Discussion of previous year Question papers</i>
	4th	<i>Discussion of Possible Questions</i>

  
10.3.22.  
Signature of Faculty  
G. S. Sethi.  
Sr. Lect. Mech.