NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE& affiliated to SCTE&VT, Odisha)

LESSON PLAN

SUBJECT: TH-3 (POWER STATION ENGINEERING)

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per the Syllabus	No. of periods actually needed
1	Introduction	5	5
2	Thermal Power Station	20	20
3	Nuclear power station	10	10
4	Diesel electric Power Station	10	10
5	Hydel Power Station	10	10
6	Gas Turbine Power Station	5	5
	Total Period:	60	60

Discipline: MECHANICAL ENGINEERING	**Semester:** 6Th	**Name of the Teaching Faculty:** Er. Santosh Kumar
Week	**Class Day**	**Theory / Practical Topics**
1st	**1st**	1.1 Describe sources of energy
	2nd	1.2 Explain concept of Central and Captive power station.
	3rd	1.3 Classify power plants.
	4th	1.4 Importance of electrical power in day today life.
	5th	1.5 Overview of method of electrical power generation.
2nd	**1st**	2.1 Layout of steam power stations.
	2nd	2.1 Layout of steam power stations.
	3rd	2.2 Steam power cycle. Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency.
	4th	2.2 Steam power cycle. Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency.
	5th	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.
3rd	**1st**	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.
	2nd	2.4 Solve Simple Problems.
	3rd	2.5. List of thermal power stations in the state with their capacities.
	4th	2.6 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
	5th	2.6 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

4th	**1st**	2.7 Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages.
	2nd	2.7 Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages.
	3rd	2.8 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.
	4th	2.8 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.
	5th	2.9 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.
5th	**1st**	2.9 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	2.10 Cooling Tower: Function and types of cooling tower, and spray ponds
	3rd	2.10 Cooling Tower: Function and types of cooling tower, and spray ponds
6th	**1st**	3.1 Classify nuclear fuel (Fissile & fertile material)
	2nd	3.2 Explain fusion and fission reaction.
	3rd	3.3 Explain working of nuclear power plants with block diagram
	4th	3.3 Explain working of nuclear power plants with block diagram
7th	**1st**	3.4 Explain the working and construction of nuclear reactor
	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.
	5th	3.7 Selection of site for nuclear power stations.

8th	**1st**	3.8 List of nuclear power stations
	2nd	4.1 State the advantages and disadvantages of diesel electric power stations.
	3rd	4.1 State the advantages and disadvantages of diesel electric power stations.
	4th	4.2 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
9th	**1st**	4.2 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
	2nd	4.3 Selection of site for diesel electric power stations.
	3rd	4.3 Selection of site for diesel electric power stations.
	4th	4.4 Performance and thermal efficiency of diesel electric power stations.
10th	**1st**	4.4 Performance and thermal efficiency of diesel electric power stations.
	2nd	**CLASS TEST**
	3rd	***REVISION***
	4th	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.
11th	**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	5.3 Selection of site of hydel power plant.
	4th	5.4 List of hydro power stations with their capacities and number of units in the state.
	5th	5.4 List of hydro power stations with their capacities and number of units in the state.

12th	**1st**	5.5 Types of turbines and generation used.
	2nd	5.6 Simple problems.
	3rd	Revision.
	4th	**INTERNAL-II**
13th	**1st**	**INTERNAL-II**
	2nd	6.0 GAS TURBINE POWER STATIONS
	3rd	6.1 Selection of site for gas turbine stations.
	4th	6.2 Fuels for gas turbine
14th	**1st**	6.2 Fuels for gas turbine
	2nd	6.2 Types of fuel.
	3rd	6.3 Elements of simple gas turbine power plants
	4th	6.3 Elements of simple gas turbine power plants
	5th	6.4 Merits, demerits and application of 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.
	3rd	Revision
	4th	**CLASS TEST**