NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY

SERGARH-756060, BALASORE (ODISHA)

(Approved by AICTE& affiliated to SCTE&VT, Odisha)

LESSON PLAN

SUBJECT: TH -2 (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	05	05
2	Thermal power stations	20	20
3	Ignition and Suspension system	10	10
4	Diesel Electric Power Stations	10	10
5	Hydel Power Stations	10	10
6	Gas Turbine power stations	05	05
	TOTAL	60	60

Discipline: MECHANICAL ENGG.	Semester: 6TH	Name of the Teaching Faculty: Er.AMLAN NAYAK
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.
2nd	1st	1.5 Overview of method of electrical power generation
	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.
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	2.3 Explain Rankine cycle with P-V, T-S & H-s diagram and determine thermal efficiency, Work done, work ratio, and specific steam Consumption.
	3rd	2.4 Solve Simple Problems.
	4th	2.4 Solve Simple Problems.
4th	1st	2.5. List of thermal power stations in the state with their capacities.
	2nd	2.5. List of thermal power stations in the state with their capacities.
	3rd	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	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	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.
6th	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	2.9 Steam condenser: Function of condenser, Classification of condenser. function of condenser auxiliaries such as hot well, condenser extraction pump.
	3rd	2.10 Cooling Tower: Function and types of cooling tower, and spray ponds.
	4th	2.10 Cooling Tower: Function and types of cooling tower, and spray ponds
7th	1st	2.11 Selection of site for thermal power stations.
	2nd	3.1 Classify nuclear fuel (Fissile & fertile material)
	3rd	3.2 Explain fusion and fission reaction.
	4th	3.3 Explain working of nuclear power plants with block diagram.

8th	1st	3.4 Explain the working and construction of nuclear reactor .
	2nd	3.5 Compare the nuclear and thermal plants.
	3rd	3.6 Explain the disposal of nuclear waste.
	4th	3.6 Explain the disposal of nuclear waste.
9th	1st	3.7 Selection of site for nuclear power stations.
	2nd	3.7 Selection of site for nuclear power stations.
	3rd	3.8 List of nuclear power stations.
	4th	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	4.2 Fuel injection system, Air supply system, Exhaust system, cooling system,
	3rd	4.2 cooling system, Lubrication system, starting system, governing system.
	4th	4.3 Selection of site for diesel electric power stations.
11th	1st	4.3 Selection of site for 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	5.1 State advantages and disadvantages of hydroelectric power plant.
12th	1st	5.1 State advantages and disadvantages of hydroelectric power plant.
	2nd	5.2 Classify and explain the general arrangement of storage type hydroelectric project and explain its operation.
	3rd	5.2 Classify and explain the general arrangement of storage type hydroelectric project and explain its operation.
	4th	5.3 Selection of site of hydel power plant.
13th	1st	5.3 Selection of site of hydel power plant.
	2nd	5.4 List of hydro power stations with their capacities and number of units in the state.
	3rd	5.4 List of hydro power stations with their capacities and number of units in the state.
	4th	5.5 Types of turbines and generation used.
14th	1st	5.5 Types of turbines and generation used.
	2nd	5.5 Types of turbines and generation used.
	3rd	5.6 Simple problems.
	4th	5.6 Simple problems.
15th		6.0 GAS TURBINE POWER STATIONS 6.1 Selection of site for gas turbine stations
	2nd	6.2 Fuels for gas turbine .
	3rd	6.3 Elements of simple gas turbine power plants.
	4th	6.4 Merits, demerits and application of gas turbine power plants.