ARYAN SCHOOL OF ENGINEERING & TECHNOLOGY

Dicipline: Mechanical	Semester: 6th	Name of the Teaching Faculty: Tapan Kumar Jena	
Subject: Power station engineering	No of Days/Week Class Allotted: 4	Semester From date: 10.03.22 To date 18.06.22	No.of Weeks: 15

WEEK	Class Day	Theory Topics
1st	1st	1. Introduction Introduction of power station engineering objectives
	2nd	Describe sources of energy
	3rd	explain concept of central and captive power station.
	4th	1) classification of power plants. 11) Importance of electrical power in day to day life.
	5th	
2nd	1st	overview of methods of electrical power generation.
	2nd	2. Thermal power station: Introduction and layout of steam power station.
	3rd	steam power cycle: carnot vapour cycle with P-V and T-S diagram find out thermal efficiency
	4th	Continuing carnot vapour power cycle.
	5th	
3rd	1st	Explain Rankine cycle with P-V and T-S diagram and determine thermal efficiency.
	2nd	continuing Rankine cycle determine work done work ratio and specific fuel consumption.
	3rd	problem solve on carnot cycle and Rankine cycle.
	4th	problem solve on carnot & Rankine cycle.
	5th	

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WEEK	Class Day	Theory Topics
4th	1st	List of thermal power station in the state with their capacities.
	2nd	Boiler accessories :- i) Operating of air preheater ii) Operating of economizer.
	3rd	iii) Operation electrostatic precipitator, iv) Operation of super heater.
	4th	i) Need of boiler mountings. ii) Operation of boiler.
	5th	
5th	1st	Draught system :- i) Natural ii) Forced iii) Balanced. ii) Advantages and disadvantages of draught system.
	2nd	Steam prime mover :- i) Advantages and disadvantages of steam turbine. ii) Elements of steam turbine.
	3rd	i) Performance of steam turbine, ii) thermal efficiency, stage efficiency and gross efficiency - cy
	4th	Steam condenser :- i) Function of condenser. ii) Classification of condenser, auxiliaries such as hot well.
	5th	
6th	1st	Condensate extraction, Air extraction Pump. Circulating Pump.
	2nd	Cooling tower - Function of cooling tower.
	3rd	Types of cooling tower, and spray ponds.
	4th	Selection of site for thermal power station.
	5th	

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WEEK	Class Day	Theory Topics
7th	1st	Class test-1, Assignment problem and doubt clear class.
	2nd	5- Nuclear power station :- Introduction of nuclear power station.
	3rd	Classification of nuclear fuel, fissile and fertile material.
	4th	Explain fusion and fission reaction.
	5th	
8th	1st	Explain working of nuclear power plant with block diagram.
	2nd	Explain the working and construction of nuclear reactor.
	3rd	Comparison bet^n nuclear and thermal plants
	4th	Continuing the comparison bet^n nuclear and thermal plants.
	5th	
9th	1st	Explain the disposal of nuclear waste.
	2nd	Selection of site for nuclear power station.
	3rd	List of nuclear power station.
	4th	4. Diesel Electric power station :- Introduction of diesel power station.
	5th	

WEEK	Class Day	Theory Topics
10th	1st	Diesel electric power station functioning with diagram,
	2nd	State advantages and disadvantages of diesel electric power station,
	3rd	Different system of diesel electric power station i) Fuel storage and fuel supply system,
	4th	ii) Fuel injection system, iii) Air supply system,
	5th	
11th	1st	Different system of diesel power station :- iv) Exhaust system v) cooling system,
	2nd	vi) Lubrication system, vii) Starting system,
	3rd	viii) Governing system,
	4th	selection site for diesel electric power stations,
	5th	
12th	1st	Performance and thermal efficiency of diesel electric power stations,
	2nd	Hydel power stations :- Introduction of hydel power station,
	3rd	Fun^{n} of hydel power station with diagram
	4th	State advantages and disadvantages of hydel power plant,
	5th	

Topics

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WEEK	Class Day	Theory Topics
13th	1st	classification the general arrangement of storage type hydro electric project.
	2nd	classification the general arrangement and operation of storage type hydro electric project.
	3rd	selection of site of hydel power plant.
	4th	List of hydro power stations.
	5th	
14th	1st	Hydro Power Station characteristics and no of units in the state.
	2nd	Types of turbines and generation used.
	3rd	Numericall solveon hydro power stations.
	4th	gas turbine power stations :- Introduction of gas turbine power stations.
	5th	
15th	1st	selection of site for gas turbine station.
	2nd	i) Fuel for gas turbine, ii) elements of simple gas turbine power plants.
	3rd	merit, demerit and application of gas turbine power plants.
	4th	Assignment question previous year question answer discussion.
	5th	