GOVERNMENT POLYTECHNIC, BALASORE

Government of Odisha

ସରକାରୀ କନ୍ୟୁନ୍ତି ଅନୁଷ୍ଠାନ, ବାଲେଶ୍ୱର

Academic Lesson Plan for Summer semester- 2023

Name of the teaching faculty: JANMEJAY ROUT
Total Periods: 60
No. of periods per week: 4
End semester exam: 80
Class test: 20
Total Marks : 100

Department: Mechanical Engg.
Semester: 6TH Sem
Subject: POWER STATION

WEEK	PERIOD	COURSE TO BE COVERED
1.	1st	Describe sources of energy.
	2nd	Explain concept of Central and Captive power station.
	3rd	Classify power plants
	4th	Importance of electrical power in day today life
2.	1st	Overview of method of electrical power generation.
	2nd	Layout of steam power stations.
	3rd	Steam power cycle.
	4th	Explain Carnot vapour power cycle
3.	1st	Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency.
	2nd	Solve simple problems.
	3rd	Explain Rankine cycle with P-V ,T-S,H-S diagram. Determine thermal efficiency
	4th	Solve simple problems.
4.	1st	Work done, work ratio, and specific steam Consumption
	2nd	Solve simple problems.
	3rd	List of thermal power stations in the state with their capacities
	4th	Boiler Accessories, Operation of Air pre heater, Operation of Economiser
5.	1st	Operation Electrostatic precipitator and Operation of super heater
	2nd	Need of boiler mountings and operation of boiler
	3rd	Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages.

	4th	Steam prime movers: Advantages & disadvantages of steam turbine, Elements of steam turbine, governing of steam turbine.
6.	1st	Performance of steam turbine: Explain Thermal efficiency, Stage efficiency and Gross efficiency.
	2nd	Steam condenser: Function of condenser, Classification of condenser.
	3rd	Function of condenser auxiliaries such as hot well, condenser extraction pump, air extraction pump, and circulating pump.
	4th	Cooling Tower: Function and types of cooling tower, and spray ponds
7.	1st	Selection of site for thermal power stations
	2nd	Classify nuclear fuel (Fissile & fertile material)
	3rd	Explain fusion and fission reaction
	4th	Explain working of nuclear power plants with block diagram .
8.	1st	Explain the working and construction of nuclear reactor
	2nd	Compare the nuclear and thermal plants
	3rd	Explain the disposal of nuclear waste
	4th	Selection of site for nuclear power stations.
9.	1st	List of nuclear power stations.
	2nd	Unit discussion
	3rd	Class test
	4th	State the advantages and disadvantages of diesel electric power stations.
10.	1st	Explain briefly different systems of diesel electric
	2nd	Power stations: Fuel storage and fuel supply system
	3rd	Fuel injection system
	4th	Air supply system, Exhaust system
11.	1st	Cooling system, Lubrication system
	2nd	Starting system, governing system.
	3rd	Selection of site for diesel electric power stations.
	4th	Performance and thermal efficiency of diesel electric power stations.
12.	1st	Problem solve
	2nd	State advantages and disadvantages of hydroelectric power plant.
	3rd	Classify and explain the general arrangement of storage type hydroelectric project and explain its operation.
	4th	Selection of site of hydel power plant

13.	1st	List of hydro power stations with their capacities and number of units in the state
	2nd	Types of turbines and generation used.
	3rd	Simple problems.
	4th	Gas turbine power stations
14.	1st	Selection of site for gas turbine stations
	2nd	Fuels for gas turbine
	3rd	Elements of simple gas turbine power plants
	4th	Merits, demerits and application of gas turbine power plants
15.	1st	Class test
	2nd	Revision
	3rd	Previous year question discussion
	4th	Previous year question discussion

Janmejay Rout

JANMEJAY ROUT
(PTGF MECHANICAL)

14/2/23