GANDHI SCHOOL OF ENGINEERING
BHABANDHA, BERHAMPUR
SESSION PLAN
6TH SEMESTER, BRANCH-MECHANICAL(GROUP 1)

TH.3 POWER STATION ENGINEERING

Name of the Faculty – ER. SANJAY KUMAR PANIGRAHY

Topics to be taken						
SL NO & CHAPTER	**No. of Periods assigned by SCTE & VT**	**Details of the topics**	**PLANNED DATE**	**Details of the topics**	**ACTUAL DATE**	**Remarks**
1. INTRODUCTION	**5**	1.1 Describe sources of energy. 1.2 Explain concept of Central and Captive power station. 1.3 Classify power plants. 1.4 Importance of electrical power in day today life. 1.5 Overview of method of electrical power generation.	**18.01.2024 TO 25.01.2024**	1.1 Describe sources of energy. 1.2 Explain concept of Central and Captive power station. 1.3 Classify power plants. 1.4 Importance of electrical power in day today life. 1.5 Overview of method of electrical power generation.	**18.01.2024** **19.01.2024** **22.01.2024** **24.01.2024** **25.01.2024**	

2. THERMAL POWER STATIONS	**20**	2.1 Layout of steam power stations. 2.2 Steam power cycle. Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency. 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. 2.4 Solve Simple Problems. 2.5. List of thermal power stations in the state with their capacities. 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 2.7 Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages. 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. 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. 2.10 Cooling Tower: Function and types of cooling tower, and spray ponds 2.11 Selection of site for thermal power stations.	**29.01.2024 TO 26.02.2024**	2.1 Layout of steam power stations. 2.2 Steam power cycle. Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency. 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. 2.4 Solve Simple Problems. 2.5. List of thermal power stations in the state with their capacities. 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 2.7 Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages. 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. 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. 2.10 Cooling Tower: Function and types of cooling tower, and spray ponds 2.11 Selection of site for thermal power stations.	**29.01.2024** **31.01.2024** **1.02.2024** **2.02.2024** **5.02.2024** **7.02.2024** **8.02.2024** **9.02.2024** **12.02.2024** **15.02.2024** **16.02.2024** **19.02.2024** **21.02.2024** **22.02.2024** **23.02.2024** **26.02.2024**	

3. NUCLEAR POWER STATIONS:	**10**	3.1 Classify nuclear fuel (Fissile & fertile material) 3.2 Explain fusion and fission reaction. 3.3 Explain working of nuclear power plants with block diagram . 3.4 Explain the working and construction of nuclear reactor . 3.5 Compare the nuclear and thermal plants. 3.6 Explain the disposal of nuclear waste. 3.7 Selection of site for nuclear power stations. 3.8 List of nuclear power stations.	**28.02.2024 TO 13.03.2024**	3.1 Classify nuclear fuel (Fissile & fertile material) 3.2 Explain fusion and fission reaction. 3.3 Explain working of nuclear power plants with block diagram . 3.4 Explain the working and construction of nuclear reactor . 3.5 Compare the nuclear and thermal plants. 3.6 Explain the disposal of nuclear waste. 3.7 Selection of site for nuclear power stations. 3.8 List of nuclear power stations.	**28.02.2024** **29.02.2024** **1.03.2024** **4.03.2024** **6.03.2024** **7.03.2024** **11.03.2024** **13.03.2024**	

4. DIESEL ELECTRIC POWER STATIONS:	**10**	4.1 State the advantages and disadvantages of diesel electric power stations. 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. 4.3 Selection of site for diesel electric power stations. 4.4 Performance and thermal efficiency of diesel electric power stations.	**14.03.2024 TO 28.03.2024**	4.1 State the advantages and disadvantages of diesel electric power stations. 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. 4.3 Selection of site for diesel electric power stations. 4.4 Performance and thermal efficiency of diesel electric power stations.	**14.03.2024** **15.03.2024** **18.03.2024** **20.03.2024** **21.03.2024** **22.03.2024** **27.03.2024** **28.03.2024**	

5. HYDEL POWER STATIONS	**10**	5.1 State advantages and disadvantages of hydroelectric power plant. 5.2 Classify and explain the general arrangement of storage type hydroelectric project and explain its operation. 5.3 Selection of site of hydel power plant. 5.4 List of hydro power stations with their capacities and number of units in the state. 5.5 Types of turbines and generation used. 5.6 Simple problems.	**3.04.2024 TO 15.04.2024**	5.1 State advantages and disadvantages of hydroelectric power plant. 5.2 Classify and explain the general arrangement of storage type hydroelectric project and explain its operation. 5.3 Selection of site of hydel power plant. 5.4 List of hydro power stations with their capacities and number of units in the state. 5.5 Types of turbines and generation used. 5.6 Simple problems.	**3.04.2024** **4.04.2024** **5.04.2024** **8.04.2024** **10.04.2024** **11.04.2024** **12.04.2024** **15.04.2024**	

6. GAS TURBINE POWER STATIONS	**5**	6.1 Selection of site for gas turbine stations. 6.2 Fuels for gas turbine 6.3 Elements of simple gas turbine power plants 6.4 Merits, demerits and application of gas turbine power plants.	**18.04.2024 TO 25.04.2024**	6.1 Selection of site for gas turbine stations. 6.2 Fuels for gas turbine 6.3 Elements of simple gas turbine power plants 6.4 Merits, demerits and application of gas turbine power plants.	**18.04.2024** **19.04.2024** **22.04.2024** **24.04.2024** **25.04.2024**	

S.K. panigrahy

CLASS COVERED BY

HOD
Mechanical Engg.
Gandhi School of Engg.
Berhampur (Gm.)

HOD, MECHANICAL

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BHABANDHA, BERHAMPUR
SESSION PLAN
6TH SEMESTER, BRANCH-MECHANICAL(GROUP 2)

TH.3 POWER STATION ENGINEERING

Name of the Faculty – ER. JAGNYA PRASAD BEHERA

Topics to be taken						
SL NO & CHAPTER	**No. of Periods assigned by SCTE & VT**	**Details of the topics**	**PLANNED DATE**	**Details of the topics**	**ACTUAL DATE**	**Remarks**
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2. THERMAL POWER STATIONS	**20**	2.1 Layout of steam power stations. 2.2 Steam power cycle. Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency. 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. 2.4 Solve Simple Problems. 2.5. List of thermal power stations in the state with their capacities. 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 2.7 Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages. 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. 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. 2.10 Cooling Tower: Function and types of cooling tower, and spray ponds 2.11 Selection of site for thermal power stations.	**29.01.2024 TO 24.02.2024**	2.1 Layout of steam power stations. 2.2 Steam power cycle. Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency. 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. 2.4 Solve Simple Problems. 2.5. List of thermal power stations in the state with their capacities. 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 2.7 Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages. 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. 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. 2.10 Cooling Tower: Function and types of cooling tower, and spray ponds 2.11 Selection of site for thermal power stations.	**23.02.2023** **29.01.2024** **31.01.2024** **1.02.2024** **3.02.2024** **5.02.2024** **7.02.2024** **8.02.2024** **10.02.2024** **12.02.2024** **15.02.2024** **17.02.2024** **19.02.2024** **21.02.2024** **22.02.2024** **24.02.2024**	

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4. DIESEL ELECTRIC POWER STATIONS:	**10**	4.1 State the advantages and disadvantages of diesel electric power stations. 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. 4.3 Selection of site for diesel electric power stations. 4.4 Performance and thermal efficiency of diesel electric power stations.	**13.03.2024 TO 27.03.2024**	4.1 State the advantages and disadvantages of diesel electric power stations. 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. 4.3 Selection of site for diesel electric power stations. 4.4 Performance and thermal efficiency of diesel electric power stations.	**13.03.2024** **14.03.2024** **16.03.2024** **18.03.2024** **20.03.2024** **21.03.2024** **23.03.2024** **27.03.2024**	

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6. GAS TURBINE POWER STATIONS	**5**	6.1 Selection of site for gas turbine stations. 6.2 Fuels for gas turbine 6.3 Elements of simple gas turbine power plants 6.4 Merits, demerits and application of gas turbine power plants.	**15.04.2024 TO 24.04.2024**	6.1 Selection of site for gas turbine stations. 6.2 Fuels for gas turbine 6.3 Elements of simple gas turbine power plants 6.4 Merits, demerits and application of gas turbine power plants.	**15.04.2024** **18.04.2024** **20.04.2024** **22.04.2024** **24.04.2024**	

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