**Lesson Plan for Power Station Engg(TH.3) , 6th Semester,Mechanical Engg. (SUMMER-2026)**

| **Discipline:** Mechanical Engg | **Semester:** 6TH | **Name of the Teaching Faculty:** **Sri B.K.Dash, Senior Lecturer,Mechanical** |
|---|---|---|
| **SUBJECT: Power Station Engg(TH.3)** | No. of Days/ week class allotted=4 | **Semester Starts from** 22.12.2025 |

| WEEK | PERIOD | TOPICS TO BE COVERED |
|---|---|---|
| 01 | 01 | Introduction to PSE,Sources of energy |
| | 02 | Classification of power station. Central and Captive power station |
| | 03 | Importance of electrical power in day today life |
| | 04 | Overview of method of electrical power generation |
| 02 | 01 | Introduction to THERMAL POWER STATIONS. Layout of steam power stations |
| | 02 | Steam power cycle. Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency. |
| | 03 | Steam power cycle. Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency. |
| | 04 | Explain Rankine cycle with P-V, T-S & H-s diagram |
| 03 | 01 | Explain Rankine cycle with P-V, T-S & H-s diagram |
| | 02 | To determine thermal efficiency, Work done, work ratio, and specific steam Consumption. |
| | 03 | Simple numerical problems |
| | 04 | Simple numerical problems |
| 04 | 01 | List of thermal power stations in the state with their capacities |
| | 02 | Need of boiler mountings and operation of boiler |
| | 03 | Boiler Accessories: Operation of Air pre heater |
| | 04 | Operation of Economiser and Operation of super heater |
| 05 | 01 | Operation Electrostatic precipitator |
| | 02 | Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages. |
| | 03 | Steam prime movers: Advantages & disadvantages of steam turbine, Elements of steam turbine |
| | 04 | governing of steam turbine. Performance of steam turbine: |
| 06 | 01 | Thermal efficiency, Stage efficiency and Gross efficiency. |
| | 02 | Simple numerical problems |
| | 03 | Simple numerical problems |
| | 04 | Steam condenser: Function of condenser, Classification of condenser. |
| 07 | 01 | Function of condenser auxiliaries such as hot well, condenser extraction pump |
| | 02 | Air extraction pump, and circulating pump |
| | 03 | Cooling Tower: Function and types of cooling tower, and spray ponds |
| | 04 | Selection of site for thermal power stations. Simple numerical problems |
| 08 | 01 | Introduction to Nuclear power station.Classify nuclear fuel (Fissile & fertile material) |
| | 02 | Nuclear fusion and fission reaction. |
| | 03 | working of nuclear power plants with block diagram |
| | 04 | working and construction of nuclear reactor |
| 09 | 01 | Comparision between the nuclear and thermal plants |
| | 02 | Disposal of nuclear waste. |
| | 03 | Selection of site for nuclear power stations. List of nuclear power stations |
| | 04 | Difference between PWR and BWR |
| 10 | 01 | Advantages and disadvantages of diesel electric power stations |
| | 02 | different systems of diesel electric power stations: Fuel storage and fuel supply system, |
| | 03 | Fuel injection system, Air supply system, Exhaust system, |
| | 04 | cooling system, Lubrication system, starting system, governing system |

| | | |
|---|---|---|
| 11 | 01 | Selection of site for diesel electric power stations |
| | 02 | Performance and thermal efficiency of diesel electric power stations |
| | 03 | Advantages and disadvantages of hydroelectric power plant |
| | 04 | Classification and explaination of the general arrangement of storage type hydroelectric project and explain its operation. |
| 12 | 01 | Selection of site of hydel power plant. |
| | 02 | List of hydro power stations with their capacities and number of units in the state |
| | 03 | Types of turbines and generation used |
| | 04 | Selection of site for gas turbine stations |
| 13 | 01 | Fuels for gas turbine.Elements of simple gas turbine power plants |
| | 02 | Merits, demerits and application of gas turbine power plants |
| | 03 | Previous year question discussion |
| | 04 | Previous year question discussion |
| 14 | 01 | Previous year question discussion |
| | 02 | Previous year question discussion |
| | 03 | Revision |
| | 04 | Revision |
| 15 | 01 | Revision |
| | 02 | Revision |
| | 03 | Revision |
| | 04 | Revision |
| 16 | 01 | Revision |
| | 02 | Revision |
| | 03 | Revision |
| | 04 | Revision |

20/12/2025

Concerned faculty

20/12/2025

HOD

Govt. Polytechnic Kandhamal