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| **LESSON PLAN**-**6TH SEMESTER (2021)** |
| Subject- [**TH.3 ] POWER STATION ENGINEERING** |
| Name of the Faculty- **Sasmita Saha** |
| MONTH | CHAPTER /UNIT | COURSE TO BE COVERED | CLASSES REQUIRED | REMARKS (IF ANY) |
|  | **Chapter-1** | **INTRODUCTION:**  | **05** |  |
|  | **1.1** | Describe sources of energy.  | 2 |  |
|  | **1.2** | Explain concept of Central and Captive power station. | 1 |  |
|  | **1.3,1.4** | Classify power plants, Importance of electrical power in day today life | 1 |  |
|  | **1.5** | Overview of method of electrical power generation. | 1 |  |
|  | **Chapter -2** | **THERMAL POWER STATIONS**  | **20** |  |
|  | **2.1** | Layout of steam power stations | 1 |  |
|  |  **2.2** | Steam power cycle. Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency. | 1 |  |
|  | **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 |  |
|  | **2.4** | Solve Simple Problems. | 2 |  |
|  | **2.5** | List of thermal power stations in the state with their capacities | 1 |  |
|  | **2.6** | Boiler Accessories: Operation of Air pre heater, Economiser, Electrostatic precipitator and super heater. Need of boiler mountings and operation of boiler. | 2 |  |
|  | **2.7** | Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages. | 2 |  |
|  | **2.8** | Steam prime movers:Advantages & disadvantages of steam turbine,.  | 1 |  |
|  |  | Elements of steam turbine, governing of steam turbine | 1 |  |
|  |  | Performance of steam turbine: Explain Thermal efficiency, Stage efficiency and Gross efficiency. | 2 |  |
|  | **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.  | 3 |  |
|  | **2.10** **,** **2.11** | Cooling Tower:Cooling Tower: Function and types of cooling tower, and spray ponds , Selection of site for thermal power stations. | 2 |  |
|  | **Chapter-3** | **NUCLEAR POWER STATIONS:**  | **10** |  |
|  | **3.1** | Classify nuclear fuel (Fissile & fertile material) | 1 |  |
|  | **3.2** | Explain fusion and fission reaction | 2 |  |
|  | **3.3** | Explain working of nuclear power plants with block diagram. | 2 |  |
|  | **3.4** | Explain the working and construction of nuclear reactor | 2 |  |
|  | **3.5** | Compare the nuclear and thermal plants. | 1 |  |
|  | **3.6** | Explain the disposal of nuclear waste. | 1 |  |
|  | **3.7,3.8** | Selection of site for nuclear power stations and List of nuclear power stations | 1 |  |
|  | **Chapter-4** | **DIESEL ELECTRIC POWER STATIONS:**  | **10** |  |
|  | **4.1** | State the advantages and disadvantages of diesel electric power stations. | 1 |  |
|  | **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,. | 6 |  |
|  | **4.3** | governing system ,Selection of site for diesel electric power stations. | 1 |  |
|  | **4.4** | Performance and thermal efficiency of diesel electric power stations | 2 |  |
|  | **Chapter-5** | **HYDEL POWER STATIONS:**  | **10** |  |
|  | **5.1** | State advantages and disadvantages of hydroelectric power plant. | 2 |  |
|  | **5.2** | Classify and explain the general arrangement of storage type hydroelectric project and explain its operation | 3 |  |
|  | **5.3,5.4** | Selection of site of hydel power plant and List of hydro power stations with their capacities and number of units in the state.  | 2 |  |
|  | **5.5** | Types of turbines and generation used | 1 |  |
|  | **5.6** | Simple problems | 2 |  |
|  | **Chapter-6** | GAS TURBINE POWER STATIONS  | **05** |  |
|  | **6.1** | Selection of site for gas turbine stations | 1 |  |
|  | **6.2** | Fuels for gas turbine | 1 |  |
|  | **6.3** | Elements of simple gas turbine power plants  | 2 |  |
|  | **6.4** | Merits, demerits and application of gas turbine power plants. | 1 |  |