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| Discipline – **MECHANICAL ENGG.** | Semester – **6th** | Name of Teacher – **BISWAJIT MISHRA** |
| **Subject – POWER PLANT ENGINEERING** | No. of days/week class allotted --- **4** | Semester from date **02.01.19** to date  **15.04.2019**  No. of weeks - **15** |
| **Week** | **Class Day** | **Theory/Practical Topics** |
| 1st | 1st | Introduction to power plant engineering |
| 2nd | 1. sources of energy |
| 3rd | Concept of central and captive power station |
| 4th | Classification of power plants |
| 2nd | 1st | 2. Introduction to steam power plant |
| 2nd | Lay out of steam power plant and steam power cycle |
| 3rd | Rankine cycle with P-V, T-S & H-s diagram |
| 4th | Determine thermal efficiency, Work done |
| 3rd | 1st | work ratio and specific steam  Consumption. |
| 2nd | Simple problems |
| 3rd | Simple problems |
| 4th | Explain reheat cycle and regenerative cycle |
| 4th | 1st | Combination of reheat and regenerative cycle. |
| 2nd | Boiler Accessories: Air pre heater, Economizer |
| 3rd | Electrostatic Precipitator and superheater. |
| 4th | Need of boiler mountings |
| 5th | 1st | Draught systems (Natural draught, Forced draught & balanced draught)  With their advantages &disadvantages. |
| 2nd | Steam prime movers:Advantages & disadvantages of steam turbine |
| 3rd | Elements of steam turbine, Compounding and governing of steam turbine. |
| 4th | Performance of steam turbine:  Explain Thermal efficiency, Stage efficiency and Gross efficiency. |
| 6th | 1st | Simple problems. |
| 2nd | Simple problems. |
| 3rd | Simple problems. |
| 4th | Steam condenser:  Function of condenser, Classification of condenser (explain jet and  surface condensers) |
| 7th | 1st | function of condenser auxiliaries such as hot well, |
| 2nd | condenser extraction pump, air extraction pump |
| 3rd | cooling water and circulating pump. |
| 4th | Cooling Tower:  Function and types of cooling tower |
| 8th | 1st | Describe the various types of  cooling tower (Natural draft cooling tower and Mechanical draft  cooling tower) |
| 2nd | 3. Introduction to Nuclear Power plant |
| 3rd | Classify nuclear fuel (Fissile & fertile material) |
| 4th | Explain fusion and fission reaction. |
| 9th | 1st | Explain nuclear reactor: Components of nuclear reactor such as fuel,  moderator |
| 2nd | reflector, coolant, control rod |
| 3rd | Shielding, reactor vessel &  their function. |
| 4th | Explain the working principle of PWR |
| 10th | 1th | Explain the working principle of BWR power plant. |
| 2nd | Compare the nuclear and thermal plants. |
| 3rd | Explain the disposal of nuclear waste. |
| 4th | 4. Introduction to Diesel engine power plant |
| 11th | 1st | State the advantages and disadvantages of diesel plant. |
| 2nd | Explain briefly different systems of diesel power plant: |
| 3rd | Fuel storage and fuel supply system, |
| 4th | Fuel injection system, Air supply  system |
| 12th | 1st | Exhaust system, Cooling system |
| 2nd | Lubrication system, Starting  system |
| 3rd | Governing system |
| 4th | 5. Introduction toHydel Power Plant: |
| 13th | 1st | State advantages and disadvantages of hydroelectric power plant |
| 2nd | Classification |
| 3rd | Explain the general arrangement of storage type hydroelectric project |
| 4th | Explain its operation. |
| 14th | 1st | Operation of hydroelectric power plant |
| 2nd | Revision and previous year questions |
| 3rd | Revision and previous year questions |
| 4th | Revision and previous year questions |
| 15th | 1st | Revision and previous year questions |
| 2nd | Revision and previous year questions |
| 3rd | Revision and previous year questions |
| 4th | Revision and previous year questions |

**Learning Resources:**

**1.** Power plant engineering, Laxmi Publication -- R.K Rajput

**2.** Power plant engineering,TMH **--** P.K.Nag

**3.** Power plant engineering,Khanna Publisher -- Nagpal G.R