**Govt. Polytechnic Chhapar**

**Electrical Engineering Department**

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| **Lesson plan**  |
| **Name of Faculty** | **Mrs. Mukesh** |
| **Discipline** | **Electrical Engineering** |
| **Semester** | **5th (odd- semester)** |
| **Subject** | **Electrical Power- I** |
| **Lesson Plan Duration** | **15/09/2022 to 16/01/2023** |
| **Work load (Theory + Practical ) Per Week** | **(04+00)** |
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| **Week** | **Day** | **Topics** |
| **1st** | **1** | **Unit1:introduction to Power Generation** |
| **2** | **Main resources of energy, conventional and non-conventional** |
| **3** | **Different types of power stations, thermal power plant** |
| **4** | **Hydro Power plant Flow diagrams and operation** |
| **2nd** | **1** | **Gas power plant Flow diagrams and operation** |
| **2** | **diesel power station Flow diagrams and operation** |
| **3** | **nuclear power Plant Flow diagrams and operation** |
| **4** | **comparison of the generating stations on the basis of running cost, site, starting, maintenance** |
| **3rd** | **1** | **Revision/Assignment/ Class Test** |
| **2** | **Unit2: Introduction to Economics of Generation** |
| **3** | **Fixed and running cost, load estimation, load curves** |
| **4** | **Demand factor, load factor, diversity factor** |
| **4th** | **1** | **Power factor and their effect on cost of generation** |
| **2** | **Simple problems based on above relations** |
| **3** | **Revision/Assignment/ Class Test** |
| **4** | **Base load and peak load power stations** |
| **5th** | **1** | **inter-connection of power stations and its advantages** |
| **2** | **Concept of regional and national grid** |
| **3** | **Revision/Assignment/ Class Test** |
| **4** | **Revision/Assignment/ Class Test** |
| **6th** | **1** | **Unit3: Introduction toTransmission Systems** |
| **2** | **Layout of transmission system, selection of voltage for H.T and L.T lines** |
| **3** | **advantages of high voltage for Transmission of power in both AC and** |
| **4** | **Comparison of different systems: AC versus DC for power transmission,** |
| **7th** | **1** | **material and sizes from standard tables** |
| **2** | **Constructional features of transmission lines** |
| **3** | **Types of supports** |
| **4** | **Types of insulators** |
| **8th** | **1** | **Types of conductors, Selection of insulators** |
| **2** | **conductors, earth wire and their accessories** |
| **3** | **Transposition of conductors and string efficiency of suspension type****insulators, Bundle Conductors** |
| **4** | **Mechanical features of line** |
| **9th** | **1** | **Importance of sag, calculation of sag,** |
| **2** | **effects of wind and ice related problems** |
| **3** | **Indian electricity rules pertaining to clearance** |
| **4** | **Electrical features of line: Calculation of resistance, inductance and capacitance** |
| **10th** | **1** | **A.C. transmission line, voltage regulation, and concept of corona.****Effects of corona and remedial measures** |
| **2** | **Transmission Losses** |
| **3** | **Revision/Assignment/ Class Test** |
| **4** | **Revision/Assignment/ Class Test** |
| **11th** | **1** | **Unit 4: Distribution System Lay out of HT and LT distribution system** |
| **2** | **constructional feature of distribution lines and their erection** |
| **3** | **LT feeders and service mains** |
| **4** | **Simple problems on AC radial distribution system** |
| **12th** | **1** | **Determination of size of conductor** |
| **2** | **Preparation of estimates of HT and LT lines** |
| **3** | **Constructional features of LT (400 V), HT (II kV) underground cables** |
| **4** | **Advantages and disadvantages of underground system with respect to overhead system.** |
| **13th** | **1** | **Calculation of losses in distribution system** |
| **2** | **Faults in underground cables-determine fault location by** |
| **3** | **Murray Loop Test, Varley Loop Test** |
| **4** | **Revision/Assignment/ Class Test** |
| **14th** | **1** | **Revision/Problem solution/ Class Test** |
| **2** | **Unit 5: Substations: Brief idea about substations** |
| **3** | **Outdoor grid sub-station 220/132 KV, 66/33 KV outdoor****substations** |
| **4** | **Pole mounted substations and indoor substation** |
| **15th** | **1** | **Layout of 33/11 distribution substation and various auxiliaries** |
| **2** | **Layout of kV/400V distribution substation and various auxiliaries** |
| **3** | **Revision/Assignment/ Class Test** |
| **4** | **Unit 6: power factor, reasons and disadvantages of low power factor** |
| **16th** | **1** | **Methods for improvement of power factor using capacitor banks, VAR Static Compensator (SVC)** |
| **2** | **Revision and problem solution** |
| **3** | **Revision/Review/Test of old HSBTE Papers** |
| **4** | **Revision/Review/Test of old HSBTE Papers** |