**UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA**

**Academic lesson plan for summer semester - 2022**

Name of the teaching faculty: **Sandip Mishra**  Discipline / Dept.: **EE**

Semester: **4th** Subject (Theory): **GTD**

No. of periods per week: **4** Total Periods**: 60**

Semester Exam: **80** Class Test:**20**

Total Marks: **100**

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| --- | --- | --- | --- |
| **Week** | **Period** | **Unit/chapter** | **Topic to be covered** |
|   1st  |  1st | Generation of electricity | Elementary idea on generation of electricity from Thermal, Power station |
|  2nd | Generation of electricity | Elementary idea on generation of electricity from Hydel Power station |
|  3rd 3RD  | Generation of electricity | Elementary idea on generation of electricity from Hydel Power station |
|  4th  | Generation of electricity | Elementary idea on generation of electricity from Nuclear Power station |
| 2nd  |  1st | Generation of electricity | Elementary idea on generation of electricity from Nuclear Power station |
|  2nd | Generation of electricity | Introduction to Solar Power Plant |
|  3rd 3RD  | Generation of electricity | Layout diagram of generating stations |
|  4th  | Transmission of electric power | Layout of transmission and distribution scheme |
| 3rd  |  1st | Transmission of electric power | Voltage Regulation & efficiency of transmission. |
|  2nd | Transmission of electric power | State and explain Kelvin’s law for economical size of conductor |
|  3rd 3RD  | Transmission of electric power | Corona and corona loss on transmission lines. |
|  4th  | Transmission of electric power | Corona and corona loss on transmission lines. |
| 4th  |  1st | Over head line | Types of supports |
|  2nd | Over head line | size and spacing of conductor. |
|  3rd 3RD  | Over head line | Types of conductor materials. |
|  4th  | Over head line | State types of insulator and cross arms. |
| 5th  |  1st | Over head line | State types of insulator and cross arms. |
|  2nd | Over head line | Sag in overhead line |
|  3rd 3RD  | Over head line | support at same level and different level. |
|  4th  | Performance of short & medium lines | Calculation of regulation. |
| 6th  |  1st | Performance of short & medium lines | Calculation of regulation. |
|  2nd | Performance of short & medium lines | Calculation of regulation. |
|  3rd 3RD  | Performance of short & medium lines | Calculation of efficiency. |
|  4th  | Performance of short & medium lines | Calculation of efficiency. |
| 7th  |  1st | Performance of short & medium lines | Problems on regulation and efficiency. |
|  2nd | Performance of short & medium lines | Problems on regulation and efficiency. |
|  3rd 3RD  | EHV transmission | EHV AC transmission |
|  4th  | EHV transmission | EHV AC transmission |
| 8th  |  1st | EHV transmission | Reasons for adoption of EHV AC transmission |
|  2nd | EHV transmission | Problems involved in EHV transmission. |
|  3rd 3RD  | EHV transmission | HV DC transmission. |
|  4th  | EHV transmission | Advantages and Limitations of HVDC transmission system |
| 9th  |  1st | EHV transmission | Advantages and Limitations of HVDC transmission system |
|  2nd | Distribution System | Introduction to Distribution System |
|  3rd 3RD  | Distribution System | Radial Distribution System |
|  4th  | Distribution System | Ring Main Distribution System |
| 10th  |  1st | Distribution System | Inter connected Distribution System |
|  2nd | Distribution System | Distributor fed at one End Distributor fed at both the ends. Ring distributors. |
|  3rd 3RD  | Distribution System | Method of solving AC distribution problem. |
|  4th  | Distribution System | Three phase four wire star connected system |
| 11th  |  1st | Underground cable | Cable insulation and classification of cables |
|  2nd | Underground cable | Types of L. T. cables with constructional features |
|  3rd 3RD  | Underground cable | Types of H.T. cables with constructional features |
|  4th  | Underground cable | Methods of cable lying |
| 12th  |  1st | Underground cable | Localization of cable faults: Murray and Varley loop test for short circuit fault. |
|  2nd | Underground cable | Localization of cable faults: Earth fault |
|  3rd 3RD  | Economic Aspects | Causes of low power factor  |
|  4th  | Economic Aspects | methods of improvement of power factor in |
| 13th  |  1st | Economic Aspects | Load curves, Demand factor |
|  2nd | Economic Aspects | Maximum demand, Load curves |
|  3rd 3RD  | Economic Aspects | Demand factor, Maximum demand |
|  4th  | Economic Aspects | Peak load and Base load on power station |
| 14th  |  1st | Types of tariff | Desirable characteristic of a tariff |
|  2nd | Types of tariff | Explain flat rate, block rate tariff |
|  3rd 3RD  | Types of tariff | Two part and maximum demand tariff. Problems. |
|  4th  | Substation | Layout of LT substation. |
| 15th  |  1st | Substation | Layout of HT substation. |
|  2nd | Substation | Layout of EHT substation. |
|  3rd 3RD  | Substation | Earthing of Substation |
|  4th  | Substation | Earthing of transmission and distribution lines |

The lesson plan prepared by the concerned faculty.

 SANDIP MISHRA

 PTGF, ELECTRICAL DEPARTMENT