***ACADEMIC LESSION PLAN FOR SESSION - 2024 .***

**Dept. of Electrical Eng, BIT Polytechnic, Balasore.**

**Name of Teaching Faculty : Er. Chandrasekhar panigrahi**

**GENERATION TRANSMISSION & DISTRIBUTION**

Course Code: Th-4

Theory :4 P/W

Total Period s: 60P/ Sem End Semester Exam : 80marks

Examination : 3 Hours TOTAL MARKS : 100 Marks

Sem : 4TH EE

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| WEEK | PERIOD | TOPIC |
| 1st | 1st | GENERATION OF ELECTRICITY  Elementary idea on generation of electricity from Thermal power station. & Layout diagram |
| 2nd | Elementary idea on generation of electricity from Thermal power station. & Layout diagram |
| 3rd | Elementary idea on generation of electricity from Hydro power station. & Layout diagram |
| 4th | Elementary idea on generation of electricity from Nuclear power station. & Layout diagram |
| 2nd | 1st | Introduction to Photovoltaic cells |
| 2nd | Introduction to Solar Power Plant |
| 3rd | TRANSMISSION OF ELECTRIC POWER  Layout of transmission and distribution scheme |
| 4th | Layout of transmission and distribution scheme  Voltage Regulation & efficiency of transmission. |
| 3rd | 1st | State and explain Kelvin’s law for economical size of conductor. |
| 2nd | State and explain Kelvin’s law for economical size of conductor. |
| 3rd | Corona and corona loss on transmission lines. |
| 4th | OVER HEAD LINES  Types of supports, size and spacing of conductor |
| 4th | 1st | Types of supports, size and spacing of conductor  Types of conductor materials. |
| 2nd | State types of insulator and cross arms. |
| 3rd | State types of insulator and cross arms. |
| 4th | Sag in overhead line with support at same level |
| 5th | 1st | Sag in overhead line with support at different level. (approximate formula effect of wind, ice and temperature on sag) |
| 2nd | Sag in overhead line with support at different level. (approximate formula effect of wind, ice and temperature on sag) |
| 3rd | Simple problem on sag. |
| 4th | **PERFORMANCE OF SHORT**  Calculation of regulation and efficiency. |
| 6th | 1st | Problems on performance of short transmission lines |
| 2nd | **PERFORMANCE OF MEDIUM LINES**  Calculation of regulation and efficiency. |
| 3rd | Problems on performance of medium transmission lines |
| 4th | **PERFORMANCE OF MEDIUM LINES**  Calculation of regulation and efficiency. |
| 7th | 1st | Problems on performance of medium transmission lines |
| 2nd | **PERFORMANCE OF MEDIUM LINES**  Calculation of regulation and efficiency. |
| 3rd | Problems on performance of medium transmission lines |
| 4th | EHV AC transmission |
| 8th | 1st | Reasons for adoption of EHV AC transmission |
| 2nd | Problems involved in EHV transmission. |
| 3rd | HV DC transmission |
| 4th | HV DC transmission |
| 9th | 1st | Advantages and Limitations of HVDC transmission system. |
| 2nd | DISTRIBUTION SYSTEMS  Introduction to Distribution System |
| 3rd | Connection Schemes of Distribution System: (Radial, Ring Main and Inter connected system) |
| 4th | DC distributions.  Distributor fed at one End. |
| 10th | 1st | Problems on Distributor fed at one End. |
| 2nd | Distributor fed at both the ends |
| 3rd | Problems on Distributor fed at both the Ends. |
| 4th | Ring distributors. |
| 11th | 1st | AC distribution system.  Method of solving AC distribution problem. |
| 2nd | Problems on AC Distribution |
| 3rd | Three phase four wire star connected system arrangement. |
| 4th | UNDERGROUND CABLES  Cable insulation and classification of cables. |
| 12th | 1st | Types of L. T. & H.T. cables with constructional features |
| 2nd | Types of L. T. & H.T. cables with constructional features |
| 3rd | Methods of cable lying. |
| 4th | Methods of cable lying. |
| 13th | 1st | Localization of cable faults:  Murray test for short circuit fault / Earth fault. |
| 2nd | Varley loop test for short circuit fault / Earth fault. |
| 3rd | ECONOMIC ASPECTS  Causes of low power factor |
| 4th | Methods of improvement of power factor in power system. |
| 14th | 1st | Factors affecting the economics of generation:  (Define and explain)  Load curves.  Demand factor.  Maximum demand |
| 2nd | Load factor.  Diversity factor.  Plant capacity factor  Peak load and Base load on power station.  Problems |
| 3rd | TYPES OF TARIFF  Desirable characteristic of a tariff |
| 4th | Explain flat rate, block rate(Solve Problems) |
| 15th | 1st | Explain two part and maximum demand tariff. (Solve Problems) |
| 2nd | SUBSTATION  Layout of LT substation |
| 3rd | Layout of HT and EHT substation |
| 4th | Earthing of Substation, transmission and distribution lines |

**HOD in Electrical department Lect. In Electrical department**

**Principal of BIT Polytechnic BLS**