***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 schemeVoltage 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 conductorTypes 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 TARIFFDesirable 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**