

Power System-I Lab

Paper Code(s): EEC-260

L P C

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| Course Outcome (CO) | |
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| At the end of the course, the student will be able to: | |
| EEC 260. 1 | Ability to calculate the transmission line parameters. |
| EEC 260. 2 | Ability to analyze performance of transmission line. |
| EEC.260. 3 | Ability to understand working of cables. |
| EEC.260. 4 | Ability to solve load flow in power system. |

1. Study of constructional features, applications, power rating of LT and HT cables.
2. Measurement of Inductance, Capacitance, Resistance and Insulation Resistance of multi-core cables.
3. . Study of different types of distribution systems by physical inspection of these systems.
4. Study and calculation of ABCD parameters for a Transmission Line.
5. Study of Ferranti Effect for Transmission Line.
6. Study of different types of insulators with rating. Enumerate the different application of the different types of insulators, with their properties.
7. Calculate the resistance of earth using earth electrodes and Megger.
8. Calculate the dielectric strength of the transformer oil.
9. Enumerate the different applications involved in the power generating station. Write a report on visit of Thermal/Hydro/Nuclear power station.
10. Estimation and Costing of overhead lines/distribution lines of specified voltage level and length.
11. Estimation and Costing of service mains for single face, three face domestic/industrial consumers.
12. Estimation and Costing of pole mounted sub-station /indoor outdoor sub-station.
13. To locate fault in a cable by Murray loop test.

| List of Experiments | | |
|---------------------|-----|------------------------------|
| Exp. No. | CO | Experiment |
| Exp 1 | CO3 | To study underground cables. |

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| Exp 2 | CO2 | Calculation of ABCD parameters for the transmission line. |
| Exp 3 | CO2 | Study of Ferranti effect for transmission line. |
| Exp 4 | CO1 | To study overhead line insulators. |
| Exp 5 | CO2 | Measurement of effective resistance of earth electrodes and Measurement of ground resistivity. |
| Exp 6 | CO | To find the dielectric strength of transformer oil. |
| Exp 7 | CO3 | Location of earth fault and short circuit fault in an underground cable using Murray loop test. |
| Exp 8 | CO1 | Explain why guard ring is required for string insulators. Using MATLAB Simulink, calculation of potential distribution across different units of string insulator, with and without guard ring, and calculation of the string efficiency. |
| Extra 1 | CO1 | Study of Single Line Diagram of a typical power system. |
| Extra 2 | CO2 | MATLAB simulation of transmission line for long transmission line for calculation of various parameters. |
| Extra 3 | CO2 | MATLAB simulation of transmission line for a medium transmission line for calculation of various parameters. |
| Extra 4 | CO2 | MATLAB simulation of transmission line for a short transmission line for calculation of various parameters. |