Objective of lab:

1. To understand the concepts of various methods of Electrical Energy Generation.
2. To learn the usage of passive elements in various Power Transmission Systems.
3. To understand the factors affecting Insulators and also in Under Ground cables.
4. To calculate the various parameters in Distribution System.
5. To learn critical mathematical calculations that are common to any overhead line design. Calculations such as transverse loading, conductor clearances, pole buckling and guyng will be discussed in detail.
7. To design a Transmission and distribution electric power system

Course Outcomes:

At the end of the Course the student would be able to:

1. Analyze the performance of various Units involved in the power plants.
2. Apply power system fundamentals to the design of a system that meet specific needs.
3. Design a power system solution based on the problem requirements and realistic Constraints.
4. Develop a major design experience in power a system that prepares them for engineering practice.
Major Equipments In Generation, Transmission And Distribution:

1. RING FEEDERS DIR OC PROT
2. Transmission line DIST PROT
3. FEEDER OC & E.I.D M.T.L Protection
4. Generator MERZ-PRICE Protection
5. Parallel Feeder DIR-OC-PROT
6. Negative Sequence Network
7. Positive Sequence Network
8. Zero Sequence Network
9. Transmission System Modeling(220 kV Grid)
10. DC Network Analyzer
11. String Insulator
12. Step up Transformer
13. 3-Phase Power Drill Machine

List of Experiments:

1. Design of distribution network and measurement of voltage and current distribution in distributors.
2. To measure Potential distribution across different units of a string of insulators with and without guard ring.
3. Study of different parts of a power cable and measurement of insulation resistance of a cable.
4. Plotting of equi-potentials and study of voltage gradient in
   i) two-core cable
   ii) single-core cable.
5. Voltage Regulation of a long transmission line with resistive inductive and capacitive loads.
6. Voltage Profile of a long transmission line when:
   a. Open circuited
   b. using shunt/series capacitive compensation
   c. using shunt inductive compensation.
7. Software based design of the transmission & distribution network of a city.
8. Measurement of ground resistivity and ground electrode resistance.
9. To simulate a small Hydro Plant.
10. Study and Operation of HVDC Link.
11. Study and operation of Static Var compensator.
12. To plot Voltage/Current characteristics of a solar cell and determination of its parameters.
13. To study different types of Line insulators and determine their breakdown characteristics.
14. To design apparatus setup for testing of transformer oil.
15. To design scheme for testing of insulator against rain.
16. To design apparatus setup for the impulse flash over voltage of a post-Insulator.
17. To 20, four more experiments may be included subject to the requirements.

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