



Techno India NJR Institute of Technology  
Academic Administration of Techno NJR Institute  
Syllabus Deployment

Name of Faculty: Mr. Rajkumar Soni

Subject Code: 5EX4-21

Subject Name: Power System-I Lab

SEM: V

Department: Department of Electrical Engineering (EE & EEE)

Total no. of Labs planned: 16

**COURSE OUTCOMES HERE**

At the end of this course students will be able to

- 1 Ability to express types of substations, various bus-bar arrangements.
- 2 Ability to explain basic schemes and single line diagram of hydro, thermal, nuclear and gas power plants.
- 3 Study of high voltage testing of electrical equipment: line insulator, cable, bushing, power capacitor, and power transformer.
- 4 Design an EHV transmission line.
- 5 Ability to design an EHV transmission line.
- 6 Ability to explain flash over voltage testing of insulators.

Lab No.	Topic
1	Generating station design: Design considerations,
2	Basic schemes and single line diagram of hydro, thermal, nuclear and gas power plants.
3	Electrical equipment for power stations
4	Distribution system Design: Design of feeders & distributors.
5	Calculation of voltage drops in distributors

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6	Calculation of conductor size using Kelvin's law.
7	Study of short term, medium term and long term load forecasting.
8	Sending end and receiving end power circle diagrams.
9	Substations: Types of substations, various bus-bar arrangements.
10	Electrical equipment for substations.
11	Study high voltage testing of electrical equipment: line insulator, cable, bushing, power capacitor, and power transformer.
12	Design an EHV transmission line
13	Study filtration and Treatment of transformer oil.
14	Determine dielectric strength of transformer oil.
15	Determine capacitance and dielectric loss of an insulating material using Schering bridge.
16	Flash over voltage testing of insulators.

### **TEXT/REFERENCE BOOKS**

1. Modern Power System Analysis Book by D.P. Kothari and I.J. Nagrath
2. Wadhwa Electrical Power Systems Book by C.L. Wadhwa
- 3 Power System Engineering Book by D.P. Kothari and I.J. Nagrath.

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