L&T EduTech
College Connect

Integrated Engineering of MV Substation

About the Course

This course has a unique blend of fundamental concepts and engineering methodology for sub stations. The course is structured pragmatically to help the learner understand the industry practices in carrying out the engineering for substations and selection of various substation equipment in accordance with Indian & International Standards. In addition, it covers the electrical safety rules, safe operating procedures and an overview of maintenance practices to give a holistic understanding of the subject. This course also includes a module on digital substations, which discusses the Substation Automation Architecture and introduces communication using IEC 61850"

Key Topics

Substation design principles | Transformers | Switchgear | Protection | DC & AC auxiliary system | Control/Aux components | Control schemes | Layout engineering | Earthing & Lighting protection | Building services | Do it yourself problem statements from industry on Power system protection using ETAP | Digital substation

Course Objectives

Main objective of this course is:

- Explain the concepts behind substation engineering and design.
- Demonstrate how to prepare and read SLD for substation.
- Demonstrate how to size and select LV and HV equipment's for power distribution, protection and switchgear.
- Formulate and analyze erection key diagram, layout preparation and necessary sectional clearance in substation installation.
- Assess multi-disciplinary approach in substation erection.

Learning Outcomes

Learners should be able to:

- Restate the key concepts of design, construction, operation and maintenance of electrical substations.
- Develop design calculations in substation engineering such as earth-mat, lightning protection, earthing, lighting, and cable sizing
- Develop design calculation for sizing of power transformers, diesel generator
- Select LV and HV equipment's in substation for power distribution, protection and switchgear
- Illustrate relay coordination and earth mat sizing using ETAP software with real time industrial examples.