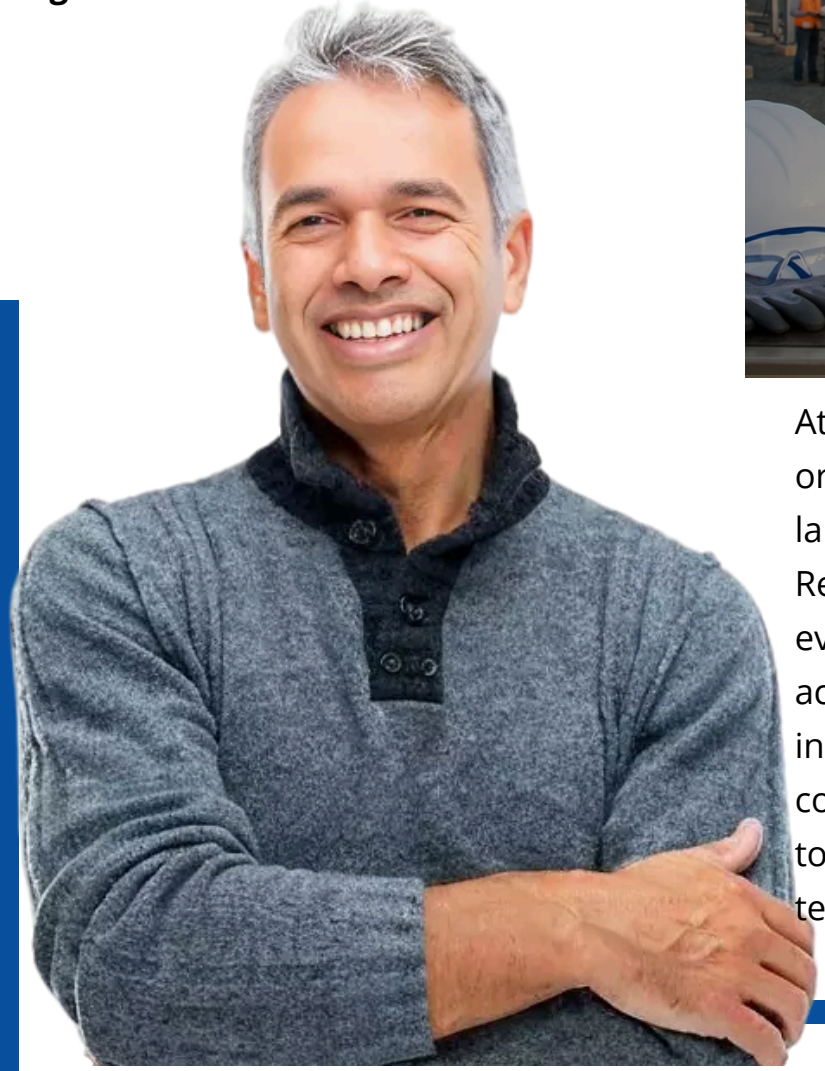
Electrical Learning Portal
Electrical | Renewable | MEP

ENGINEERS' CERTIFICATION PROGRAM

Engineering Skills

Degree + Skills = Career Growth



Electrical Substation Projects Planning | Certification Program

At ELP Engineering and Consultancy LLP, an ISO 9001:2015 certified organization, we are dedicated to shaping the future of the global engineering landscape. Specializing in Electrical Engineering, Power System Analysis, Renewable Energy, and MEP, our mission is to bridge the gap between the evolving needs of employers and the dynamic skill sets of professionals. We achieve this by providing comprehensive, industry-relevant training and expert consultancy that empower engineers to excel in a rapidly advancing technological world.

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ELECTRICAL SUBSTATION PROJECTS PLANNING | CERTIFICATION PROGRAM

In alignment with ELP's mission to bridge the gap between standard academic theory and practical industry demands, the Electrical Sub-Station Project Planning course is a comprehensive, live online program designed to advance your capabilities in project execution. This course equips engineers with the critical skills required to plan, coordinate, schedule, and execute complex electrical projects efficiently. From the initial concept and design phases through to procurement, installation, commissioning, and final handover, participants will learn the strategies necessary to ensure timely delivery, exceptional quality, and strict regulatory compliance.

Key Course Highlights

- Complete Project Lifecycle: Master every phase of a project, understand the roles of key stakeholders, and identify common factors that lead to delays in design, construction, and procurement.

- Substation Fundamentals: Gain a broad overview of major substation types, the differences between GIS and AIS, and core equipment including Transformers, Circuit Breakers, Isolators, CTs, CVTs, LAs, Wave Traps, and SCADA systems.

- Cost & Resource Management: Learn to accurately prepare and integrate Bill of Quantities (BOQ), track CapEx/OpEx, and manage budgets, variation orders, and resource planning.

- Procurement & Contracts: Navigate the entire procurement process, from creating contracts and evaluating vendor data sheets to managing lead times, supplier invoices, and risk mitigation.

- Scheduling & MS Project: Develop timelines, critical paths, and Work Breakdown Structures (WBS) using MS Project, with an additional overview of Primavera V6.

- Interdisciplinary Coordination: Master the installation sequence and civil-electrical interfaces, ensuring smooth coordination with vendors and civil, mechanical, and instrumentation trades.

- Quality Assurance (FAT & SAT): Conduct rigorous Factory Acceptance Tests (FAT) and Site Acceptance Tests (SAT), complete functional checks, and manage project closure documentation.

TOPICS

Module 01 - Introduction to Electrical Project Planning

- *Importance of planning in electrical projects*
- *Project lifecycle overview: concept → design → procurement → installation → commissioning → handover*
- *Roles of engineers, project managers, consultants, and contractors*
- *Understanding project objectives, constraints, and success factors and Factors Leading To Delay in Project -like Design Part, Construction and Procurement Area*
- *Major Types of Substations what are their Importance. Difference Between GIS & AIS Substation Broad overview of Substation Equipment like Transformer, Circuit Breaker, Isolator, CT,CVT, LA, Wave Trap etc…*
- *Overview of Scada system and their uses in Substation*

Module 2: Project BOQ (Bill of Quantities)

- *Purpose and scope of BOQ*
- *How to Understand And Relate BOQ from drawings and specifications*
- *Unit measurement and quantity verification*
- *Integration with procurement and budgeting and how to handle variation order , change in order.*
- *Practical Exercise: Prepare BOQ from a sample substation layout*

Module 03 - Project Schedule and Workflow

- *Creating timelines, milestones, and dependencies*
- *Types of report need to submit in client, kick of meeting and weekly and bi-weekly report*
- *Type of resource required to complete a project.*
- *Explanation of productivity of equipment how to calculate duration from productivity.*
- *How to collaborate with design consultant regarding drawings.*
- *Practical Exercise: Develop a schedule for a 33/11 kV substation project*

Module 4: Procurement, Contract, Budget & Risk Management

- *Process of making Procurement of Equipment to delivery to site" (ITP, FAT, Subcontractor invoices,*
- *supplier invoices, lead time, and approvals)*
- *Process to create Contract and all the steps till contract award to vendor/contractor*
- *Cost estimation, CapEx/Opex tracking, and budget monitoring*
- *Risk identification, mitigation, and contingency planning*
- *Safety planning and regulatory compliance on-site*
- *Exercise: Prepare risk register and budget tracking sheet*

Module 5: Sequence of Work & Coordination with Trades & vendor

- *Installation sequence: civil work → Equipment erection → cabling → testing → commissioning*
- *Coordination between trades (civil, mechanical, electrical, instrumentation)*
- *Vendor coordination and approvals*
- *Handling on-site challenges and workflow changes*
- *Best practices for minimizing rework and downtime (Meeting management, minutes, and follow-ups)*
- *Issue tracking and resolution*
- *Case study :- Transformer Installation sequence*

Module 6: Civil Inputs & Coordination

- *Civil requirements for electrical installations: foundations, cable trenches etc..*
- *Coordination of embedded items and civil–electrical interface*
- *Review of civil drawings relevant to electrical projects*
- *Regular coordination meetings and documentation*
- *Exercise: Prepare civil–electrical interface checklist*

Module 7: MS Project

- *Basics of MS Project*
- *WBS creation*
- *Gantt Chart*
- *Activity scheduling*
- *Critical path*
- *Resource planning*
- *Tracking & baseline*
- *Overview of Primavera V6*

Module 8: Specifications & Data Sheets

- *Purpose of specifications in projects*
- *Review and interpretation of technical specifications for equipment*
- *Data sheet preparation and vendor submission how to collaborate with vendor how to tell them to expedite the work. how much time required for material short lead and long lead*
- *Approval workflow for vendor data sheets*
- *Exercise: Review a sample transformer or MV panel data sheet*

Module 9: Drawings Review

- *Types of electrical drawings like what is single-line drawing, GA drawing etc...*
- *Key drawings for Substations Equipment like Switchgear, Transformers, etc..*
- *Vendor drawing review and approval process*
- *Drawing revision control and documentation*

Module 10: Documentation & Reporting

- *As-built drawings and revisions*
- *Test reports, inspection reports, and handover documents*
- *Regulatory compliance documentation*
- *Project closure and lessons learned*

Module 11: FAT – Factory Acceptance Test

- *Objectives and importance of FAT*
- *FAT procedures for Substation equipment like Transformer, Circuit breaker , CT, CVT, etc..*
- *Documentation and reporting*
- *Common challenges and corrective actions*
- *Practical Exercise: Review FAT report*

Module 12: SAT – Site Acceptance Test

- *SAT objectives and methodology*
- *Pre-commissioning and functional checks*
- *Site test reports and approvals*
- *Handover documentation*
- *Practical Exercise: Prepare SAT checklist for a Transformer*

Part 13 - Real-Time Project Discussion

Tools

o All Classes are Live via Google Meet or Zoom
o Class notes
o Calculation sheets (If applicable)
o Software
o Recordings

Contact:

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