

Training & Certification Program in Electrical Design Engineering

Overview:

- Overview of industry and their requirement of electrical systems.
- Role, Importance, Responsibility of Electrical Engineer in Industry.
- Knowing Client requirements & collection of specific data for projects.
- Understanding various phases of projects.
- Use of International Standards, Design Basis, std. practices/procedure and specifications
- Understanding Basic Design requirement based on the type of various plants.
- Intra-discipline co-ordination with civil, process, mechanical, `piping, telecom HVAC etc.
- Selection and sizing of electrical equipments used in various projects i.e Generator, transformer, switchgear, cables etc.
- Preparation of equipments specifications.
- High Voltage system requirements including substation design.
- Design of power distribution system.
- System Calculation and studies
- Hazardous area Classification and Equipment selection
- Design of Earthlings system, Lightning system and lightning protection system.
- Cable Selection, Sizing and cable laying methods.
- Design of Earthing system, Lightning system and lightning protection system.
- Specialized Engineering like Heat Tracing systems and cathodic protection design.
- Equipment vendor drawing review and approval.
- Procurement Requirements and installation standards.
- Inspection of Equipments/system.
- Interview Preparation and MOC Interviews

Module Details

Basics of Electrical Engineering

- Single phase system and Polyphase system and their Importance
- Power Generation, Transmission, distribution and utilization.
- Introduction of key electrical equipments used in projects

Coordination with Other Disciplines

- Process Engineers
- Mechanical Engineers
- Civil Engineers
- Instrument Engineers
- Communication and safety Engineers.

Estimation of Plant Electrical Load

- Preparation of Load Schedule
- Determination of power Supply Capacity
- Standby Capacity consideration
- Rating of Generators In Relation To Their Prime Movers-Importance of max and min temp.
- Rating Of Motors In Relation To Their Driven Machines

Development of Single Line Diagrams (SLD)

- Key SLD
- Detail SLD
- Lighting system SLD
- Small power SLD
- Metering and Control diagram

Control Schematics

- Introduction
- Block Diagram
- Typical Schematics for Motor Feeder
- Typical Schematics for Power Feeder
- Typical Schematics for Transformer Feeder

Selection and Sizing of Electrical Equipments

- Emergency Generator
- Transformer
- Neutral Grounding Resistor
- HV/MV Switchgears
- LV Switchgears
- HV/MV/LV Capacitor Bank
- DC Battery & Battery Charger
- AC UPS
- AC/DC Machines
- CT/PT

Hazardous Area Classification and Selection of Equipments

- Zone /Division Classification
- Types Of Protection For Hazardous Areas
- Hazardous source List Preparation
- Certification Of Hazardous Area Equipment
- Marking Of Equipment Nameplates
- Hazardous Area Drawings / Layouts Preparation

System Studies and Calculation

- Short Circuit Analysis (Fault Calculations and Stability Studies)
- Load Flow Analysis

- Motor Starting Study
- Harmonics Study
- Relay Coordination Study

Cable Selection and Sizing

- Power and Control cable Introduction
- Cable selection
- Cable sizing for Low voltage system
- Cable sizing for High voltage system
- Voltage Drop Consideration
- Let through Energy consideration
- Earth fault Loop Impedance consideration
- Cable Schedule
- Cable interconnection Schedule
- Selection and Sizing of Cable Tray
- Cable tray schedule
- Cable Drum schedule
- Conduit Selection
- Conduit Sizing

Cable Routing

- Cable routing Layout
- Cable Tagging
- Installation details

Earthing & Lightning Protection Design

- Requirement of Earthing in Industrial Plants
- Earthing Design calculations
- Type of Earthing and Details
- Earthing Installation Details
- Earthing Layout Design

- Lightning Protection Requirement
- Lightning Protection Calculation
- Lightning Installation Details
- Lightning Layout Design

Illumination Design

- Introduction
- Type of Lighting Fixtures
- Selection of Lighting Fixtures
- Preparation Of Fixture Schedule
- Indoor Illumination Calculation
- Outdoor Illumination Calculation
- Calculation on Software
- Lighting Layout Design
- Lighting Installation Detail
- Small Power selection
- Lighting Board Schedule

Sub-Station design

- Introduction
- Type of Sub-Stations
- General arrangement of substation
- Equipment Layout

Electrical Equipment/System Specification

- Transformer
- Diesel Generator
- HV /MV Switchgears
- LV Switchgear
- HV/LV Capacitor Bank
- DC Battery Charger

- AC UPS
- Battery
- VFD
- Power Cables
- Control Cables
- Illumination
- Earthing and Lightning Protection
- Page Party system
- CCTV system
- Telephone System
- Etc.

Application Procedure

Submit Dully filled attached Admission Query Form, along with your updated CV at our office or mail it to “info@smartbrains.in”.

Admission would be given only to shortlisted candidates. Please confirm your admission on allotted dates.

Documents Required

- 2 PP Size Photograph.
- 1Photo ID Proof, 1 Address Proof.
- 1 Photo stat of qualifying exam certificate
- 1 hard copy of your CV.

For further Information and Admissions Contact:

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