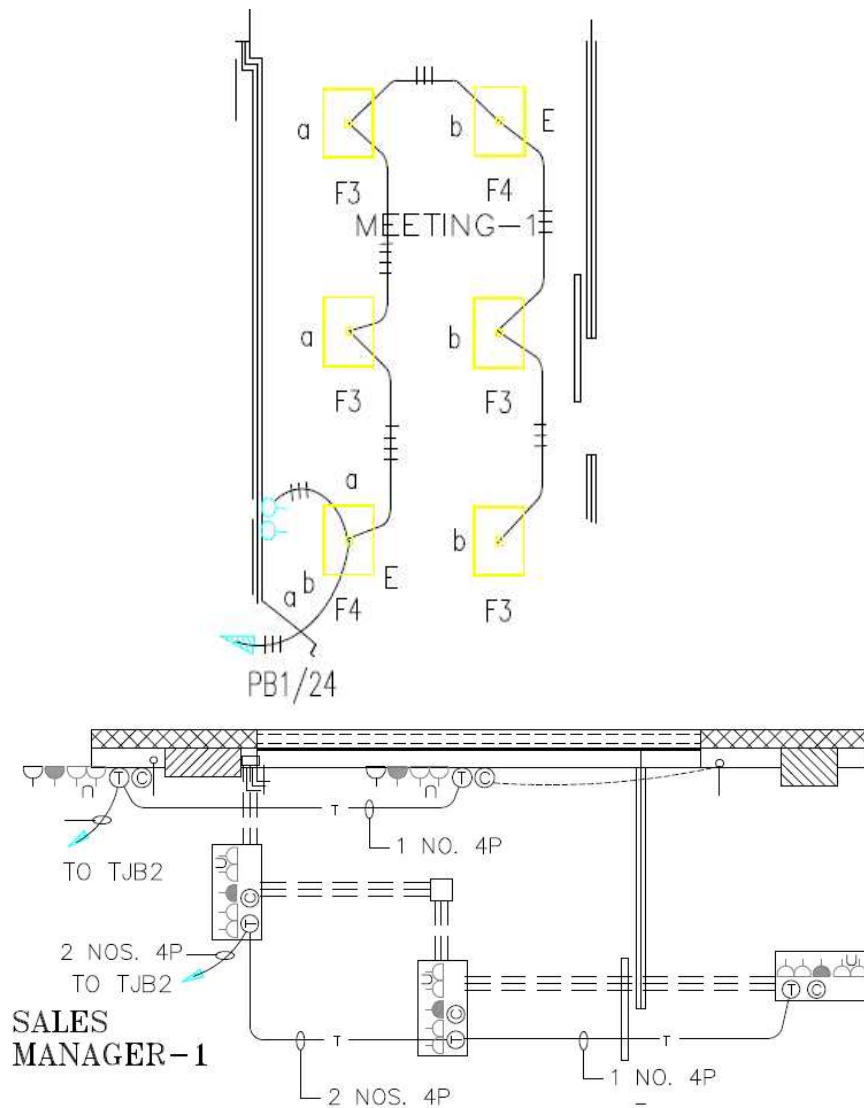


# ELECTRICAL BUILDING SERVICES DESIGN & DRAFTING

AS PER B.S & N.E.C



## **OVERVIEW – Electrical Building Services Design & Drafting**

This is a fast- paced program designed to present all major topics relative to the design of Electrical Building Services. The program duration is 1 month full time Instruction including concept theory, problem solving, system design, CAD drafting.

### **WHAT YOU SHOULD BRING**

Course participants should bring an open mind, a thirst for knowledge, a scientific calculator, sketch pad, pen and long book.

### **Description**

This certificate program introduces the full range of Electrical Building Services topics from the fundamentals to Power System Design, Wiring Accessories, Cable Management system, Lighting Systems, Earthing, Fire Alarm Systems, CCTV Systems, Access Control Systems etc. Each topic is presented so as to demonstrate the “real world” impact of design decisions on resulting system performance. Numerous examples of actual designs are presented. (See the “Course Outline” section for details of topics)

### **What You Will Learn**

Learn how Electrical Building Systems “work”, how to design for good performance and how to investigate and evaluate systems when they don’t work properly. You will get a full overview of Electrical topics relative to Building Services and learn enough to perform design, installation, testing & commissioning and analysis of Electrical Systems.

### **WHO SHOULD ATTEND**

- ✓ Electrical/ Mechanical/ Instrumentation/ Consulting “Engineers and Students”
- ✓ Diploma Holders/ Technicians
- ✓ Draftsmen

### **Training Features**

- ✓ Faculty with a decade of Gulf Experience.
- ✓ Excellent Material provided ( Manual, Design Charts, Demo Software, Drawings & Design of Sample Projects)
- ✓ Individual Attention & Placement Guidance.
- ✓ Hundreds of Students placed in India and Middle East.

## **ELECTRICAL BUILDING SERVICES DESIGN & DRAFTING- Course Content**

### **1. INTRODUCTION**

- Scope of Electrical Engineers in Modern Construction Industry
- Basic Electrical Terms- Definitions, Glossary, Units, Abbreviations
- Electrical Codes & Standards - BS, NEC, IEE, IEEE, NFPA, IEC
- Generation, Transmission & Distribution of Electricity
- Basic Electrical Formulae

### **2. WIRING ACCESSORIES & CABLE MANAGEMENT SYSTEMS**

- Switches & Sockets ( Types and Applications )
- Isolators & Disconnect Switches
- Final Circuits – Lighting & Power Wiring Diagrams
- Radial & Ring Circuits
- Distribution Boards (DB) Load Schedules & Load Balancing
- Standard Mounting Heights of Accessories
- Wires & Cables ( Types and Applications)
- Conduit System & Layout
- Cable Tray, Ladder, Trunking Systems
- Underground Cables (Directly Buried)
- Duct Banks & Cable Trenches
- BusDuct & BusBar Risers

### **3. POWER SYSTEM DESIGN**

- Circuit Breakers (Types & Selection)
- RCD/ ELCB
- Panel Boards – Final DB, SMDB, MDB
- Motor Control Center (MCC) - Electric Motors & Starters
- Coordination with HVAC, Plumbing, Fire Fighting, Lift Systems like Chillers, AHU, FCU, Water & Drainage Pumps, Fire Fighting Pumps etc
- Capacitor Banks - Power Factor Improvement
- Switchgear- Forms of Panels
- Transformers
- UPS/ Inverter
- Standby Diesel Generators ( ATS & Changeover Switch )
- IP Protection

### **4. LIGHTING SYSTEM**

- Lighting Fixtures ( Types & Applications )
- Lighting Design- Illumination Lux Levels
- Emergency & Exit Lighting System

### **5. EARTHING & LIGHTNING PROTECTION SYSTEM**

- Earthing Systems ( Types, Methods & Installation )
- Lightning Protection Systems

**P.T.O**

**6. ELECTRIC DESIGN CALCULATIONS**

- Circuit Breaker Sizing, Selection & Calculation
- RCD/ ELCB Sizing & Selection
- Branch & Main Feeder Cable Sizing, Selection & Calculation
- Earthing Cable Sizing & Selection
- Total Connected Load (TCL) & Max. or Peak Demand Calculation based on Diversity Factors
- Load Distribution Schedules & Load Balancing– Final DB, SMDB, MCC, MDB
- Cable Tray Sizing
- Transformer Sizing Calculations
- Standby Generator Sizing Calculations
- Capacitor Bank Calculations
- Lighting Illumination Calculations
- UPS sizing Calculations
- Voltage Drop Calculations
- Short Circuit Calculations

**7. LOW CURRENT/ ELV SYSTEMS**

- Fire Alarm & Detection System
- Closed Circuit Television System (CCTV)
- Access Control System
- Public Address (PA), Back Ground Music (BGM) System
- Satellite and Master Antenna Television System (SMATV)
- Communication Systems- Telephone, Data, Structured Cabling System

**8. ELECTRICAL SYSTEM DRAFTING (CAD)**

- Preparation of Lighting Layouts ( Design & Shop Drawings)
- Preparation of Power Layouts ( Design & Shop Drawings)
- Preparation of Single Line Diagrams (SLD) or Riser Diagrams
- Preparation of Electrical General Installation Details & Sections
- Preparation of LV or Electrical Room Details

**9. PROJECT MANAGMENT**

- Project Estimation, Testing & Commissioning, Planning, Procurement Process, Tendering, BOQ etc

**10. ELECTRICAL SOFTWARE**

- E- Tools – Lighting Calculation, Voltage Drop Calculation etc.

The Training programs can also be arranged on- site, customized for your organization.  
For more details, please call us at 040- 30623249/ 0091- 9885946711

For Information on Other Training Programs/Courses, please call us at 040- 30623249/  
0091-9885946711 or visit our website: [www.ipebs.in](http://www.ipebs.in)