



## Electrical Drawing & Wiring

**Duration 5 Days**

### Introduction

This course covers many subjects related to electrical drawing & wiring such as components of a drawing, symbols, diagrams, CAD & management of drawing.

### Who Should Attend

Electrical Engineers, Technicians and any one need to learn Electrical Drawings.

### Course Objectives

1. Understand Drawings components, sizes and scales.
2. Recognize symbols used in electro technology and governing standards
3. Differentiate between different types of diagrams
4. Manage drawing process flow.

### Course Outlines:

- Drawings - their relevance to engineering
- Origin of worldwide standards in electro-technology
- Purposes served by different types of drawings
- Standards in a drawing office
- Organization of a typical drawing office
- Printing and distribution - different options for making multiple copies

### COMPONENTS OF A DRAWING, DRAWING SIZES AND SCALES

- What is a typical engineering drawing made up of?
- Various categories of electrical drawings
- Planning a drawing
- Title block in a drawing and what should a title block contain?
- Legend block
- Bill of materials block
- Drawing notes block
- Revision history, revision numbering and use of revision marks

### SYMBOLS USED IN ELECTRO TECHNOLOGY AND GOVERNING STANDARDS

- Which are the drawings that need symbols?
- Symbols as per electro-technology standards - particularly IEC
- Non-standard symbols - when and why?
- Use of colors and line types in representing various services
- Company standards for drawings - why?

### SINGLE LINE AND THREE LINE DIAGRAMS

- Purpose
- Typical examples
- Use of symbols
- The differences between single line and three line diagrams
- Applications
- Conventions used

### SCHEMATIC DIAGRAMS

- Purpose
- Typical examples
- Use of symbols



- Applications
- Schematics spread over a number of sheets
- Cross-referencing between coils and contacts

#### **LOGIC DIAGRAMS**

- Purpose
- Typical examples
- Use of symbols
- Applications
- Logic diagrams spread over a number of sheets
- Cross-referencing

#### **CABLING AND WIRING DRAWINGS**

- Purpose
- Typical examples
- Sub types of cabling drawings
- Applications
- Conventions used

#### **LAYOUT DRAWINGS**

- Purpose
- Typical examples
- Sub types of layout drawings
- Applications
- Conventions used

#### **ADVANCES ARISING FROM COMPUTER AIDED DRAFTING (CAD)**

- Drawing office revolution by CAD and the role of PC based CAD applications
- 2-D and 3-D CAD applications and links to CAM
- Drawing to true dimensions in CAD applications
- Use of symbols, attributes and symbol libraries
- Automated bill of material generation from a CAD drawing
- Information sharing on multi-disciplinary drawings
- Concept of layers and their use in sharing information
- Automation of drawing through programming
- Linking imagery with drawings – GIS related applications

#### **MANAGEMENT OF DRAWINGS**

- Planning and assigning of drawings
- Need for drawing numbering standards
- Drawing process flow
- Revision control and ownership of drawing
- Comments and their marking
- Drawing management system for work flow control
- On-line distribution of drawings - the end of the era of paper drawings?

Drawing as a database for engineering and construction - the future