Electrical Drawings and Control Circuits

Date	Venues	($)Fees	Book your seat
15 Dec -19 Dec 2024	Kuala Lumpur	3300	Register Now

Introduction

Electrical equipment and devices are vital in all electrical installation so as to ensure continuity and efficient operations. The primary and basic tool for troubleshooting and maintenance of an electrical installation is to understand and interpret electrical drawings and ladder diagrams.

Electrical symbols, schematic and wiring diagrams facilitates the operations of the electrical installation equipment. This seminar will cover all these aspects with respect to electrical blueprint reading and tracing of circuits.

It will familiarise engineers and technicians with the various standards and practices, in additional to understand the power flow and equipment installed. As fitted diagrams and ladder diagrams will we presented to correlate with the electrical equipment installed. Tracing of electrical circuits with the relevant wiring diagrams will be demonstrated to ensure correct methods of troubleshooting.

This seminar will highlight:

- The interpretation and understanding of standard electrical symbols
- The characteristics single line diagrams
- The importance of ladder diagrams
- Using diagrams for circuit tracing
- Troubleshooting electrical system using diagrams

Objectives

At the end of this seminar, you will learn to:

- Describe the various types of electrical drawings
- Appreciate the importance of single line diagrams
- Analyse the various electrical ladder drawings
- Explain the operation of the electrical equipment using wiring and schematic diagrams
- Recognise the symbols in electrical drawings

Training Methodology

Each seminar participant will receive a copy of the comprehensive seminar notes. The presenter will outline and discuss the topics using computer displays, videos and PowerPoint presentation. The seminar is designed to have an interactive format to maximize delegate participation. Questions and answers are encouraged throughout and at the daily sessions.

Organizational Impact

On successful completion the organizational impact would be able to:

- Developed a structured approach and understanding of the various electrical drawings
- Appreciation of the single line diagrams
- Correct interpretation of ladder diagrams
- Examples of as fitted wiring diagrams interpretation
- Design and modification of control circuit diagrams
- Capability to read multi page electrical drawings

Personal Impact

On successful completion of this seminar delegates will be able to:

- Understand the operations of electrical equipment with reference to ladder diagrams
- Better understanding the design and functionality of the electrical installation distribution via single line diagrams
- Utilize single-line diagrams and schematics for troubleshooting
- Understand the differences and relevance of the various types of electrical drawings
- Demonstrate confidence during fault tracing and troubleshooting
- Able to correlate between drawings and as fitted equipment

Who Should Attend?

The technicians and maintenance staff will be able to comprehend the construction, operations, function of major electrical equipment components. This will enable them to carry out effective maintenance activities.

This seminar is suitable to a wide range of professionals but will greatly benefit:

- Electrical engineers
- Electrical supervisors
- Maintenance technicians
- Managers in-charge of electrical installations
- Project engineers

SEMINAR OUTLINE

DAY 1

Introduction, Types of Drawings and Symbols

- Importance and relevance of drawings
- Categories of electrical drawing and their characteristics
- Purposes served by different type of electrical drawings
- International electrical symbols and drawings
- Applications and functions of numerical relays
- Importance of CTs and VTs information in electrical drawings

DAY 2

Electrical Blueprint and Single Line Diagrams Interpretation

- Single line diagram versus three line diagram
- Protective devices coordination in single line diagrams
- Wiring diagrams of motor starters
- Interpreting and tracing single diagrams of an electrical installation

- Fault current calculation based on information in the single line diagram
- Troubleshooting an electrical installation with reference to the electrical blueprint

DAY 3

Ladder Diagrams Interpretation

- Types of ladder diagram
- Generic electrical equipment ladder diagrams
- Designing control circuits
- Interlock control circuits
- Protective relays and timers ladder diagrams
- Fail safe designs

DAY 4

Schematic and Control Circuits and its Merits

- VFD schematics and its operation related to control circuits
- UPS power supply schematic diagram components functionalities
- Reading and tracing AC input diagrams and its significance
- Identify components in the rectifier, inverter and AC outputs schematic diagrams
- Types of protection relays schematics, wiring, operation and functional diagrams
- Motor installation and control circuits

DAY 5

Logic Circuit Applications and Troubleshooting Strategies

- Logic gates and characteristics
- Digital logic functions
- Programmable logic controllers
- Process and instrument diagrams
- Troubleshooting strategies
- Q&A and wrap-up session

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