

Training Title:

ENGINEERING DRAWINGS & EQUIPMENT SYMBOLS

Training Duration:

5 Days

Training Venue and Dates

REF RM051	Engineering Drawings & Equipment Symbols	5	10-14 Feb 2025	\$6,500	London, UK
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Training Fees

- \$6,500 per participant for Public Training including Course Materials/Handouts, Tea/Coffee, Refreshments & International Buffet Lunch

Training Certificate

Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

TRAINING DESCRIPTION

This course concentrates on teaching participants how a thorough knowledge and understanding of how the plant works will greatly enhance their ability to maintain & enhance the operation of the plant. Using the documentation provided, the course will teach participants how to diagnose problems and suggest solutions to a plant that they have never seen.

Too often plant modifications that are instituted fix the symptom instead of the underlying problem, this workshop teaches participants why it is so important to keep looking at the plant as a whole to solve the problem.

Participants will learn how to create documentation using simple standards and specifications as well as custom design a solution for their plant.

This course will create the awareness that a technical person's greatest resource is not his toolbox, but rather his drawing office and plant documentation.

As built plant documentation is at best 90% accurate on handover, from this point it degrades rapidly to 50 to 75% accuracy in two years, where after it continues a more gradual decline. This decline can be attributed to several factors. This workshop will address these problems and show delegates how to overcome them.

TRAINING OBJECTIVES

On completion of the course, the participants will be able to:

- Define and use Process Flow diagrams, P&IDs, Instrument lists, Specification forms, Logic diagrams, Location plans, Installation details, and Loop diagrams.
- Understand process control devices and the symbols used to define them.

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- Define and specify vendor criteria for the production of plant documentation to the order of the company.
- Be familiar with the use of specifications to control the design scope of the project.
- Be in a position to implement and manage plant modifications from conception to completion.
- Be aware of the ISA standard available to assist you in developing and understanding instrument and control documents.

A better understanding of the scope, responsibility, and interaction of each discipline in the completion of a project or plant modification

WHO SHOULD ATTEND?

- Instrumentation and Control Engineers & Technicians
- Electrical Engineers
- Project Engineers
- Telecommunications Engineers & Technicians
- Process Control Engineers
- Consulting Engineers
- Maintenance Engineers & Technicians
- Electricians
- Drawing Office Staff

TRAINING METHODOLOGY

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions and motivating everybody to find the right answers. The delegates will also be encouraged to raise their questions and to share in the development of the right answers using their analysis and experiences.

- 30% of Lectures
- 30% Workshops and work presentation
- 20% Group Work & Practical Exercises
- 20% Videos & General Discussions

DAILY COURSE OUTLINE

The following topics will be covered in 5 days.

INTRODUCTION TO PLANT DESIGN, OPERATIONS & MAINTENANCE DOCUMENTATION

- Introduction
- Outline of the workshop
- Standards - a history & overview
- Drawing Office / Company standards

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BASIC CIRCUITS / COMPONENTS

- Power supply & protection
- Relays & contacts
- Switches
- Ladder logic
- Fail-safe design

PROCESS DIAGRAMS

- Process Block Diagram
- Process Flow Diagram
- Process Description including scheduling
- Utility Flow Diagram and development from flow diagrams
- Piping & Instrumentation Diagrams
- P&ID Standards, definition, and use
- P&ID Symbols
- P&ID layout, design, and construction
- Cooling water plant study
- Hazardous Area considerations

INSTRUMENTATION DOCUMENTATION

- Overview of Instrument Schedules, Drawings & Diagrams
- Purpose and target audience of each document
- Defining Loop Masters - Loop Layout
- Reading Instrumentation documentation
- Wire numbering
- Logic Diagrams - definition, use, and interpretation
- Instrument specifications

ELECTRICAL DOCUMENTATION

- Load lists
- Single-line diagrams
- Schematic & Control diagrams
- Cable Schedules & routing drawings
- Point to Point schedules
- Lighting Layouts
- Installation details
- Electrical Specifications

VENDOR PACKAGES

- Panel Wiring diagram
- Combined E & I disciplines
- Panel Schematics
- Panel Layout
- Document supply specification
- Maintenance specification

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CHANGE CONTROL

- Request for change
- HAZOP, RCM Analysis, Configuration management
- ISO 9002

NOTE:

Pre & Post Tests will be conducted.

Case Studies, Group Exercises, Group Discussions, Last Day Reviews & Assessments will be carried out.

TRAINING OUTCOME

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