

**Training Title:**

**ENGINEERING DRAWING CODES & STANDARDS**

**Training Duration:**

5 Days

**Training Venue and Dates**

REF			21 – 25 April,	Dubai,
ME082	Engineering Drawing Codes & Standards	5	2019	UAE
			\$4,250	

In any of the 5 star hotel. Exact venue will be informed soon.

**Training Fees**

- 4250US\$ 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 on 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 in order 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 own 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.

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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 a number of 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&ID's, 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

Better understand 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 motivate everybody find the right answers. The delegates will also be encouraged to raise their own questions and to share in the development of the right answers using their own analysis and experiences.

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

#### **COURSE OUTLINE**

***Following topics will be covered in 5 days***

##### **INTRODUCTION TO PLANT DESIGN, OPERATIONS & MAINTENANCE DOCUMENTATION**

- Introduction
- Outline of 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 developing 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 Review & Assessments will be carried out.

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