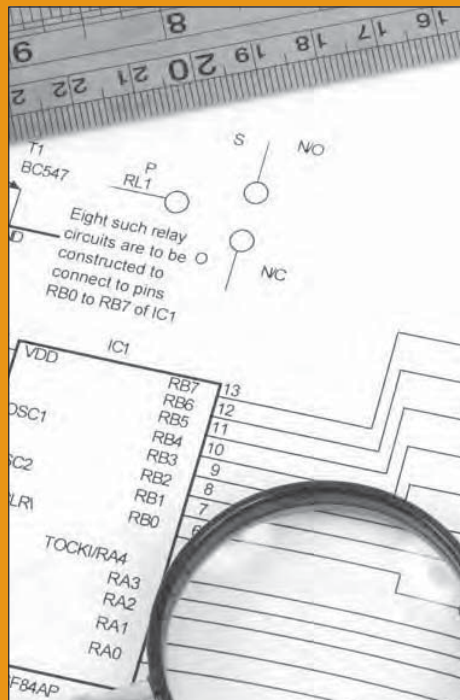


BEST PRACTICE IN PROCESS, ELECTRICAL AND INSTRUMENTATION DRAWINGS AND DOCUMENTATION

Includes: Standards, Masters, Specifications,
Templates, Drawings, Schedules & Diagrams



YOU WILL LEARN HOW 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
- Define and specify vendor criteria for the production of plant documentation to the order of the company
- Use specifications to control the design scope of the project
- Understand the purpose of a HAZOP in the development of a plant
- Implement and manage drawing plant modifications from conception to completion
- Be aware of the ISA standards available to assist you in developing and understanding instrument and control documents
- 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 and Electricians
- Project Engineers
- Telecommunications Engineers & Technicians
- Process Control Engineers
- Consulting Engineers
- Maintenance Engineers & Technicians
- Production Controllers
- Project Managers
- Drawing Office Staff



The Workshop

This two day hands-on workshop concentrates on demonstrating how a thorough knowledge and understanding of how the plant works from a drawing and documentation perspective will greatly enhance your ability to maintain and enhance the operation of the plant. You will learn to diagnose problems and suggest solutions on a plant you have never seen. Too often plant modifications that are instituted fix the symptom instead of the underlying problem, this workshop will show you why it is so important to keep looking at the plant documentation as a whole in order to solve the problem.

You will also learn how to create documentation using simple standards and specifications as well as custom design a solution for your own plant. Disciplines covered include process, electrical and instrumentation and numerous practical exercise sessions allow the application of knowledge gained to reinforce the principles. This is not an advanced course but focusing on the basic practical principles.

Practical Sessions

Practical Session 1 - Mechanical Drawings

- Mechanical projections and sections drawing to get a feel for the main issues with drawing

Practical Session 2 - Ladder Logic and Control

- Ladder logic development and tying this into the control circuits and hard wiring

Practical Session 3 - Process and P&IDs

- Process flow diagram, process description and P&ID execution

Practical Session 4 - Instrumentation Drawings

- Production of instrument index, loop list, loop drawings, I/O lists and Trip/Alarm schedule

Practical Session 5 - Electrical Drawings

- Take the ladder logic drawings earlier and draw the electrical schematic for a typical main and control circuits of a cooling fan

The Program

DAY ONE

INTRODUCTION TO PLANT DESIGN, OPERATIONS AND MAINTENANCE DOCUMENTATION

- Introduction
- Standards - a history and overview
- Drawing office and company standards

BASIC CIRCUITS AND COMPONENTS

- Power supply and protection
- Relays and 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 and instrumentation diagrams
- P&ID standards, definition and use
- P&ID symbols
- P&ID layout, design and construction
- Cooling water plant study
- Hazardous area considerations

Practical Session

INSTRUMENTATION DOCUMENTATION

- Overview of instrument schedules, drawings and 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

Practical Session

DAY TWO

ELECTRICAL DOCUMENTATION

- Load lists
- Single line diagrams
- Schematic and control diagrams
- Cable schedules and routing drawings
- Point to point schedules
- Lighting layouts
- Installation details
- Electrical specifications

Practical Session

VENDOR PACKAGES

- Panel wiring diagram
- Combined E&I disciplines
- Panel schematics
- Panel layout
- Document supply specification
- Maintenance specification

Practical Session

CHANGE CONTROL

- Request for change
- HAZOP, RCM analysis and configuration management
- ISO 9002

Practical Session

SUMMARY, OPEN FORUM AND CLOSING

