

Distributed Control System (DCS)

Course Price

£3050

Course Description

Different plants have different control requirements and it is generally acknowledged that there is no one technique that will solve all the control problems that are manifest in a modern plant. Despite the rapid growth in the use of PLC and SCADA systems, the modern Distributed Control System (DCS) still offers many benefits. These include: increased integrity (reduced process downtime); reduced engineering time; abnormal situation management; intelligent alarm management; and pre-engineered solutions for the implementation of Advanced Process Control (APC) strategies.

Course Objectives

This workshop, Distributed Control Systems is designed to provide engineers and technicians with an overview of the modern DCS and how to deal with a variety of issues concerning alarm management, operator performance feedback, improved control, and cyber security issues.

This workshop also serves as a suitable precursor to vendor training.

On successful completion of this workshop delegates will have:

- ? ability to input to the design and specification of the DCS and process control system
- ? understanding of the key ergonomic issues in design of operator displays
- ? detail the key trends that underpin modern distributed control systems
- ? a better understanding of the design and creation of consistent and effective alarm philosophies
- ? a recognition of how to deal with human problems in interfacing to alarm systems
- ? the ability to benchmark your alarm system performance
- ? the ability to correctly apply both open and closed Loop Tuning
- ? gain insight into the challenges faced by cyber security

Who Should Attend

? Professionals involved in designing, selecting, sizing, specifying, installing, testing, operating and maintaining Distributed Control systems.

- Automation Engineers
- Chemical Engineers
- Consulting Engineers

- Design Engineers
- Electrical Engineers
- Installation and Maintenance Technicians
- Instrument and Process Control Engineers and Technicians
- Maintenance Engineers
- Mechanical Engineers and Technicians
- Operations Engineers
- Process Engineers
- Production Managers
- Project Managers
- System Integrators
- ? Professionals who want a better understanding of the subject matter

Course Content

Day 1

Introduction to control systems

- ? History
- ? Direct digital control
- ? Centralised computer concept
- ? Distributed Control Systems
- ? Programmable Logic Controllers
- ? I/O and interfaces

Digital Systems fundamentals

- ? Binary signals
- ? Codes
- ? Logic functions
- ? Ladder logic
- ? Functional block programming

Introduction to control theory

- ? Process control
- ? Manual control
- ? Feedback control
- ? Feed forward control
- ? Loop design
- ? Modes of control
- ? Effect of span

Day 2

Feedback theory

- ? PID control
- ? Stability
- ? Loop and tuning
- ? Process measurements



Day 3

Alarms

- ? Architecture
- ? Managing alarms
- ? Choices
- ? Priorities
- ? Alarm actions
- ? Grouping

Man machine interfacing

- ? Workstations
- ? Monitoring hardware
- ? Displays
- ? Datastorage

Day 4

Communications

- ? Network considerations
- ? Fieldbus solutions
- ? Ethernet

Security

- ? Attacks against SCADA systems
- ? Developing a SCADA security strategy
- ? Countermeasures

CPD Unit

Continuing Professional Development

28 HOURS CPD