ISTANBUL-TURKEY **10-14 AUG 2026**

Distributed Control Systems (DCS) Applications, Selection & Troubleshooting

Why Choose this Training Course?

Recent trends in globalization, mobile devices, remote operations, and system integration are blurring the lines between distributed control systems (DCS) and supervisory control and data acquisition (SCADA). To complicate matters, some vendors position their products either as DCS or SCADA depending upon the actual application. This course has been designed with these recent trends in mind while covering the most important components of a DCS in detail. Emphasis is placed on DCS operation, networking, HMI, and Alarms. Topics of importance to field Engineers and Operators such as Maintenance and Troubleshooting are covered. Finally, state of the art advanced process controllers and latest trends are also covered.

- DCS Organization and operation
- Networking, HMI, and Alarms
- Maintenance and Troubleshooting
- Advanced Process Controllers
- Latest trends

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What are the Goals?

- To review sensors, instrumentation, and process control
- To cover DCS Organization and operation
- To summarize the most important Networking, HMI, and Alarm features of DCSs
- To highlight Maintenance and Troubleshooting procedures and issues
- To review Advanced Process Controllers in DCSs
- To cover Latest trends related to DCSs

Who is this Training Course for?

This course is intended for managers, engineers, and technicians requiring knowledge of sensors, instrumentation, control, and automation in a distributed control environment. A section on maintenance and troubleshooting methods is also included. Personnel in operations will also find this an invaluable course.

How will this Training Course be Presented?

In addition to a set of slides and a training manual, a highly interactive instructor presentation of the most important concepts, procedures, and issues will be provided. Furthermore, thecourse will also use several interactive Workshops and Exercises. In addition, a selected number of highly appropriate Videos will be shown. Finally, a set of Practical activities involvinga Process Simulator and Test Bed setup of DCS hardware and software components will alsobe provided.

Course Outlines:

Day 1: Review of Process Control and Introduction to DCS

- Review of sensors, instrumentation, and process control systems
- Control Algorithms
- Proportional (P)
- Proportional and Integral (PI)
- Proportional, Integral, and Derivative (PID)
- Distributed Control Systems: Introduction
- Overview, Features, Advantages, Where used
- Functions, Architecture, I/O, components,
- Hardware, software, system interfacing
- Programmable Logic Controller (PLC) – brief overview
- supervisory control and direct digital control
- Supervisory Control and Data Acquisition (SCADA) – brief overview
- DCS, PLC and SCADA compared

Day 2: DCS Configuration and Networking

- Distributed Control Systems: Structure and Configuration
- DCS block diagrams, components, architecture, redundancy concepts

- DCS hardware configuration
- DCS Hardware & Software Internals
  - Process variables, software variables, tags
  - Human Machine Interface (HMI)
  - Alarms, Trends
  - Databases
- Basic DCS Controller Configuration
- Sequential Controllers for Batch Processing
- Controllers for Continuous Processes: Function Blocks
- Hierarchical Structure of control systems: ISA-95
- Data Communications and Networking
- Signal Transmission
- Physical Network Structures
- Logical Network Structures
- Communication Standards
- Fieldbus Operation: Foundation Fieldbus, Profibus
- Wide Area Network (WAN) communications: Modbus
- Control in the Field (CIF)
- DCS applications and case study (Oil & Gas)

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Day 3: HMI, Alarms, and DCS Operation

- Human Machine Interfaces: Introduction, features, requirements
- Plant mimic and animation
- DCS Operator Stations
- Interface Categories
- Recorders, Loggers, Trend Displays, and Data Archiving
- HMI in the Control Room and in the Field: Mobile and remote devices
- Alarm Management
  - Key Requirements
  - Alarm System Functions
- Alarms philosophy, control & Management
- Development and Applications, Logs, trends and reports
- DCS Operation
- Operational view of DCS
- Role of operators
- Integration and Optimization of DCSs
- DCS Configuration
- DCS Integration

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Day 4: Maintenance and Troubleshooting

- Maintenance Considerations
- Maintenance Requirements: System and Components
- Procedure for Checking Control Loop Calibration
- Identify proper tools and test equipment for troubleshooting
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- Maintenance Requirements: System and Components
- Procedure for Checking Control Loop Calibration
- Identify proper tools and test equipment for troubleshooting

Troubleshooting

- Proper troubleshooting methods
- Identify typical communication malfunctions and faults
- Identifying failures, malfunctions, and faults
- Diagnostics through DCS Modules, and Programs (code)
- Diagnostics through Internal Variables and Bits of DCS
- Diagnostics of Communication faults

Day 5: Process and Optimization

- Advanced Process Controllers
  - Feed forward Control
  - Cascade Control
  - Statistical Process Control

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- Basics of advanced process control and optimization
- Advanced Process Controllers
  - Feed forward Control
  - Cascade Control
  - Statistical Process Control
- Basics of advanced process control and optimization
- Latest DCS Trends
  - Monitoring and control in the Field
  - Industrial Internet
  - Internet of Things
  - Mobile and remote devices
- Cloud Processing
  - Monitoring and control in the Cloud

Course Completion Certificate

On successful completion of the Training Course, the participants will be awarded with a 5M International Consultancy & Training Company Certificate.

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Training Course Prices:

Number of Participants	Course Price
1 participant	KWD 1550.000
2 participants	KWD 1500.000
3 participants	KWD 1450.000
4 participants	KWD 1400.000
5 participants	KWD 1350.000
6 and above participants	KWD 1300.000

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