

# **EcoStruxure Foxboro DCS**

## *COURSE CONTENT*

### **GET IN TOUCH**



Multisoft Systems  
B - 125, Sector - 2, Noida



(+91) 9810-306-956



[info@multosoftsystems.com](mailto:info@multosoftsystems.com)



[www.multosoftsystems.com](http://www.multosoftsystems.com)

## **About Multisoft**

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## **About Course**

EcoStruxure Foxboro DCS Training provides structured learning in distributed control system engineering for professionals working in process automation environments. The curriculum combines DCS architecture, hardware, control configuration, operator interface functions, alarm management, historical data, field communication, diagnostics, and troubleshooting with practical engineering activities. The training is suitable for professionals seeking greater technical familiarity with Foxboro DCS configuration, operation, maintenance, and industrial control applications.

## Module 1: Introduction to EcoStruxure Foxboro DCS

- ✓ Overview of Distributed Control Systems
- ✓ Evolution and role of Foxboro DCS in process automation
- ✓ Introduction to EcoStruxure Foxboro DCS
- ✓ Major system components and their functions
- ✓ Engineering, operation, and maintenance environments
- ✓ Typical process-industry applications
- ✓ DCS lifecycle and engineering workflow

## Module 2: System Architecture and EcoStruxure Foxboro Platform

- ✓ EcoStruxure Foxboro DCS architecture
- ✓ Control, supervisory, and information layers
- ✓ Workstations and server architecture
- ✓ Control network concepts
- ✓ System communication architecture
- ✓ Redundancy and availability concepts
- ✓ Data flow between system components
- ✓ Overview of scalable system configurations

## Module 3: Control Processors, Fieldbus Modules, and I/O Architecture

- ✓ Control processor concepts and functionality
- ✓ Controller architecture and operation

- ✓ Fieldbus modules and communication interfaces
- ✓ Analog and digital I/O concepts
- ✓ Input and output signal processing
- ✓ I/O channel configuration
- ✓ Field device connections
- ✓ Redundant control and I/O concepts
- ✓ Hardware status and diagnostic information

## Module 4: System Installation and Engineering Environment

- ✓ Engineering environment overview
- ✓ System configuration workflow
- ✓ Engineering workstation functions
- ✓ System hierarchy and organization
- ✓ Creating and managing system objects
- ✓ Configuration navigation
- ✓ Engineering database concepts
- ✓ Configuration documentation practices
- ✓ System commissioning considerations

## Module 5: System Configuration and Compound/Block Concepts

- ✓ Introduction to compound structures
- ✓ Understanding control blocks
- ✓ Compound and block hierarchy

- ✓ Creating and configuring compounds
- ✓ Block parameter configuration
- ✓ Input and output connections
- ✓ Parameter references and data links
- ✓ Control database organization
- ✓ Configuration validation
- ✓ Online and offline configuration considerations

## Module 6: Control Strategy Configuration

- ✓ Control strategy engineering principles
- ✓ Creating control schemes
- ✓ Connecting control blocks
- ✓ Process variable configuration
- ✓ Setpoint and output handling
- ✓ Control modes and mode management
- ✓ Interlocks and permissives
- ✓ Logic implementation
- ✓ Sequence-related control concepts
- ✓ Strategy testing and verification
- ✓ Control configuration documentation

## Module 7: Process Control and Regulatory Control Applications

- ✓ Fundamentals of regulatory process control

- ✓ PID control implementation
- ✓ Controller tuning concepts
- ✓ Cascade control
- ✓ Ratio control
- ✓ Feedforward concepts
- ✓ Override and selector strategies
- ✓ Split-range control
- ✓ Measurement and signal conditioning
- ✓ Control loop monitoring
- ✓ Common process-control application examples

## **Module 8: HMI, Operator Displays, and Visualization**

- ✓ Human-machine interface concepts
- ✓ Operator workstation environment
- ✓ Process display organization
- ✓ Creating process graphics
- ✓ Dynamic process objects
- ✓ Linking graphics with process variables
- ✓ Status and condition indications
- ✓ Operator commands and interactions
- ✓ Faceplates and control interfaces
- ✓ Navigation between process displays
- ✓ Display design practices for plant operation

## Module 9: Alarm Management, Events, and Historization

- ✓ Alarm system architecture
- ✓ Alarm configuration principles
- ✓ Alarm priorities and classifications
- ✓ Process alarm conditions
- ✓ Alarm acknowledgement and handling
- ✓ Event and message management
- ✓ Alarm summaries and operator awareness
- ✓ Historical process information concepts
- ✓ Trends and process data visualization
- ✓ Alarm analysis considerations
- ✓ Alarm management practices

## Module 10: Device Integration and Industrial Communications

- ✓ Overview of field device integration
- ✓ Industrial communication concepts
- ✓ Fieldbus communication fundamentals
- ✓ HART device integration concepts
- ✓ Modbus communication overview
- ✓ OPC connectivity concepts
- ✓ Integration with third-party systems
- ✓ Communication data mapping
- ✓ Interface configuration considerations
- ✓ Communication status monitoring

- ✓ Troubleshooting device communication

## **Module 11: System Administration, Security, and Access Management**

- ✓ DCS administration fundamentals
- ✓ User and account management
- ✓ Roles and access permissions
- ✓ Operator and engineering privileges
- ✓ Workstation administration concepts
- ✓ System security considerations
- ✓ Network segmentation awareness
- ✓ Configuration change management
- ✓ Audit and accountability concepts
- ✓ Operational cybersecurity practices
- ✓ Maintaining controlled engineering access

## **Module 12: Diagnostics, Maintenance, Backup, and Troubleshooting**

- ✓ System health monitoring
- ✓ Controller and I/O diagnostics
- ✓ Workstation diagnostic concepts
- ✓ Network communication diagnostics
- ✓ Identifying hardware and communication faults
- ✓ Control configuration troubleshooting



- ✓ Alarm and display troubleshooting
- ✓ Backup principles and procedures
- ✓ Configuration recovery considerations
- ✓ Preventive maintenance practices
- ✓ Fault isolation methodology
- ✓ Common DCS troubleshooting scenarios

## **Module 13: Practical Engineering Exercises and DCS Project Implementation**

- ✓ Reviewing a typical process automation requirement
- ✓ Planning the DCS configuration
- ✓ Creating system and control structures
- ✓ Configuring process I/O
- ✓ Implementing control strategies
- ✓ Configuring regulatory control loops
- ✓ Developing operator graphics
- ✓ Configuring alarms and process trends
- ✓ Verifying system communication
- ✓ Testing control functionality
- ✓ Diagnosing configuration issues
- ✓ Reviewing commissioning activities
- ✓ Final project configuration and validation