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Systems

Yokogawa ProSafe-RS SIS

COURSE CONTENT

GET IN TOUCH

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About Multisoft

Train yourself with the best and develop valuable in-demand skills with Multisoft Systems. A leading certification training provider, Multisoft collaborates with leading technologies to bring world-class one-on-one and certification training. Intending to empower professionals and businesses across the globe, we offer more than 1500 training courses, which are delivered by Multisoft's global subject matter experts. We offer tailored corporate training, a comprehensive learning solution with lifetime e-learning access, after-training support and globally recognized training certificates.

About Course

The Yokogawa ProSafe-RS SIS Training focuses on the engineering, configuration, operation, testing, and maintenance concepts associated with safety automation environments. Participants gain practical exposure to ProSafe-RS architecture, SCS and I/O configuration, safety application logic, interlocks, shutdown functions, diagnostics, CENTUM VP integration, and system testing. The course combines technical concepts with practical scenarios to prepare professionals for SIS-related engineering and operational responsibilities across process industries.

Module 1: Introduction to Safety Instrumented Systems (SIS)

- ✓ Overview of industrial process safety
- ✓ Basic concepts of Safety Instrumented Systems
- ✓ Purpose and role of an SIS
- ✓ Basic Process Control System (BPCS) vs. SIS
- ✓ Safety Instrumented Functions (SIF)
- ✓ Hazardous events and risk reduction
- ✓ Introduction to Emergency Shutdown Systems (ESD)
- ✓ Fire and Gas System considerations
- ✓ SIS applications in process industries

Module 2: Functional Safety Fundamentals and Safety Lifecycle

- ✓ Introduction to functional safety
- ✓ Functional safety terminology
- ✓ Understanding risk and tolerable risk
- ✓ Safety Integrity Level (SIL) concepts
- ✓ SIL 1, SIL 2, SIL 3, and SIL 4 overview
- ✓ Safety lifecycle concepts
- ✓ Safety requirements and specifications
- ✓ Verification and validation concepts
- ✓ Functional safety management considerations
- ✓ Documentation throughout the safety lifecycle

Module 3: Yokogawa ProSafe-RS System Overview

- ✓ Introduction to Yokogawa ProSafe-RS
- ✓ Role of ProSafe-RS in process safety
- ✓ ProSafe-RS system capabilities
- ✓ Typical industrial applications
- ✓ Integrated control and safety concepts
- ✓ System scalability and availability
- ✓ Engineering and operational environment
- ✓ Overview of ProSafe-RS system workflow

Module 4: ProSafe-RS System Architecture and Components

- ✓ ProSafe-RS architecture overview
- ✓ Safety Control Station (SCS)
- ✓ Engineering Station functions
- ✓ Human-machine interface considerations
- ✓ Safety communication architecture
- ✓ System networks and communication paths
- ✓ Safety I/O subsystem
- ✓ Redundancy concepts
- ✓ Power supply and system component considerations
- ✓ System topology interpretation
- ✓ Relationship between control and safety components

Module 5: Engineering Environment and System Configuration

- ✓ Introduction to the ProSafe-RS engineering environment
- ✓ Engineering workflow
- ✓ Creating and managing projects
- ✓ Project structure and organization
- ✓ System definition
- ✓ Station configuration
- ✓ Hardware definition
- ✓ Database configuration concepts
- ✓ Engineering parameters
- ✓ Project documentation
- ✓ Configuration consistency checks
- ✓ Download and configuration management concepts

Module 6: Safety Control Station (SCS) Configuration

- ✓ SCS architecture
- ✓ Functions of the Safety Control Station
- ✓ Creating an SCS configuration
- ✓ Processor configuration
- ✓ Redundant SCS concepts
- ✓ SCS database organization
- ✓ Resource configuration
- ✓ Execution and processing concepts
- ✓ Communication settings

- ✓ SCS status monitoring
- ✓ Configuration verification
- ✓ SCS operational considerations

Module 7: I/O Modules and Field Device Configuration

- ✓ Safety I/O architecture
- ✓ Digital input configuration
- ✓ Digital output configuration
- ✓ Analog input configuration
- ✓ Analog output considerations
- ✓ I/O module assignment
- ✓ Channel configuration
- ✓ Field signal handling
- ✓ Signal status and quality
- ✓ Fail-safe states
- ✓ Input and output diagnostics
- ✓ Redundant I/O considerations
- ✓ Field device interfacing
- ✓ I/O testing and verification

Module 8: Safety Application and Logic Engineering

- ✓ Safety application structure
- ✓ Logic engineering principles
- ✓ Function block concepts
- ✓ Boolean logic implementation

- ✓ AND, OR, NOT, and voting logic
- ✓ Timers and counters
- ✓ Set/reset functions
- ✓ Comparison functions
- ✓ Analog processing concepts
- ✓ Cause-and-effect implementation
- ✓ Permissive logic
- ✓ Trip logic
- ✓ Reset and restart philosophy
- ✓ Application verification
- ✓ Logic testing practices

Module 9: Sequence, Interlock, and Shutdown Logic

- ✓ Understanding process interlocks
- ✓ Safety interlock design
- ✓ Start permissives
- ✓ Shutdown permissives
- ✓ Process trip conditions
- ✓ Emergency shutdown logic
- ✓ Unit and equipment shutdown
- ✓ Sequence control concepts
- ✓ First-out indication concepts
- ✓ Latching and reset strategies
- ✓ Bypass and override considerations
- ✓ Voting arrangements
- ✓ 1oo1, 1oo2, 2oo3, and related voting concepts

- ✓ Cause-and-effect matrix implementation
- ✓ Practical shutdown application scenarios

Module 10: ProSafe-RS and CENTUM VP Integration

- ✓ Integrated Control and Safety System concepts
- ✓ Overview of ProSafe-RS and CENTUM VP integration
- ✓ Communication between SIS and DCS
- ✓ Data exchange principles
- ✓ SCS data visualization
- ✓ Operator access to safety information
- ✓ Alarm and status display
- ✓ Safety faceplates and operational views
- ✓ Integrated engineering considerations
- ✓ Maintaining independence of safety functions
- ✓ Communication troubleshooting considerations

Module 11: Operation, Monitoring, Alarms, and Events

- ✓ ProSafe-RS operational concepts
- ✓ System status monitoring
- ✓ SCS status information
- ✓ Process safety status visualization
- ✓ Alarm handling
- ✓ Event management
- ✓ Sequence of Events (SOE) concepts
- ✓ Trip and shutdown indication

- ✓ Diagnostic messages
- ✓ Operator interaction with safety applications
- ✓ Bypass and override monitoring
- ✓ System health monitoring
- ✓ Operational response to abnormal conditions

Module 12: Diagnostics, Troubleshooting, Maintenance, and Security

- ✓ ProSafe-RS diagnostic functions
- ✓ Hardware diagnostic information
- ✓ Communication diagnostics
- ✓ I/O fault identification
- ✓ SCS fault analysis
- ✓ System alarm interpretation
- ✓ Troubleshooting methodology
- ✓ Online monitoring considerations
- ✓ Maintenance practices
- ✓ Component replacement considerations
- ✓ Preventive maintenance
- ✓ User access and engineering privileges
- ✓ Security considerations for safety systems
- ✓ Change management
- ✓ Audit and configuration control

Module 13: Testing, Validation, Backup, and Practical Project

- ✓ SIS testing concepts
- ✓ Application logic testing
- ✓ I/O testing
- ✓ Interlock testing
- ✓ Cause-and-effect verification
- ✓ Functional testing
- ✓ Proof testing concepts
- ✓ Validation considerations
- ✓ Factory Acceptance Test (FAT) concepts
- ✓ Site Acceptance Test (SAT) concepts
- ✓ Backup procedures
- ✓ Project restoration concepts
- ✓ Configuration version management
- ✓ Documentation and handover
- ✓ Practical ProSafe-RS engineering scenario
- ✓ Configuring representative safety signals
- ✓ Creating shutdown and interlock logic
- ✓ Monitoring application status
- ✓ Diagnosing simulated system faults
- ✓ Final application review