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# Yokogawa CENTUM VP Fundamentals

*COURSE CONTENT*

## GET IN TOUCH

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## About Multisoft

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## About Course

Yokogawa CENTUM VP Fundamentals Training provides a practical introduction to one of the widely used distributed control environments for industrial process automation. The course familiarizes participants with DCS architecture, CENTUM VP system components, FCS and HIS functions, engineering configuration, regulatory control, graphics, alarms, trends, diagnostics, and operator activities. With a combination of conceptual instruction and practical exercises, the training helps professionals strengthen the foundational skills needed to work effectively with CENTUM VP systems in process-industry environments.

## Module 1: Introduction to Distributed Control Systems and CENTUM VP

- ✓ Fundamentals of industrial process automation
- ✓ Introduction to Distributed Control Systems
- ✓ DCS functions in process industries
- ✓ Overview of Yokogawa CENTUM VP
- ✓ Key capabilities of CENTUM VP
- ✓ Typical CENTUM VP applications
- ✓ DCS versus PLC and SCADA systems
- ✓ Basic process control terminology
- ✓ Overview of the CENTUM VP engineering and operational lifecycle

## Module 2: CENTUM VP System Architecture

- ✓ Overview of CENTUM VP system architecture
- ✓ Understanding system hierarchy
- ✓ Field Control Station (FCS)
- ✓ Human Interface Station (HIS)
- ✓ Engineering Station concepts
- ✓ Application and supporting stations
- ✓ Field network and control network concepts
- ✓ Vnet/IP fundamentals
- ✓ Communication between system components
- ✓ System redundancy concepts
- ✓ Interface with field devices
- ✓ Overview of system scalability and expansion

## Module 3: Engineering Environment and System Configuration

- ✓ Introduction to the CENTUM VP engineering environment
- ✓ Understanding engineering workflow
- ✓ Project organization and structure
- ✓ Creating and managing engineering projects
- ✓ System configuration concepts
- ✓ Station configuration
- ✓ FCS configuration fundamentals
- ✓ HIS configuration fundamentals
- ✓ I/O definition concepts
- ✓ Tag and instrument definition
- ✓ Engineering database concepts
- ✓ Configuration validation
- ✓ Download and configuration deployment concepts
- ✓ Engineering documentation considerations

## Module 4: Field Control Station (FCS) Fundamentals

- ✓ Purpose and functions of an FCS
- ✓ FCS architecture
- ✓ Processor and controller concepts
- ✓ Power supply and communication components
- ✓ I/O subsystem overview
- ✓ Analog input and output signals
- ✓ Digital input and output signals

- ✓ Field signal processing
- ✓ I/O assignment concepts
- ✓ Controller redundancy
- ✓ Control execution fundamentals
- ✓ FCS status monitoring
- ✓ Basic FCS diagnostics
- ✓ Understanding FCS failure indications

## Module 5: Human Interface Station (HIS) and Operator Functions

- ✓ Introduction to the Human Interface Station
- ✓ Role of HIS in plant operations
- ✓ Operator interface fundamentals
- ✓ Navigating process displays
- ✓ Understanding process variables
- ✓ Instrument faceplates
- ✓ Manipulating process parameters
- ✓ Setpoint and output operations
- ✓ Manual and automatic operating modes
- ✓ Process status indications
- ✓ Calling different operation windows
- ✓ Operator messages
- ✓ System messages
- ✓ Understanding operator privileges and access concepts

## Module 6: Control Function Blocks and Control Strategies

- ✓ Introduction to control function blocks
- ✓ Function block configuration concepts
- ✓ Process input and output blocks
- ✓ PID control fundamentals
- ✓ PID controller parameters
- ✓ Control modes
- ✓ Setpoint handling
- ✓ Cascade control concepts
- ✓ Ratio control fundamentals
- ✓ Selector and calculation blocks
- ✓ Logic function concepts
- ✓ Sequence control fundamentals
- ✓ Interlocks and permissives
- ✓ Connecting function blocks
- ✓ Understanding control execution
- ✓ Basic control strategy examples
- ✓ Reviewing control performance

## Module 7: Process Graphics, Trends, and Operator Displays

- ✓ Fundamentals of process visualization
- ✓ Process graphic hierarchy
- ✓ Graphic display concepts
- ✓ Creating process representations
- ✓ Dynamic process data

- ✓ Process symbols and graphical elements
- ✓ Tag association with displays
- ✓ Status and condition indications
- ✓ Navigation between graphics
- ✓ Faceplate integration
- ✓ Trend display fundamentals
- ✓ Real-time trend monitoring
- ✓ Historical trend concepts
- ✓ Selecting process variables for trends
- ✓ Using trends for process analysis
- ✓ Operator display considerations

## Module 8: Alarms, Events, and Process Monitoring

- ✓ Fundamentals of alarm management
- ✓ Alarm types and priorities
- ✓ Process alarms
- ✓ System alarms
- ✓ Alarm generation concepts
- ✓ Alarm status indications
- ✓ Alarm acknowledgement
- ✓ Alarm summary displays
- ✓ Event messages
- ✓ Operator event monitoring
- ✓ Alarm history concepts
- ✓ Understanding alarm limits
- ✓ High and low process alarms

- ✓ Alarm suppression and management concepts
- ✓ Identifying abnormal process conditions
- ✓ Using alarm and event information during troubleshooting

## Module 9: System Communication, Diagnostics, and Maintenance

- ✓ CENTUM VP communication fundamentals
- ✓ Vnet/IP communication overview
- ✓ Station communication concepts
- ✓ Understanding system status
- ✓ System diagnostic functions
- ✓ Station status monitoring
- ✓ Controller status monitoring
- ✓ I/O status monitoring
- ✓ Communication status indications
- ✓ Identifying system abnormalities
- ✓ Basic diagnostic workflow
- ✓ Understanding system messages
- ✓ Engineering backup concepts
- ✓ Configuration management considerations
- ✓ Basic preventive maintenance practices
- ✓ Troubleshooting common system-level issues

## Module 10: Practical Process Control Applications and Troubleshooting

- ✓ Understanding a typical process control application
- ✓ Reviewing process instrumentation and tags
- ✓ Mapping field signals to control functions
- ✓ Configuring a basic control loop
- ✓ Understanding PID loop operation
- ✓ Monitoring process values from HIS
- ✓ Performing basic operator actions
- ✓ Observing alarm behavior
- ✓ Reviewing process trends
- ✓ Identifying abnormal operating conditions
- ✓ Checking controller and I/O status
- ✓ Basic troubleshooting methodology
- ✓ Engineering versus operational troubleshooting
- ✓ Configuration verification
- ✓ Practical control scenario walkthrough
- ✓ Recommended engineering and operational practices