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Systems

Siemens PCS 7 Batch

COURSE CONTENT

GET IN TOUCH

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About Multisoft

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About Course

The Siemens PCS 7 Batch Training provides a structured understanding of engineering and operating batch-controlled production processes within the SIMATIC PCS 7 environment. Participants learn how ISA-88 principles, equipment structures, recipes, production orders, batch execution, visualization, reporting, and diagnostics work together in an integrated batch automation solution. With a combination of conceptual learning and practical configuration exercises, the course prepares automation and process control professionals to work more effectively with PCS 7 Batch applications in industrial environments.

Module 1: Introduction to Siemens PCS 7 and Batch Processing

- ✓ Overview of process automation and batch manufacturing
- ✓ Introduction to SIMATIC PCS 7
- ✓ Role of SIMATIC BATCH within PCS 7
- ✓ Continuous, sequential, and batch process concepts
- ✓ Batch production terminology
- ✓ Typical industrial applications of batch automation
- ✓ Overview of batch production workflow

Module 2: PCS 7 Architecture for Batch Applications

- ✓ PCS 7 system architecture overview
- ✓ Engineering Station and Operator Station concepts
- ✓ Automation Systems and process controllers
- ✓ Server and client architecture
- ✓ Communication within PCS 7
- ✓ Integration of SIMATIC BATCH with PCS 7
- ✓ Batch server and batch client concepts
- ✓ Engineering and runtime interaction

Module 3: SIMATIC BATCH Architecture and Components

- ✓ SIMATIC BATCH system overview
- ✓ Batch engineering environment
- ✓ Batch Control Center

- ✓ Recipe Editor
- ✓ Batch server functions
- ✓ Batch client functions
- ✓ Batch data management
- ✓ Interaction between batch components
- ✓ Understanding batch runtime operations

Module 4: Batch Project Configuration and Engineering Environment

- ✓ Preparing a PCS 7 project for batch functionality
- ✓ Batch-related project settings
- ✓ Engineering workflow
- ✓ Configuring batch components
- ✓ Assigning batch servers and clients
- ✓ Batch project data
- ✓ Compiling batch-relevant information
- ✓ Transferring configuration to the batch system
- ✓ Configuration verification

Module 5: Plant Hierarchy and Batch-Relevant Equipment

- ✓ Understanding the PCS 7 plant hierarchy
- ✓ Physical model of a batch plant
- ✓ Process cells, units, and equipment modules
- ✓ Control modules in batch applications

- ✓ Creating batch-relevant hierarchy structures
- ✓ Unit configuration
- ✓ Equipment allocation concepts
- ✓ Equipment properties
- ✓ Mapping plant structures to batch operations
- ✓ Preparing equipment for recipe execution

Module 6: Equipment Phases and Equipment Operations

- ✓ Introduction to equipment phases
- ✓ Equipment phase functionality
- ✓ Equipment operations
- ✓ Phase parameters
- ✓ Process parameters and setpoints
- ✓ Phase states and transitions
- ✓ Commands and operating modes
- ✓ Interlocks and permissives
- ✓ Linking phases with automation logic
- ✓ Phase execution and monitoring
- ✓ Handling phase faults and interruptions

Module 7: Master Recipe Engineering

- ✓ Recipe hierarchy and terminology
- ✓ Introduction to master recipes
- ✓ Recipe Procedure (RP)
- ✓ Recipe Unit Procedure (RUP)

- ✓ Recipe Operation (ROP)
- ✓ Recipe Phase (RPH)
- ✓ Creating recipe structures
- ✓ Configuring recipe steps
- ✓ Defining transitions
- ✓ Parallel and sequential recipe branches
- ✓ Loop and alternative sequence concepts
- ✓ Recipe parameters
- ✓ Recipe validation and consistency checks
- ✓ Recipe release and lifecycle concepts

Module 8: Formula, Parameter, and Material Management

- ✓ Understanding formulas in batch production
- ✓ Formula categories and parameters
- ✓ Configuring formula parameters
- ✓ Recipe parameter handling
- ✓ Setpoint management
- ✓ Material-related batch concepts
- ✓ Input and output materials
- ✓ Material quantities
- ✓ Parameter transfer during execution
- ✓ Recipe variants and production flexibility
- ✓ Managing production-specific values

Module 9: Batch Planning, Creation, and Execution

- ✓ Batch production workflow
- ✓ Creating production orders and batches
- ✓ Selecting master recipes
- ✓ Assigning formulas
- ✓ Entering batch parameters
- ✓ Unit allocation
- ✓ Static and dynamic allocation concepts
- ✓ Batch release
- ✓ Starting batch execution
- ✓ Monitoring recipe execution
- ✓ Holding, stopping, and resuming batches
- ✓ Aborting batch operations
- ✓ Handling batch status changes
- ✓ Completing and closing batches

Module 10: Batch Control, Operator Interaction, and Monitoring

- ✓ Batch Control Center operations
- ✓ Batch visualization
- ✓ Monitoring active batches
- ✓ Recipe status representation
- ✓ Equipment status monitoring
- ✓ Operator commands
- ✓ Manual intervention during batch execution

- ✓ Operator dialogs and acknowledgements
- ✓ Managing process deviations
- ✓ Batch messages and alarms
- ✓ Handling abnormal operating conditions
- ✓ Monitoring multiple batches

Module 11: Batch Data, Reporting, Archiving, and Diagnostics

- ✓ Batch production data concepts
- ✓ Batch event recording
- ✓ Process and recipe-related information
- ✓ Batch history
- ✓ Batch reports
- ✓ Production documentation
- ✓ Batch data archiving
- ✓ Traceability considerations
- ✓ Diagnostic information
- ✓ Analyzing batch execution problems
- ✓ Server and communication diagnostics
- ✓ Recipe execution troubleshooting
- ✓ Common configuration errors

Module 12: Integrated Batch Application and Practical Exercises

- ✓ Reviewing complete batch engineering workflow
- ✓ Configuring a sample batch plant structure
- ✓ Preparing units and equipment phases
- ✓ Creating a master recipe
- ✓ Configuring recipe parameters and formulas
- ✓ Creating and releasing a production batch
- ✓ Executing the batch
- ✓ Monitoring phase and recipe progression
- ✓ Performing operator interventions
- ✓ Reviewing batch messages and production data
- ✓ Diagnosing execution issues
- ✓ Batch application troubleshooting
- ✓ End-to-end practical batch automation scenario