



CENTUM VP Batch Training Course 7520



Course Description

This course consists of lectures, demonstrations, laboratory exercises and question and answer sessions designed to familiarize the student with the features and terminology of batch processes, the engineering methodology for automating a batch plant, and the implementation of batch control and recipe management on the CENTUM VP Batch platform.

Duration

5 days / 3.3 CEUs

Objectives/Outcomes

Upon completing the course, the learner will be able to exhibit the ability to:

- Describe the unique characteristics of batch processes
- Relate to the terminology and batch control models of ISA standard S88.01
- Express the methodology for engineering a batch control project
- Use the Yokogawa batch software manuals, including on-line documentation
- Design and build Unit Instruments using CENTUM VP Batch
- Design and build recipe Operations and Phase logic using CENTUM VP Batch
- Accommodate shared process resources such as pumps and headers
- Build Master Recipes including header, logic, formula data, and equipment requirements
- Create, load, execute, pause, restart and otherwise operate Control Recipes
- Create a batch report which is automatically printed at the end of each batch
- Configure access control security for recipe engineering functions
- Create and display a batch trend
- Backup and restore a batch project

Intended Audience

All Application/Process Engineers responsible for the design, implementation, or application maintenance of a CENTUM VP Batch control system.

Course Prerequisites

- CENTUM VP Engineering - Course #7420

Technical Requirements

- Experience with Basic Process Control and DCS Systems
- Basic file/folder manipulation in a Windows environment

Materials

Each learner will be provided with a copy of the course training manual, class handouts, and laboratory exercises. If desired, each student may receive a copy of their completed class laboratory project on CD-ROM for future reference or practice.

Requirements to Be Awarded CEUs

- Submit completed course Registration Form
- Fulfill financial obligations
- Fulfill the 90% attendance requirement by signing-in each day of facilitated course
- Fulfill the 70% or above overall scoring requirement on labs and projects



CENTUM VP Batch Training Course 7520



Course Syllabus

Day 1

- Introduction
- Course Objectives, Outline & Schedule
- Characteristics & Control Requirements of Batch Processes
 - Typical Batch Process Equipment
 - Types of Batch Processes
 - Batch Automation Objectives
- Familiarization with Example Process (*hands-on Laboratory*)
- ISA S88.01 Batch Control Models and Terminology
- Additional Batch Automation Concepts
- General Batch Control Engineering Methodology
- Overview of CENTUM VP Batch Packages
- Familiarization with an Automated Recipe (*hands-on Laboratory*)
- Step-by-Step Activities Involved in Configuring Centum VP Batch
- Simultaneous Execution of Multiple Batches (*hands-on Laboratory*)

Day 2

- Concept of Unit Supervision
- Batch Engineering Activities
 - Identification of Unit Instruments
 - Identification of Shared Resources
 - Assignment of Field Devices to Unit Instruments
- Concept of Plant Hierarchy
- Building a Plant Hierarchy (*hands-on Laboratory*)
- Building Unit Instruments
 - TEAPOT Unit Instrument (*hands-on Laboratory*)
 - PITCHER1 Unit Instrument (*hands-on Laboratory*)
 - PITCHER2 Unit Instrument (*hands-on Laboratory*)
- Management of Shared Resources
- Building Supporting Instruments (*hands-on Laboratory*)
- Concept of Recipe Common Blocks
- Setup of User-Defined Common Blocks (*hands-on Laboratory*)
- Project Backup & Restore (*hands-on Laboratory*)

Day 3

- Derivation of Batch Operations from a Recipe
- Concept of SFC Sequences, Operations & Phases
- SFC Sequence Engineering Builder Screens
- Operation SFC Function Blocks
- Basics of SEBOL Batch Control Language
- Building SFC Sequences (*hands-on Laboratory*)
- Building Operation SFC Instruments (*hands-on Laboratory*)

Day 4

- Concept of Process Management
- Setup of Process Management Environment (*hands-on Laboratory*)
- Batch Plant Trains and Paths
- Building Trains and Paths (*hands-on Laboratory*)



CENTUM VP Batch Training Course 7520



- Concept of Master Recipes
 - Overview of CENTUM VP Recipe Handling
 - Recipe Management Engineering Builder Screens
- Building a Master Recipe (*hands-on Laboratory*)
- Overview of Batch Operation & Monitoring Screens
- Loading and Operation of a Control Recipe (*hands-on Laboratory*)

Day 5

- Concept of Exception Handling Logic
- Modification of Master Recipe to Include Exception Handling (*hands-on Laboratory*)
- Operation of Control Recipe with Exception Handling Logic (*hands-on Laboratory*)
- Customizing the State Transition Matrix
- Creating a Custom State Transition Matrix (*hands-on Laboratory*)
- Concept of Batch Reporting
- Batch Report Builder
- Adding a Batch Report to the Master Recipe (*hands-on Laboratory*)
- Access Control Utilities
- Configuring Access Control for Recipe View (*hands-on Laboratory*)
- Batch Trends
- Creating and displaying a Batch Trend (*hands-on Laboratory*)
- Wrap-up, Question-and-Answer

Intellectual Property Rights

Yokogawa's Education Center owns unlimited exclusive rights to all works, including literary works, pictorial, graphic and sculptural works, architectural work, works of visual art and other work that may be subject matter of copyright protection; advertising and marketing concepts; information; data, formulas, designs specifications, and flowcharts; trade secrets; and any invention that may be subject matter of patent protection; and all statutory protection obtained or obtainable thereon.