SIEMENS

Process Automation - PCS7 PCS 7 AS Advanced Engineering

General Information

Course Code: SCT-PCSASE1B Length: 41/2 Days

Audience

This course is intended for PCS 7 users already proficient at engineering PCS 7 AS/OS projects.

Prerequisites

 PCS7 System Engineering 1: In-Class - SCT-PCSYSE1D or Virtual - SCT-PCOILSYSE1D

Profile

2.9 CEUs (Continuing Education Credits)

This is an advanced AS engineering course designed for experienced PCS 7 users, engineers and Solution Partners. The goals of this course are to enhance the student's skill-set by exploring advanced AS configuration topics and solutions to common application problems. This course begins with the programming/specifying of the hardware components based on memory and cycle time requirements. Project handling will include archiving, Multiproject / multi-user engineering, project comparison, access protection and license management. AS hardware configuration topics will include important settings, Profinet / field device integration, high precision time stamping and redundant automation systems. APL v8 innovations and CPU overload reactions will also be discuss as efficient engineering topics. Bulk engineering with Advanced ES will be presented with a highlight on Control module types vs. Process tag types as well as the importing of control modules/process tags using excel. Some advanced SFC and advanced alarm engineering/management topics will be reviewed including Advanced Process Control (APC) options.

Objectives

Upon completion of this course, the student shall be able to:

- Calculate memory, systems structure and architecture requirements
- Configure automatic archives/read-back jobs and a distributed Engineering Station
- Compare project versions and use access protection
- Engineer with Advanced ES tools
- Use advance features of SFCs, SFC types and alarm messaging
- Use advanced Process Control (APC) strategies

Topics

- 1. Common simulation tools
- 2. PCS 7 Documentation and Online Support
 - a. What types of PCS 7 documentation are available
 - b. Navigation through the Industry Online Support
 - c. All functions and possibilities of the Industry Online Support
- 3. Requirements and functional process description
 - a. The functions of the plant to be controlled
 - b. The type of used devices
 - c. The features of the "signal box" training aid
- 4. System design and component specification
 - a. Memory concept of the S7-400 CPU
 - b. New system architectures
 - c. Calculation of memory requirements
 - d. Determine structure and architecture of a process control system
- 5. PCS7 Project handling
 - a. Archiving the project
 - b. Creating automatic archive/read-back jobs
 - c. Multiproject and multi-user engineering
 - d. Configure a distributed engineering station
 - e. The Master data library
 - f. Compare project versions
 - g. The PCS 7 License management
 - h. Using different levels of access protection
- 6. Advanced ES
 - a. Control module types (CMT)
 - b. Creating control module types
 - c. Control modules
 - d. Advanced ES
 - e. Generate technological hierarchy, control modules and hardware from Advanced ES based on excel tables
- 7. SFC Advanced
 - a. How to link CFC and SFC
 - b. The operating state logic in SFC
 - c. The SFC templates from the SFC library
 - d. Creating and using SFC types
- 8. Advanced alarm engineering
 - a. Generate additional messages
 - b. Use the new Alarm Control in PCS 7 OS
 - c. Import and export block related messages
 - d. Modify diagnostic message texts
- 9. Advanced Process Control (APC)
 - a. Improving plant performance using APC tools
 - b. Using the right APC function
 - c. APC tool n the PCS 7 library
 - d. APC functions
 - e. Work with PID-Tuner
 - f. Work with the APC-Templates
 - g. What are the objectives for using APC functions