

PCS7 System Engineering 1

General Information

Course Code SCT-PCSYSE1D
 Global Code ST-PCS7SYS
 Length 4 Days
 CEUs 2.4

Audience

Controls engineers using PCS7 to develop a process system solution.

Prerequisites

- Solid computer skills
- Basic automated controls experience
- Industrial electronics experience

Profile

This course is designed for controls engineers who are responsible for project design, development and commissioning a PCS7 system. The goals of this course are to aggressively help the student learn a basic system configuration and project design using standard system tools and libraries. This course begins with the definition of a typical project and planning the system architecture. The students will then actively build, test and debug a simple PCS7 process system exploring the Automation Station, Engineering Station and Operator Station engineering environments. Hands-on lab exercises are used to build experience with system engineering, process optimization and common troubleshooting.

Objectives

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

- Define the requirements and components of a PCS7 system solution.
- Configure a Multi project complete with Component and Plant Hierarchy
- Configure basic Continuous Function Charts using standard system tools and libraries.
- Configure basic Sequential Function Charts using standard system tools and libraries.
- Configure a basic Operator Station configuration using standard system tools and tag interfacing.
- Configure and test basic network communications including, Ethernet and PROFIBUS DP.
- Perform a basic system check out using standard system tools and diagnostics.

- Use the Help, Documentation and On-line tools.
- Perform basic system administration and project management functions.

Topics

1. Introduction
 - a. Concept of this course
 - b. Road map of this course
 - c. Additional documentation
 - d. Training equipment
 - e. Access to systems of other students
2. PCS 7 Documentation and Online Support
 - a. Documents available by PCS 7 Installation
 - b. Additional sources of information
 - c. Industry Online Support Internet Portal
 - d. Working with "mySupport"
 - e. Support Request
 - f. Forum - the communication platform for Siemens Industry products
3. Requirements and Functional Process Description
 - a. In brief - project scenario
 - b. Process diagram
 - c. Functional process description
 - d. Connection to a Signal box (Optional)
4. System Design and Component Specification
 - a. PCS7 system overview
 - b. Before engineering starts
 - c. Automation System
 - d. Distributed I/O system
 - e. Combined Engineering/Operator system
 - f. Networked stations and systems / Industrial Ethernet
 - g. Simulation Tools
5. Project setup
 - a. Overview about configuration steps for AS and OS
 - b. SIMATIC PCS 7 Engineering Toolset
 - c. What is a Multi project?
 - d. Initial settings of SIMATIC Manager
 - e. Setting up a Multi project
 - f. Language for Display Devices
 - g. Archiving and retrieving a project, library or multi project
6. Station and network configuration
 - a. Station and network configuration - Principles and relationships
 - b. PC Station Configuration
 - c. AS Station Configuration in the project
 - d. Distributed IO with PROFINET
 - e. PROFINET Configuration
 - f. The final Download
 - g. HW Config - Diagnostics
7. Connection to the process

- a. Component View and Plant View
 - b. Basics for charts and blocks
 - c. Organization blocks
 - d. Run Sequence
 - e. Different groups of blocks
 - f. Driver Blocks
 - g. Trend Display
 - h. Dynamic Display
 - i. Connection to the Process simulation in this training
- 8. Basics control functions
 - a. Introduction to APL blocks
 - b. Textual interconnections
 - c. Alarm blocks in PCS 7
 - d. Process Object View
- 9. Basics Operating and Monitoring
 - a. General
 - b. Plant Hierarchy Settings
 - c. OS-AS Connection
 - d. Project type
 - e. Compilation
 - f. Layout
 - g. Block Icons and Faceplates
- 10. Basics Automatic Mode Control
 - a. Setting the Auto/Manual mode by program
 - b. Sequential control with SFC
 - c. Sequences on the OS