

CDN-PCS7

## PCS7 System Engineering 1

### General Information

Course Code: CDN-PCS7-SYS5  
Length: 4½ Days

### Audience

Controls engineers using PCS7 to develop a process system solution.

### Prerequisites

- General knowledge of and experience working with Siemens PLC or DCS controls is required
- Basic automated controls experience
- Solid computer skills
- S7 V5.5 Programming 1

### 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 multiproject 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 Support
  - a. Documents available by PCS 7 Installation
  - b. Additional sources of information
  - c. Industry Online Support Internet Portal
  - d. Functions of the Industry Online Support Internet Portal
  - e. Communication in the Industry Online Support Internet Portal
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 Multiproject?
  - d. Initial settings of SIMATIC Manager
  - e. Setting up a Multiproject
  - 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
7. Connection to the process
  - a. Component View and Plant View
  - b. Task 7 and Checkpoint
  - c. Basics for charts and blocks
  - d. Organization blocks

- e. Run Sequence
  - f. Different groups of blocks
  - g. Driver Blocks
  - h. Trend Display
  - i. Dynamic Display
  - j. 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. Basic sequential control with SFC
11. Customizing the OS
- a. basic bloc icon customization
  - b. basic OS object animations
  - c. basic user administration