

## PCS7

This course has been designed to familiarise students with the operation and control of the PCS7 control system. This will include the individual elements, the S7 400 Controllers, Simatic Manager and WinCC HMI systems.

### Objectives

To introduce students to the concepts and operation of S7 and WinCC used to form the PCS7 system, including the following areas:

- ✓ Structuring of the programs for S7 controllers.
- ✓ Profibus communications
- ✓ Communications between the S7 and WINCC
- ✓ Monitoring and editing the S7 program
- ✓ Reading and understanding CFC, STL and SCL in the S7 Program.
- ✓ PCS7 tag database.
- ✓ WinCC template screens
- ✓ Building WinCC screens

### COURSE CONTENT

- ✓ Introduction to the components of a PCS7 system both in terms of Hardware, communication networks and the Software including the Automation System (AS) Controller, OS/ES.
- ✓ Introduction to the PCS7 project structure, using the Engineering system (ES) Simatic Manager to showing the Plant Hierarchy, CFC, SCL, SFC and Operator Station.
- ✓ Creating a PCS7 project.
- ✓ Review of FB and FC block structure.
- ✓ Complex data types including-
- ✓ Hardware configuration
- ✓ Introduction to plant hierarchy.
- ✓ Creating CFC charts.
- ✓ Compiling, downloading and testing a project.
- ✓ Using Textual interconnections.
- ✓ Using existing software engineering objects such as Function blocks and templates from the PCS7 Standard library for analogue and digital I/O, motors, valves and control loops in CFC charts.
- ✓ Creating SCL function blocks, then using them in the CFC charts.
- ✓ Sequential Control – SFC. Introduction to the concept of SFC, creating SFC and using the editing and monitoring tools in working example. As well as step failure action, step timers, parallel branches.
- ✓ Introduction to the Operator Station – OS (WinCC HMI). Understanding the Single/multi OS and AS and the plant hierarchy. Exercise on how to build plant mimics, understanding alarms and messages and security and authorisation levels.
- ✓ Alarming, further information including Locks, Areas and types.
- ✓ Trending, adding trending to the operator mimics.
- ✓ Fault finding, using card indication and recovery after power failure.
- ✓ PID control in CFC charts.
- ✓ Backing up a PCS7 system.

#### Course Reference PCS7

#### Course Duration 5 Days

**Documentation**  
Siemens S7 Programming and Maintenance Training Manual, WinCC and PCS7 manual

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