



Siemens S7-1200 / S7-1500 and WinCC Flex Level 1

Software	Siemens TIA Portal
PLC Type	Siemens S7-1200 / S7-1500
Duration	5 Days
Max. Delegates	6

Course Outline

Upon completion of the course the student should:

- Be able to recognise S7-1200 / S7-1500 hardware and be able to replace modules when a fault occurs.
- Be able to operate the TIA Portal software to make it perform certain tasks.
- Understand basic S7-1200 / S7-1500 instruction set and be able to make minor modifications to software.
- Be able to backup and restore a PLC program when required.
- Be able to perform basic system diagnostics when a problem occurs.
- Be able to recognise WinCC hardware and be able to replace modules when a fault occurs.
- Be able to operate the WinCC software to make it perform certain tasks.
- Understand basic concept of tags etc and communications with the PLC
- Be able to backup and restore a WinCC program when required.
- Be able to perform basic system diagnostics when a problem occurs.
- Be able to add basic functions to screens, buttons, numeric display, bar graphs, trends, etc

Course Equipment per Delegate

- Siemens S7-1200 or S7-1500 PLC.
- PC or laptop.
- Simulator.

Course Content

To fault find a system you need to know *exactly* how it works.

How exactly does a PLC work?

- Am I getting the input into the PLC?
- The LED on the output card means I am getting voltage out right?
- What exactly happens in-between? There's more than just a program in the CPU.

- How exactly does it scan the program?
- What is this Watchdog Timer? Is it that important?
- Can I use the same output twice? That's bad programming isn't it?
- A PLC is a logic controller, so use a logical approach to fault find it.
- What are the 8 simple test points to check?
- What is the difference between forcing and toggling?

How do I do the following?

- S7-1200 / S7-1500 family hardware (basic specifications).
- Basic hardware troubleshooting.
- Theory of operation.
- IO addressing.
- Understanding program notation I, Q, T, C, M, D, etc
- S7 v13.0 user interface.
- Setting up a project.
- Hardware configuration.
- Program representation (LAD).
- Program structure and logic block types.
- Basic instruction set (timers, counters, flip-flops).
- Local and global variables.
- Data types and parameter types.
- Data blocks.
- Establishing online connections.
- Upload and download projects.
- Diagnostic functions (module information / diagnose hardware).
- Program monitoring.
- Using cross reference function to aid fault finding.
- Searching for specific operands and instructions.
- Monitor and modify variables.
- Rewire function.
- Program documentation (symbols, comments).
- Printing cross reference / program listings, etc.
- Getting started with a WinCC terminal.
- Connecting communications cables.
- Creating a WinCC application file.
- Defining communications parameters.
- Creating a tag database.
- Creating screen text and screen selectors.
- Downloading an application.
- Adding controls to a WinCC application.
- Creating messages.

- Creating a report for a WinCC application.
- Troubleshooting a WinCC terminal and application.
- Generation of documentation to assist fault finding.

Booking and More Information

To book onto this course or for more information regarding course content, schedule or pricing please email sales@foxmere.com or call the main office on 01922 349 999.

