

WESCO Siemens S7-300 Workshop

Length 2 ½ days

Target Audience:

This course is for SIMATIC S7-300/400 PLC users who are involved with developing or maintaining automation systems and their application programs.

Prerequisites

MS Windows Expertise

Profile:

This course introduces the S7 product family and provides an overview of the SIMATIC S7-300/400 system. Hardware and software components as well as system configuration issues are discussed.

This course concentrates on STEP 7 software, program structuring and the instruction set. STEP 7 software tools and programming instructions are demonstrated to guide the student through the development of a realistic application. Analog processing and alarming are detailed through theory and program examples.

The course format consists of instruction and hands-on exercises. Students will use test, debug and diagnostic tools to complete the programming exercises.

Goals:

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

- Identify the components and performance characteristics of the SIMATIC S7-300 PLC.
- Program using the multiple address types.
- Use symbolic addressing.
- Create, document, test and troubleshoot an application program.
- Use binary operation, timers, counters, comparators, and arithmetic operations.
- Structure a program that can use a program block multiple times.
- Use the data access functions.
- Program using the processed analog values.
- Generate data blocks.

Topics:

- 1) SIMATIC S7 System Family overview
 - a) S7-300 components
 - b) Programming and communication devices
 - c) Networking possibilities
- 2) STEP 7 programming software
 - a) Hardware and software requirements
 - b) Installation procedure
 - c) Using the Help and Tutorial files
 - d) Using the Menus and Toolbars
 - e) Understanding the STEP 7 file structure
- 3) Configuring and parameterizing the S7
 - a) STEP 7 configuration tools
 - b) CPU and I/O configuration and parameterization
- 4) Principles of STEP 7 programming
 - a) Program structure, execution and scan
 - b) User and data type program blocks
 - c) I/O addressing and registers
 - d) Program editing with LAD (Ladder Logic)
 - e) Symbolic programming
 - f) Organization blocks and priorities
- 5) Using the S7-300 instruction set
 - a) Basic logic elements
 - b) Standard logic instructions
 - c) Advanced logic instructions
 - d) Using the instruction set to solve an application program
- 6) Debug and test tools
 - a) Using the Program Editor status
 - b) Using S7 status chart monitoring feature
 - c) Monitoring and modifying variables
- 7) Analog processing and programming
 - a) Analog module addressing
 - b) Analog input & output signal conversion
 - c) Processing and alarming with the analog values in S7
 - d) Scaling analog to engineering values
- 8) Program documentation and storage
 - a) Documenting program blocks and networks
 - b) Creating cross-reference lists
 - c) Printing programs with documentation
 - d) Archiving projects and programs