

SIMATIC® S7 System Tools & Troubleshooting Level 1
Course Code: S7300S1B

Length: 4½ Days

Target Audience:

This course is designed for industry "first responders" to operations controlled with Siemens STEP 7 automated control systems. Students not requiring programming skills, such as maintenance technicians, electricians, supervisors and others, who need an understanding of their Siemens control system to maximize line uptime, should attend this course. This course also makes a great platform for those new to automation systems and industrial electronics.

PLEASE NOTE: If PLC programming as a job skill is required, one may consider the S7 Programming I, instead.

Profile:

This course provides students with a solid base of STEP 7 PLC tools and skills necessary for successful system diagnostics and repair. This course is ideal for environments with high uptime requirements and stable control system programs. Fully functional application programs are used as a baseline for the student to understand key process flow information, diagnostics tools and repair techniques. This course also focuses on core hardware issues for system commissioning, upgrades or system repair needs. Build skills and reduce downtime with this focused automation system troubleshooting course.

Modular in design, this course is fully customizable for those interested in on-site training. Topics can be added or removed to meet specific needs.

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

- Identify and maintain the components of a typical automation system.
- Perform basic hardware assembly, cabling, wiring and testing.
- Establish communications with the PLC with multiple technologies.
- Use standard S7 tools for testing and debugging hardware and software problems in an existing program.
- Retrieve, Archive, and Download programs.
- Use the hardware configuration editor to inspect and troubleshoot hardware problems.
- Use SIMATIC Manager tools for basic program administration tasks.
- Follow program power/logic flow and interpret/modify basic program elements.
- Access system support tools and information pertinent to maintaining equipment uptime.

Topics:

- 1) STEP 7 Family Overview
- 2) Application Program Training Units
- 3) PLC Hardware and Cabling
 - a) S7 300 Hardware
 - b) S7 400 Hardware
 - c) Remote I/O Hardware
 - d) PROFIBUS Cable Testing
- 4) Configuring the Hardware
 - a) Building the Main Rack Configuration
 - b) Configuring the PROFIBUS Network
- 5) Debugging the Hardware
 - a) S7 LED Indications
 - b) Module Information Tool
 - c) Testing I/O
- 6) Communication to the PLC
- 7) Using Software Tools
 - a) Introduction to SIMATIC Manager
 - b) STEP 7 Help
 - c) Clear the PLC memory
 - d) Project and Program Structure
- 8) Memory Addressing
 - a) S7 Memory Areas and Addressing
 - b) Symbols Tool
- 9) Program Diagnostics
 - a) On-line monitoring
 - b) Reference Data Tool
- 10) Programming Languages Introduction
 - a) LAD (Ladder)
 - b) FBD (Function Block Diagram)
 - c) STL Overview (Statement List)
- 11) Archiving and Retrieving