
SIEMENS PLC 1

TRAINING COURSE OUTLINE

COURSE SUMMARY

This course introduces participants to Siemens Simatic Step 7, focusing on PLCs, system components, addressing in the S7-300 system, and Step 7 programming software. Participants will learn to communicate with the PLC and program using Statement List (STL), Function Block Diagram (FBD), and Ladder Logic. The course covers creating, downloading, and uploading programs, as well as the S7/TIA PLC program structure including OBs, FCs, FBs, DBs, and instance DBs.

Participants will also gain practical skills in wiring and troubleshooting power supply units, controllers, digital and analog IO cards, and software. The course includes monitoring techniques, fault finding, testing, forcing techniques, and common failure scenarios.

COURSE OBJECTIVES

- Know Simatic Step 7 Systems and Software Components.
- Connect and Communicate with a S7 Controller.
- Understand Step 7/TIA Project Organization and Execution.
- Know Step 7/TIA programming:
 - Statement List programs and representation
 - Function Block programs and representation
 - Ladder Logic programs and representation
 - Creating new STL and FBD programs
 - Creating a new ladder diagram
 - Downloading and uploading PLC programs
 - Know the S7/TIA PLC Program Structure –
 - OBs, FCs, FBs, DBs and instance DB
 - Install wiring for S7 PLCs
 - Troubleshoot Step 7 hardware components and software

COURSE OUTLINE

- Introduction to PLCs
- Identifying System Components
- Siemens S7-300 system addressing
- Step 7 programming software

- Communicating with the PLC
- Introduction to PLC programming:
- Statement List programs and representation
- Function Block programs and representation
- Ladder Logic programs and representation
- Creating new STL and FBD programs
- Creating a new ladder diagram
- Downloading and uploading PLC programs
- Introduction to S7/ TIA PLC Program Structure
- OBs, FCs, FBs, DBs and instance DBs
- Wiring and Troubleshooting
- Power Supply Units
- Controllers
- Digital IO Cards
- Analog IO Cards
- Software Troubleshooting
- Monitoring Techniques
- Fault finding and searching
- Testing and forcing techniques
- Common failures