SIEMENS

# S7 Programming 1 (US-S7TIAP1C)

## Type

Instructor-led Learning

## Duration and Continuing Education Units (CEU)

4 Days
2.6 CEUs

## Target Group

- Programmer
- Engineer

## Short Description

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

This hands-on, highly engaging course is the first in a three part series which builds basic programming skills using Siemens STEP7 software. Students will learn S7 project management, program design and application development. This is an aggressively paced curriculum covering S7 programming with Ladder logic. The basics of programming with Function Block Diagram (FBD), and Statement List (STL) languages are also covered. Key software tools and best practices techniques are taught. Participants employ the Totally Integrate Automation concept by integrating an S7300 PLC, HMI, ET200S remote I/O station and a desktop conveyor system connected by PROFIBUS.

## Objectives

- Configure, parameterize, and document a complete system hardware configuration
- Build, document, test, and troubleshoot a structured STEP7 program
- Program using multiple address types
- Use symbolic addressing
- Employ core application instructions, functions, and blocks
- Program using processed analog values
- Generate data blocks
- Install PROFIBUS DP connectors onto PROFIBUS cables and test the cables for correct installation
- Establish communication to an HMI

## Content

- Using SIMATIC Manager
- Configuring the Hardware system
- Introduction to Programming
- Basic Troubleshooting Concepts
- Symbolic Addressing
- Data Blocks
- Binary Operations
- Introduction to Statement List (STL)
- Digital Operations in (Lad, FBD, STL)

- Reference Data Tools
- Reusable Blocks
- Analog Value Processing
- Organization Blocks

**Recommended Prerequisites**

Introduction to SIMATIC PLCs & Languages with Diagnostics: US-S7BADIA

**Note**

Throughout this course participants build and manage a STEP7 project from beginning to end, learning proper program structure and documenting. Software diagnostic tools are used for troubleshooting both hardware and code. Various instruction sets, memory areas, program blocks, and libraries are introduced to provide the student with solid concepts of structured programming. This course employs the current adult learning techniques featuring brief lectures followed by multiple engaging hands-on, task based skills that begin early Monday morning and continue all week long. Instructors verify student skills and sign off on a task completion list throughout the week. At the end of the week, participants complete an independent project to showcase and reinforce the skills they have learned during the week.

**Language**

English