

## TIA Portal Programming with S7 Graph

### General Information

Course Code SCT-PTGPHP1A  
Global Code TIA-GRAPH  
Length 2 Days  
CEUs 1.3

### Audience

This course is for SIMATIC S7-1500 PLC users involved in developing or sustaining automation systems that use of S7Graph.

### Prerequisites

- TIA Portal Programming 1
- OR
- TIA Portal Service 1 and TIA Portal Service 2

### Profile

This course concentrates on the S7 GRAPH programming language with a review of the S7 block architecture focusing on the Function Block and the Instance Data Block. The STEP 7 TIA Portal software tools and S7 GRAPH programming element's structure are introduced within the course to guide the student through the development of a realistic application. The use of test, debug and diagnostic tools complete the programming exercises. The course is a combination of instruction and hands-on exercises.

### Objectives

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

- Structure and process a program using the program elements of S7 GRAPH
- Create, document, test and troubleshoot an application program.
- Identify the components and performance characteristics of an S7 GRAPH structure.
- Structure and process a program using the program elements of S7 GRAPH
- Create, document, test and troubleshoot an application program.
- Objective 2

### Topics

1. S7 GRAPH Programming Elements
  - a. S7 GRAPH Block
  - b. Program Editor Screen
  - c. Using the Help and Tutorial files

- d. Using the Menus and Toolbars
  - e. S7 GRAPH Property Settings
2. Principles of S7 GRAPH Programming
  - a. Calling the Graph Program
  - b. Monitoring the operation of a Sequencer
  - c. Program execution and scan
  - d. Running an Example Program
3. S7 GRAPH Program Structures
  - a. Alternative and Simultaneous Branching
  - b. Terminations and Jumps
  - c. Interlocks and Supervisions
  - d. Event Dependent Actions
  - e. Permanent Operations
4. Interaction with Other Program Modules
  - a. Operating Modes
  - b. Handling System Faults
  - c. Initializing the Sequencer
  - d. Manual control for the Sequencer
5. Documentation and Storage
  - a. Documenting program blocks and networks
  - b. Creating cross-reference lists
  - c. Printing programs with documentation
  - d. Archiving projects and programs
  - e. Symbolic programming