

Instructor-led Learning

Introduction to TIA Portal

General Information

Course Code: SCT-PTPLC11A
Length: 2 Days | 6.5 hours/day

Audience

This course is for engineers and maintenance personnel who are new to SIMATIC S7 PLCs and who will be creating, modifying, or troubleshooting S7 PLC systems using SIMATIC TIA Portal software.

Prerequisites

- MS Windows Expertise
- Basic industrial technology skills

Profile

1.9 CEUs (Continuing Education Credits)

This course is a great fit for students needing a solid introduction to the TIA Portal Development Environment and is an ideal preparation to the TIA Portal Programming 1 or TIA Portal Service 1 courses.

This course helps students unlock the potential for increased productivity by building foundational concepts and showing how they apply to STEP 7 Professional V144 (TIA Portal).

This is a live instructor led on-line course delivered in 2-hour learning modules through the web. Access to fully functional STEP 7 Professional V14 software is provided through a cloud-based application. Students are encouraged to complete assigned lab exercises during and after each session to reinforce the learning modules throughout the week. Professional Siemens instructors are available to answer student questions outside of scheduled class times.

Objectives

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

- Use STEP 7 Professional V14 (TIA Portal) to create a new development project.
- Navigate through an existing project using both the Portal View and the Project View.
- Configure an S7-1500 PLC with local I/O modules.
- Assign PLC tags.
- Identify key characteristics of program blocks.
- Identify important features of the automation languages LAD and FBD.

Topics

1. Number Systems & IEC61131 Standard
 - a. The binary number system in computing
 - b. The hexadecimal number system in computing
 - c. Overview of the IEC 61131-3 standard
 - d. Programming languages
2. Introduction to the TIA Portal Development Environment
 - a. Portal View vs. Project View
 - b. Libraries - Project vs. Global
 - c. Tags
 - d. Data Types
 - e. Cross References
 - f. PLCSIM
3. PLC Program Blocks and Variables in the Program Editor
 - a. Blocks and Block Types
 - b. The Program Editor
 - c. The Information System (Help Files)
4. Introduction to I/O and Addressing
 - a. Discrete I/O and S7-1500 PLC Modules
 - b. Analog I/O and S7-1500 PLC Modules
 - c. I/O Addressing Principles
5. TIA Portal Automation Languages
 - a. Ladder Diagram (LAD) language
 - b. Contact and Assignment (Coils)
 - c. AND, OR, and Exclusive OR (XOR) Functions
 - d. Function Block Diagram (FBD) language
 - e. AND, OR Exclusive OR (XOR), and Negate Functions
 - f. Ladder Diagram (LAD)
 - g. Function Block Diagram (FBD)
 - h. Structured Control Language (SCL)