SIEMENS

Virtual Instructor-Led Training Workshop for Educators S7-1200 - Virtual

General Information

Course Code: SCT-WSOILSCEW1A Length: 5 Days – 2.5 hours per day

Audience

This online workshop is exclusively for educators interested in developing teaching skills on Siemens automation technologies. Teaching staff from public, not for profit schools including Technical High Schools, Community Colleges, Technical Schools, Universities and Trade Schools are welcome to apply and register.

Profile

1.3 CEUs (Continuing Education Credits)

Siemens Workshops for Educators are a series of educational events designed to help teaching staff build skills in leading edge industrial automation technologies and control systems.

This virtual instructor-led workshop provides the educator with a working exposure to the TIA Portal software and the S7-1200 PLC (Programmable Logic Controller).

The online format is completely web browser based, requires no additional software installation on the attendee's computer and includes 24-hour access to a cloud-based virtual machine identical to that used in face-to-face classroom training with all necessary software, files and documents. Your workshop instructor can monitor and interact with each attendee's virtual machine in real-time.

The workshop is structured to take attendees who are new to Siemens through the core elements of building and troubleshooting a Siemens PLC project.

This is an entry-level workshop with considerable handson practice. Prior basic industrial technology skills and/or applied experience will add value to this learning.

Objectives

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

- Understand the basics of control system architecture
- Navigate the TIA Portal software
- Recognize and describe the main components of an automation system.
- Perform basic configuration of a S7-1200 PLC
- Create a PLC Program using Ladder Logic to build Functions, Function Blocks, Organization Blocks and Data Blocks.

 Troubleshoot a PLC program using diagnostic tools and methods provided in TIA Portal.

Topics

- 1. Workshop Environment and System Overview
 - a. The Virtual Instructor-led Environment
 - b. Your Virtual Machine and Hardware Simulation
 - c. Training Project Functional Description
- 2. TIA Portal Introduction
 - a. STEP 7 Range of Products
 - b. Project View and Portal View
 - c. Project Tree, Task Cards and Inspector Window
 - d. TIA Portal Settings, Storage Location, Layouts
 - e. Libraries
 - f. Help System and Functions
 - g. Archiving and Retrieving Projects and Libraries
- 3. PLC Tags and Addressing
 - a. Absolute and Symbolic Addressing
 - b. Data Type Fundamentals
 - c. Monitoring PLC Tags
 - d. PLC Tags in the HMI
- 4. Programming Blocks and the Program Editor
 - a. Structured Programming
 - b. Process Images
 - c. Types of Blocks
 - d. Cyclic Program Execution
 - e. Creating Compiling and Downloading Blocks
 - f. Monitoring Program Blocks Online
- 5. Binary Operations
 - a. Boolean Logic Operators
 - b. Program Instruction Elements
- 6. Digital Operations
 - a. Data Types in More Detail
 - b. Timers and Counters
 - c. Arithmetic Instructions
- 7. Functions, Function Blocks and Data Blocks
 - a. Block Interface, Temporary and Static Variables
 - b. Parameter Assignable Blocks
 - c. Global and Instance Data Blocks
- 8. Training and Support Options