SIEMENS

Siemens Certified Programmer, in the TIA Portal

General Information

Course Code	SCT-PTTIAC2A
Global Code	CPT-FAP
Length	5.0 Days
CEUs	3.3

Audience

This course is intended for experienced TIA Portal programmers seeking a Siemens Certification which is recognized globally. This refresher course will help prepare the participant for the Siemens Certified Programmer, in the TIA Portal, Certification Test delivered on the last day.

Prerequisites

- Advanced Programming Experience
- TIA Portal Programming 1 (face-to-face or virtual)
- TIA Portal Programming 2 (face-to-face or virtual)
- TIA Portal Programming 3 (face-to-face or virtual)

Profile

This hands-on, instructor led course provides a focused review and skills refresher of topics taught in TIA Portal Programming 1, 2, and 3 courses. This course is intended to prepare the student for the Siemens Certified Programmer Test scheduled on the last day.

Objectives

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

• Successfully complete the Siemens Certified Programmer, in the TIA Portal test.

Topics

- 1. Course Overview
 - a. Course goals
 - b. Course project overview
 - c. Training equipment
 - d. Create course project
- 2. Hardware
 - a. Prepare CPU and MMC for initial use
 - b. Configure, parameterize, and commission a main rack hardware station with digital and analog cards.
 - c. Configure, parameterize and commission remote PROFIBUS hardware station.

- d. Configure a switch for Ethernet communications.
- e. Communicate to the PLC system using PROFINET, PROFIBUS, and MPI.
- f. Set up Report System Error (RSE) in the hardware configuration.
- 3. Tag (Symbol) Table
 - a. Create and use a Tag (symbol) table.
 - b. Create/assign PLC tags in hardware, code and tag table.
 - c. Local and Global tags
- 4. Program principles
 - a. TIA Portal FC, FB programming Block Types
 - b. Data blocks
 - c. Organization blocks
 - d. Process Image Inputs/Outputs, Memory
 - e. Variable (watch) tables
 - f. Write, download and test Ladder Boolean logic according to a project description.
 - g. Write, download and test Statement List (STL) digital and math logic according to a project description.
 - h. Acquire, scale and store analog values
 - i. Create reusable code blocks and demonstrate parameter passing skills.
 - j. Multi-instance Function blocks/data blocks
 - k. UDTs
 - I. Indirect addressing
- 5. Troubleshooting Program errors
 - a. Cross-reference and locate addresses in the code.
 - b. Determine what addresses are available for use in the code.
 - c. Troubleshoot functional errors
 - d. Troubleshoot stop errors
 - e. Back-up, restore and download a project
- 6. HMI
 - a. Principles of data exchange between CPU/HMI
 - b. Add an HMI to a STEP 7 project
 - c. Configure, commission, and communicate with an HMI
 - d. Connect HMI tags to the PLC
 - e. Load a Project to the HMI
 - f. Create HMI screens, I/O fields, buttons, and recipes
 - g. Create digital and analog alarms in the HMI and add trigger code to PLC
 - h. Create alarm views and display Report System Error (RSE) messages on the HMI

7. MICROMASTER Drive

- a. Factory reset a drive
- b. Configure, parameterize and commission a PROFIBUS drive
- c. Write program code to control the drive from the PLC.
- 8. Independent Project: Demonstrate and evaluate acquired skills by performing specific programming tasks outlined in a comprehensive course wrap-up project.
- 9. Complete the Siemens Certified Programmer, in the TIA Portal test.