

SIMATIC Programming 3 in TIA Portal (TIA-PRO3)

Type

Instructor-led Learning

Duration and Continuing Education Units (CEU)

4.5 Days

3 CEUs

Target Group

- Programmer
- Commissioning
- Engineer

Short Description

The Totally Integrated Automation Portal (TIA Portal) forms the work environment for integrated engineering with SIMATIC STEP 7 and SIMATIC WinCC. The third part of the SIMATIC TIA Portal programming training is based on the knowledge of the TIA Portal gained in the SIMATIC S7 TIA Portal programming courses 1 and 2, including STEP 7, SIMATIC S7, HMI, connection of drives, and PROFINET IO. You will expand your knowledge regarding the reusability of STEP 7 blocks and their storage in user libraries. You will learn how to use the library concept to manage versioning of objects, so called typification and also working with indirect addressing. You will create user-specific blocks for reporting, handling and analyzing program errors. To save the machine data, you will learn how to manage recipes in SIMATIC HMI (operator control and monitoring system). There will be an introduction to safety integrated concepts. You will set up communication between SIMATIC CPUs based on Industrial Ethernet. Working with Technology Objects for Positioning Axis and simple closed-loop control. The comprehensive knowledge that is imparted to you will allow you to shorten configuration times and to react flexibly to the need to optimize your plant.

Objectives

- Understand the principle of object-oriented programming
- Program reusable STEP 7 blocks based on IEC 61131-3 in an object-oriented manner
- Create usable blocks as well as user libraries
- Understand typification and working with indirect addressing
- Program STEP 7 blocks for program-related error handling and evaluation
- Program alarm messages
- Insight to Process Diagnostics
- Configure data administration with SIMATIC HMI recipes
- Configure CPU - CPU communication via Industrial Ethernet
- Application of Technology objects
- Insight to functional safety

Content

- Functions, function blocks, and multi-instances
- Creation and application of complex data structures
- Library concept
- Indirect addressing of complex data structures and parameters
- Library functions for integrated error handling through fault masking
- Implementing Process Diagnostics
- CPU - CPU communication via Industrial Ethernet
- Administration of a recipe database in the operator control and monitoring system (HMI)
- Commissioning of the TIA system model with distributed I/O on PROFINET IO
- Configuration and application of Technology Objects
- Introduction to functional safety
- Overview of the engineering tools for all aspects of the TIA Portal
- Deeper understanding of contents through practical exercises on SIMATIC S7-1500 system model

Mandatory Prerequisites

[SIMATIC Programming 1 in the TIA Portal: TIA-PRO1](#) AND [SIMATIC Programming 2 in the TIA Portal: TIA-PRO2](#)

Note

In this course you will work with SIMATIC S7-1500 and software SIMATIC STEP 7 based on TIA portal .

Language

English

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