

## SIMATIC Programming 1 in TIA Portal (TIA-PRO1)

### Short Description

The Totally Integrated Automation Portal (TIA Portal) forms the work environment for integrated engineering with SIMATIC STEP 7 and SIMATIC WinCC. In this first part of the SIMATIC TIA Portal programming training, we teach you the handling of the TIA Portal, basic knowledge about the structure of the SIMATIC S7 automation system, configuration and parameterization of hardware, and the basics of standard PLC programming. You also receive an overview of HMI, PROFINET IO, and connecting drives.

### Objectives

After attending the course, you can do the following:

- Understand the fundamentals of interaction of the TIA components
- Solve simple programming tasks using elementary STEP 7 instructions
- Reliably operate the "TIA Portal" engineering platform
- Program simple plant functions with basic STEP 7 instructions in the ladder diagram (LAD) or function block diagram (FBD)
- Perform simple commissioning of TIA components

You can deepen your theoretical knowledge with numerous practical exercises on a TIA system model. This consists of a SIMATIC S7-1500 automation system, ET 200SP distributed I/O, Touchpanel TP700, drive SINAMICS G120 and a belt model.

### Target Group

Programmers  
Commissioning engineers  
Engineering personnel

### Content

Overview and significant performance characteristics of the SIMATIC S7 system family

The components of the TIA Portal: STEP 7, WinCC, Startdrive

Program execution in automation systems

STEP 7 block types and program structuring

Binary and digital operations in the function block and ladder diagram (FBD/LAD)

Programming of parameterizable blocks

Data management with data blocks

Programming organization blocks

Test tools for system information, troubleshooting, and diagnostics

Hardware configuration and parameterization of the SIMATIC S7 modules, a PROFINET IO system (ET-200), a Touch Panel, and a drive

Program Cycle, Process Image and Process Image Partition

Explanation and using different organization blocks

Startup of a drive (G120) and communication with standard telegram 1

Deeper understanding of contents through practical exercises on the SIMATIC S7-1500 system model

### Prerequisites

Basic knowledge of automation technology

You can use the available online entry test to ensure that the selected course matches your area of expertise.

- [Online Assessment Test](#)

### Note

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

This is the first of three courses that prepare you for certification as a "Siemens Certified Programmer, based on the TIA Portal". The examination is a "SITRAIN Certification Program" module.

### Type

Face-to-face training

### Duration

5 days

### Language

en