# SIEMENS

## Motion Control in the TIA Portal (TIA-MC)

**Short Description**

In this course, you will learn to program the motion control functions integrated in the SIMATIC S7-1500 or S7-1200 controllers using TIA Portal. Core topics are the technology objects speed axis, positioning axis and synchronous axis with practical exercises on training devices (SIMATIC S7-1500 and SINAMICS).

**Objectives**

You will program the SIMATIC S7-1500 or S7-1200 controllers in the TIA Portal. You will be able to precisely control the motion of axes with the integrated motion control functions.
In this technology course, you will learn step by step the benefits and the use of these functions. After each learning step, you will deepen your knowledge with hands-on programming.
After attending the course you will understand the interaction of the technological functions. You will be able to select and configure appropriate technology objects, such as speed axis, positioning axis and synchronous axis, and integrate them in your program.

**Target Group**

Programmer
Commissioning engineers
Engineering personnel

**Content**

Basics of motion control
SpeedAxis technology object
PositioningAxis technology object
Homing and traversing movements
Programming with PLCopen
Error messages and diagnostics
Communication and libraries
Output cam and measuring input
SynchronousAxis technology object
Absolute and relative gearing
Strategies for synchronization and desynchronization
Cam disc creation using the graphical cam editor and during runtime
Practical exercises on training devices with SIMATIC S7-1500T and SINAMICS drives

**Prerequisites**

Knowledge of programming in the TIA Portal (equivalent to knowledge after completion of the TIA-PRO2 course)

**Note**

The course teaching and material language is English. The material is provided for students in electrical form as pdf document.
Training devices:
- SIMATIC S7-1500TF
- Sinamics S120 tai S210
- PG M6 / TIA Portal Step7 V19
Export control: AL :N / ECCN: N

**Type**

Face-to-face training

**Duration**

4 days

**Language**

en