

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

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### Short Description

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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

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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

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Programmer  
Commissioning engineers  
Engineering personnel

### Content

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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  
Closed-loop control and optimization  
Interplay between Motion Control and Safety Integrated  
Cam disc creation using libraries  
Practical exercises on training devices with SIMATIC S7-1500T and SINAMICS drives

### Prerequisites

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Knowledge of programming in the TIA Portal (equivalent to knowledge after completion of the TIA-PRO1 or TIA-SERV2 course)

### Note

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Over the year 2022, the courses TIA-MC1 (3 days) and TIA-MC2 (2 days) will be combined to form the course TIA-MC (5 days). The content remains unchanged.

### Type

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Face-to-face training

### Duration

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5 days

### Language

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