

TIA Portal Basics of Siemens PLC Programming

Learn to configure, program and troubleshoot Siemens SIMATIC S7-1200 PLCs using TIA Portal, from hardware basics to communication protocols.

32 Hours

DURATION

10

MODULES

28

TOPICS

COURSE OVERVIEW

The Siemens PLC Programming Course is a comprehensive training program designed to equip participants with the knowledge and skills needed for Siemens SIMATIC S7-1200 PLC programming. This course encompasses essential concepts, programming techniques, and hands-on exercises to foster proficiency in designing, configuring, and troubleshooting industrial control systems. Participants will gain practical skills in programming logic controllers for various automation applications.

WHO THIS COURSE IS FOR

This course is ideal for:

Electrical engineers

Automation engineers

Control system technicians

Maintenance professionals

Industrial automation enthusiasts

Students pursuing careers in industrial automation

PREREQUISITES

- Participants should have a basic understanding of industrial automation concepts and electrical circuits.
- Familiarity with PLC hardware and software will be beneficial but is not mandatory.

What You Will Learn

Upon completion of this course, participants will be able to:

- Understand the fundamentals of Siemens SIMATIC S7-1200 PLCs
- Develop PLC programs for various automation tasks
- Implement motor control in both manual and automatic modes
- Utilize IEC timers and counters for precise control
- Diagnose and troubleshoot PLC programs and hardware
- Configure and use web-based diagnostics for remote monitoring
- Work with analog signals for precise control of processes
- Create and manage global data blocks for efficient data handling

COURSE SYLLABUS

10 Modules, 28 Topics

01

Introduction to PLCs

TOPICS

What is a PLC? · Advantages of PLCs · Applications of PLCs · Overview of Siemens PLCs

02

Siemens PLC Hardware Overview

TOPICS

PLC Components and Architecture · Siemens PLC Product Lineup · Understanding PLC Inputs and Outputs

03

STEP 7 Software Introduction

TOPICS

Overview of STEP 7 Software · Introduction to TIA Portal · Basic Interface Navigation

04

PLC Programming Basics

TOPICS

- Overview of Programming Languages (Ladder Logic, Function Block Diagrams, Structured Text)
- Addressing and Data Types in Siemens PLCs
- Basic Programming Instructions

05

Creating a Simple PLC Program

TOPICS

Setting up a New Project · Creating Tags and Variables · Writing and Downloading a Basic Program

06

Working with Timers and Counters

TOPICS

- Introduction to Timers and Counters
- Programming Timers and Counters in Siemens PLCs

07

Program Control Instructions

TOPICS

Flashing Concept · Memory mapping

08

Data Handling Instructions

TOPICS

Overview of Data Handling Instructions · Moving, Comparing, and Converting Data

09

Analog Input and Output Handling

TOPICS

Understanding Analog Inputs and Outputs · Configuring Analog Modules · Programming Analog Signals

10

Communication Protocols

TOPICS

- Introduction to Communication Protocols in Siemens PLCs
- Profibus, Profinet, and Ethernet Communication
- Configuring Communication Settings

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

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