



مركز الوقت للتدريب
Time Training Center

SIEMENS PLC S7 300/400 PROGRAMMING COURSE



Introduction

This specialized course provides practical, hands-on training in Siemens S7-300/400 PLC programming, covering system setup, basic to advanced programming techniques, and troubleshooting methods. Designed for automation engineers, maintenance technicians, and control system professionals, the course focuses on developing skills in STEP 7 programming environments. Participants will gain the confidence to configure hardware, create structured programs, and perform diagnostics, ensuring efficient and reliable automation system performance.

Learning Objectives

- Configure hardware and communication for S7-300/400 systems
- Develop programs using LAD, STL, and FBD languages
- Implement timers, counters, and analog processing
- Structure programs using Organizational and Function Blocks
- Perform diagnostics and troubleshoot PLC hardware and software
- Simulate, validate, and optimize automation programs

Course Details

Mode of Training	Classroom or Online
Duration	5 Days

Who Should Attend

- Automation and control engineers
- Electrical and instrumentation technicians
- PLC programmers and system integrators
- Maintenance personnel handling automated systems
- Engineering professionals seeking Siemens PLC proficiency

Certificate(s)

Participants who complete a minimum of 80% of the total training hours will receive a **Certificate of Completion** issued by **Time Training Center**. This certificate reflects their active participation and commitment to professional development in the relevant field.



Course Outline

Module 1: Introduction to Siemens S7-300/400 Systems

- Overview of Siemens S7-300/400 PLC families
- Architecture and component identification
- Introduction to STEP 7 / SIMATIC Manager software
- Setting up communication between PG/PC and PLC

Module 2: Hardware Configuration and Setup

- Configuring digital and analog I/O modules
- Project creation and hardware configuration using SIMATIC Manager
- Symbol table setup and memory organization
- Loading and monitoring hardware configurations

Module 3: Basic Programming Techniques

- Using LADDER (LAD), Statement List (STL), and Function Block Diagram (FBD) languages
- Creating and managing blocks (OBs, FCs, FBs, DBs)
- Bit logic instructions (Set/Reset, edge detection)
- Timers, counters, and clock memory usage

Module 4: Advanced Programming Structures

- Structuring programs with Organizational Blocks
- Function development and modular programming
- Handling analog value processing
- Program documentation and debugging tips

Module 5: Diagnostics, Troubleshooting, and Communication

- Diagnostic tools in STEP 7 for monitoring and troubleshooting
- Use of VAT tables and PLC simulator
- PROFIBUS DP and PROFINET configuration basics
- Error handling and fault analysis



Module 6: Practical Hands-On Exercises

- Step-by-step programming of real-world automation tasks
- Motor control application programming (Start/Stop logic)
- Program simulation, validation, and optimization
- Best practices for program structuring and maintenance

Methodology

We employ a comprehensive and applied learning strategy, integrating theory with real-world implementation:

- ❖ **Conceptual Learning:** Expert-led sessions on catalytic theory and engineering principles
- ❖ **Interactive Workshops:** Group exercises, presentations, and technical discussion forums
- ❖ **Case-Based Learning:** Industry-specific examples and troubleshooting scenarios
- ❖ **Technology Integration:** Digital tools, simulations, and catalyst modeling applications
- ❖ **Assessment:** Pre-tests, post-tests, and Competence Validation Exams for Certified courses to ensure knowledge transfer and skills validation

Note: Instructors may adjust the training approach to fit technical requirements or participant engagement levels.

Instructors

Our instructors are certified automation specialists and Siemens PLC experts with over a decade of practical experience across industries including manufacturing, oil and gas, utilities, and infrastructure. They bring deep technical expertise and hands-on insights into programming, troubleshooting, and optimizing PLC-controlled systems. All instructors are carefully vetted for technical excellence and exceptional classroom delivery skills. Detailed trainer profiles will be shared upon request.

About Time Training Center

Time Training Center is a leading professional training institute in Abu Dhabi that provides students and professionals with quality education and skill development programs. Time Training Center is accredited by the Abu Dhabi Center for Technical Vocational Education & Training (ACTVET) with a specialization in Computer and Management Training programs and certified by QA QC with ISO 9001:2015.

Operating in Abu Dhabi for over 3 decades, Time Training Center has established brand value as a high-quality Management & Technical Training Center in Abu Dhabi. We have also secured strong loyalty from corporate companies and associations with our holistic and practical teaching approach.

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