

MAINTENANCE AND ENGINEERING | COURSE BROCHURE

PLC Programming Fundamentals

5 days | Classroom training | English

SMART HORIZON

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Course content

Why attend

Programmable logic controllers control machines and processes across industry. This hands-on course introduces PLC hardware, input and output modules, programming languages with focus on ladder logic, timers and counters, basic data handling, program structure, testing, documentation and troubleshooting.

Basic PLC skills let maintenance teams diagnose and fix control problems faster. You will learn to read, write and troubleshoot simple PLC programs.

Professional Problems This Course Is Designed to Solve

- Difficulty translating subject knowledge into practical workplace decisions.
- Inconsistent approaches to the activities covered in the course outline.
- Lack of a structured plan for applying and reviewing new skills.

Course methodology

Hands-on programming exercises with simulators, troubleshooting tasks and documentation practice.

Course objectives

By the end of this course, participants will be able to:

- Explain PLC hardware and architecture
- Connect inputs and outputs
- Write ladder logic programs
- Use timers, counters and comparisons
- Test and simulate programs
- Troubleshoot PLC-controlled systems

Target audience

This course is suitable for:

- Maintenance and electrical technicians
- Automation technicians
- Junior control engineers
- Instrument technicians
- Engineering students



Course content

Target competencies

Participants will develop competencies in:

- PLC architecture
- Ladder logic
- Program testing
- Documentation
- Troubleshooting

Course outline

Day 1: PLC Basics

09:00–10:08	PLC architecture
10:08–11:00	Inputs and outputs
11:00–11:30	**Coffee break**
11:30–11:45	Inputs and outputs (continued)
11:45–12:53	Scan cycle
12:53–14:00	Exercise

Day 2: Ladder Logic

09:00–10:08	Contacts and coils
10:08–11:00	Latching
11:00–11:30	**Coffee break**
11:30–11:45	Latching (continued)
11:45–12:53	Basic circuits
12:53–14:00	Hands-on

Day 3: Timers and Counters

09:00–10:08	Timer types
10:08–11:00	Counters
11:00–11:30	**Coffee break**



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11:30–11:45	Counters (continued)
11:45–12:53	Comparisons
12:53–14:00	Hands-on

Day 4: Program Structure

09:00–10:08	Data types
10:08–11:00	Subroutines
11:00–11:30	**Coffee break**
11:30–11:45	Subroutines (continued)
11:45–12:53	Documentation
12:53–14:00	Exercise

Day 5: Troubleshooting

09:00–10:08	Online monitoring
10:08–11:00	Forcing safely
11:00–11:30	**Coffee break**
11:30–11:45	Forcing safely (continued)
11:45–12:53	Fault finding
12:53–14:00	Final exercise

The timings provided are estimates and may vary depending on the number of participants and the discussions taking place during the sessions. They are indicative only and do not constitute a binding commitment.



Course content

Dates, venues and fees

Current published course plans. Fees are per participant in EUR, excluding unconfirmed taxes.

Venue	Start date	End date	Fee (EUR)
Rome Confirmed dates	16 Nov 2026	20 Nov 2026	**€4,900.-**
Online Confirmed dates	16 Nov 2026	20 Nov 2026	**€1,250.-**
Dubai Confirmed dates	7 Dec 2026	11 Dec 2026	**€6,300.-**
Online Confirmed dates	7 Dec 2026	11 Dec 2026	**€1,250.-**
Cape Town Confirmed dates	4 Jan 2027	8 Jan 2027	**€3,780.-**
Online Confirmed dates	4 Jan 2027	8 Jan 2027	**€1,250.-**
Rome Confirmed dates	25 Jan 2027	29 Jan 2027	**€4,900.-**
Online Confirmed dates	25 Jan 2027	29 Jan 2027	**€1,250.-**
Amsterdam Confirmed dates	15 Feb 2027	19 Feb 2027	**€5,080.-**



Course content

Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Online Confirmed dates	15 Feb 2027	19 Feb 2027	**€1,250.–**
Dubai Confirmed dates	8 Mar 2027	12 Mar 2027	**€6,300.–**
Online Confirmed dates	8 Mar 2027	12 Mar 2027	**€1,250.–**
Istanbul Confirmed dates	29 Mar 2027	2 Apr 2027	**€5,300.–**
Online Confirmed dates	29 Mar 2027	2 Apr 2027	**€1,250.–**
Dubai Confirmed dates	12 Apr 2027	16 Apr 2027	**€6,300.–**
Online Confirmed dates	12 Apr 2027	16 Apr 2027	**€1,250.–**
London Confirmed dates	3 May 2027	7 May 2027	**€4,900.–**
Online Confirmed dates	3 May 2027	7 May 2027	**€1,250.–**



Course content

Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Rome Confirmed dates	24 May 2027	28 May 2027	**€4,900.-**
Online Confirmed dates	24 May 2027	28 May 2027	**€1,250.-**
London Confirmed dates	14 Jun 2027	18 Jun 2027	**€4,900.-**
Online Confirmed dates	14 Jun 2027	18 Jun 2027	**€1,250.-**
Cape Town Confirmed dates	5 Jul 2027	9 Jul 2027	**€3,780.-**
Online Confirmed dates	5 Jul 2027	9 Jul 2027	**€1,250.-**
Vienna Confirmed dates	19 Jul 2027	23 Jul 2027	**€5,880.-**
Online Confirmed dates	19 Jul 2027	23 Jul 2027	**€1,250.-**
Barcelona Confirmed dates	9 Aug 2027	13 Aug 2027	**€5,680.-**



Course content

Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Online Confirmed dates	9 Aug 2027	13 Aug 2027	**€1,250.-**
Kuala Lumpur Confirmed dates	30 Aug 2027	3 Sept 2027	**€2,900.-**
Online Confirmed dates	30 Aug 2027	3 Sept 2027	**€1,250.-**
Barcelona Confirmed dates	20 Sept 2027	24 Sept 2027	**€5,680.-**
Online Confirmed dates	20 Sept 2027	24 Sept 2027	**€1,250.-**
Frankfurt Confirmed dates	11 Oct 2027	15 Oct 2027	**€5,300.-**
Online Confirmed dates	11 Oct 2027	15 Oct 2027	**€1,250.-**
Cape Town Confirmed dates	25 Oct 2027	29 Oct 2027	**€3,780.-**
Online Confirmed dates	25 Oct 2027	29 Oct 2027	**€1,250.-**



Course content

Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Paris Confirmed dates	15 Nov 2027	19 Nov 2027	**€5,720.-**
Online Confirmed dates	15 Nov 2027	19 Nov 2027	**€1,250.-**
Vienna Confirmed dates	6 Dec 2027	10 Dec 2027	**€5,880.-**
Online Confirmed dates	6 Dec 2027	10 Dec 2027	**€1,250.-**

Plan your next step

Dates, availability, exact venue, taxes, inclusions and payment terms require written confirmation. This brochure is not a quotation, registration, booking confirmation or visa invitation. Participants receive a Smart Horizon certificate of attendance; programmes are not externally accredited and do not award a professional qualification or designation. Confirm arrangements before booking travel.

For group or in-house training, contact our learning team to discuss your objectives and delivery arrangements.

Contact Smart Horizon

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View the latest course details online