

MAINTENANCE AND ENGINEERING | COURSE BROCHURE

Protection Relays and Switchgear

5 days | Classroom training | English

SMART HORIZON

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Course content

Why attend

Protection systems detect faults and isolate them quickly to protect people and equipment. This course covers protection principles, instrument transformers, overcurrent, earth fault, differential and distance protection, relay settings and coordination, numerical relays, switchgear operation and testing.

Incorrect protection settings cause nuisance trips or allow damaging faults. You will learn how protection systems work and how to test them.

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

Coordination exercises, relay setting calculations, test demonstrations and case studies.

Course objectives

By the end of this course, participants will be able to:
• Explain power system protection principles
• Understand current and voltage transformers
• Apply common protection functions
• Coordinate relay settings
• Work with numerical relays
• Test protection and switchgear

Target audience

This course is suitable for:
• Electrical protection engineers
• Electrical technicians
• Utility engineers
• Commissioning engineers
• Maintenance engineers



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Target competencies

Participants will develop competencies in:

- Protection principles
- Relay coordination
- Setting calculations
- Testing
- Switchgear knowledge

Course outline

Day 1: Protection Principles

09:00–10:08	Fault types
10:08–11:00	Protection requirements
11:00–11:30	**Coffee break**
11:30–11:45	Protection requirements (continued)
11:45–12:53	Zones
12:53–14:00	Exercise

Day 2: Instrument Transformers

09:00–10:08	CTs and VTs
10:08–11:00	Accuracy classes
11:00–11:30	**Coffee break**
11:30–11:45	Accuracy classes (continued)
11:45–12:53	Saturation
12:53–14:00	Exercise

Day 3: Protection Functions

09:00–10:08	Overcurrent and earth fault
10:08–11:00	Differential
11:00–11:30	**Coffee break**



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11:30–11:45	Differential (continued)
11:45–12:53	Distance
12:53–14:00	Workshop

Day 4: Coordination

09:00–10:08	Time-current curves
10:08–11:00	Grading
11:00–11:30	**Coffee break**
11:30–11:45	Grading (continued)
11:45–12:53	Settings
12:53–14:00	Exercise

Day 5: Relays and Testing

09:00–10:08	Numerical relays
10:08–11:00	Testing methods
11:00–11:30	**Coffee break**
11:30–11:45	Testing methods (continued)
11:45–12:53	Switchgear maintenance
12:53–14:00	Action plan

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)
London Confirmed dates	23 Nov 2026	27 Nov 2026	**€4,900.-**
Online Confirmed dates	23 Nov 2026	27 Nov 2026	**€1,250.-**
Rome Confirmed dates	7 Dec 2026	11 Dec 2026	**€4,900.-**
Online Confirmed dates	7 Dec 2026	11 Dec 2026	**€1,250.-**
Barcelona Confirmed dates	11 Jan 2027	15 Jan 2027	**€5,680.-**
Online Confirmed dates	11 Jan 2027	15 Jan 2027	**€1,250.-**
Cape Town Confirmed dates	1 Feb 2027	5 Feb 2027	**€3,780.-**
Online Confirmed dates	1 Feb 2027	5 Feb 2027	**€1,250.-**
London Confirmed dates	22 Feb 2027	26 Feb 2027	**€4,900.-**



Course content

Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Online Confirmed dates	22 Feb 2027	26 Feb 2027	**€1,250.–**
Vienna Confirmed dates	15 Mar 2027	19 Mar 2027	**€5,880.–**
Online Confirmed dates	15 Mar 2027	19 Mar 2027	**€1,250.–**
Dubai Confirmed dates	29 Mar 2027	2 Apr 2027	**€6,300.–**
Online Confirmed dates	29 Mar 2027	2 Apr 2027	**€1,250.–**
Istanbul Confirmed dates	19 Apr 2027	23 Apr 2027	**€5,300.–**
Online Confirmed dates	19 Apr 2027	23 Apr 2027	**€1,250.–**
Dubai Confirmed dates	10 May 2027	14 May 2027	**€6,300.–**
Online Confirmed dates	10 May 2027	14 May 2027	**€1,250.–**



Course content

Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Rome Confirmed dates	31 May 2027	4 Jun 2027	**€4,900.-**
Online Confirmed dates	31 May 2027	4 Jun 2027	**€1,250.-**
Cape Town Confirmed dates	21 Jun 2027	25 Jun 2027	**€3,780.-**
Online Confirmed dates	21 Jun 2027	25 Jun 2027	**€1,250.-**
Rome Confirmed dates	5 Jul 2027	9 Jul 2027	**€4,900.-**
Online Confirmed dates	5 Jul 2027	9 Jul 2027	**€1,250.-**
Cape Town Confirmed dates	26 Jul 2027	30 Jul 2027	**€3,780.-**
Online Confirmed dates	26 Jul 2027	30 Jul 2027	**€1,250.-**
Frankfurt Confirmed dates	16 Aug 2027	20 Aug 2027	**€5,300.-**



Course content

Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Online Confirmed dates	16 Aug 2027	20 Aug 2027	**€1,250.-**
Vienna Confirmed dates	6 Sept 2027	10 Sept 2027	**€5,880.-**
Online Confirmed dates	6 Sept 2027	10 Sept 2027	**€1,250.-**
Dubai Confirmed dates	27 Sept 2027	1 Oct 2027	**€6,300.-**
Online Confirmed dates	27 Sept 2027	1 Oct 2027	**€1,250.-**
Paris Confirmed dates	11 Oct 2027	15 Oct 2027	**€5,720.-**
Online Confirmed dates	11 Oct 2027	15 Oct 2027	**€1,250.-**
Amsterdam Confirmed dates	1 Nov 2027	5 Nov 2027	**€5,080.-**
Online Confirmed dates	1 Nov 2027	5 Nov 2027	**€1,250.-**



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Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Barcelona Confirmed dates	22 Nov 2027	26 Nov 2027	**€5,680.-**
Online Confirmed dates	22 Nov 2027	26 Nov 2027	**€1,250.-**
Kuala Lumpur Confirmed dates	13 Dec 2027	17 Dec 2027	**€2,900.-**
Online Confirmed dates	13 Dec 2027	17 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