

MAINTENANCE AND ENGINEERING | COURSE BROCHURE

Substation Operation and Maintenance

5 days | Classroom training | English

SMART HORIZON

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Course content

Why attend

Substations transform and distribute electrical power safely and reliably. This course covers substation equipment such as transformers, switchgear, busbars and protection, switching operations and safety rules, maintenance and testing, transformer oil analysis, condition monitoring and fault response.

Substation failures can black out entire facilities. You will learn to operate and maintain substations safely.

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

Equipment walkthroughs, switching procedure exercises, test data interpretation and case studies.

Course objectives

By the end of this course, participants will be able to:
• Explain substation layouts and equipment
• Apply safe switching procedures
• Maintain transformers and switchgear
• Interpret transformer oil and test results
• Monitor substation condition
• Respond to substation faults

Target audience

This course is suitable for:
• Electrical engineers and technicians
• Utility operators
• Facility electrical staff
• Maintenance supervisors
• Protection technicians



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Target competencies

Participants will develop competencies in:

- Substation knowledge
- Safe switching
- Equipment maintenance
- Test interpretation
- Fault response

Course outline

Day 1: Substation Equipment

09:00–10:08	Layouts
10:08–11:00	Transformers
11:00–11:30	**Coffee break**
11:30–11:45	Transformers (continued)
11:45–12:53	Switchgear and busbars
12:53–14:00	Exercise

Day 2: Switching and Safety

09:00–10:08	Switching programmes
10:08–11:00	Isolation and earthing
11:00–11:30	**Coffee break**
11:30–11:45	Isolation and earthing (continued)
11:45–12:53	Permits
12:53–14:00	Practice

Day 3: Transformer Maintenance

09:00–10:08	Oil analysis
10:08–11:00	Dissolved gas analysis
11:00–11:30	**Coffee break**



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11:30–11:45	Dissolved gas analysis (continued)
11:45–12:53	Tap changers
12:53–14:00	Exercise

Day 4: Switchgear Maintenance

09:00–10:08	Breaker testing
10:08–11:00	Insulation tests
11:00–11:30	**Coffee break**
11:30–11:45	Insulation tests (continued)
11:45–12:53	Thermography
12:53–14:00	Case study

Day 5: Faults and Monitoring

09:00–10:08	Fault response
10:08–11:00	Condition monitoring
11:00–11:30	**Coffee break**
11:30–11:45	Condition monitoring (continued)
11:45–12:53	Maintenance plans
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)
Cape Town Confirmed dates	16 Nov 2026	20 Nov 2026	**€3,780.–**
Online Confirmed dates	16 Nov 2026	20 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.–**
Paris Confirmed dates	1 Feb 2027	5 Feb 2027	**€5,720.–**
Online Confirmed dates	1 Feb 2027	5 Feb 2027	**€1,250.–**
Dubai Confirmed dates	15 Feb 2027	19 Feb 2027	**€6,300.–**



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.–**
Vienna Confirmed dates	8 Mar 2027	12 Mar 2027	**€5,880.–**
Online Confirmed dates	8 Mar 2027	12 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.–**
Cape Town Confirmed dates	19 Apr 2027	23 Apr 2027	**€3,780.–**
Online Confirmed dates	19 Apr 2027	23 Apr 2027	**€1,250.–**
Barcelona Confirmed dates	10 May 2027	14 May 2027	**€5,680.–**
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)
Cape Town Confirmed dates	24 May 2027	28 May 2027	**€3,780.–**
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.–**
Amsterdam Confirmed dates	5 Jul 2027	9 Jul 2027	**€5,080.–**
Online Confirmed dates	5 Jul 2027	9 Jul 2027	**€1,250.–**
Frankfurt Confirmed dates	26 Jul 2027	30 Jul 2027	**€5,300.–**
Online Confirmed dates	26 Jul 2027	30 Jul 2027	**€1,250.–**
Rome Confirmed dates	16 Aug 2027	20 Aug 2027	**€4,900.–**



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.-**
Istanbul Confirmed dates	30 Aug 2027	3 Sept 2027	**€5,300.-**
Online Confirmed dates	30 Aug 2027	3 Sept 2027	**€1,250.-**
Rome Confirmed dates	20 Sept 2027	24 Sept 2027	**€4,900.-**
Online Confirmed dates	20 Sept 2027	24 Sept 2027	**€1,250.-**
Kuala Lumpur Confirmed dates	11 Oct 2027	15 Oct 2027	**€2,900.-**
Online Confirmed dates	11 Oct 2027	15 Oct 2027	**€1,250.-**
London Confirmed dates	1 Nov 2027	5 Nov 2027	**€4,900.-**
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)
Vienna Confirmed dates	22 Nov 2027	26 Nov 2027	**€5,880.-**
Online Confirmed dates	22 Nov 2027	26 Nov 2027	**€1,250.-**
Dubai Confirmed dates	6 Dec 2027	10 Dec 2027	**€6,300.-**
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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