

MAINTENANCE AND ENGINEERING | COURSE BROCHURE

# Transformers and Switchgear Maintenance

5 days | Classroom training | English

**SMART HORIZON**

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# Course content

## Why attend

Transformers and switchgear are critical and expensive assets in power systems. This course covers transformer construction and operation, insulating oil, testing and diagnostics, switchgear types, protection basics, inspection and maintenance, condition assessment and safety.

Failures of transformers and switchgear can cause long outages. This course helps you maintain and assess these assets effectively.

## 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

The course uses technical presentations, test result interpretation exercises, case studies and maintenance planning. It does not qualify participants for electrical work.

## Course objectives

By the end of this course, participants will be able to:
• Explain transformer construction and operation
• Interpret insulating oil and dissolved gas analysis
• Apply transformer testing and diagnostics
• Understand switchgear types and protection
• Plan inspection and maintenance
• Assess asset condition and plan replacement

## Target audience

This course is suitable for:
• Electrical engineers
• Substation technicians
• Maintenance managers
• Utility engineers
• Asset managers



# Course content

## Target competencies

Participants will develop competencies in:

- Transformer fundamentals
- Oil analysis
- Electrical testing
- Switchgear maintenance
- Protection awareness
- Condition assessment

## Course outline

### Day 1: Transformers

| | |
|---|---|
| **09:00–09:54** | Construction |
| **09:54–10:48** | Operation |
| **10:48–11:00** | Cooling |
| **11:00–11:30** | **Coffee break** |
| **11:30–12:12** | Cooling (continued) |
| **12:12–13:06** | Accessories |
| **13:06–14:00** | Exercise: Transformer review |

### Day 2: Diagnostics

| | |
|---|---|
| **09:00–09:54** | Oil testing |
| **09:54–10:48** | Dissolved gas analysis |
| **10:48–11:00** | Electrical tests |
| **11:00–11:30** | **Coffee break** |
| **11:30–12:12** | Electrical tests (continued) |
| **12:12–13:06** | Thermography |
| **13:06–14:00** | Lab: Test interpretation |



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## Day 3: Switchgear

| | |
|---|---|
| 09:00–09:54 | Switchgear types |
| 09:54–10:48 | Circuit breakers |
| 10:48–11:00 | Protection relays |
| 11:00–11:30 | **Coffee break** |
| 11:30–12:12 | Protection relays (continued) |
| 12:12–13:06 | Safety interlocks |
| 13:06–14:00 | Demonstration: Switchgear |

## Day 4: Maintenance

| | |
|---|---|
| 09:00–09:54 | Maintenance strategies |
| 09:54–10:48 | Inspection |
| 10:48–11:00 | Testing |
| 11:00–11:30 | **Coffee break** |
| 11:30–12:12 | Testing (continued) |
| 12:12–13:06 | Safety |
| 13:06–14:00 | Case study: Transformer failure |

## Day 5: Asset Management

| | |
|---|---|
| 09:00–09:54 | Condition assessment |
| 09:54–10:48 | Health indices |
| 10:48–11:00 | Replacement planning |
| 11:00–11:30 | **Coffee break** |
| 11:30–12:12 | Replacement planning (continued) |
| 12:12–13:06 | Spares |
| 13:06–14:00 | Capstone: Maintenance plan |

The timings provided are estimates and may vary depending on the number of participants and the discussions taking place during the



# Course content

sessions. They are indicative only and do not constitute a binding commitment.

## Dates, venues and fees

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

| Venue | Start date | End date | Fee (GBP) |
|---|---|---|---|
| Kuala Lumpur<br>Confirmed dates | 16 Nov 2026 | 20 Nov 2026 | **£2,900.–** |
| Online<br>Confirmed dates | 16 Nov 2026 | 20 Nov 2026 | **£1,250.–** |
| Cape Town<br>Confirmed dates | 23 Nov 2026 | 27 Nov 2026 | **£3,780.–** |
| Online<br>Confirmed dates | 23 Nov 2026 | 27 Nov 2026 | **£1,250.–** |
| Paris<br>Confirmed dates | 7 Dec 2026 | 11 Dec 2026 | **£5,720.–** |
| Online<br>Confirmed dates | 7 Dec 2026 | 11 Dec 2026 | **£1,250.–** |
| Istanbul<br>Confirmed dates | 14 Dec 2026 | 18 Dec 2026 | **£5,300.–** |
| Online<br>Confirmed dates | 14 Dec 2026 | 18 Dec 2026 | **£1,250.–** |



# Course content

## Dates, venues and fees (continued)

| Venue | Start date | End date | Fee (GBP) |
|---|---|---|---|
| Amsterdam<br>Confirmed dates | 4 Jan 2027 | 8 Jan 2027 | **£5,080.-** |
| Online<br>Confirmed dates | 4 Jan 2027 | 8 Jan 2027 | **£1,250.-** |
| Singapore<br>Confirmed dates | 18 Jan 2027 | 22 Jan 2027 | **£5,640.-** |
| Online<br>Confirmed dates | 18 Jan 2027 | 22 Jan 2027 | **£1,250.-** |
| London<br>Confirmed dates | 1 Feb 2027 | 5 Feb 2027 | **£4,900.-** |
| Online<br>Confirmed dates | 1 Feb 2027 | 5 Feb 2027 | **£1,250.-** |
| Rome<br>Confirmed dates | 8 Feb 2027 | 12 Feb 2027 | **£4,900.-** |
| Online<br>Confirmed dates | 8 Feb 2027 | 12 Feb 2027 | **£1,250.-** |
| Dubai<br>Confirmed dates | 15 Feb 2027 | 19 Feb 2027 | **£6,300.-** |



# Course content

## Dates, venues and fees (continued)

| Venue | Start date | End date | Fee (GBP) |
|---|---|---|---|
| Online<br>Confirmed dates | 15 Feb 2027 | 19 Feb 2027 | **£1,250.–** |
| Frankfurt<br>Confirmed dates | 1 Mar 2027 | 5 Mar 2027 | **£5,300.–** |
| Online<br>Confirmed dates | 1 Mar 2027 | 5 Mar 2027 | **£1,250.–** |
| Kuala Lumpur<br>Confirmed dates | 15 Mar 2027 | 19 Mar 2027 | **£2,900.–** |
| Online<br>Confirmed dates | 15 Mar 2027 | 19 Mar 2027 | **£1,250.–** |
| Paris<br>Confirmed dates | 5 Apr 2027 | 9 Apr 2027 | **£5,720.–** |
| Online<br>Confirmed dates | 5 Apr 2027 | 9 Apr 2027 | **£1,250.–** |
| Vienna<br>Confirmed dates | 12 Apr 2027 | 16 Apr 2027 | **£5,880.–** |
| Online<br>Confirmed dates | 12 Apr 2027 | 16 Apr 2027 | **£1,250.–** |



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## Dates, venues and fees (continued)

| Venue | Start date | End date | Fee (GBP) |
|---|---|---|---|
| Istanbul<br>Confirmed dates | 19 Apr 2027 | 23 Apr 2027 | **£5,300.-** |
| Online<br>Confirmed dates | 19 Apr 2027 | 23 Apr 2027 | **£1,250.-** |
| Amsterdam<br>Confirmed dates | 3 May 2027 | 7 May 2027 | **£5,080.-** |
| Online<br>Confirmed dates | 3 May 2027 | 7 May 2027 | **£1,250.-** |
| Singapore<br>Confirmed dates | 17 May 2027 | 21 May 2027 | **£5,640.-** |
| Online<br>Confirmed dates | 17 May 2027 | 21 May 2027 | **£1,250.-** |
| London<br>Confirmed dates | 7 Jun 2027 | 11 Jun 2027 | **£4,900.-** |
| Online<br>Confirmed dates | 7 Jun 2027 | 11 Jun 2027 | **£1,250.-** |
| Barcelona<br>Confirmed dates | 14 Jun 2027 | 18 Jun 2027 | **£5,680.-** |



# Course content

## Dates, venues and fees (continued)

| Venue | Start date | End date | Fee (GBP) |
|---|---|---|---|
| Online<br>Confirmed dates | 14 Jun 2027 | 18 Jun 2027 | **£1,250.-** |
| Dubai<br>Confirmed dates | 21 Jun 2027 | 25 Jun 2027 | **£6,300.-** |
| Online<br>Confirmed dates | 21 Jun 2027 | 25 Jun 2027 | **£1,250.-** |
| Frankfurt<br>Confirmed dates | 5 Jul 2027 | 9 Jul 2027 | **£5,300.-** |
| Online<br>Confirmed dates | 5 Jul 2027 | 9 Jul 2027 | **£1,250.-** |
| Kuala Lumpur<br>Confirmed dates | 19 Jul 2027 | 23 Jul 2027 | **£2,900.-** |
| Online<br>Confirmed dates | 19 Jul 2027 | 23 Jul 2027 | **£1,250.-** |
| Paris<br>Confirmed dates | 2 Aug 2027 | 6 Aug 2027 | **£5,720.-** |
| Online<br>Confirmed dates | 2 Aug 2027 | 6 Aug 2027 | **£1,250.-** |



# Course content

## Dates, venues and fees (continued)

| Venue | Start date | End date | Fee (GBP) |
|---|---|---|---|
| Istanbul<br>Confirmed dates | 16 Aug 2027 | 20 Aug 2027 | **£5,300.-** |
| Online<br>Confirmed dates | 16 Aug 2027 | 20 Aug 2027 | **£1,250.-** |
| Cape Town<br>Confirmed dates | 23 Aug 2027 | 27 Aug 2027 | **£3,780.-** |
| Online<br>Confirmed dates | 23 Aug 2027 | 27 Aug 2027 | **£1,250.-** |
| Amsterdam<br>Confirmed dates | 6 Sept 2027 | 10 Sept 2027 | **£5,080.-** |
| Online<br>Confirmed dates | 6 Sept 2027 | 10 Sept 2027 | **£1,250.-** |
| Singapore<br>Confirmed dates | 20 Sept 2027 | 24 Sept 2027 | **£5,640.-** |
| Online<br>Confirmed dates | 20 Sept 2027 | 24 Sept 2027 | **£1,250.-** |
| London<br>Confirmed dates | 4 Oct 2027 | 8 Oct 2027 | **£4,900.-** |



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## Dates, venues and fees (continued)

| Venue | Start date | End date | Fee (GBP) |
|---|---|---|---|
| Online<br>Confirmed dates | 4 Oct 2027 | 8 Oct 2027 | **£1,250.–** |
| Dubai<br>Confirmed dates | 18 Oct 2027 | 22 Oct 2027 | **£6,300.–** |
| Online<br>Confirmed dates | 18 Oct 2027 | 22 Oct 2027 | **£1,250.–** |
| Rome<br>Confirmed dates | 25 Oct 2027 | 29 Oct 2027 | **£4,900.–** |
| Online<br>Confirmed dates | 25 Oct 2027 | 29 Oct 2027 | **£1,250.–** |
| Frankfurt<br>Confirmed dates | 1 Nov 2027 | 5 Nov 2027 | **£5,300.–** |
| Online<br>Confirmed dates | 1 Nov 2027 | 5 Nov 2027 | **£1,250.–** |
| Kuala Lumpur<br>Confirmed dates | 15 Nov 2027 | 19 Nov 2027 | **£2,900.–** |
| Online<br>Confirmed dates | 15 Nov 2027 | 19 Nov 2027 | **£1,250.–** |



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## Dates, venues and fees (continued)

| Venue | Start date | End date | Fee (GBP) |
|---|---|---|---|
| Paris<br>Confirmed dates | 6 Dec 2027 | 10 Dec 2027 | **£5,720.-** |
| Online<br>Confirmed dates | 6 Dec 2027 | 10 Dec 2027 | **£1,250.-** |
| Istanbul<br>Confirmed dates | 13 Dec 2027 | 17 Dec 2027 | **£5,300.-** |
| Online<br>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 UK 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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