

MAINTENANCE AND ENGINEERING | COURSE BROCHURE

Gas Turbines: Operation and Maintenance

5 days | Classroom training | English

SMART HORIZON

info@smart-horizon.eu
Amsterdam
The Netherlands

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Course content

Why attend

Gas turbines are used for power generation, mechanical drive and oil and gas applications. This course covers gas turbine principles, components, performance, controls and protection, fuel systems, inspections and maintenance strategies, condition monitoring and troubleshooting.

Gas turbines are high-value assets where reliability and efficiency matter greatly. This course helps engineers operate and maintain them 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, performance calculations, case studies and maintenance planning exercises.

Course objectives

By the end of this course, participants will be able to:
- Explain gas turbine thermodynamics and operation
- Understand major components and systems
- Analyse performance and efficiency
- Understand controls, protection and fuel systems
- Plan inspections and maintenance
- Apply condition monitoring and troubleshooting

Target audience

This course is suitable for:
- Mechanical and power plant engineers
- Operations and maintenance technicians
- Reliability engineers
- Utility engineers
- Oil and gas engineers



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Target competencies

Participants will develop competencies in:

- Gas turbine principles
- Component knowledge
- Performance analysis
- Controls and protection
- Maintenance planning
- Condition monitoring

Course outline

Day 1: Gas Turbine Principles

09:00–09:54	Brayton cycle
09:54–10:48	Types and applications
10:48–11:00	Performance factors
11:00–11:30	**Coffee break**
11:30–12:12	Performance factors (continued)
12:12–13:06	Ambient effects
13:06–14:00	Exercise: Performance basics

Day 2: Components

09:00–09:54	Compressor
09:54–10:48	Combustor
10:48–11:00	Turbine
11:00–11:30	**Coffee break**
11:30–12:12	Turbine (continued)
12:12–13:06	Auxiliary systems
13:06–14:00	Demonstration: Component overview



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Day 3: Controls and Fuel

09:00–09:54	Control systems
09:54–10:48	Protection
10:48–11:00	Fuel systems
11:00–11:30	**Coffee break**
11:30–12:12	Fuel systems (continued)
12:12–13:06	Emissions control
13:06–14:00	Case study: Trip investigation

Day 4: Maintenance

09:00–09:54	Inspection types
09:54–10:48	Maintenance intervals
10:48–11:00	Borescope inspection
11:00–11:30	**Coffee break**
11:30–12:12	Borescope inspection (continued)
12:12–13:06	Overhauls
13:06–14:00	Workshop: Maintenance plan

Day 5: Monitoring and Troubleshooting

09:00–09:54	Condition monitoring
09:54–10:48	Performance degradation
10:48–11:00	Troubleshooting
11:00–11:30	**Coffee break**
11:30–12:12	Troubleshooting (continued)
12:12–13:06	Reliability improvement
13:06–14:00	Capstone: Gas turbine reliability plan

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



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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 EUR, excluding unconfirmed taxes.

Venue	Start date	End date	Fee (EUR)
Singapore Confirmed dates	16 Nov 2026	20 Nov 2026	**€5,640.–**
Online Confirmed dates	16 Nov 2026	20 Nov 2026	**€1,250.–**
London Confirmed dates	7 Dec 2026	11 Dec 2026	**€4,900.–**
Online Confirmed dates	7 Dec 2026	11 Dec 2026	**€1,250.–**
Dubai Confirmed dates	14 Dec 2026	18 Dec 2026	**€6,300.–**
Online Confirmed dates	14 Dec 2026	18 Dec 2026	**€1,250.–**
Frankfurt Confirmed dates	4 Jan 2027	8 Jan 2027	**€5,300.–**
Online Confirmed dates	4 Jan 2027	8 Jan 2027	**€1,250.–**



Course content

Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Kuala Lumpur Confirmed dates	18 Jan 2027	22 Jan 2027	**€2,900.–**
Online Confirmed dates	18 Jan 2027	22 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.–**
Paris Confirmed dates	1 Feb 2027	5 Feb 2027	**€5,720.–**
Online Confirmed dates	1 Feb 2027	5 Feb 2027	**€1,250.–**
Istanbul Confirmed dates	15 Feb 2027	19 Feb 2027	**€5,300.–**
Online Confirmed dates	15 Feb 2027	19 Feb 2027	**€1,250.–**
Amsterdam Confirmed dates	1 Mar 2027	5 Mar 2027	**€5,080.–**



Course content

Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Online Confirmed dates	1 Mar 2027	5 Mar 2027	**€1,250.-**
Singapore Confirmed dates	15 Mar 2027	19 Mar 2027	**€5,640.-**
Online Confirmed dates	15 Mar 2027	19 Mar 2027	**€1,250.-**
Barcelona Confirmed dates	29 Mar 2027	2 Apr 2027	**€5,680.-**
Online Confirmed dates	29 Mar 2027	2 Apr 2027	**€1,250.-**
London Confirmed dates	5 Apr 2027	9 Apr 2027	**€4,900.-**
Online Confirmed dates	5 Apr 2027	9 Apr 2027	**€1,250.-**
Dubai Confirmed dates	19 Apr 2027	23 Apr 2027	**€6,300.-**
Online Confirmed dates	19 Apr 2027	23 Apr 2027	**€1,250.-**



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Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Frankfurt Confirmed dates	3 May 2027	7 May 2027	**€5,300.–**
Online Confirmed dates	3 May 2027	7 May 2027	**€1,250.–**
Kuala Lumpur Confirmed dates	17 May 2027	21 May 2027	**€2,900.–**
Online Confirmed dates	17 May 2027	21 May 2027	**€1,250.–**
Rome Confirmed dates	24 May 2027	28 May 2027	**€4,900.–**
Online Confirmed dates	24 May 2027	28 May 2027	**€1,250.–**
Paris Confirmed dates	7 Jun 2027	11 Jun 2027	**€5,720.–**
Online Confirmed dates	7 Jun 2027	11 Jun 2027	**€1,250.–**
Istanbul Confirmed dates	21 Jun 2027	25 Jun 2027	**€5,300.–**



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Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Online Confirmed dates	21 Jun 2027	25 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.-**
Singapore Confirmed dates	19 Jul 2027	23 Jul 2027	**€5,640.-**
Online Confirmed dates	19 Jul 2027	23 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.-**
London Confirmed dates	2 Aug 2027	6 Aug 2027	**€4,900.-**
Online Confirmed dates	2 Aug 2027	6 Aug 2027	**€1,250.-**



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Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Dubai Confirmed dates	16 Aug 2027	20 Aug 2027	**€6,300.-**
Online Confirmed dates	16 Aug 2027	20 Aug 2027	**€1,250.-**
Frankfurt Confirmed dates	6 Sept 2027	10 Sept 2027	**€5,300.-**
Online Confirmed dates	6 Sept 2027	10 Sept 2027	**€1,250.-**
Kuala Lumpur Confirmed dates	20 Sept 2027	24 Sept 2027	**€2,900.-**
Online Confirmed dates	20 Sept 2027	24 Sept 2027	**€1,250.-**
Vienna Confirmed dates	27 Sept 2027	1 Oct 2027	**€5,880.-**
Online Confirmed dates	27 Sept 2027	1 Oct 2027	**€1,250.-**
Paris Confirmed dates	4 Oct 2027	8 Oct 2027	**€5,720.-**



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Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Online Confirmed dates	4 Oct 2027	8 Oct 2027	**€1,250.–**
Istanbul Confirmed dates	18 Oct 2027	22 Oct 2027	**€5,300.–**
Online Confirmed dates	18 Oct 2027	22 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.–**
Singapore Confirmed dates	15 Nov 2027	19 Nov 2027	**€5,640.–**
Online Confirmed dates	15 Nov 2027	19 Nov 2027	**€1,250.–**
Cape Town Confirmed dates	29 Nov 2027	3 Dec 2027	**€3,780.–**
Online Confirmed dates	29 Nov 2027	3 Dec 2027	**€1,250.–**



Course content

Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
London Confirmed dates	6 Dec 2027	10 Dec 2027	**€4,900.-**
Online Confirmed dates	6 Dec 2027	10 Dec 2027	**€1,250.-**
Dubai Confirmed dates	13 Dec 2027	17 Dec 2027	**€6,300.-**
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

info@smart-horizon.eu
Amsterdam
The Netherlands

View the latest course details online