

MAINTENANCE AND ENGINEERING | COURSE BROCHURE

Solar PV Systems: Design, Operation and Maintenance

5 days | Classroom training | English

SMART HORIZON

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Amsterdam
The Netherlands

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Course content

Why attend

Solar photovoltaic systems are being installed rapidly on buildings and as utility-scale plants. This course covers PV technology, system components, design and yield estimation, inverters, grid connection, installation quality, operation and maintenance, performance monitoring and safety.

Well-designed and maintained PV systems deliver reliable energy for decades. This course gives practical knowledge to plan and operate 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

The course uses design exercises, yield calculations, monitoring data analysis and case studies.

Course objectives

By the end of this course, participants will be able to:
- Explain PV technology and components
- Design PV systems and estimate energy yield
- Select inverters and plan grid connection
- Ensure installation quality and safety
- Operate and maintain PV systems
- Monitor and improve performance

Target audience

This course is suitable for:
- Electrical and energy engineers
- Facilities and energy managers
- Renewable energy project managers
- Maintenance technicians
- Developers and investors



Course content

Target competencies

Participants will develop competencies in:

- PV technology
- System design
- Yield estimation
- Grid connection
- O&M
- Performance monitoring

Course outline

Day 1: PV Fundamentals

09:00–09:54	Solar resource
09:54–10:48	PV cells and modules
10:48–11:00	Market trends
11:00–11:30	**Coffee break**
11:30–12:12	Market trends (continued)
12:12–13:06	Applications
13:06–14:00	Exercise: Site assessment

Day 2: System Design

09:00–09:54	System components
09:54–10:48	Sizing
10:48–11:00	Yield estimation
11:00–11:30	**Coffee break**
11:30–12:12	Yield estimation (continued)
12:12–13:06	Shading and losses
13:06–14:00	Lab: PV design



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Day 3: Inverters and Grid

09:00–09:54	Inverter types
09:54–10:48	Grid codes
10:48–11:00	Protection
11:00–11:30	**Coffee break**
11:30–12:12	Protection (continued)
12:12–13:06	Storage integration
13:06–14:00	Exercise: Grid connection

Day 4: Installation and O&M

09:00–09:54	Installation quality
09:54–10:48	Safety
10:48–11:00	Cleaning and inspection
11:00–11:30	**Coffee break**
11:30–12:12	Cleaning and inspection (continued)
12:12–13:06	Fault finding
13:06–14:00	Case study: Underperforming plant

Day 5: Performance

09:00–09:54	Monitoring
09:54–10:48	Performance ratio
10:48–11:00	Degradation
11:00–11:30	**Coffee break**
11:30–12:12	Degradation (continued)
12:12–13:06	Repowering
13:06–14:00	Capstone: O&M 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)
Kuala Lumpur Confirmed dates	9 Nov 2026	13 Nov 2026	**€2,900.–**
Online Confirmed dates	9 Nov 2026	13 Nov 2026	**€1,250.–**
Cape Town Confirmed dates	16 Nov 2026	20 Nov 2026	**€3,780.–**
Online Confirmed dates	16 Nov 2026	20 Nov 2026	**€1,250.–**
Paris Confirmed dates	23 Nov 2026	27 Nov 2026	**€5,720.–**
Online Confirmed dates	23 Nov 2026	27 Nov 2026	**€1,250.–**
Istanbul Confirmed dates	7 Dec 2026	11 Dec 2026	**€5,300.–**
Online Confirmed dates	7 Dec 2026	11 Dec 2026	**€1,250.–**



Course content

Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Amsterdam Confirmed dates	14 Dec 2026	18 Dec 2026	**€5,080.-**
Online Confirmed dates	14 Dec 2026	18 Dec 2026	**€1,250.-**
Singapore Confirmed dates	11 Jan 2027	15 Jan 2027	**€5,640.-**
Online Confirmed dates	11 Jan 2027	15 Jan 2027	**€1,250.-**
London Confirmed dates	25 Jan 2027	29 Jan 2027	**€4,900.-**
Online Confirmed dates	25 Jan 2027	29 Jan 2027	**€1,250.-**
Dubai Confirmed dates	8 Feb 2027	12 Feb 2027	**€6,300.-**
Online Confirmed dates	8 Feb 2027	12 Feb 2027	**€1,250.-**
Rome Confirmed dates	15 Feb 2027	19 Feb 2027	**€4,900.-**



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.-**
Frankfurt Confirmed dates	22 Feb 2027	26 Feb 2027	**€5,300.-**
Online Confirmed dates	22 Feb 2027	26 Feb 2027	**€1,250.-**
Kuala Lumpur Confirmed dates	8 Mar 2027	12 Mar 2027	**€2,900.-**
Online Confirmed dates	8 Mar 2027	12 Mar 2027	**€1,250.-**
Paris Confirmed dates	22 Mar 2027	26 Mar 2027	**€5,720.-**
Online Confirmed dates	22 Mar 2027	26 Mar 2027	**€1,250.-**
Istanbul Confirmed dates	12 Apr 2027	16 Apr 2027	**€5,300.-**
Online 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 (EUR)
Cape Town Confirmed dates	19 Apr 2027	23 Apr 2027	**€3,780.-**
Online Confirmed dates	19 Apr 2027	23 Apr 2027	**€1,250.-**
Amsterdam Confirmed dates	26 Apr 2027	30 Apr 2027	**€5,080.-**
Online Confirmed dates	26 Apr 2027	30 Apr 2027	**€1,250.-**
Singapore Confirmed dates	10 May 2027	14 May 2027	**€5,640.-**
Online Confirmed dates	10 May 2027	14 May 2027	**€1,250.-**
London Confirmed dates	24 May 2027	28 May 2027	**€4,900.-**
Online Confirmed dates	24 May 2027	28 May 2027	**€1,250.-**
Rome Confirmed dates	7 Jun 2027	11 Jun 2027	**€4,900.-**



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Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Online Confirmed dates	7 Jun 2027	11 Jun 2027	**€1,250.-**
Dubai Confirmed dates	14 Jun 2027	18 Jun 2027	**€6,300.-**
Online Confirmed dates	14 Jun 2027	18 Jun 2027	**€1,250.-**
Frankfurt Confirmed dates	21 Jun 2027	25 Jun 2027	**€5,300.-**
Online Confirmed dates	21 Jun 2027	25 Jun 2027	**€1,250.-**
Kuala Lumpur Confirmed dates	12 Jul 2027	16 Jul 2027	**€2,900.-**
Online Confirmed dates	12 Jul 2027	16 Jul 2027	**€1,250.-**
Paris Confirmed dates	26 Jul 2027	30 Jul 2027	**€5,720.-**
Online Confirmed dates	26 Jul 2027	30 Jul 2027	**€1,250.-**



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Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Istanbul Confirmed dates	9 Aug 2027	13 Aug 2027	**€5,300.-**
Online Confirmed dates	9 Aug 2027	13 Aug 2027	**€1,250.-**
Vienna Confirmed dates	16 Aug 2027	20 Aug 2027	**€5,880.-**
Online Confirmed dates	16 Aug 2027	20 Aug 2027	**€1,250.-**
Amsterdam Confirmed dates	23 Aug 2027	27 Aug 2027	**€5,080.-**
Online Confirmed dates	23 Aug 2027	27 Aug 2027	**€1,250.-**
Singapore Confirmed dates	13 Sept 2027	17 Sept 2027	**€5,640.-**
Online Confirmed dates	13 Sept 2027	17 Sept 2027	**€1,250.-**
London Confirmed dates	20 Sept 2027	24 Sept 2027	**€4,900.-**



Course content

Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Online Confirmed dates	20 Sept 2027	24 Sept 2027	**€1,250.-**
Dubai Confirmed dates	11 Oct 2027	15 Oct 2027	**€6,300.-**
Online Confirmed dates	11 Oct 2027	15 Oct 2027	**€1,250.-**
Barcelona Confirmed dates	18 Oct 2027	22 Oct 2027	**€5,680.-**
Online Confirmed dates	18 Oct 2027	22 Oct 2027	**€1,250.-**
Frankfurt Confirmed dates	25 Oct 2027	29 Oct 2027	**€5,300.-**
Online Confirmed dates	25 Oct 2027	29 Oct 2027	**€1,250.-**
Kuala Lumpur Confirmed dates	8 Nov 2027	12 Nov 2027	**€2,900.-**
Online Confirmed dates	8 Nov 2027	12 Nov 2027	**€1,250.-**



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Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Paris Confirmed dates	22 Nov 2027	26 Nov 2027	**€5,720.–**
Online Confirmed dates	22 Nov 2027	26 Nov 2027	**€1,250.–**
Istanbul Confirmed dates	6 Dec 2027	10 Dec 2027	**€5,300.–**
Online Confirmed dates	6 Dec 2027	10 Dec 2027	**€1,250.–**
Amsterdam Confirmed dates	13 Dec 2027	17 Dec 2027	**€5,080.–**
Online Confirmed dates	13 Dec 2027	17 Dec 2027	**€1,250.–**



Course content

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