

MAINTENANCE AND ENGINEERING | COURSE BROCHURE

Future-Ready Electrical Distribution

5 days | Classroom training | English

SMART HORIZON

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Course content

Why attend

This course equips professionals with the skills to adapt electrical distribution systems for future demands, focusing on smart technologies, renewable integration, and efficient management. Participants will learn to design, assess, and implement innovative solutions for modern electrical distribution challenges.

Electrical distribution systems face unprecedented challenges from the integration of renewable energy sources and the demand for smarter grid technologies. Professionals must navigate these complexities to ensure reliability and efficiency in their operations. Understanding future-ready solutions is essential for maintaining competitive advantage and meeting regulatory requirements. This course addresses the critical need for professionals to develop a comprehensive understanding of emerging technologies, such as smart meters and advanced grid management systems, which are vital for modernising infrastructure and enhancing operational efficiency. Participants will also explore how to balance traditional practices with innovative approaches to meet evolving consumer expectations.
Participants will develop practical capabilities in assessing current systems, designing smart distribution networks, and implementing advanced technologies. They will engage in real-world scenarios that require decision-making skills to enhance system performance and sustainability. Through collaborative exercises, participants will learn to evaluate the financial implications of technology investments and develop compliance strategies that align with evolving regulations. This hands-on approach ensures that attendees are equipped to lead in the evolving energy landscape, making informed decisions that drive innovation and improve service delivery in electrical distribution. By the end of the course, participants will feel confident in their ability to implement future-ready solutions.

Professional Problems This Course Is Designed to Solve

- Distribution planning that does not accommodate changing demand.
- Limited visibility of system resilience and modernisation priorities.
- Difficulty assessing new technologies and integration requirements.

Course methodology

The course employs a blend of case studies, hands-on workshops, and simulations to reinforce learning. Participants will engage in group exercises that mimic real-world challenges, allowing them to apply theoretical knowledge to practical situations. Specific exercises include designing smart distribution networks and conducting cost-benefit analyses for technology investments. Outputs include design proposals, assessment reports, and strategic implementation plans, demonstrating their capability to innovate within electrical distribution. This interactive approach fosters collaboration and critical thinking, ensuring that participants can effectively address the complexities of future-ready electrical distribution systems. By integrating theory with practice, participants will leave with actionable insights and tools for immediate application.



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Course objectives

By the end of this course, participants will be able to:
• Analyse current electrical distribution systems to identify inefficiencies and areas for improvement.
• Design a smart electrical distribution network incorporating renewable energy sources and advanced technologies.
• Assess the impact of regulatory changes on electrical distribution strategies and operations.
• Calculate the cost-benefit analysis of implementing smart grid technologies in existing systems.
• Construct a project plan for transitioning to a future-ready electrical distribution framework.
• Justify the selection of specific technologies for enhancing distribution system resilience and sustainability.

Target audience

This course is suitable for:
• Electrical Engineers focused on distribution systems, responsible for system design and implementation.
• Project Managers overseeing electrical distribution projects, requiring strategic planning and execution skills.
• Energy Consultants advising on regulatory compliance and technological advancements in electrical distribution.
• Utility Managers tasked with improving operational efficiency and integrating renewable energy solutions.

Target competencies

Participants will develop competencies in:
• Evaluate the performance of electrical distribution systems under varying conditions.
• Implement smart technologies to enhance grid reliability and efficiency.
• Integrate renewable energy sources into existing distribution networks.
• Develop strategic plans for compliance with evolving energy regulations.
• Facilitate stakeholder engagement in the transition to smart distribution systems.
• Conduct financial analyses related to technology investments in electrical distribution.

Course outline

Day 1: Understanding Current Electrical Distribution Systems

Applied activity: Participants will assess a fictional electrical distribution system, identifying inefficiencies and potential improvements based on provided data and performance metrics. They will present their findings and recommendations to the group, focusing on actionable insights for system enhancement.
Output: Assessment report highlighting key inefficiencies and actionable recommendations for enhancements.

09:00–09:54	Overview of traditional electrical distribution frameworks and their limitations in modern contexts.



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09:54–10:48	Key components of electrical distribution systems: substations, transformers, and feeders, and their roles.
10:48–11:00	Current challenges in electrical distribution: ageing infrastructure, demand fluctuations, and reliability issues.
11:00–11:30	**Coffee break**
11:30–12:12	Current challenges in electrical distribution: ageing infrastructure, demand fluctuations, and reliability issues. (continued)
12:12–13:06	Introduction to smart grid concepts and technologies that enhance operational efficiency.
13:06–14:00	Regulatory landscape affecting electrical distribution systems and its implications for utilities.

Day 2: Designing Smart Electrical Distribution Networks

Applied activity: Working in groups, participants will design a smart electrical distribution network for a fictional city, incorporating renewable sources, energy storage, and smart technologies. They will create a presentation to justify their design choices, considering cost, efficiency, and sustainability.
Output: A comprehensive design proposal including network diagrams, technology specifications, and a presentation.

09:00–09:54	Principles of smart grid design and the integration of IoT technologies for real-time monitoring.
09:54–10:48	Renewable energy sources: solar, wind, and their impact on distribution networks and grid stability.
10:48–11:00	Energy storage solutions and their role in optimising smart distribution systems and load management.
11:00–11:30	**Coffee break**
11:30–12:12	Energy storage solutions and their role in optimising smart distribution systems and load management. (continued)
12:12–13:06	Data analytics for monitoring and optimising distribution performance and predictive maintenance.
13:06–14:00	Designing for resilience: strategies to mitigate outages and enhance reliability through technology.

Day 3: Regulatory Impacts and Compliance Strategies

Applied activity: Participants will analyse a recent regulatory change affecting a fictional utility's distribution strategy, developing a compliance plan that includes necessary adjustments, risk assessments, and stakeholder communication strategies to ensure smooth implementation.
Output: A compliance strategy document outlining necessary adjustments, actions, and stakeholder engagement plans.



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09:00–09:54	Understanding the regulatory framework for electrical distribution in different jurisdictions and its impact on operations.
09:54–10:48	Impact of government policies on renewable energy integration and distribution system planning.
10:48–11:00	Compliance strategies for utilities and distribution companies to meet regulatory requirements effectively.
11:00–11:30	**Coffee break**
11:30–12:12	Compliance strategies for utilities and distribution companies to meet regulatory requirements effectively. (continued)
12:12–13:06	Case studies of successful regulatory adaptations in electrical distribution and lessons learned.
13:06–14:00	Future trends in energy regulation and their implications for distribution systems and utility operations.

Day 4: Financial Analysis of Smart Technologies

Applied activity: Participants will conduct a cost-benefit analysis for implementing smart grid technologies in a fictional distribution system, using provided financial data and assumptions to evaluate potential returns on investment and risks associated with the project.
Output: A detailed cost-benefit analysis report with recommendations for technology investments.

09:00–09:54	Cost-benefit analysis techniques for technology investments in distribution systems and their long-term benefits.
09:54–10:48	Understanding funding sources and financial incentives for smart grid projects and renewable integration.
10:48–11:00	Evaluating the economic impact of renewable energy integration on distribution costs and operational efficiency.
11:00–11:30	**Coffee break**
11:30–12:12	Evaluating the economic impact of renewable energy integration on distribution costs and operational efficiency. (continued)
12:12–13:06	Risk assessment in technology investments for electrical distribution and mitigation strategies.
13:06–14:00	Developing financial models for project proposals that support future-ready initiatives.



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Day 5: Integrated Application: Future-Ready Distribution Solutions

Applied activity: In teams, participants will develop and present a comprehensive strategy for transitioning a fictional utility to a future-ready electrical distribution system, integrating all learned concepts and justifying their approach to stakeholders while addressing potential challenges and solutions.
Output: A strategic presentation and implementation plan for the future-ready distribution system, including anticipated outcomes and metrics for success.

09:00–09:54	Integrating knowledge from previous days to create a cohesive distribution strategy that addresses future challenges.
09:54–10:48	Collaborative problem-solving for complex distribution scenarios, including stakeholder engagement and technology selection.
10:48–11:00	Utilising simulation tools to model future distribution challenges and develop innovative solutions.
11:00–11:30	**Coffee break**
11:30–12:12	Utilising simulation tools to model future distribution challenges and develop innovative solutions. (continued)
12:12–13:06	Presenting and defending proposed solutions to stakeholders, focusing on feasibility and impact.
13:06–14:00	Evaluating the overall impact of proposed changes on system performance, sustainability, and regulatory compliance.

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.

Dates, venues and fees

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

Venue	Start date	End date	Fee (GBP)
Istanbul Confirmed dates	16 Nov 2026	20 Nov 2026	**£5,300.-**
Online Confirmed dates	16 Nov 2026	20 Nov 2026	**£1,250.-**



Course content

Dates, venues and fees (continued)

Venue	Start date	End date	Fee (GBP)
Amsterdam Confirmed dates	7 Dec 2026	11 Dec 2026	**£5,080.–**
Online Confirmed dates	7 Dec 2026	11 Dec 2026	**£1,250.–**
Singapore Confirmed dates	14 Dec 2026	18 Dec 2026	**£5,640.–**
Online Confirmed dates	14 Dec 2026	18 Dec 2026	**£1,250.–**
London Confirmed dates	4 Jan 2027	8 Jan 2027	**£4,900.–**
Online Confirmed dates	4 Jan 2027	8 Jan 2027	**£1,250.–**
Dubai Confirmed dates	18 Jan 2027	22 Jan 2027	**£6,300.–**
Online Confirmed dates	18 Jan 2027	22 Jan 2027	**£1,250.–**
Rome Confirmed dates	25 Jan 2027	29 Jan 2027	**£4,900.–**



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Dates, venues and fees (continued)

Venue	Start date	End date	Fee (GBP)
Online Confirmed dates	25 Jan 2027	29 Jan 2027	**£1,250.–**
Frankfurt Confirmed dates	1 Feb 2027	5 Feb 2027	**£5,300.–**
Online Confirmed dates	1 Feb 2027	5 Feb 2027	**£1,250.–**
Kuala Lumpur Confirmed dates	15 Feb 2027	19 Feb 2027	**£2,900.–**
Online Confirmed dates	15 Feb 2027	19 Feb 2027	**£1,250.–**
Paris Confirmed dates	1 Mar 2027	5 Mar 2027	**£5,720.–**
Online Confirmed dates	1 Mar 2027	5 Mar 2027	**£1,250.–**
Istanbul Confirmed dates	15 Mar 2027	19 Mar 2027	**£5,300.–**
Online Confirmed dates	15 Mar 2027	19 Mar 2027	**£1,250.–**



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Dates, venues and fees (continued)

Venue	Start date	End date	Fee (GBP)
Vienna Confirmed dates	29 Mar 2027	2 Apr 2027	**£5,880.–**
Online Confirmed dates	29 Mar 2027	2 Apr 2027	**£1,250.–**
Amsterdam Confirmed dates	5 Apr 2027	9 Apr 2027	**£5,080.–**
Online Confirmed dates	5 Apr 2027	9 Apr 2027	**£1,250.–**
Singapore Confirmed dates	19 Apr 2027	23 Apr 2027	**£5,640.–**
Online Confirmed dates	19 Apr 2027	23 Apr 2027	**£1,250.–**
London Confirmed dates	3 May 2027	7 May 2027	**£4,900.–**
Online Confirmed dates	3 May 2027	7 May 2027	**£1,250.–**
Dubai Confirmed dates	17 May 2027	21 May 2027	**£6,300.–**



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Dates, venues and fees (continued)

Venue	Start date	End date	Fee (GBP)
Online Confirmed dates	17 May 2027	21 May 2027	**£1,250.–**
Cape Town Confirmed dates	31 May 2027	4 Jun 2027	**£3,780.–**
Online Confirmed dates	31 May 2027	4 Jun 2027	**£1,250.–**
Frankfurt Confirmed dates	7 Jun 2027	11 Jun 2027	**£5,300.–**
Online Confirmed dates	7 Jun 2027	11 Jun 2027	**£1,250.–**
Kuala Lumpur Confirmed dates	21 Jun 2027	25 Jun 2027	**£2,900.–**
Online Confirmed dates	21 Jun 2027	25 Jun 2027	**£1,250.–**
Paris Confirmed dates	5 Jul 2027	9 Jul 2027	**£5,720.–**
Online Confirmed dates	5 Jul 2027	9 Jul 2027	**£1,250.–**



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Dates, venues and fees (continued)

Venue	Start date	End date	Fee (GBP)
Istanbul Confirmed dates	19 Jul 2027	23 Jul 2027	**£5,300.-**
Online Confirmed dates	19 Jul 2027	23 Jul 2027	**£1,250.-**
Amsterdam Confirmed dates	2 Aug 2027	6 Aug 2027	**£5,080.-**
Online Confirmed dates	2 Aug 2027	6 Aug 2027	**£1,250.-**
Rome Confirmed dates	9 Aug 2027	13 Aug 2027	**£4,900.-**
Online Confirmed dates	9 Aug 2027	13 Aug 2027	**£1,250.-**
Singapore Confirmed dates	16 Aug 2027	20 Aug 2027	**£5,640.-**
Online Confirmed dates	16 Aug 2027	20 Aug 2027	**£1,250.-**
London Confirmed dates	6 Sept 2027	10 Sept 2027	**£4,900.-**



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Dates, venues and fees (continued)

Venue	Start date	End date	Fee (GBP)
Online Confirmed dates	6 Sept 2027	10 Sept 2027	**£1,250.–**
Dubai Confirmed dates	20 Sept 2027	24 Sept 2027	**£6,300.–**
Online Confirmed dates	20 Sept 2027	24 Sept 2027	**£1,250.–**
Frankfurt Confirmed dates	4 Oct 2027	8 Oct 2027	**£5,300.–**
Online Confirmed dates	4 Oct 2027	8 Oct 2027	**£1,250.–**
Cape Town Confirmed dates	11 Oct 2027	15 Oct 2027	**£3,780.–**
Online Confirmed dates	11 Oct 2027	15 Oct 2027	**£1,250.–**
Kuala Lumpur Confirmed dates	18 Oct 2027	22 Oct 2027	**£2,900.–**
Online Confirmed dates	18 Oct 2027	22 Oct 2027	**£1,250.–**



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Dates, venues and fees (continued)

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Paris Confirmed dates	1 Nov 2027	5 Nov 2027	**£5,720.–**
Online Confirmed dates	1 Nov 2027	5 Nov 2027	**£1,250.–**
Istanbul Confirmed dates	15 Nov 2027	19 Nov 2027	**£5,300.–**
Online Confirmed dates	15 Nov 2027	19 Nov 2027	**£1,250.–**
Barcelona Confirmed dates	29 Nov 2027	3 Dec 2027	**£5,680.–**
Online Confirmed dates	29 Nov 2027	3 Dec 2027	**£1,250.–**
Amsterdam Confirmed dates	6 Dec 2027	10 Dec 2027	**£5,080.–**
Online Confirmed dates	6 Dec 2027	10 Dec 2027	**£1,250.–**
Singapore Confirmed dates	13 Dec 2027	17 Dec 2027	**£5,640.–**



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Dates, venues and fees (continued)

Venue	Start date	End date	Fee (GBP)
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 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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