

Smart Grid Technologies and Advanced Metering Infrastructure

COURSE OVERVIEW

This course provides an in-depth exploration of modern power systems, focusing on the integration of smart technologies, two-way communication networks, and intelligent metering solutions. It covers the fundamentals of smart grid architecture, advanced metering infrastructure (AMI), data analytics for demand management, grid automation, cybersecurity considerations, and the role of renewable energy integration. Through case studies and practical insights, participants will gain a holistic understanding of how smart grids enhance efficiency, reliability, sustainability and customer engagement in the evolving energy landscape.

WHO SHOULD ATTEND?

This course is designed for utility professionals, energy regulators, engineers, ICT specialists, policymakers, consultants and decision makers in the power and energy sector who are involved in grid modernization, metering systems and digital transformation initiatives. It is also valuable for researchers, solution providers, and technology vendors aiming to understand and contribute to the implementation of smart grid and AMI solutions.

COURSE OUTCOMES

Delegates will gain the skills and knowledge to:

- Explain the fundamental concepts and components of smart grid technologies and their role in modern power systems.
- Analyze advanced metering infrastructure (AMI) systems to enable real-time data collection and energy management.
- Evaluate communication networks and protocols used for reliable data transmission in smart grids.
- Design and implement demand response strategies to optimize energy consumption and grid stability.
- Assess integration challenges of distributed energy resources (DERs) including renewables and storage in smart grids.
- Apply cybersecurity principles and best practices to protect smart grid and AMI infrastructures from threats.

KEY COURSE HIGHLIGHTS

At the end of the course, you will understand;

- Comprehensive overview of smart grid components and architecture, including renewable energy sources.
- Deep coverage of communication technologies and network protocols for smart grid applications.
- Exploration of energy storage solutions and their integration into smart grids.
- Study of advanced metering infrastructure (AMI), real-time data management, and demand-side response.
- Examination of cybersecurity challenges and regulatory frameworks affecting smart grids.
- Analysis of emerging technologies such as AI, IoT, and grid automation for enhanced grid performance.

All our courses are dual-certificate courses. At the end of the training, the delegates will receive two certificates.

1. A GTC end-of-course certificate
2. Continuing Professional Development (CPD) Certificate of completion with earned credits awarded