

Energy Storage Systems- Maintenance and Integration with Power Plants

COURSE OVERVIEW

This course provides a deep technical and operational understanding of how modern energy storage technologies are transforming the reliability and performance of power generation systems. The curriculum examines the interfaces between conventional thermal or renewable power plants and ESS units, focusing on grid support applications. Participants will gain insights into system integration strategies, safety management, asset lifecycle optimization, and predictive maintenance practices that ensure reliable operation of storage assets within power generation frameworks. Delegates will also be equipped with the expertise to plan, maintain, and integrate storage solutions effectively within existing or new-generation power infrastructures.

WHO SHOULD ATTEND?

This course is designed for power plant engineers, energy systems managers, maintenance and reliability engineers, electrical engineers, plant operators, renewable integration specialists, and energy project developers seeking to deepen their understanding of battery technologies, hybrid generation, predictive maintenance, and digital energy optimization. It is equally valuable for utility regulators, grid operators, and policymakers overseeing the integration of energy storage into national energy strategies.

COURSE OUTCOMES

Delegates will gain the skills and knowledge to:

- Understand the fundamental technologies and architectures of modern energy storage systems.
- Evaluate different types of ESS (battery, thermal, mechanical, electrochemical) for specific power applications.
- Apply predictive maintenance techniques to optimize energy storage performance and longevity.
- Identify failure modes and degradation mechanisms in energy storage systems.
- Design maintenance programs that align with OEM recommendations and international standards.
- Assess safety, fire protection, and risk mitigation strategies in ESS operation.
- Develop strategies for optimizing grid services and ancillary benefits using ESS integration.

KEY COURSE HIGHLIGHTS

At the end of the course, you will understand;

- The core design principles and operating mechanisms of key energy storage technologies.
- How energy storage enhances reliability, efficiency, and flexibility in power generation systems.
- Methods for integrating ESS with conventional and renewable power generation assets.
- The role of AI, IoT, and data analytics in real-time ESS performance monitoring.
- Safety standards, risk management protocols, and emergency response planning for ESS installations.
- Techniques for improving grid stability through peak shaving, load balancing, and frequency control.

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.