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Wind Energy Technologies: System Design, Maintenance & Performance

COURSE OVERVIEW

This course explores the full lifecycle of wind power projects, from turbine design and system integration to operational performance, troubleshooting, and long-term maintenance strategies. It provides participants with a comprehensive understanding of the principles, technologies, and practices that drive modern wind energy systems. Participants will explore system performance factors, such as aerodynamic efficiency, torque, and mechanical stress. They will also be equipped with practical skills to design, maintain, and evaluate wind energy systems for effective power generation.

WHO SHOULD ATTEND?

The course is designed for engineers, technicians, project managers, energy professionals, policy advisors, and stakeholders involved in the planning, operation, or regulation of wind energy systems. It is also valuable for investors and decision makers seeking to deepen their technical and operational insight into wind energy technologies to support project development and sustainable energy transitions.

COURSE OUTCOMES

Delegates will gain the skills and knowledge to:

- Develop a solid understanding of wind energy system design, components, and integration.
- Gain expertise in maintenance practices and predictive strategies for extending system lifespan.
- Analyze and optimize turbine and system performance to improve efficiency.
- Apply global standards and best practices for safety and environmental sustainability.
- Strengthen decision-making skills through case studies and real-world performance analysis.

KEY COURSE HIGHLIGHTS

At the end of the course, you will understand:

- The main components of wind turbines, including rotors, hubs, drive trains, generators, nacelles, and towers.
- How wind turbines convert wind energy into electrical power using aerodynamic rotor blades.
- Design principles and sizing considerations for different types of wind turbines.
- Maintenance and repair procedures to ensure efficient and safe turbine operation.
- Techniques for monitoring turbine condition and managing performance data.
- Environmental impacts and lifecycle assessment of wind energy systems.
- Grid integration challenges and strategies for effective wind farm operation and energy dispatch.

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