

## Hybrid Systems

### COURSE OVERVIEW

The program focuses on the design, implementation, and optimization of hybrid energy systems. These systems combine renewable energy sources (such as solar and wind) with energy storage solutions (like batteries) and, at times, conventional power sources. It also equips participants with the technical knowledge and practical skills required to design, install, and maintain hybrid systems for various applications, from residential to industrial.

### WHO SHOULD ATTEND?

The course benefits electricians, engineers, and technicians in system design and maintenance. Entrepreneurs can expand their renewable energy businesses, while policymakers gain insights into regulations. Academics, researchers, and students can enhance their knowledge, and job seekers or enthusiasts can acquire skills for career growth or personal projects.

### COURSE OUTCOMES

Delegates will gain knowledge and skills to:

- Gain a comprehensive understanding of hybrid energy systems and their importance.
- Develop proficiency in designing and sizing hybrid systems based on specific energy needs.
- Learn to integrate multiple energy sources, including solar, wind, batteries, and generators, into a cohesive system.
- Analyze and optimize system performance for maximum efficiency.
- Navigate regulatory requirements and safety standards for hybrid energy solutions.
- Understand financial aspects such as cost analysis and return on investment.
- Master maintenance and troubleshooting techniques to ensure system reliability.
- Stay updated on industry trends, emerging technologies, and innovations in hybrid energy systems.

### KEY COURSE HIGHLIGHTS

At the end of the course, you will understand:

- How to design and size hybrid systems combining solar, wind, batteries, and gensets
- Tools for load profiling, system simulation, and performance optimization
- Control strategies for seamless switching between energy sources
- Grid-tied, off-grid, and mini-grid hybrid configurations
- Key safety, wiring, and regulatory compliance considerations
- Cost-benefit analysis methods for hybrid system investments
- Maintenance routines and troubleshooting techniques for reliability
- Real-world applications in telecom, rural electrification, and backup systems

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