

High Voltage Engineering: Design, Safety & Applications

COURSE OVERVIEW

This course offers an in-depth understanding of the principles, technologies, and practices involved in designing, operating and maintaining high voltage systems. It covers the fundamental concepts of electrical insulation, over voltage protection, high voltage testing methods and the application of advanced materials and equipment in power systems. Placing emphasis on safety standards, risk management and practical applications in industries such as power generation, transmission, distribution and renewable energy integration, ensuring participants gain both theoretical knowledge and practical insights into high voltage engineering challenges and solutions.

WHO SHOULD ATTEND?

The course is designed for electrical engineers, utility professionals, system designers, maintenance personnel, project managers, safety officers and technical consultants working in the power and energy sector. It is also highly relevant to other professionals involved in equipment manufacturing, testing laboratories or organizations focused on grid reliability and high voltage technology applications.

COURSE OUTCOMES

Delegates will gain the skills and knowledge to:

- Apply high voltage engineering principles in the design and operation of power systems.
- Evaluate insulation systems, breakdown mechanisms, and over voltage phenomena.
- Implement effective safety practices and comply with international high-voltage standards.
- Conduct and interpret high voltage testing and diagnostic techniques.
- Identify and address operational challenges in high voltage applications across industries.
- Analyze the integration of high voltage components with renewable energy systems and smart grid technologies.

KEY COURSE HIGHLIGHTS

At the end of the course, you will understand;

- Fundamental high voltage generation methods and system components.
- Principles of insulation coordination and selection of dielectric materials for safety.
- Design and construction standards for high voltage transmission lines and equipment.
- Safety protocols and protective gear to prevent electrical hazards and failures.
- Analysis and application of switchgear, circuit breakers, and protective relays.
- Testing and diagnostic techniques for high voltage equipment reliability and maintenance.

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