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Electricity Transmission and Distribution: Planning, Operation and Safety

COURSE OVERVIEW

This course covers the full process of electrical energy delivery, from generation to end-users. It includes the operation of high-voltage transmission and low-voltage distribution systems. Key topics are power flow optimization, voltage stability, grid planning, system protection, network design, load flow analysis, and maintenance strategies. Participants will gain skills to manage modern electrical networks efficiently, and also learn to ensure system resilience, maintain operational excellence, and uphold safety across all power delivery stages.

WHO SHOULD ATTEND?

This program is designed for power engineers, electrical technicians, transmission and distribution system operators, grid planners, substation engineers, maintenance supervisors, energy regulators, and safety managers who seek to deepen their technical understanding of T&D systems. It is equally valuable for project engineers, consultants, policymakers, and utility professionals aiming to understand modern safety and efficiency standards.

COURSE OUTCOMES

Delegates will gain the skills and knowledge to:

- Analyze the structure and operation of high-voltage and low-voltage networks.
- Plan, design, and optimize transmission and distribution infrastructure for efficiency and reliability.
- Apply advanced load flow and power loss analysis techniques for grid optimization.
- Implement effective system protection, grounding, and fault management practices.
- Assess and manage safety risks associated with transmission and distribution operations.
- Interpret and comply with national and international electrical safety standards and regulations.

KEY COURSE HIGHLIGHTS

At the end of the course, you will understand;

- The complete lifecycle of electricity transmission and distribution systems from planning to operation.
- The key components, configurations, and equipment used in substations and grid networks.
- Grid planning and design considerations for urban and rural electrification.
- Techniques for ensuring system reliability, voltage control, and network stability.
- Fault detection, isolation, and restoration methods for uninterrupted power supply.
- The importance of safety protocols, PPE, and risk mitigation in field operations.
- The role of automation, sensors, and data analytics in modern grid management.

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.