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Grid Reliability and Network Performance Management

COURSE OVERVIEW

This course offers a deep dive into the technical, operational, and analytical aspects of grid reliability for transmission and distribution networks. It covers grid resilience planning, system monitoring, fault analysis, reliability indices, asset management, and predictive maintenance. Participants will also explore performance optimization using advanced digital tools. The course combines theory with practical frameworks to help participants identify network weaknesses, design reliability improvement programs, and apply best practices aligned with international reliability standards.

WHO SHOULD ATTEND?

This course is ideal for electrical engineers, grid operation managers, power system planners, maintenance engineers, reliability analysts, SCADA and control engineers, and network performance specialists seeking to strengthen their understanding of grid reliability standards, performance optimization techniques, and network asset management. It is equally valuable for utility supervisors, regulatory officers, energy consultants, consultants, engineers and professionals working in smart grid development and energy infrastructure modernization.

COURSE OUTCOMES

Delegates will gain the skills and knowledge to:

- Assess the impact of network disturbances and equipment failures on system stability.
- Apply reliability indices (SAIDI, SAIFI, CAIDI, etc.) to evaluate network performance.
- Implement predictive and condition-based maintenance strategies to minimize unplanned outages.
- Utilize advanced monitoring and diagnostic tools for real-time grid performance analysis.
- Apply risk assessment and contingency planning techniques for grid resilience enhancement.
- Align operational practices with global reliability and regulatory standards.

KEY COURSE HIGHLIGHTS

At the end of the course, you will understand;

- The core concepts of grid reliability, performance indicators, and system resilience frameworks.
- How to analyze outage data and reliability indices for effective performance benchmarking.
- Strategies for fault detection, isolation, and restoration (FDIR) to improve service continuity.
- How to optimize transmission and distribution system configurations for better load flow and reliability.
- The integration of digital twins and smart sensors for network performance management.
- Techniques for asset health monitoring and lifecycle optimization in grid infrastructure.
- The application of reliability-centered maintenance (RCM) and condition-based management in grids.

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.