

Reliability Engineering & Operational Performance of Power Systems

COURSE OVERVIEW

This course examines the tools and methodologies required to ensure the dependable, safe and efficient operation of modern power systems. It explores principles of reliability engineering, system performance evaluation, risk analysis, predictive maintenance, and asset management while addressing the challenges of integrating renewable energy sources, digitalization and grid modernization. Participants will gain knowledge on how to analyze system vulnerabilities, design reliability centered maintenance strategies and apply performance optimization techniques to enhance overall system availability and resilience.

WHO SHOULD ATTEND?

This course is tailored for power system engineers, operations managers, reliability specialists, asset managers, maintenance engineers and technical decision makers involved in the planning, operation and optimization of electrical power systems. It is also highly beneficial for professionals in utilities, energy companies, regulatory bodies and engineering service providers seeking to strengthen their expertise in reliability management and operational excellence.

COURSE OUTCOMES

Delegates will gain the skills and knowledge to:

- Apply core principles of reliability engineering to power system operations.
- Identify and mitigate risks affecting system availability and performance.
- Design and implement reliability-centered maintenance strategies.
- Leverage data analytics and performance metrics to optimize operational efficiency.
- Develop approaches to improve resilience in the face of system disturbances and evolving energy challenges.
- Integrate reliability considerations into the planning and lifecycle management of power system assets.

KEY COURSE HIGHLIGHTS

At the end of the course, you will understand;

- Fundamentals of reliability theory and key metrics such as Mean Time Between Failures (MTBF) and System Average Interruption Frequency Index (SAIFI).
- Techniques for analyzing component and system reliability using series, parallel, and standby redundancy models.
- Methods to assess and improve operational availability and minimize power interruptions.
- Use of stochastic analysis and reliability software tools for power system evaluation.
- Strategies for maintenance optimization and fault management to enhance system performance.
- Regulatory requirements and economic value considerations for power system reliability.

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