

AI-Powered Monitoring & Diagnostics in Power Plants

COURSE OVERVIEW

This course delves into how Artificial Intelligence (AI), Machine Learning (ML), and advanced data analytics are revolutionizing the monitoring, maintenance, and diagnostic systems of modern power plants. Participants will explore predictive modeling, anomaly detection, intelligent diagnostics, digital twin applications, and data-driven maintenance strategies. Through interactive case studies and simulations, delegates will understand how AI-powered analytics interpret vast operational datasets in real time, identify early signs of performance issues, and generate actionable intelligence to improve reliability, safety, and operational efficiency.

WHO SHOULD ATTEND?

This course is designed for professionals in the power generation, utilities, and industrial operations sectors who seek to harness the potential of AI for plant reliability and asset management. It is equally valuable for power plant engineers, senior executives, technical leaders, electrical and mechanical maintenance managers, operations supervisors, reliability engineers, instrumentation and control specialists, data analysts who aim to understand how AI-driven insights can enhance plant performance and safety.

COURSE OUTCOMES

Delegates will gain the skills and knowledge to:

- Explain the principles and role of AI, ML, and analytics in power plant monitoring and diagnostics.
- Implement data-driven approaches for condition-based maintenance of critical power plant assets.
- Design and interpret predictive models for failure forecasting and reliability improvement.
- Identify anomalies and potential failures through real-time monitoring and pattern recognition.
- Integrate AI systems with existing SCADA, DCS, and plant information systems.
- Evaluate key performance indicators (KPIs) using AI insights for operational decision-making.

KEY COURSE HIGHLIGHTS

At the end of the course, you will understand;

- The architecture and integration of AI-powered monitoring platforms within plant control systems.
- Techniques for real-time anomaly detection and predictive fault diagnostics.
- The role of digital twins and simulation in improving operational decision-making.
- How to analyze vibration, temperature, and process data using AI-based analytics tools.
- The fundamentals of predictive maintenance, including early fault recognition and trend forecasting.
- Cybersecurity considerations for AI-enabled monitoring systems in industrial environments.
- How to design data pipelines and workflows for continuous diagnostic learning.

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.