

Predictive Maintenance & Asset Integrity for Petroleum Facilities with AI

Paris (France)

4 - 8 January 2027

UK Training

PARTNER



Predictive Maintenance & Asset Integrity for Petroleum Facilities with AI

Code: OG32 From: 4 - 8 January 2027 City: Paris (France) Fees: 5900 Pound

Introduction

The adoption of Artificial Intelligence AI in petroleum facilities is revolutionizing asset integrity and maintenance strategies. Predictive Maintenance powered by AI leverages real-time data, advanced analytics, and machine learning to anticipate equipment failures before they occur, significantly reducing downtime and maintenance costs. This course equips professionals with the knowledge and tools to transition from traditional reactive or preventive maintenance approaches to AI-driven predictive models that maximize asset lifespan and operational reliability. This program is designed for executives, asset managers, maintenance engineers, and technical teams seeking to optimize petroleum facility operations through intelligent data-driven insights and cutting-edge digital technologies.

Course Objectives

- Understand the principles of predictive maintenance in petroleum operations.
- Apply AI and machine learning for asset performance monitoring.
- Identify early warning signs of equipment failure using data analytics.
- Develop predictive models for critical petroleum facility components.
- Integrate IoT sensors and real-time data streams into maintenance workflows.
- Optimize maintenance schedules for maximum cost-effectiveness.
- Ensure compliance with asset integrity management standards.
- Evaluate predictive maintenance ROI and performance improvements.

Course Outlines

Day 1: Fundamentals of Predictive Maintenance & AI Applications

- Introduction to predictive maintenance concepts and benefits.
- AI technologies relevant to asset integrity management.
- Maintenance strategies: reactive, preventive, predictive.
- Data sources for predictive maintenance in petroleum facilities.
- Challenges and barriers to AI adoption.
- Practical exercise: Mapping AI opportunities in asset management.

Day 2: Data Collection, Processing & Integration

- Types of data: operational, historical, sensor-based.
- Data cleaning and normalization techniques.
- Handling large datasets from multiple sources.
- IoT integration for real-time monitoring.
- Cybersecurity considerations in connected maintenance systems.
- Practical exercise: Building a maintenance data pipeline.

Day 3: Machine Learning Models for Predictive Maintenance



- Overview of supervised and unsupervised learning methods.
- Developing predictive algorithms for asset health monitoring.
- Feature engineering for improved model accuracy.
- Failure mode prediction and anomaly detection.
- Case studies of AI-powered maintenance in petroleum facilities.
- Practical exercise: Training a predictive maintenance model.

Day 4: Asset Integrity Management with AI

- Understanding asset integrity frameworks and standards.
- AI-based inspection scheduling and risk assessment.
- Predictive corrosion monitoring and prevention.
- Integrating predictive maintenance with asset lifecycle management.
- Using digital twins for asset performance optimization.
- Practical exercise: Creating an AI-driven asset integrity plan.

Day 5: Implementation, Optimization & Continuous Improvement

- Strategies for deploying predictive maintenance systems.
- Change management for successful adoption.
- Monitoring KPIs and system performance.
- Continuous model training and updates.
- Cost-benefit analysis of predictive maintenance programs.
- Practical exercise: Designing an implementation roadmap.

Why Attend this Course: Wins & Losses!

- Learn how AI transforms maintenance and asset integrity management.
- Reduce unplanned downtime and costly repairs.
- Increase the lifespan of critical petroleum assets.
- Improve safety and regulatory compliance.
- Optimize maintenance resources and schedules.
- Gain practical hands-on experience with predictive models.
- Enhance data-driven decision-making capabilities.
- Access real-world industry case studies.

Conclusion

The Predictive Maintenance & Asset Integrity for Petroleum Facilities with AI course provides participants with the knowledge and skills to leverage AI for smarter, more efficient maintenance strategies. By integrating real-time data analytics, machine learning, and advanced monitoring technologies, petroleum facility operators can improve asset reliability, reduce costs, and ensure continuous operational excellence.

This program offers a comprehensive blend of theory, practical exercises, and industry best practices to equip professionals for the future of intelligent asset management.



Blackbird Training Clients



MANNAI Trading
Company WLL,
Qatar



Alumina Corporation
Guinea



Booking.com
Netherlands



Oxfam GB International
Organization,
Yemen



Capital Markets
Authority,
Kuwait



Waltersmith Petroman Oil Limited
Nigeria



Qatar National Bank
(QNB),
Qatar



Qatar Foundation,
Qatar



AFRICAN UNION ADVISORY
BOARD ON CORRUPTION,
Tanzania



KFAS
Kuwait



Reserve Bank of
Malawi,
Malawi



Central Bank of Nigeria
Nigeria



Ministry of Interior
Kingdom of Saudi Arabia
KSA



Mabruk Oil Company
Libya



Saudi Electricity
Company,
KSA



BADAN PENGELOLA
KEUANGAN Haji,
Indonesia



NATO
Italy



ENI CORPORATE
UNIVERSITY,
Italy



Gulf Bank
Kuwait



المؤسسة العامة للتأمينات الاجتماعية
General Organization for
Social Insurance
KSA



Defence Space Administration
Nigeria



National Industries
Group (Holding),
Kuwait



Hamad Medical
Corporation,
Qatar



USAID
Pakistan



STC Solutions,
KSA



North Oil company,



EKO Electricity



Oman Broadband



UNITED NATIONS
UN.



هيئة تنظيم الكهرباء - عمان
Authority for
Electricity Regulation, Oman

UK Training
PARTNER



Blackbird Training Categories

Management & Admin

Entertainment & Leisure
Professional Skills
Finance, Accounting, Budgeting
Media & Public Relations
Project Management
Human Resources
Audit & Quality Assurance
Marketing, Sales, Customer Service
Secretary & Admin
Supply Chain & Logistics
Management & Leadership
Agile and Elevation

Technical Courses

Artificial Intelligence (AI)
Sustainability, ESG & Corporate Responsibility
Advanced Courses
Hospital Management
Public Sector
Special Workshops
Oil & Gas Engineering
Telecom Engineering
IT & IT Engineering
Health & Safety
Law and Contract Management
Customs & Safety
Aviation
C-Suite Training

