

**Training
Course**

**Digital Transformation &
Automation in Refinery
Operations**

Course Plan

Introduction

In today's competitive energy sector, digital transformation and automation are redefining the way refineries operate. Advanced technologies such as AI, IoT, machine learning, robotics, and predictive analytics are driving efficiency, safety, and sustainability across refinery operations. This training course provides participants with the essential knowledge and practical tools to embrace digitalization and automation, ensuring optimized processes, reduced downtime, enhanced decision-making, and improved operational excellence.

Course Objectives:

- ✓ Understand the fundamentals of digital transformation in refinery operations.
- ✓ Explore automation technologies and their applications in refining.
- ✓ Analyze the impact of IoT, AI, and data analytics on refinery performance.
- ✓ Apply digital solutions for predictive maintenance and process optimization.
- ✓ Strengthen decision-making through real-time monitoring and data-driven insights.
- ✓ Identify challenges and best practices in implementing digital refinery strategies.

Who Should Attend?

- Refinery Operations Managers
- Team Leader – Operations
- Process Engineers
- Automation & Control Engineers
- Digital Transformation Officers
- Maintenance Supervisors
- IT/OT Integration Specialists
- Energy Sector Consultants
- Plant Supervisors and Future Leaders

Training Methods:

- ✓ Online Video material.
- ✓ Presentation.
- ✓ Live Interactive sessions.
- ✓ Course presenter will make extensive use of all tools that will be needed for the virtual environment.
- ✓ Questions & Answers

Course Outline:

Day One

- Introduction to Digital Transformation in the Refinery Sector
- Evolution of Automation in Oil & Gas Operations
- Digital Twin Technology for Refinery Processes
- Industrial Internet of Things (IIoT) in Refinery Operations
- Artificial Intelligence & Machine Learning Applications

Day Two

- Big Data & Advanced Analytics in Refineries
- Cloud Computing and Edge Solutions for Operations
- Cybersecurity in Digital Refinery Environments
- Process Control Systems (DCS, SCADA, PLC) and Modernization
- Robotics and Automation in Refinery Maintenance

Day Three

- Smart Sensors and Real-time Monitoring Technologies
- Predictive Maintenance Strategies using AI & IoT
- Advanced Process Control (APC) for Optimization
- Energy Efficiency through Digital Solutions
- Sustainability and Carbon Reduction via Digitalization

Day Four

- Digital Supply Chain & Logistics in Refinery Operations
- Workforce Transformation: Skills for the Digital Era
- Change Management in Digital Refinery Projects
- Integration of IT and OT Systems in Refineries
- Mobile Applications and Smart Devices in Operations

Day Five

- Data-driven Decision Making for Operations Leaders
- Remote Operations Centers (ROCs) and Virtual Control Rooms
- Case Studies: Successful Digital Refineries Worldwide
- Future Trends: Autonomous Refineries and AI-driven Operations
- Strategic Roadmap for Implementing Digital Transformation

Training Details

Course Duration	5 Days
Pre-Schedule	27 – 31 Oct 2025
Venue	Madrid - NH Collection Madrid Gran Vía
Training Fees Per Person	KWD 1500 (One Thousand Five Hundred Only)
Course Fees Include	✓ Tuition documentation ✓ Curriculum and Training Handout ✓ Five star Lunch ✓ Completion Certificates ✓ Lunch Included