

IOT IN OIL & GAS

“Leverage IoT to transform oil & gas operations—from exploration to production to pipeline security.”

Schedule

Venue	Fees
In-House	ASK FOR THE QUOTATION

Introduction

This course empowers oil & gas professionals with the strategic insight and technical understanding needed to implement and manage Internet of Things (IoT) solutions across upstream, midstream, and downstream operations. From remote asset monitoring and predictive maintenance to real-time safety alerts and emission tracking, IoT offers unmatched opportunities for efficiency, sustainability, and operational resilience. Managers will explore use cases, technologies, and governance frameworks for leading digital transformation initiatives.

Objectives

Participants will:

- Understand IoT architecture and components (sensors, networks, edge/cloud, analytics)
- Explore key IoT applications in oil & gas such as pipeline monitoring, rig safety, and predictive maintenance
- Evaluate integration challenges with SCADA, ERP, and DCS systems
- Examine cybersecurity risks and risk mitigation strategies
- Learn to design, plan, and justify IoT implementation projects

Why Attend

As oil & gas operations move toward digital integration, IoT is a foundational enabler of remote control, automation, safety enhancement, and cost savings. This course positions managers to lead with confidence in the fourth industrial revolution.

Target Audience

- Asset & Field Operations Managers
- OT/IT Managers in Energy Sector
- Production, Maintenance & Reliability Engineers
- Safety & Risk Managers
- Digital Transformation, Innovation, and Strategy Leaders

Individual Benefits

- Bridge the gap between traditional operations and digital strategy
- Understand how to digitize and monitor critical oilfield assets
- Lead cross-functional IoT deployment and change management initiatives

Organizational Benefits

- Improve safety, uptime, and performance across operations
- Reduce OPEX through early failure detection and optimized resource use
- Enhance regulatory compliance and environmental monitoring
- Build resilience in remote and hazardous environments

Instructional Methodology

- Use-case-driven teaching with real-world examples
- Hands-on exercises, group activities, and system mapping
- Vendor-neutral insights and strategic planning sessions
- Risk simulation and project design workshops

Course Outline

DETAILED 5-DAY COURSE OUTLINE (CUSTOMIZABLE)

Training Hours: 7:30 AM – 3:30 PM

Daily Format: 3–4 Learning Modules | Coffee Breaks: 09:30 & 11:15 | Lunch Buffet: 01:00 – 02:00

Day 1: IoT Foundations in Energy

Module 1: Introduction to IoT – Definitions, Trends & Oil & Gas Impact (07:30 – 09:30)

Module 2: Components of IoT Systems – Devices, Networks, Cloud, and Analytics (09:45 – 11:15)

Module 3: Upstream, Midstream, Downstream Use Cases (11:30 – 01:00)

Module 4: Group Exercise – Mapping IoT Across the Oil & Gas Value Chain (02:00 – 03:30)

Day 2: IoT Architectures and Technology Stack

Module 1: Communication Technologies: LoRaWAN, 5G, Zigbee, LTE-M, NB-IoT (07:30 – 09:30)

Module 2: Edge vs Cloud Processing in Remote Sites (09:45 – 11:15)

Module 3: Sensor Selection – Vibration, Pressure, Flow, Gas Leak, Temp, Corrosion (11:30 – 01:00)

Module 4: Workshop – Designing an IoT Network for a Remote Drilling Site (02:00 – 03:30)

Day 3: Operational Optimization with IoT

Module 1: Asset Tracking, Predictive Maintenance & Condition Monitoring (07:30 – 09:30)

Module 2: IoT for Pipeline Integrity Monitoring & Leak Detection (09:45 – 11:15)

Module 3: Safety Applications: Emergency Alerts, Gas Sensors, Worker Tracking (11:30 – 01:00)

Module 4: Use Case Simulation – Smart Refinery Control System (02:00 – 03:30)

Day 4: Integration, Security & Governance

Module 1: Integration with SCADA, DCS & ERP Systems (07:30 – 09:30)

Module 2: IoT Cybersecurity Risks & Zero-Trust Architecture (09:45 – 11:15)

Module 3: Data Ownership, Compliance & Governance (11:30 – 01:00)

Module 4: Scenario Planning – Security Breach in Oilfield Network (02:00 – 03:30)

Day 5: Strategic IoT Roadmapping for Oil & Gas

Module 1: Cost-Benefit Analysis, ROI & Digital Investment Justification (07:30 – 09:30)

Module 2: Managing IoT Vendors, SLAs & Ecosystem Partners (09:45 – 11:15)

Module 3: Developing a Resilient, Scalable IoT Strategy (11:30 – 01:00)

Module 4: Final Project – Draft an IoT Implementation Blueprint (02:00 – 03:30)

Certification

Participants will be awarded a **Certificate of Completion: IoT in Oil & Gas for Managers**, certifying their strategic understanding of connected operations in energy and infrastructure sectors.

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