



Auditing in the Oil & Gas Industry for IT
and Non-IT Auditors



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Introduction

This Auditing in the Oil & Gas Industry for IT and Non-IT Auditors course provides an understanding of auditing practices in the complex, high-risk oil and gas sector. It explores how audit principles are applied across upstream, midstream, and downstream operations. Participants will gain insights into both IT audit oil and gas environments and traditional operational auditing frameworks. The program emphasizes integrating risk-based internal audit approaches with industry-specific compliance requirements. It highlights how technology, automation, and digital systems reshape modern audit practices in energy organizations. Combining technical and non-technical perspectives strengthens audit effectiveness across diverse organizational functions.

Targeted Groups

This Auditing in the Oil & Gas Industry for IT and Non-IT Auditors training targets professionals seeking knowledge and skills:

- Internal and external auditors in energy organizations.
- IT auditors are responsible for industrial systems and infrastructure.
- Compliance officers in oil and gas companies.
- Risk management professionals in petroleum operations.
- Engineers are involved in operational assurance processes.
- Finance professionals in the upstream and downstream sectors.
- Supervisors managing refinery and pipeline operations.
- Professionals transitioning into oil and gas auditing roles.

Course Objectives

Participants will achieve the following objectives by completing the Auditing in the Oil & Gas Industry for IT and Non-IT Auditors course:

- understand oil and gas auditing frameworks across upstream, midstream, and downstream operations, including key operational risks and control environments.
- Analyze IT audit oil and gas systems, focusing on SCADA systems, industrial control systems, and cybersecurity vulnerabilities.
- Apply risk-based internal audit methodologies to evaluate compliance, operational efficiency, and asset integrity management.
- Understand regulatory requirements, including ISO standards, SOX compliance principles, and industry governance models.
- Assess financial, operational, and technical controls within petroleum industry processes.
- Identify fraud risks, inefficiencies, and process deviations in complex energy environments.
- Strengthen audit reporting skills to communicate findings clearly to technical and non-technical stakeholders.
- Integrate digital transformation concepts into modern audit practices to enhance the quality of assurance.

Targeted Competencies

Participants will gain the following competencies during the Auditing in the Oil & Gas Industry for IT and Non-IT Auditors program:

- Evaluate oil & gas audits using risk-based methods in production and refining.
- Review IT audit systems, including SAP ERP and OT environments.
- Identify control weaknesses in pipelines, refineries, and upstream operations.
- Assess SCADA cybersecurity and industrial automation risks.
- Understand energy compliance and governance frameworks.
- Conduct integrated audits across financial, operational, and IT areas.
- Document audit evidence and report clear findings for decisions.

Studying Scenarios

In this Auditing in the Oil & Gas Industry for IT and Non-IT Auditors training, participants develop skills through the following scenarios:

- Evaluation of operational failures in refinery systems and identification of root causes through structured audit analysis.
- Assessment of cybersecurity breaches in SCADA systems and their impact on production continuity and safety compliance.
- Review of procurement and contract processes in upstream operations to detect fraud risks and inefficiencies.
- Analysis of IT system access controls within ERP environments supporting oil and gas financial operations.
- Examination of pipeline transportation risks and compliance gaps in midstream logistics operations.

Course Content

Unit 1: Fundamentals of Oil & Gas Auditing Frameworks

- Introduction to oil and gas auditing principles and industry structure.
- Overview of upstream, midstream, and downstream operational models.
- Core concepts of risk-based internal audit in energy organizations.
- Understanding operational auditing in oil & gas environments and key risks.
- Audit governance structures in petroleum industry organizations.
- Regulatory frameworks influencing oil and gas compliance auditing.
- Role of internal audit in asset-intensive industries.
- Integration of IT audit oil and gas systems in modern frameworks.

Unit 2: Operational Audit in Exploration, Production, and Refining

- Audit processes in upstream exploration and drilling operations.
- Evaluation of production efficiency and operational control systems.
- Refinery audit techniques and process safety management review.
- Asset integrity management and maintenance audit procedures.
- Identification of operational inefficiencies in extraction systems.
- Risk assessment in hydrocarbon processing and handling operations.
- Control testing in high-risk refinery environments.
- Performance auditing in large-scale energy production facilities.

Unit 3: IT Audit in Oil & Gas Industry Systems

- Structure of IT audit of oil and gas infrastructure environments.
- SCADA system auditing and industrial control system security.
- ERP audit processes in SAP-based oil and gas enterprises.
- Cybersecurity risk assessment in OT and IT convergence systems.
- Data integrity controls in production and operational reporting systems.
- Access control and identity management in critical infrastructure.
- Audit of digital transformation initiatives in energy organizations.
- System reliability and disaster recovery audit approaches.

Unit 4: Compliance, Risk, and Regulatory Auditing

- International compliance standards in oil and gas auditing practices.
- SOX compliance and financial control frameworks in energy companies.
- Environmental and safety compliance audit requirements.
- Risk identification methodologies in petroleum operations.
- Fraud detection and investigative audit techniques.
- Contract compliance and vendor management audit processes.
- Governance, risk, and compliance integration models.
- Audit documentation standards and regulatory reporting practices.

Unit 5: Integrated Audit Strategy and Reporting in the Energy Sector

- Integrated audit planning for IT and non-IT audit environments.
- Coordination between technical and financial audit functions.
- Data analytics in modern oil and gas auditing processes.
- Reporting audit findings for executive and technical stakeholders.
- Continuous auditing and monitoring in energy operations.
- Audit follow-up and corrective action tracking systems.
- Strategic improvement planning based on audit insights.
- Enhancing audit effectiveness through digital audit tools.

Final Insights & Key Takeaways

Effective auditing in the oil and gas industry requires a unified understanding of operational, financial, and IT risk landscapes. Mastering integrated audit approaches strengthens organizational resilience, compliance assurance, and long-term operational performance in complex energy systems.