

Course No. 1595

Petroleum Laboratory Management: Mini Masters in Oil and Gas Operations

MANAGEMENT, LEADERSHIP & DIGITAL TRANSFORMATION
OIL & GAS

DURATION

5 Days

DELIVERY

Classroom



Course Overview

Petroleum laboratories play a critical role in Oil and Gas operations by providing accurate analytical data that supports exploration, production, processing, refining, quality control, environmental monitoring, and commercial decision-making. The reliability of laboratory results can directly influence product quality, operational efficiency, regulatory compliance, and business performance.

Effective Petroleum Laboratory Management requires more than technical testing expertise. Laboratory managers and professionals must understand laboratory operations, quality systems, analytical methods, equipment reliability, safety, personnel management, data integrity, cost control, and the relationship between laboratory results and wider Oil and Gas operations.

This intensive Mini Masters program provides a practical management perspective on petroleum laboratory operations, combining laboratory management principles with petroleum testing, quality assurance, operational control, safety, data management, and performance improvement.

Participants will develop the knowledge and management capabilities required to establish reliable laboratory operations, improve analytical performance, manage resources effectively, strengthen quality systems, and ensure that laboratory outputs provide accurate and timely information for operational and commercial decisions.

Objectives

- By the end of this course, participants will be able to:
- Understand the strategic role of petroleum laboratories within Oil and Gas operations.
- Develop effective management systems for petroleum laboratory operations.
- Understand key petroleum testing and analytical activities.
- Apply quality assurance and quality control principles to laboratory operations.
- Improve laboratory accuracy, reliability, consistency, and turnaround time.
- Manage laboratory equipment, calibration, maintenance, and reliability.
- Strengthen laboratory safety and chemical handling practices.
- Manage laboratory personnel, responsibilities, competencies, and performance.
- Improve sample management, testing workflows, and laboratory documentation.
- Strengthen data integrity, reporting, and analytical decision-making.
- Manage laboratory costs, resources, and operational efficiency.
- Apply performance indicators and continuous improvement practices.

- Integrate laboratory operations with production, processing, refining, and commercial requirements.

Who Should Attend

This course is designed for Petroleum Laboratory Managers, Laboratory Supervisors, Laboratory Engineers, Chemists, Petroleum Engineers, Quality Professionals, and technical personnel responsible for petroleum testing and laboratory operations.

It is also suitable for professionals working in exploration and production, refining, processing, quality assurance, quality control, HSE, operations, technical services, inspection, and product certification.

The program is particularly valuable for managers and technical professionals responsible for laboratory performance, analytical quality, testing reliability, resource management, compliance, and the integration of laboratory services with Oil and Gas operations.

Learning Outcomes

- Upon successful completion of this course, participants will be able to:
- Explain the role of petroleum laboratories across the Oil and Gas value chain.
- Manage laboratory operations in a structured and efficient manner.
- Understand major petroleum testing and analytical requirements.
- Establish effective quality assurance and quality control practices.
- Improve the accuracy, reliability, and consistency of laboratory results.
- Manage laboratory samples from receipt through testing, analysis, and reporting.
- Control laboratory equipment calibration, maintenance, and performance.
- Apply effective laboratory safety and chemical management practices.
- Manage laboratory personnel, competencies, workload, and performance.
- Strengthen laboratory data integrity and reporting processes.
- Develop meaningful laboratory Key Performance Indicators.
- Identify operational inefficiencies and opportunities for improvement.
- Optimize laboratory resources, costs, and turnaround time.
- Align laboratory performance with production, processing, refining, quality, and commercial objectives.

- Targeted Competencies
- Petroleum Laboratory Management.
- Petroleum Testing and Analysis.
- Laboratory Operations Management.
- Quality Assurance and Quality Control.
- Laboratory Safety.
- Sample Management.
- Laboratory Equipment Management.
- Calibration and Maintenance.
- Data Integrity and Reporting.
- Laboratory Personnel Management.
- Performance Management.
- Cost and Resource Optimization.
- Regulatory and Quality Compliance.
- Continuous Improvement.
- Oil and Gas Operational Integration.

Course Outline

DAY 01

Petroleum Laboratory Management and Oil and Gas Operations

- Understanding the strategic role of petroleum laboratories.
- Petroleum laboratories across the Oil and Gas value chain.
- Laboratory support for exploration, production, processing, and refining.
- Key laboratory functions and management responsibilities.
- Laboratory workflow from sample receipt to final reporting.
- Understanding petroleum samples and testing requirements.
- Laboratory organization and functional responsibilities.
- Managing laboratory workload, priorities, and resources.
- Integrating laboratory activities with field and plant operations.

DAY 01 — CONTINUED

PRACTICAL APPLICATION

Developing a petroleum laboratory operating framework.

DAY 02**Petroleum Testing, Analytical Quality and Laboratory Workflow**

- Fundamentals of petroleum and petroleum product testing.
- Crude oil and petroleum product analysis.
- Physical and chemical properties of petroleum products.
- Sampling principles and representative sample management.
- Laboratory testing procedures and analytical methods.
- Managing sample identification, handling, storage, and traceability.
- Quality assurance and quality control in petroleum laboratories.
- Managing analytical accuracy, precision, repeatability, and consistency.
- Handling abnormal and non-conforming test results.
- Improving laboratory turnaround time.

PRACTICAL APPLICATION

Designing an effective petroleum laboratory testing workflow.

DAY 03**Laboratory Equipment, Safety and Reliability Management**

- Managing laboratory instruments and analytical equipment.
- Equipment selection and operational requirements.
- Calibration and verification of laboratory instruments.
- Preventive maintenance and equipment reliability.
- Managing equipment failures and analytical interruptions.
- Laboratory chemicals and hazardous material management.
- Laboratory safety procedures and risk controls.

DAY 03 — CONTINUED

- Personal protective equipment and safe laboratory practices.
- Emergency response and incident management.
- Laboratory housekeeping and contamination control.

PRACTICAL APPLICATION

Developing a laboratory equipment and safety management framework.

DAY 04

Laboratory Quality Systems, Data Integrity and Performance Management

- Establishing an effective laboratory quality management system.
- Laboratory procedures, documentation, and controlled records.
- Managing test methods and technical procedures.
- Data integrity and secure laboratory records.
- Reviewing, validating, and approving analytical results.
- Laboratory reporting and communication with operations.
- Managing deviations, non-conformities, and corrective actions.
- Internal audits and continuous quality improvement.
- Laboratory performance indicators and management dashboards.
- Monitoring turnaround time, accuracy, reliability, and productivity.

PRACTICAL APPLICATION

Developing a petroleum laboratory quality and performance framework.

DAY 05

Laboratory Leadership, Cost Optimization and Operational Excellence

- Leading high-performance petroleum laboratory teams.
- Workforce planning and competency management.

DAY 05 — CONTINUED

- Training, qualification, and professional development.
- Managing laboratory costs and resource utilization.
- Procurement and inventory management for laboratory supplies.
- Managing laboratory service providers and external testing.
- Benchmarking laboratory performance.
- Identifying operational inefficiencies and improvement opportunities.
- Applying continuous improvement and operational excellence.
- Aligning laboratory performance with production, refining, quality, and commercial objectives.
- Developing a laboratory improvement roadmap.

PRACTICAL APPLICATION

Preparing a 90-day petroleum laboratory operational improvement plan.

Register or Request More Information

Course page: <https://quest-training.com/courses/petroleum-laboratory-management-mini-masters-in-oil-and-gas-operations>

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