

Course No. 1356

Oil & Gas Facilities Commissioning & Start-up Training Course

**COMMISSIONING, START-UP & SHUTDOWN & OPERATIONAL
READINESS**
INDUSTRIAL ENGINEERING, MAINTENANCE & OPERATIONS

DURATION

5 Days

DELIVERY

Classroom



Course Overview

The Oil & Gas Facilities Commissioning & Start-up Training Course is a specialized professional program designed to develop the technical, operational, and management capabilities required to plan, coordinate, and execute commissioning, pre-commissioning, start-up, and operational readiness activities across oil and gas facilities. The course provides a structured understanding of how facilities transition from construction and completion into safe, controlled, and reliable operation, with emphasis on equipment readiness, system integration, process safety, operational coordination, and performance verification.

Commissioning and start-up represent critical stages in the lifecycle of oil and gas projects. During this phase, multiple mechanical, electrical, instrumentation, control, utility, process, and safety systems must operate together under carefully controlled conditions. Effective commissioning practices help identify technical deficiencies before production, reduce start-up risks, improve equipment reliability, minimize avoidable delays, and establish a sound foundation for safe and stable facility operation.

The course covers the complete commissioning and start-up process, from commissioning strategy and readiness planning through mechanical completion, pre-commissioning checks, system testing, functional verification, equipment preparation, utility start-up, hydrocarbon introduction, process stabilization, and final handover. Participants will also examine the interfaces between engineering, construction, commissioning, operations, maintenance, inspection, quality, and health and safety teams.

Particular emphasis is placed on safe start-up execution, permit-to-work requirements, energy isolation, operational risk management, management of change, emergency shutdown systems, control and instrumentation readiness, and the management of defects and outstanding work. Participants will develop a practical understanding of how to evaluate system readiness, respond to abnormal conditions, investigate operational problems, and support effective decision-making during the early stages of facility operation.

Through practical exercises, case studies, workshops, and operational scenarios, the Oil & Gas Facilities Commissioning & Start-up Training Course enables participants to apply structured approaches to commissioning management and start-up execution. The program supports organizations in strengthening operational readiness, improving project handover quality, reducing

commissioning risks, and establishing a controlled transition from project execution to stable and sustainable operations.

Objectives

- Analyze the major stages of oil and gas facility commissioning and start-up and identify the requirements, deliverables, and decision points associated with each stage during the training program.
- Develop integrated commissioning, start-up, and operational readiness plans that align project requirements with operational, safety, and production objectives.
- Evaluate the readiness of process systems, equipment, utilities, control systems, electrical systems, and safety systems before start-up.
- Apply structured pre-commissioning, commissioning, testing, and functional verification methods to major oil and gas facility systems.
- Design practical commissioning checklists, readiness reviews, system turnover requirements, and verification records to support controlled start-up activities.
- Improve coordination between engineering, construction, commissioning, operations, maintenance, inspection, quality, and safety teams throughout the commissioning lifecycle.
- Strengthen the application of process safety, permit-to-work, energy isolation, risk assessment, and safe operating practices during start-up activities.
- Assess technical deviations, incomplete work, commissioning issues, and abnormal operating conditions and determine appropriate corrective actions.
- Implement systematic approaches for troubleshooting equipment and process problems encountered during commissioning and initial start-up.
- Align commissioning and start-up activities with maintenance requirements, reliability objectives, asset management practices, and long-term operational performance.
- Develop effective documentation and handover processes covering commissioning records, outstanding work, operating procedures, and final acceptance requirements.
- Apply structured methods for transitioning facilities from commissioning and start-up into stable routine operations.

Who Should Attend

This course is designed for process engineers, operations engineers, commissioning engineers, project engineers, production engineers, maintenance and reliability engineers, mechanical engineers, electrical engineers, instrumentation and control engineers, field engineers, and technical specialists involved in oil and gas facility commissioning, start-up, and operational readiness. It is particularly relevant to professionals working on production facilities, processing plants, gas plants, refineries, terminals, pipelines, utilities, storage facilities, and related energy infrastructure.

The program is also suitable for project managers, commissioning managers, operations managers, maintenance managers, engineering managers, production managers, asset managers, reliability professionals, technical authorities, start-up leaders, quality professionals, and health and safety personnel responsible for project execution, system readiness, safe start-up, and facility handover. It is valuable for decision makers who need a practical understanding of the technical and operational interfaces that influence commissioning and start-up performance.

Government entities, ministries, public sector organizations, national energy companies, oil and gas operators, engineering and project organizations, utilities, and large industrial corporations can use this training to strengthen internal capabilities in commissioning management, start-up planning, operational readiness, and project-to-operations transition.

Learning Outcomes

- By the end of the course, participants will be able to:
- Explain the principles, phases, and key activities involved in oil and gas facility commissioning and start-up.
- Develop a structured commissioning and start-up plan covering activities, responsibilities, readiness requirements, and decision points.
- Evaluate equipment, systems, utilities, and process readiness before commissioning and start-up.
- Apply appropriate pre-commissioning and commissioning methods to mechanical, electrical, instrumentation, control, and process systems.
- Identify the operational requirements for starting and stabilizing major equipment such as pumps, compressors, vessels, valves, and utility systems.

- Apply controlled procedures for system energization, utility start-up, process introduction, and initial facility operation.
- Analyze commissioning and start-up data to identify deviations, abnormal conditions, and equipment or process issues.
- Use commissioning records, checklists, system turnover documents, and readiness reviews to monitor progress and confirm system status.
- Coordinate commissioning and start-up activities effectively across engineering, construction, operations, maintenance, quality, and safety functions.
- Assess start-up risks and establish practical controls to support safe and controlled facility operation.
- Manage outstanding work, technical observations, defects, and non-conformances through structured follow-up and close-out processes.
- Support final handover and operational stabilization by integrating commissioning results with maintenance, reliability, and asset management requirements.

Course Outline

DAY 01

Fundamentals of Oil & Gas Facility Commissioning and Start-up

- Introduction to commissioning, pre-commissioning, start-up, and operational readiness
- Commissioning and start-up within the oil and gas project lifecycle
- Transition from engineering and construction to operational readiness
- Commissioning strategy, philosophy, and execution planning
- Roles and responsibilities of engineering, construction, commissioning, operations, and maintenance teams
- Review of process flow diagrams, system boundaries, equipment documentation, and project specifications
- Identification of critical systems, support systems, and operating interfaces
- Managing interfaces between project execution and operations
- Commissioning milestones, readiness requirements, and decision gates

DAY 01 — CONTINUED

PRACTICAL APPLICATION

Developing a commissioning and start-up readiness map for an oil and gas facility

DAY 02

Pre-Commissioning, Inspection, and System Readiness

- Planning and organizing pre-commissioning activities
- Mechanical completion and system turnover requirements
- Inspection of equipment, piping, valves, electrical systems, and instrumentation
- Review and management of punch list items and outstanding work
- Cleaning, flushing, pressure testing, and preparation of process systems
- Verification of utility systems and supporting infrastructure
- Readiness of electrical, instrumentation, control, and communication systems
- Verification of alarms, trips, interlocks, and protective functions
- Permit-to-work, isolation, and energy control requirements

PRACTICAL APPLICATION

Conducting a system readiness review and identifying actions required before commissioning

DAY 03

Equipment Commissioning and Start-up Execution

- Principles of controlled system energization and start-up
- Commissioning and start-up of rotating and static equipment
- Pump, compressor, valve, and utility system start-up considerations
- Process system commissioning and operating sequence verification
- Electrical power systems and auxiliary power start-up
- Instrumentation and control system activation and verification
- Alarm, trip, interlock, and emergency shutdown system checks
- Monitoring pressures, temperatures, flows, levels, and other critical operating parameters

DAY 03 — CONTINUED

- Identifying and managing deviations during initial start-up

CASE STUDY

Managing a controlled start-up sequence and evaluating key operating conditions

DAY 04

Process Safety, Risk Management, and Operational Stabilization

- Commissioning and start-up risk management in oil and gas facilities
- Process safety requirements during hydrocarbon introduction and initial operation
- Permit-to-work systems and energy isolation during start-up
- Managing simultaneous operations and operational interfaces
- Emergency shutdown systems and critical protective functions
- Management of Change during commissioning and start-up
- Responding to abnormal operating conditions and equipment failures
- Troubleshooting and root cause analysis during initial operation
- Operational communication, shift coordination, and decision-making

PRACTICAL APPLICATION

Analyzing an abnormal start-up scenario and developing an appropriate response plan

DAY 05

Operational Stabilization, Handover, and Continuous Improvement

- Monitoring performance after initial start-up
- Achieving stable operating conditions and production readiness
- Verification of operational and performance requirements
- Review of commissioning records, test results, and start-up data
- Management and close-out of outstanding commissioning activities

DAY 05 — CONTINUED

- Preparation of commissioning and start-up reports
- Handover requirements for operations and maintenance teams
- Integration of commissioning results with maintenance, reliability, and asset management plans
- Lessons learned and continuous improvement opportunities
- Best practices for transitioning from commissioning to routine operations

FINAL WORKSHOP

Developing an integrated Oil & Gas Facility Commissioning and Start-up Implementation Plan covering readiness, risk management, testing, start-up, stabilization, and handover

Register or Request More Information

Course page: <https://quest-training.com/courses/oil-gas-facilities-commissioning-start-up-training-course>

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