

Course No. 1362

Advanced Commissioning & Start-up Management Training Course

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

DURATION

5 Days

DELIVERY

Classroom



Course Overview

The Advanced Commissioning & Start-up Management Training Course is a specialized professional program designed to develop advanced technical, operational, and managerial capabilities for professionals responsible for commissioning, start-up, operational readiness, and project-to-operations transition. The course provides a structured and practical approach to managing complex commissioning activities, integrating multiple disciplines, controlling risks, coordinating stakeholders, and ensuring that facilities and systems are prepared for safe and reliable operation.

Commissioning and start-up are among the most critical phases of major industrial and infrastructure projects. Successful execution requires more than completing construction activities; it requires systematic verification of equipment and systems, effective coordination between project and operational teams, controlled energization and start-up, disciplined management of outstanding work, and clear evidence that the facility is ready for operation. Advanced commissioning management helps organizations improve decision-making, reduce transition risks, and strengthen operational performance.

The program addresses the complete commissioning and start-up management lifecycle, including commissioning strategy, planning, systemization, readiness assessment, pre-commissioning, system turnover, functional testing, integrated testing, energization, start-up sequencing, performance verification, risk management, troubleshooting, and handover. Participants will also examine how commissioning activities can be integrated with project controls, maintenance, reliability, asset management, quality, health and safety, and operational readiness requirements.

Particular attention is given to complex project interfaces and the management of multidisciplinary teams. Participants will explore practical methods for managing contractors, technical queries, incomplete work, non-conformities, scope changes, operational constraints, testing dependencies, and schedule pressures. The course also emphasizes the use of performance information and readiness evidence to support informed decisions before authorization to energize, start up, or transfer systems to operations.

Through advanced case studies, practical exercises, commissioning scenarios, and workshops, participants will develop the ability to manage commissioning performance, evaluate readiness, resolve critical issues, coordinate start-up activities, and establish effective handover processes.

The Advanced Commissioning & Start-up Management Training Course supports organizations in improving commissioning governance, project delivery, operational readiness, asset performance, and the quality of the transition into stable operations.

Objectives

- Analyze advanced commissioning and start-up management principles and identify the critical stages, interfaces, and decision points throughout the training program.
- Develop comprehensive commissioning strategies that integrate engineering, construction, testing, start-up, operational readiness, and project completion requirements.
- Evaluate commissioning readiness across mechanical, electrical, instrumentation, control, process, utility, and safety systems using structured verification methods.
- Apply advanced planning and scheduling techniques to sequence commissioning activities, manage dependencies, and control critical path activities.
- Design effective commissioning management systems covering systemization, turnover, readiness reviews, testing, reporting, and performance monitoring.
- Improve coordination between engineering, construction, commissioning, operations, maintenance, quality, inspection, project controls, and safety teams.
- Strengthen risk management and decision-making during commissioning and start-up by assessing technical, operational, safety, and schedule-related risks.
- Implement structured methods for managing incomplete work, non-conformities, technical queries, scope changes, and commissioning constraints.
- Assess commissioning and start-up performance using practical indicators, readiness evidence, testing results, progress data, and operational feedback.
- Develop effective troubleshooting and recovery approaches for critical equipment, system, and process problems encountered during commissioning.
- Align commissioning activities with maintenance, reliability, asset management, operational readiness, and long-term performance requirements.
- Evaluate final commissioning results and prepare structured recommendations for start-up authorization, handover, stabilization, and continuous improvement.

Who Should Attend

This course is designed for senior commissioning engineers, commissioning managers, start-up managers, project managers, project engineers, operations managers, engineering managers, maintenance and reliability managers, process engineers, mechanical engineers, electrical engineers, instrumentation and control engineers, project controls specialists, and technical professionals responsible for commissioning and start-up activities on major projects. It is particularly suitable for professionals working in oil and gas, petrochemical, energy, utilities, manufacturing, process industries, infrastructure, and other complex asset-intensive environments.

The program is also appropriate for construction managers, system completion managers, turnover coordinators, quality managers, inspection professionals, health and safety managers, asset management specialists, operational readiness leaders, contractor managers, and discipline leads. It provides significant value to executives and senior decision makers responsible for major capital projects, commissioning governance, start-up authorization, operational risk, project handover, and the transition from project execution into sustainable operations.

Government entities, ministries, public sector organizations, national energy organizations, industrial corporations, engineering and project organizations, utilities, and major asset owners can benefit from this advanced training when delivering new facilities, major expansions, modernization programs, plant upgrades, or complex commissioning and start-up initiatives.

Learning Outcomes

- By the end of the course, participants will be able to:
- Explain advanced commissioning and start-up management principles and apply them to major industrial projects.
- Develop integrated commissioning strategies linking project completion, system turnover, testing, start-up, and operational readiness.
- Evaluate the readiness of complex multidisciplinary systems using defined criteria, evidence, and decision gates.
- Develop commissioning schedules that address system dependencies, testing sequences, interfaces, resources, and critical activities.
- Apply advanced methods for managing systemization, turnover, completion records, readiness reviews, and commissioning documentation.

- Coordinate multidisciplinary commissioning teams and manage interfaces between project, contractor, and operations organizations.
- Assess technical, operational, safety, and schedule risks and establish practical controls and response strategies.
- Manage commissioning constraints, incomplete work, non-conformities, technical queries, and changes without compromising readiness requirements.
- Analyze testing, commissioning, and start-up data to identify performance gaps, abnormal conditions, and emerging risks.
- Apply structured troubleshooting and root cause analysis methods to resolve critical commissioning and start-up problems.
- Develop handover and operational readiness requirements that support effective transfer of systems and assets to operations.
- Prepare an advanced commissioning and start-up management plan that supports safe authorization, stable operation, and continuous improvement.

Course Outline

DAY 01

Advanced Commissioning Strategy, Governance, and Planning

- Advanced principles of commissioning and start-up management
- Commissioning within the complete project and asset lifecycle
- Development of commissioning strategy, philosophy, and execution framework
- Commissioning organization structure, roles, authorities, and accountability
- Systemization, subsystem boundaries, and commissioning priorities
- Integration of commissioning with engineering, construction, project controls, and operations
- Development of commissioning milestones, decision gates, and readiness criteria
- Commissioning schedules, resource planning, and critical path management
- Management of interfaces between project disciplines and contractors

PRACTICAL APPLICATION

Developing an advanced commissioning strategy and execution framework for a major project

DAY 02

System Completion, Readiness, and Integrated Testing

- Advanced system completion and turnover management
- Review of mechanical completion and pre-commissioning status
- System handover requirements and completion documentation
- Readiness assessment methodologies and evidence-based verification
- Planning functional testing and integrated system testing
- Testing mechanical, electrical, instrumentation, control, and process systems
- Verification of alarms, interlocks, trips, and protective functions
- Managing testing dependencies and multidisciplinary interfaces
- Evaluation and approval of commissioning test results

CASE STUDY

Conducting an integrated readiness review and developing corrective actions for critical systems

DAY 03

Start-up Management, Risk, and Operational Control

- Start-up strategy and controlled start-up sequencing
- Energization planning and safe introduction of utilities and process services
- Coordination of field operations and control room activities
- Monitoring critical operating parameters during start-up
- Start-up risk assessment and operational decision-making
- Permit-to-work, isolation, energy control, and process safety requirements
- Management of Change during commissioning and start-up
- Managing simultaneous operations and high-risk interfaces
- Communication, escalation, and command structures during critical start-up activities

PRACTICAL APPLICATION

Managing a complex start-up scenario and developing a coordinated operational control plan

DAY 04

Troubleshooting, Performance Management, and Recovery

- Advanced troubleshooting during commissioning and start-up
- Identification of equipment, system, and process performance deviations
- Root cause analysis for commissioning failures and operational problems
- Management of technical queries, non-conformities, and unresolved issues
- Scope change and additional work management
- Schedule recovery and mitigation of commissioning delays
- Commissioning performance indicators and progress measurement
- Contractor performance management during commissioning
- Decision-making under schedule, technical, and operational pressure

PRACTICAL APPLICATION

Analyzing a major commissioning deviation and preparing an integrated recovery and stabilization plan

DAY 05

Handover, Start-up Assurance, and Continuous Improvement

- Final commissioning verification and performance assessment
- Start-up authorization and readiness decision-making
- Operational readiness and transfer of system ownership
- Preparation and review of final commissioning and handover documentation
- Closure of punch list items, technical observations, and outstanding work
- Integration of commissioning information with maintenance and reliability systems
- Post-start-up monitoring and operational stabilization
- Commissioning performance review and lessons learned
- Continuous improvement of commissioning strategies, processes, and governance
- Best practices for sustaining operational readiness and asset performance

DAY 05 — CONTINUED

FINAL WORKSHOP

Developing a complete Advanced Commissioning & Start-up Management Plan covering strategy, systemization, readiness, testing, risk management, start-up, troubleshooting, performance verification, handover, and operational stabilization

Register or Request More Information

Course page: <https://quest-training.com/courses/advanced-commissioning-start-up-management-training-course>

Website: <https://quest-training.com>

Email: info@quest-training.com

Phone: +905016771440