

Course No. 1586

Project Engineering Management Training Course

**PROJECT ENGINEERING & CONSTRUCTION
INDUSTRIAL ENGINEERING, MAINTENANCE & OPERATIONS**

DURATION

5 Days

DELIVERY

Classroom



Course Overview

The Project Engineering Management Training Course provides a comprehensive professional program designed to strengthen the technical, managerial, coordination, and leadership capabilities required to manage engineering projects effectively. Engineering projects involve complex technical requirements, multidisciplinary teams, contractors, suppliers, project controls, commercial considerations, and operational interfaces. Effective engineering management is therefore essential for maintaining alignment between technical objectives and organizational expectations for cost, schedule, quality, safety, and project performance.

The course examines the complete management cycle of engineering projects, from project initiation, scope definition, planning, engineering strategy, and design coordination through procurement, construction, testing, commissioning, handover, and closeout. Participants develop a practical understanding of how engineering decisions influence project execution and how effective management practices can improve coordination, resource utilization, technical quality, schedule performance, and delivery outcomes.

A key focus of the Project Engineering Management Training Course is the integration of engineering management with broader project management requirements. Participants explore engineering planning, work breakdown structures, multidisciplinary coordination, engineering deliverables, technical reviews, resource management, procurement interfaces, contractor coordination, project controls, risk management, change management, quality assurance, and technical decision-making. The program emphasizes structured communication and interface management to ensure that engineering activities remain aligned with construction, procurement, commissioning, and operational requirements.

The course also addresses engineering leadership, performance monitoring, technical risk management, engineering change control, document management, stakeholder coordination, and project recovery. Through practical exercises, case studies, project scenarios, and management workshops, participants develop practical methods for identifying engineering issues, evaluating their impact, coordinating corrective actions, and improving project execution. The program is particularly relevant to organizations managing major engineering and capital projects across oil and gas, petrochemicals, energy, utilities, infrastructure, industrial, manufacturing, and construction sectors.

Objectives

- Analyze the major stages of engineering project management and identify the management requirements associated with planning, design, procurement, construction, commissioning, and project closeout.
- Develop an integrated engineering project management framework covering scope, deliverables, schedule, resources, cost, quality, risks, interfaces, and stakeholder requirements.
- Evaluate engineering work breakdown structures, deliverables, responsibilities, technical interfaces, and project dependencies to establish effective management controls.
- Apply practical engineering planning and scheduling techniques to coordinate design activities, technical reviews, approvals, procurement inputs, and execution milestones.
- Assess engineering resource requirements and align personnel, specialist expertise, technical information, equipment, and external support with project priorities.
- Design effective multidisciplinary engineering coordination processes that improve communication, technical integration, decision-making, and project execution.
- Analyze engineering performance, technical deliverables, schedule deviations, design changes, and emerging issues to determine their impact on project objectives.
- Apply structured risk management methods to identify, assess, prioritize, mitigate, and monitor technical and engineering project risks.
- Strengthen engineering change management, technical query resolution, design review, and decision-making processes to reduce rework and uncontrolled project impacts.
- Evaluate engineering quality requirements, technical assurance activities, document control processes, design verification, and compliance with approved project requirements.
- Implement effective engineering progress monitoring, reporting, performance measurement, forecasting, and corrective action processes.
- Develop a practical engineering management improvement plan that supports project delivery, technical excellence, stakeholder alignment, and organizational priorities.

Who Should Attend

The Project Engineering Management Training Course is designed for project engineering managers, engineering managers, project managers, engineering leads, project engineers, discipline engineers, lead engineers, technical managers, engineering coordinators, design managers, engineering planners, and professionals responsible for managing or coordinating engineering activities within complex projects.

The program is also highly relevant to professionals working in mechanical, electrical, civil, structural, process, piping, instrumentation, control, architectural, and multidisciplinary engineering functions. It is suitable for project controls specialists, procurement professionals, construction managers, commissioning professionals, contract and commercial specialists, quality professionals, risk specialists, technical document controllers, project coordinators, and other professionals who interact directly with engineering teams.

The course is particularly valuable for executives, senior managers, project directors, engineering decision makers, consultants, project owners, EPC contractors, and technical leaders working within government entities, ministries, oil and gas organizations, petrochemical companies, power and utilities organizations, infrastructure developers, industrial organizations, manufacturing companies, and major capital project environments.

Learning Outcomes

- Explain the role of engineering management across the complete project lifecycle and its relationship with project management, procurement, construction, commissioning, and operations.
- Develop an integrated engineering management plan covering scope, deliverables, resources, schedule, quality, risks, interfaces, and project requirements.
- Establish engineering work breakdown structures, deliverable registers, responsibility matrices, technical milestones, and project interfaces.
- Develop and evaluate engineering schedules that coordinate design activities, reviews, approvals, procurement requirements, and construction inputs.
- Allocate and manage engineering resources according to project priorities, technical requirements, workload, and execution constraints.
- Coordinate multidisciplinary engineering teams and resolve technical interfaces between different engineering functions and project stakeholders.
- Evaluate the impact of engineering decisions, design changes, technical queries, incomplete information, and rework on project cost, schedule, quality, and resources.
- Apply engineering risk management techniques to identify and manage technical, design, procurement, construction, and execution risks.
- Manage engineering changes, technical reviews, design verification, and approval processes using structured control methods.

- Evaluate engineering quality, document control, technical assurance, design verification, and compliance requirements.
- Prepare engineering performance reports, management dashboards, progress assessments, forecasts, and corrective action recommendations.
- Develop a practical engineering management improvement strategy focused on coordination, technical performance, project control, and successful project delivery.

Course Outline

DAY 01

Fundamentals of Project Engineering Management

- Principles, responsibilities, and objectives of project engineering management
- Role of the engineering manager within the project organization
- Engineering project lifecycle from initiation to closeout
- Project scope, technical requirements, objectives, constraints, and assumptions
- Engineering work breakdown structures and project deliverables
- Engineering organization structures and responsibility allocation
- Roles and interfaces between project management, engineering, procurement, construction, commissioning, and operations
- Engineering management plans and execution strategies
- Stakeholder identification, communication, and technical coordination
- Critical success factors and common engineering management challenges

PRACTICAL APPLICATION

Develop an engineering management framework for a multidisciplinary project, including scope, responsibilities, deliverables, interfaces, and management priorities

DAY 02

Engineering Planning, Design Management, and Multidisciplinary Coordination

- Engineering planning processes and development of engineering execution plans
- Design development stages and management of engineering deliverables

DAY 02 — CONTINUED

- Engineering deliverable registers and technical milestone management
- Coordination between mechanical, electrical, civil, structural, process, piping, instrumentation, and control disciplines
- Engineering schedule development and activity sequencing
- Technical reviews, design verification, approvals, and decision points
- Management of engineering inputs, design criteria, specifications, and technical information
- Resource planning and workload management for engineering teams
- Engineering interface management and coordination mechanisms
- Managing design dependencies and technical information flow

PRACTICAL APPLICATION

Develop a multidisciplinary engineering coordination plan and identify key deliverables, interfaces, resources, milestones, and decision requirements

DAY 03

Engineering Execution, Project Controls, and Performance Management

- Integrating engineering activities with procurement, construction, and commissioning requirements
- Engineering support for procurement and technical supplier evaluation
- Technical specifications, purchase requirements, and supplier documentation
- Engineering document control and technical information management
- Engineering progress measurement and performance monitoring
- Engineering productivity, workload, resource utilization, and performance indicators
- Schedule performance analysis and identification of engineering delays
- Cost awareness and the relationship between engineering decisions and project expenditure
- Forecasting engineering completion and remaining work
- Engineering reporting, dashboards, and management information

DAY 03 — CONTINUED

PRACTICAL APPLICATION

Analyze engineering performance data, identify schedule and resource deviations, and develop corrective actions to improve project execution

DAY 04

Engineering Risk, Change Management, Quality, and Decision-Making

- Identification and classification of engineering and project risks
- Technical, design, procurement, construction, resource, and interface risks
- Risk assessment, prioritization, mitigation, and monitoring
- Engineering change management and technical query management
- Evaluating the impact of design changes on scope, cost, schedule, resources, and construction
- Managing design revisions, technical deviations, incomplete information, and engineering rework
- Engineering quality assurance and technical assurance processes
- Design verification, technical reviews, compliance checks, and approval controls
- Root cause analysis and resolution of engineering problems
- Technical decision-making, escalation, and management of unresolved issues

PRACTICAL APPLICATION

Analyze a project experiencing engineering changes, technical risks, design conflicts, and delays, then develop an integrated risk and corrective action plan

DAY 05

Engineering Leadership, Project Integration, and Delivery Excellence

- Leadership responsibilities of project engineering managers and technical leaders
- Integrating engineering, procurement, construction, commissioning, and project controls

DAY 05 — CONTINUED

- Engineering readiness for construction, testing, commissioning, and handover
- Managing final engineering deliverables and outstanding technical activities
- Technical documentation, drawings, specifications, records, and handover requirements
- Engineering performance review and final project assessment
- Lessons learned, knowledge management, and continuous improvement
- Developing engineering management standards and repeatable project practices
- Strengthening stakeholder communication, accountability, and multidisciplinary collaboration
- Strategies for improving engineering project delivery and technical performance

FINAL WORKSHOP

Conduct a comprehensive assessment of an engineering project and develop an integrated management improvement plan covering scope, engineering deliverables, resources, schedule, interfaces, risks, changes, quality, project controls, construction readiness, commissioning, and handover

Register or Request More Information

Course page: <https://quest-training.com/courses/project-engineering-management-training-course>

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