

Course No. 1578

Project Engineering Design Coordination Training Course

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

DURATION

5 Days

DELIVERY

Classroom



Course Overview

The Project Engineering Design Coordination Training Course provides a comprehensive professional program designed to strengthen the technical, managerial, and coordination capabilities required to effectively manage engineering design activities within complex projects. Successful project delivery depends on the ability to coordinate multidisciplinary engineering inputs, control design interfaces, manage technical deliverables, and ensure that engineering decisions remain aligned with project scope, schedule, cost, quality, constructability, procurement, and operational requirements.

The course examines the complete design coordination process across the project lifecycle, from engineering planning and design development through design review, interdisciplinary coordination, technical approval, procurement support, construction, commissioning, and project closeout. Participants develop a practical understanding of how civil, structural, mechanical, electrical, instrumentation, process, architectural, and other engineering disciplines interact and how effective coordination can minimize conflicts, redesign, technical delays, and downstream project risks.

A key focus of the Project Engineering Design Coordination Training Course is the integration of engineering deliverables with broader project requirements. Participants explore design basis development, engineering deliverable planning, interface management, design reviews, document control, technical queries, design changes, constructability reviews, engineering progress measurement, and coordination with procurement and construction teams. The program emphasizes structured communication and decision-making to ensure that engineering information is complete, consistent, accurate, and available when required by other project functions.

The course also addresses practical approaches for monitoring design performance, identifying coordination gaps, resolving interdisciplinary conflicts, managing technical risks, and improving engineering workflows. Through practical exercises, case studies, engineering scenarios, and integrated coordination workshops, participants develop methods for improving design quality, strengthening engineering interfaces, supporting construction readiness, and contributing to predictable project execution across infrastructure, energy, oil and gas, industrial, manufacturing, utilities, and major capital projects.

Objectives

- Analyze the role of engineering design coordination throughout the project lifecycle and establish clear coordination requirements for each project phase.
- Develop an integrated engineering coordination framework that aligns design scope, deliverables, interfaces, responsibilities, schedule, quality, and project requirements.
- Evaluate multidisciplinary engineering deliverables to identify technical interfaces, inconsistencies, missing information, and potential design conflicts.
- Apply structured design review techniques to assess engineering documents, drawings, calculations, specifications, and technical submissions against approved project requirements.
- Design effective engineering deliverable schedules and coordination processes that support timely design completion and project execution milestones.
- Improve communication and information flow between engineering disciplines, project management, procurement, construction, commissioning, consultants, contractors, and other stakeholders.
- Assess design changes, technical queries, deviations, and engineering issues and determine their potential impact on cost, schedule, constructability, quality, and project performance.
- Apply interface management techniques to identify, document, monitor, and resolve technical dependencies between engineering disciplines and project functions.
- Implement practical methods for coordinating engineering activities with procurement requirements, long-lead equipment, vendor documentation, construction sequencing, and site execution.
- Evaluate engineering progress, design performance indicators, review cycles, and outstanding technical actions to support effective project control.
- Strengthen constructability and design-for-execution practices by incorporating construction, commissioning, maintenance, safety, and operational requirements into engineering coordination.
- Develop an integrated engineering coordination improvement plan that addresses project risks, technical interfaces, design performance, communication, and delivery priorities.

Who Should Attend

The Project Engineering Design Coordination Training Course is designed for project engineers, engineering managers, project engineering managers, design managers, engineering coordinators, lead engineers, discipline engineers, design engineers, technical managers, engineering planners, and professionals responsible for coordinating engineering design activities within multidisciplinary

projects. It is particularly relevant to professionals working across civil, structural, mechanical, electrical, process, instrumentation and control, architectural, piping, and other engineering disciplines.

The program is also valuable for project managers, project controls professionals, procurement engineers, construction managers, planning engineers, quality professionals, commissioning specialists, technical coordinators, document control professionals, consultants, contractors, and engineering service providers who require a stronger understanding of multidisciplinary design coordination and engineering interfaces.

The course is suitable for executives, managers, and technical decision makers involved in major capital projects, including professionals working for government entities, ministries, public sector organizations, engineering consultancies, EPC contractors, oil and gas companies, petrochemical facilities, power and utilities organizations, infrastructure developers, industrial companies, manufacturing organizations, and organizations managing complex engineering and construction programs.

Learning Outcomes

- Explain the principles, responsibilities, workflows, and coordination requirements associated with project engineering design management.
- Develop a structured engineering design coordination plan covering disciplines, deliverables, interfaces, review cycles, responsibilities, and milestones.
- Establish effective processes for coordinating multidisciplinary engineering activities and resolving technical interfaces.
- Review engineering drawings, specifications, calculations, and technical documents to identify inconsistencies, gaps, conflicts, and coordination issues.
- Apply design review and technical verification techniques to improve the completeness, consistency, and quality of engineering deliverables.
- Coordinate engineering activities with procurement teams and ensure that vendor information and equipment requirements are incorporated into project design.
- Evaluate the impact of design changes, technical queries, deviations, and late engineering information on project execution.
- Apply constructability review techniques to identify design issues that may affect construction methods, sequencing, productivity, safety, or cost.

- Monitor engineering progress and identify overdue deliverables, review bottlenecks, unresolved interfaces, and emerging technical risks.
- Improve communication between engineering, procurement, construction, commissioning, project controls, contractors, consultants, and project stakeholders.
- Establish practical methods for managing engineering information, technical actions, design comments, approvals, and outstanding issues.
- Prepare an actionable engineering design coordination improvement plan aligned with project objectives and organizational requirements.

Course Outline

DAY 01

Fundamentals of Project Engineering and Design Coordination

- Role and responsibilities of project engineering within the project lifecycle
- Engineering project organization, discipline responsibilities, and reporting structures
- Engineering design phases, project requirements, and design development processes
- Design basis, technical requirements, specifications, codes, standards, and project criteria
- Engineering deliverables, document hierarchies, and deliverable responsibility matrices
- Engineering work breakdown structures and coordination planning
- Multidisciplinary engineering interfaces and information dependencies
- Roles of project management, engineering, procurement, construction, commissioning, and operations teams
- Engineering communication, meetings, technical coordination, and decision-making
- Common causes of engineering coordination failures and their impact on project performance

PRACTICAL APPLICATION

Develop an engineering design coordination framework for a multidisciplinary project and identify key disciplines, deliverables, interfaces, and responsibilities

DAY 02

Multidisciplinary Design Coordination and Interface Management

- Principles of multidisciplinary engineering coordination
- Coordination between civil, structural, mechanical, electrical, process, piping, and instrumentation disciplines
- Engineering interface identification and interface responsibility matrices
- Management of technical dependencies between engineering disciplines
- Design review processes, interdisciplinary reviews, and technical verification
- Design drawings, calculations, specifications, and engineering document coordination
- Identification and resolution of design clashes and technical inconsistencies
- Technical queries, requests for information, engineering comments, and action tracking
- Coordination of design assumptions, revisions, and technical decisions
- Engineering meetings, coordination workshops, and escalation procedures

PRACTICAL APPLICATION

Conduct a multidisciplinary design coordination exercise and identify technical conflicts, interface gaps, and required resolution actions

DAY 03

Engineering Deliverables, Procurement Integration, and Design Quality

- Engineering deliverable planning and scheduling
- Engineering document control and revision management
- Design review cycles, technical approvals, and document status management
- Quality requirements for engineering design and technical documentation
- Engineering progress measurement and performance monitoring
- Integration of engineering design with procurement strategies and project requirements
- Vendor documentation, technical submittals, equipment data, and engineering interfaces
- Long-lead equipment and its influence on engineering design decisions
- Design changes resulting from procurement activities and supplier information

DAY 03 — CONTINUED

- Engineering support for purchasing, manufacturing, inspection, and material delivery
- Design quality assurance, technical compliance, and prevention of recurring engineering errors

PRACTICAL APPLICATION

Develop an engineering deliverable control plan and coordinate vendor information with multidisciplinary project design requirements

DAY 04

Constructability, Design Changes, Technical Risk, and Project Control

- Principles of constructability and design-for-execution
- Coordination between engineering design and construction methodologies
- Construction sequencing and its influence on engineering design
- Identification of design issues affecting site execution, productivity, safety, quality, and cost
- Engineering change management and technical deviation control
- Evaluation of design change impacts on scope, schedule, cost, procurement, and construction
- Technical risk identification, assessment, mitigation, and monitoring
- Management of late engineering information and outstanding technical decisions
- Root cause analysis of recurring design and coordination problems
- Engineering progress reporting, performance indicators, and management information
- Corrective and preventive actions for engineering coordination issues

PRACTICAL APPLICATION

Analyze a project experiencing design conflicts and late engineering deliverables and develop a coordinated corrective action and risk mitigation plan

DAY 05

Engineering Integration, Project Readiness, and Coordination Excellence

- Integration of engineering design with construction, commissioning, operations, and maintenance requirements
- Final engineering deliverable coordination and project readiness assessment
- Engineering support for testing, commissioning, start-up, and operational handover
- Management of final design revisions, as-built information, and technical records
- Coordination of outstanding engineering actions and closeout requirements
- Lessons learned from engineering design coordination and project execution
- Engineering performance improvement and workflow optimization
- Strengthening collaboration between engineering teams and project stakeholders
- Digital engineering coordination, information management, and integrated project workflows
- Developing sustainable engineering coordination practices for future projects

FINAL WORKSHOP

Conduct a comprehensive engineering design coordination assessment and develop an integrated action plan covering deliverables, interfaces, design quality, procurement coordination, constructability, risks, changes, and project readiness

Register or Request More Information

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

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