QUEST
Professional Center

PROFESSIONAL TRAINING COURSE

Course No. 1756

Project Controls & Performance Management for Engineering Projects

PROJECT ENGINEERING & CONSTRUCTION
INDUSTRIAL ENGINEERING, MAINTENANCE & OPERATIONS

DURATION
5 Days

DELIVERY
Classroom

Course Overview

The Project Controls & Performance Management for Engineering Projects Training Course provides a comprehensive framework for planning, monitoring, controlling, and improving the performance of engineering projects throughout their lifecycle. The program focuses on integrating cost, schedule, resources, progress, risk, and performance information to support effective project decision-making and successful project delivery.

Engineering projects often involve complex scopes, multiple contractors, technical interfaces, demanding schedules, significant capital expenditure, and constantly changing project conditions. Effective project controls provide the structure required to establish reliable baselines, measure actual performance, identify deviations early, forecast outcomes, and implement corrective actions before issues significantly affect project objectives.

The course explores the key disciplines of project controls, including project planning and scheduling, cost management, progress measurement, resource management, earned value management, forecasting, change control, risk integration, reporting, and performance analysis. Participants will learn how to connect these disciplines into an integrated control system that provides management with timely and reliable information.

Particular emphasis is placed on performance management and the interpretation of project data. Participants will examine schedule and cost variances, performance indices, critical-path performance, productivity trends, forecast completion dates, estimate-at-completion, cash flow, and other indicators used to evaluate project health and predict potential outcomes.

Through engineering project case studies, practical exercises, schedule analysis, cost-control scenarios, earned value calculations, forecasting exercises, change-management simulations, and performance dashboards, participants will develop the practical capabilities required to establish effective project controls and improve project performance.

Objectives

- By the end of the course, participants will be able to:
- Analyze the principles and components of integrated project controls for engineering projects.
- Develop effective project baselines for scope, schedule, cost, and resources.
- Apply professional planning and scheduling techniques to engineering project activities.
- Establish reliable progress measurement and reporting systems.
- Apply cost-control techniques to monitor commitments, actual costs, forecasts, and budgets.
- Use earned value management to assess project performance and identify deviations.
- Analyze schedule and cost variances and determine their underlying causes.
- Develop realistic forecasts for project completion dates, costs, and resource requirements.
- Integrate risk, change, and project controls to strengthen performance management.
- Develop meaningful project performance indicators and management dashboards.
- Apply corrective and preventive actions to address project performance deviations.
- Establish an integrated project controls and performance management framework for engineering projects.

Who Should Attend

This course is designed for project managers, project controls managers, project control engineers, planning engineers, cost engineers, project engineers, project coordinators, and professionals responsible for monitoring and controlling engineering project performance.

It is particularly relevant to professionals working in engineering, construction, EPC, oil and gas, energy, infrastructure, industrial, manufacturing, utilities, and major capital-project environments.

The program is also suitable for project directors, engineering managers, construction managers, cost controllers, schedulers, contract professionals, risk specialists, project analysts, and senior management professionals who require a stronger understanding of project performance, forecasting, reporting, and control systems.

Learning Outcomes

- By the end of the course, participants will be able to:
- Explain the role of project controls throughout the engineering project lifecycle.
- Establish integrated scope, schedule, cost, and resource baselines.
- Develop and evaluate engineering project schedules.
- Identify critical activities, dependencies, constraints, and schedule risks.
- Measure physical progress using appropriate progress measurement techniques.
- Monitor budgets, commitments, actual costs, and cost forecasts.
- Apply earned value management techniques to evaluate project performance.
- Calculate and interpret schedule and cost performance indicators.
- Identify the root causes of project delays, cost overruns, and productivity losses.
- Develop reliable forecasts for project completion cost and schedule.
- Integrate change management and risk management into project controls.
- Develop project performance dashboards and management reports.
- Recommend corrective and preventive actions based on performance trends.
- Establish an integrated project controls framework for improved project delivery.

Course Outline

DAY 01

Foundations of Project Controls for Engineering Projects

- Project controls principles, objectives, and organizational value
- The project controls lifecycle
- Integration of scope, schedule, cost, resources, risk, and performance
- Work Breakdown Structure and control accounts
- Project planning and control structures
- Establishing project baselines
- Roles and responsibilities of project controls teams
- Project control procedures, systems, and data requirements
- Establishing reliable project performance information

DAY 01 — CONTINUED

> **PRACTICAL APPLICATION**
> Develop an integrated project controls framework for a representative engineering project

DAY 02

Planning, Scheduling & Progress Measurement

- Principles of engineering project planning
- Developing the project schedule and activity structure
- Activity sequencing, relationships, and constraints
- Critical Path Method and schedule logic
- Baseline schedule development
- Schedule updating and status-date management
- Physical progress measurement techniques
- Progress weighting and measurement rules
- Productivity monitoring and trend analysis
- Schedule performance reporting

> **PRACTICAL APPLICATION**
> Develop and update an engineering project schedule and identify critical activities and emerging delays

DAY 03

Cost Control, Earned Value & Forecasting

- Project cost management principles
- Budget development and cost baselines
- Cost coding and control structures
- Commitments, actual costs, accruals, and cost forecasts
- Cost variance analysis
- Earned Value Management principles

DAY 03 — CONTINUED

- Planned Value, Earned Value, and Actual Cost
- Schedule Performance Index and Cost Performance Index
- Estimate at Completion and Estimate to Complete
- Cash-flow monitoring and cost forecasting

> **PRACTICAL APPLICATION**
>
> Analyze an engineering project using earned value indicators and develop a revised cost and schedule forecast

DAY 04

Change, Risk & Performance Management

- Integrated change control in engineering projects
- Identifying, evaluating, and managing project changes
- Impact assessment of scope, schedule, cost, and resources
- Risk integration within project controls
- Schedule and cost risk analysis
- Identifying early-warning indicators
- Root-cause analysis of project performance deviations
- Corrective and preventive action planning
- Performance trends and predictive project controls

> **PRACTICAL APPLICATION**
>
> Evaluate a project experiencing cost and schedule deviations and develop an integrated recovery plan

DAY 05

Integrated Project Performance Management

- Building an integrated project controls system
- Project performance measurement frameworks
- Key Performance Indicators for engineering projects

DAY 05 — CONTINUED

- Project controls dashboards and management reporting
- Executive reporting and decision-support information
- Forecasting project completion and final outcomes
- Performance reviews and management interventions
- Governance, accountability, and control effectiveness
- Continuous improvement of project controls processes

FINAL WORKSHOP

Develop a comprehensive Project Controls & Performance Management Framework for an engineering project covering scope, schedule, cost, resources, progress measurement, earned value, forecasting, risk, change control, performance indicators, dashboards, reporting, corrective actions, governance, and continuous improvement.

Register or Request More Information

Course page: https://quest-training.com/courses/project-controls-performance-management-for-engineering-projects
Website: https://quest-training.com
Email: info@quest-training.com
Phone: +905016771440