



## Project Controls for Capital Projects - PC21

### COURSE

#### About the Course

This course addresses Project Controls principles and practices as they relate to providing project leaders and key stakeholders the information they need to support project success for upstream, midstream, and downstream energy projects. The focus of the course is using project controls effectively to manage engineering / procurement / construction, improve project profitability, make schedule, and deliver a quality and safe project. Upon completion of this course, the participant will understand the critical success factors for cost estimating, scheduling, and progress measurement and be able to utilize these best practices to effectively manage their project.

Participants will understand all of the steps necessary to develop and implement an effective project controls plan. Project controls activities throughout the entire project life cycle (FEED, engineering, construction) are addressed. In particular, participants will learn the steps that a project leader should take during each stage of the project life cycle to effectively manage their project and their contractor.

The course is taught using a combination of instruction, facilitated discussion, and hands-on exercises using a "real world" case study example. The exercises will include both individual and group activities that will provide each participant with a hands-on application of the principles and practices discussed throughout the course.

*This course counts toward PMI Project Development Units (PDUs) through continuing education. Completion Certificates may be submitted to PMI as required to document third-party training.*

#### Target Audience

This course addresses the special requirements associated with project controls for project professionals. It is intended for project managers, project engineers, project team members, project controls professionals, planner/schedulers, and project discipline team leads.

#### You Will Learn

- The elements of a robust cost estimate plan
- Methods to develop early and mid life cycle project cost estimates
- The critical role that project controls plays in developing a well-planned and executable project for both cost and schedule

- The role that project definition, scope management, contracting strategy, project execution, procurement, etc. play in impacting project controls and the methods used to measure progress
- Critical progress measurement metrics using earned value or 'value of work done' so that stakeholders understand the potential to meet project cost and schedule
- The different estimate classes and the deliverables required to support each type of estimate
- The different schedule levels and when is it appropriate to use each level
- How to develop an estimate basis and schedule basis and why they are critical to developing an achievable cost estimate and schedule
- How to develop a robust Project Controls Plan and associated staff with roles and responsibilities to support the plan
- How to effectively manage project changes and understand the impact on overall cost and schedule
- Challenges and issues associated with forecasting final project cost and final project completion using progress measurement or earned value
- How the use of Monte Carlo simulation applied to cost and schedule can reveal problems with cost and schedule
- How to use project controls to mitigate any potential construction contractor claims
- The key role that project controls plays in effectively managing field labor productivity

## Course Content

- The business case for project controls and how it drives project success
- Key roles that project controls should assume on a capital project to support project success and the Project Manager
- Planning for project controls including establishing a project controls organization as well as roles / responsibilities
- Use a schedule and cost basis to facilitate cost and schedule development and to communicate to all stakeholders the challenges and issues with forecasting costs and schedules
- Different methodologies to develop cost estimates during the early phases of a project as well as prior to project funding approval
- Key deliverables necessary during each project phase to develop cost estimates and project schedules
- How to use the project controls organization and baseline deliverables to manage project change management and support a successful project
- Use simple probabilistic risk analysis and a risk register to determine schedule and cost contingency
- Use Monte Carlo simulation to establish realistic cost and schedule contingency
- Use 'value of work done' or earned value to measure engineering and construction progress and address performance issues before they become unmanageable
- Use earned value to forecast final project cost and estimated completion date
- The role of project controls in the field and how they support the construction manager
- Use established labor productivity metrics to forecast impact of schedule acceleration on cost
- Methods to manage the contractor and avoid construction claims

*Note: Detailed cost estimating methodology will not be covered.*

## **Product Details**

Categories: Upstream

Disciplines: Project Management

Levels: Intermediate

Product Type: Course

Formats Available: In-Classroom

Instructors: