Introduction to Project Planning, Scheduling, and Cost Estimating Course

Project delivery delays and cost overruns are common problems in both public and private sector projects, often leading to financial losses and missed strategic objectives. The primary reasons behind these issues include the ineffective application of modern project planning, scheduling, and control tools. Similarly, unreliable cost estimating early in the project lifecycle can result in significant budget overruns, further complicating project success.

This course focuses on equipping project professionals with the necessary tools and techniques for planning, scheduling, and cost estimating to ensure projects stay on track and within budget. It addresses the importance of accurate early-stage estimates, their impact on cash flow projections, and the connection between proper estimation and project quality.

By learning advanced estimation methods and project scheduling techniques, participants will be able to forecast project costs effectively, handle contingencies, and optimize project delivery strategies.

Targeted Groups:

- Project Managers
- Project Cost Estimators
- Cost Controllers
- Project Planners
- Contract Professionals
- Project Procurement Staff
- Anyone interested in project initiation, budgeting, and development.

Course Objectives:

Upon completing the course, participants will be able to:

- Integrate scope, time, resources, and cost management into a cohesive plan.
- Develop project network diagrams for CPM and advanced PERT calculations to manage schedule and cost risks.
- Forecast and control project performance using earned value techniques.
- Accelerate project schedules and manage time-cost-scope trade-offs.
- Mitigate schedule, cost, scope, and resource risks.
- Prepare accurate cost estimates for all project stages, including pre-construction, contractor work, and more.
- Ensure accurate budget control across different design phases.

Targeted Competencies:

By the end of the course, participants will be able to:

- Deliver projects on time and within budget.

- Plan and control projects successfully, avoiding common pitfalls.
- Estimate costs accurately and create reliable project budgets.
- Evaluate design alternatives and manage bidding processes.
- Determine cost impacts of changes and prepare cost proposals.
- Manage procurement and risk assessments effectively.

Course Content Overview:

Unit 1: Project Scope Planning and Definition

- Scope planning and Work Breakdown Structures (WBS)
- Triple constraints: time, cost, and scope
- Project risk analysis and deliverables

Unit 2: Project Schedule Planning and Critical Path Method

- Precedence network diagramming and critical path analysis
- Project float analysis and milestone charts

Unit 3: Resource Allocation and Resource Levelling

- Managing resources and resolving resource contention
- Resource leveling and the “Brooks” method

Unit 4: Accelerating the Project Schedule

- Time-cost-scope trade-offs and schedule acceleration methods
- Crashing the schedule and developing a crash cost table

Unit 5: Project Contingency Planning

- PERT and path convergence analysis
- Calculating standard deviation and Z-values for project risks

Unit 6: Line of Balance Scheduling

- Scheduling for recurring activities using velocity diagrams
- Balancing schedules for project efficiency

Unit 7: Project Execution Management, Control, and Reporting

- Tracking and monitoring progress with earned value analysis
- Cost control and progress reporting

Unit 8: Project Recovery Plan Development

- Variance analysis and setting project control limits
- Developing a recovery plan for schedule and budget overruns

Unit 9: Cost Estimating Basics

- Understanding life cycle estimates and design phase cost estimates
- Types of contracts and procurement methods

Unit 10: Broad Scope Cost Estimating Techniques

- PERT project cost analysis and adjustments for time, location, and size

Unit 11: Budget Estimating Process

- Estimating budget by design phase and pre-construction services

Unit 12: Bid Contract Estimating Process

- Estimating lump-sum bids and subcontractor work
- Validating estimates and pricing self-performed work

Unit 13: Unit Price Estimates

- Estimating direct and indirect costs, including labor, materials, and subcontractors

Unit 14: Negotiated Contract Estimating

- Estimating Guaranteed Maximum Price (GMP) contracts
- Cost structure and fee determination

Unit 15: Contract Types and Compensation Arrangements

- Risk distribution in contracts and different types of compensation arrangements

Unit 16: Narrow Scope Cost Estimating Techniques

- Parametric cost estimating, target cost estimates, and quality adjustments

This comprehensive course will provide the tools necessary for successful project delivery, from effective planning and scheduling to precise cost estimating and risk management.