Introduction:
In any project, the decision to proceed is often based on early conceptual cost estimates. These estimates are critical for forecasting cash flow and preparing budget projections during the feasibility study phase. Unreliable cost estimates can lead to significant overruns later in the project, at a time when it is too late to correct them.

This course aims to provide participants with the skills needed for accurate project cost estimating, budgeting, and applying value engineering to optimize costs and improve project value. The course emphasizes the importance of selecting the appropriate estimation method based on available information, ensuring that project costs are optimized without compromising quality or functionality. The goal is to equip participants with tools and methodologies to reduce unnecessary expenses and enhance the efficiency and value of their projects.

Target Audience:

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

Course Objectives:
Upon completing this course, participants will:

- Learn techniques for estimating project costs from conceptual stages to final detailed estimates.
- Understand the different types of estimates used to progressively forecast project costs.
- Learn how various contracts allocate risks between contracting parties and apply incentive arrangements to achieve the best outcomes.

· Understand the principles of Value Engineering (VE) and how it helps manage lifecycle costs and improve project outcomes.

· Apply value engineering to continuously improve project performance during planning, procurement, and execution stages.

· Develop a practical understanding of life cycle costing principles and how to apply them to enhance project value.

· Demonstrate the ability to prepare detailed and accurate budget estimates for various project phases.

· Learn how to optimize project costs by comparing alternative strategies or technical approaches.

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

· Accurately estimate project costs and avoid common estimating mistakes.

· Develop an initial project budget and evaluate project feasibility.

· Prepare bids and cost proposals effectively.

· Assess the cost impacts of change orders and manage project scope.

· Create historical cost databases to improve the accuracy of future estimates.

· Integrate value engineering into project planning and decision-making.

· Evaluate alternatives based on their cost and value throughout the project lifecycle.

· Overcome creative blocks and identify effective solutions through brainstorming and value analysis.

Course Content:

Unit 1: Cost Estimating Basics

· Life cycle cost considerations

· Phases of the design process: programming, schematic design, design development, construction documents

· Estimating accuracy by phase: conceptual, rough order of magnitude, assemblies, and definitive estimates

· Types of construction contracts: lump-sum, unit-price, cost-plus, time-and-materials

· Procurement methods and risk analysis

Unit 2: Broad Scope Cost Estimating Techniques

· Adjusting project costs for broad scope estimates

· PERT project cost analysis and unit cost estimates

· Using the standard distribution curve for estimating costs

· Adjustments based on previous project data and time-related changes

· Location and size adjustments for construction projects

Unit 3: Budget Estimating Process

· Estimating by design phase: programming, schematic design, and design development budget estimates

· Pre-construction services and contract development

· Managing budget control logs and cost impacts

Unit 4: Bid Contract Estimating Process

· Pre-estimate activities and work breakdown structure

· Estimating lump-sum bids, pricing self-performed work, and estimating subcontractor work

· Finalizing the bid, reviewing documents, and ensuring accuracy

Unit 5: Unit Price Estimates

- Estimating direct costs: materials, labor, subcontractors
- Unit-price bid forms and risk analysis
- Mark-up determination and final bid adjustments

Unit 6: Negotiated Contract Estimating

- Estimating for guaranteed maximum price (GMP) contracts
- Procurement and fee structures for negotiated contracts
- Reimbursable versus non-reimbursable costs
- Subcontractor selection and cost proposal strategies

Unit 7: Contract Types and Compensation Arrangements

- Risk distribution in different contract types: fixed price, cost-plus, and time-and-materials
- Incentive and cost-reimbursement contracts

Unit 8: Narrow Scope Cost Estimating Techniques

- Power-sizing techniques and cost estimating relationships (CER)
- Design-to-cost estimates and adjustments for quality level
- Parametric cost estimating

Unit 9: Framework for Applying Value Engineering in Projects

- Defining value engineering and its importance
- Purpose, strengths, and weaknesses of value engineering
- Applying value engineering in project definition, scope, and charter development
- Lifecycle costing techniques and stakeholder analysis

Unit 10: The Function Analysis Phase

- Importance of function analysis in projects
- Identifying project constraints, trade-offs, and cost-value relationships
- Developing FAST diagrams and performing value analysis

Unit 11: The Creative Phase

- Fostering creativity within the project team
- Brainstorming solutions and overcoming creativity blocks
- Using Delphi and force-field analysis for decision-making

Unit 12: The Evaluation Phase

- Screening project ideas and evaluating alternatives
- Quantitative and qualitative evaluation methods
- Performing project risk and scenario analyses

Unit 13: The Planning and Reporting Phases

- Developing and assessing value engineering proposals
- Reporting findings to senior management and stakeholders
- Mastering presentation techniques for effective communication

Conclusion:
Upon completing this course, participants will gain the skills needed to prepare accurate cost estimates, manage project budgets, and apply value engineering techniques to optimize project value. They will be able to make informed decisions that improve project outcomes, ensuring cost-effectiveness, efficiency, and quality throughout the project lifecycle. This course will prepare participants to successfully apply cost estimation and value engineering strategies across various industries, positioning them as experts in the field of project management.