Estimation for Infrastructure Projects Training Course

Professional Development Training Course Outline

Category	Construction Institute	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

The Estimation for Infrastructure Projects Training Course is designed to develop advanced skills in cost estimation, quantity surveying, project budgeting, infrastructure cost control, and construction project financial management. In today's competitive engineering and construction environment, accurate estimation is a critical success factor for mega infrastructure projects, smart cities, transportation networks, energy projects, water systems, and urban development programs. This course integrates digital estimation tools, Building Information Modeling (BIM), data-driven cost forecasting, risk-based estimation, and international best practices to help professionals improve accuracy, optimize resources, and deliver projects within approved budgets.

The course provides practical knowledge of conceptual estimation, detailed cost analysis, rate analysis, tender preparation, cost databases, project lifecycle estimation, and value engineering strategies. Through real-world case studies of highways, bridges, airports, railways, tunnels, and utility infrastructure projects, participants will gain the ability to develop reliable estimates, manage cost uncertainties, and support strategic decision-making. The program is aligned with emerging industry trends such as AI-assisted estimation, digital transformation, sustainable infrastructure, and predictive cost analytics.

Programme Curriculum

Estimation for Infrastructure Projects Training Course

Introduction

The Estimation for Infrastructure Projects Training Course is designed to develop advanced skills in cost estimation, quantity surveying, project budgeting, infrastructure cost control, and construction project financial management. In today's competitive engineering and construction environment, accurate estimation is a critical success factor for mega infrastructure projects, smart cities, transportation networks, energy projects, water

systems, and urban development programs. This course integrates digital estimation tools, Building Information Modeling (BIM), data-driven cost forecasting, risk-based estimation, and international best practices to help professionals improve accuracy, optimize resources, and deliver projects within approved budgets.

The course provides practical knowledge of conceptual estimation, detailed cost analysis, rate analysis, tender preparation, cost databases, project lifecycle estimation, and value engineering strategies. Through real-world case studies of highways, bridges, airports, railways, tunnels, and utility infrastructure projects, participants will gain the ability to develop reliable estimates, manage cost uncertainties, and support strategic decision-making. The program is aligned with emerging industry trends such as AI-assisted estimation, digital transformation, sustainable infrastructure, and predictive cost analytics.

Course Duration

5 days

Course Objectives

By completing this Estimation for Infrastructure Projects Training Course, participants will be able to:

1. Develop advanced skills in infrastructure cost estimation and project budgeting.
2. Apply modern quantity surveying techniques for large-scale construction projects.
3. Understand the complete project lifecycle cost estimation process.
4. Prepare accurate conceptual, preliminary, and detailed cost estimates.
5. Use digital estimation tools and BIM-based quantity extraction methods.
6. Perform rate analysis, resource costing, and market-based pricing evaluation.
7. Apply risk-based cost estimation and uncertainty management techniques.
8. Improve accuracy through data analytics and cost forecasting methodologies.
9. Develop professional skills in tender estimation and bid cost preparation.
10. Implement value engineering and cost optimization strategies.
11. Understand international construction cost management standards and practices.
12. Analyze infrastructure project cost overruns, variations, and claims management.
13. Apply sustainable approaches for green infrastructure cost estimation and lifecycle costing.

Target Audience

1. Civil Engineers involved in infrastructure planning and execution.
2. Quantity Surveyors and Cost Consultants.
3. Project Managers and Construction Managers.
4. Estimation Engineers and Tendering Specialists.
5. Contractors and Infrastructure Developers.
6. Government Infrastructure Authorities and Consultants.
7. BIM Professionals and Digital Construction Specialists.
8. Finance, Procurement, and Contract Management Professionals.

Course Modules

Module 1: Fundamentals of Infrastructure Project Estimation

- Principles of **modern infrastructure cost estimation methodologies**.
- Project lifecycle approach from feasibility to completion.
- Types of estimates: conceptual, preliminary, detailed, and final.
- Cost components including labor, materials, equipment, and overheads.

- **Case Study:** Cost estimation approach for a major highway development project.

Module 2: Quantity Take-Off and Measurement Techniques

- Advanced quantity surveying principles for infrastructure projects.
- Measurement standards and construction documentation review.
- Digital quantity extraction using **BIM technology**.
- Earthwork, concrete, steel, and structural quantity calculations.
- **Case Study:** Quantity estimation for a bridge construction project.

Module 3: Infrastructure Cost Database and Rate Analysis

- Developing reliable construction cost databases.
- Material price analysis and market intelligence.
- Labor productivity and equipment cost evaluation.
- Unit rate development and cost benchmarking.
- **Case Study:** Rate analysis for urban road rehabilitation projects.

Module 4: Advanced Cost Estimation Techniques

- Parametric estimation and statistical forecasting.
- Analogous and bottom-up estimation approaches.
- AI-supported cost prediction methods.
- Digital tools for automated estimation workflows.
- **Case Study:** Predictive cost estimation for a railway infrastructure project.

Module 5: Risk-Based Estimation and Cost Uncertainty Management

- Identifying estimation risks in infrastructure projects.
- Contingency planning and escalation forecasting.
- Monte Carlo simulation concepts for cost risks.
- Managing inflation, market volatility, and supply chain impacts.
- **Case Study:** Risk analysis for an airport expansion project.

Module 6: Tender Estimation and Bid Preparation

- Preparing competitive contractor estimates.
- BOQ development and tender documentation.
- Bid pricing strategies and commercial evaluation.
- Cost optimization during tender preparation.
- **Case Study:** Tender estimation process for a large water infrastructure project.

Module 7: Cost Control, Monitoring, and Value Engineering

- Project cost monitoring techniques.
- Earned Value Management (EVM) applications.
- Managing variations, claims, and cost deviations.
- Value engineering for infrastructure optimization.
- **Case Study:** Cost control strategy for a metro rail project.

Module 8: Digital Transformation and Future Trends in Estimation

- BIM-enabled estimation workflows.

- Artificial Intelligence (AI) in construction cost forecasting.
- Digital twins and smart infrastructure management.
- Sustainable infrastructure lifecycle costing.
- **Case Study:** Digital estimation implementation for a smart city development.

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price

23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com