BLACKBIRD FOR TRAINING

Economic & Technical Evaluations in Engineering & Maintenance Projects

9 – 13 August 2027
Boston, Massachusetts (USA)

UK Traininig
PARTNER



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Economic & Technical Evaluations in Engineering & Maintenance Projects

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Introduction

Engineering and maintenance projects require structured planning, accurate evaluation, and disciplined execution to ensure both technical feasibility and economic justification.

This course provides participants with a comprehensive framework to assess projects, manage risks, and make sound investment decisions while ensuring technical integrity, safety, and environmental compliance.

Course Objectives

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

- Understand the life cycle of engineering and maintenance projects.
- Apply tools for technical, economic, and financial evaluation.
- Conduct feasibility and risk analyses for capital and maintenance projects.
- Prepare cost estimates and evaluate alternative solutions.
- Make data-driven decisions to ensure project success and avoid common pitfalls.

Course Outlines

Day 1: Project Initiation & Development

- Types of projects: Capital vs. Maintenance.
- Key phases: Concept Definition Implementation.
- Project management basics: Planning, scheduling, and feasibility.
- Front-end loading FEL/FEED and execution strategies.
- Cost estimation methods and project approval processes.
- Workshop: Best practices for project success and common causes of failure.

Day 2: Technical Evaluation & Risk Analysis

- Market, technical, financial, and environmental analysis.
- Assessing technical viability: technologies, design basis, and regulations.
- Risk considerations: obsolescence, compliance, constructability.
- Types of risks: Market, financial, human resources, technology, regulatory.
- Risk management tools and contingency planning.
- Workshop: Technical evaluation of a capital project case study.



Day 3: Economic Evaluation Analysis

- Categories of engineering economic decisions: New projects, expansions, replacements, cost reduction.
- Time value of money and cash flow analysis.
- Economic evaluation methods:
  - Payback Period
  - Net Present Value NPV
  - Internal Rate of Return IRR
  - Benefit-Cost Ratio BCR
- Capital budgeting techniques and profitability measures.
- Workshop: Economic evaluation of an engineering project.

Day 4: Business-Focused Facilities & Life Cycle Costing

- Principles of business-focused facilities BFF.
- Life cycle cost LCC analysis: total cost perspective, renewal, maintenance, energy efficiency.
- Cost estimating methods: Rough, semi-detailed, detailed.
- Direct vs. indirect costs, cost indices, and estimation models.
- Workshop: Developing project cost estimates using different approaches.

Day 5: Evaluation of Maintenance Projects

- Types of maintenance projects: Turnarounds, repairs, replacements.
- Concepts of component life: Physical, economic, technical.
- Fitness-for-service FFS assessments and repair strategies.
- Management of change MOC and reliability impact.
- Regulatory codes and compliance in maintenance projects.
- Workshop: Technical and economic evaluation of a maintenance project.

Why Attend This Course: Wins & Losses!

- Gain a structured framework for evaluating engineering and maintenance projects.
- Strengthen your ability to connect technical assessments with financial and economic justifications.
- Learn to identify, analyze, and mitigate risks affecting project success.
- Acquire practical tools through hands-on workshops and real case studies.
- Enhance decision-making skills to deliver projects on time, within budget, and with technical integrity.

Conclusion

The success of engineering and maintenance projects relies on balancing technical integrity with economic justification.



This program equips professionals with the knowledge and tools to evaluate, manage, and implement projects that deliver sustainable value, minimize risks, and maximize returns.

