BLACKBIRD FOR TRAINING

# Economic & Technical Evaluations in Engineering & Maintenance Projects

11 – 15 January 2027
Vienna (Austria)

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.**

