

Engineering and Maintenance Project Evaluation Training Course

17 – 21 January 2027
Johannesburg

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Ref: 1814_236112 **Date:** 17 – 21 January 2027 **Location:** Johannesburg **Fees:** 6000 Euro

Overview

Engineering and Maintenance Project Evaluation Training Course is a one-week advanced course for engineering managers, maintenance leaders, project engineers, asset managers, cost engineers, and technical decision-makers who leave with a Project Evaluation Decision Pack. The course integrates technical feasibility, asset evidence, lifecycle cost, cash-flow modeling, risk, and sensitivity to compare engineering and maintenance investments. Agile Leaders Training Center delivers this course on engineering and maintenance project evaluation.

Who Should Attend

- Functions responsible for engineering option development and technical feasibility
- Teams responsible for maintenance investment, renewal, and replacement decisions
- Functions responsible for cost estimates, cash flows, and investment business cases
- Teams responsible for asset condition, performance evidence, and lifecycle planning
- Committees responsible for project screening, prioritization, and approval recommendations

The course assumes participants already work with project scopes, technical evidence, cost estimates, or asset plans and leaves out introductory accounting, detailed engineering design, and general project scheduling.

Departments and Industries

The course supports evaluation decisions across asset-intensive engineering, maintenance, and capital-project environments.

- Engineering, maintenance, reliability, and asset management
- Project controls, cost engineering, finance, and technical assurance
- Energy, utilities, manufacturing, and process industries
- Transportation, infrastructure, property, and healthcare facilities
- Mining, logistics, water, and industrial services

Learning Objectives

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

- Apply structured screening to engineering and maintenance proposals.
- Evaluate technical feasibility and asset-performance evidence.
- Build lifecycle cost and discounted cash-flow models.
- Compare alternatives through NPV, IRR, and cost-benefit analysis.
- Analyze uncertainty through risk, sensitivity, and scenarios.
- Prioritize projects and document defensible investment recommendations.

Course Agenda

Day 1: Frame and Screen Projects

- Project Need, Decision Statement, and Evaluation Boundary Canvas
- Strategic Objective, Benefit, Constraint, and Success Criteria Register
- Engineering and Maintenance Alternative Generation Matrix
- Option Screening, Fatal-Flaw, and Minimum-Requirement Gate
- Evaluation Governance, Stakeholder, Assumption, and Evidence Log

Day 2: Evaluate Technical Feasibility

- Technical Requirement and Performance Criteria Matrix
- Asset Condition, Reliability, Capacity, and Service Evidence Sheet
- Technology Readiness, Constructability, and Integration Assessment
- Operating, Maintenance, Resource, and Implementation Feasibility Checklist
- Technical Risk, Dependency, and Option Maturity Scorecard

Day 3: Model Economic Value

- Lifecycle Cost Structure for Capital, Operation, Maintenance, Replacement, and Disposal
- Cash-Flow Timeline, Base Case, Escalation, and Discounting Model
- Net Present Value and Internal Rate of Return Calculation Sheet
- Cost-Benefit, Cost-Effectiveness, and Payback Comparison Table
- Repair, Refurbish, Replace, Defer, or Retire Economic Decision Gate

Day 4: Test Risk and Prioritize

- Risk Register with Probability, Consequence, Ownership, and Treatment
- One-Way and Multi-Way Sensitivity Analysis Chart
- Scenario Model for Cost, Schedule, Performance, and Demand
- Weighted Project Prioritization and Portfolio Ranking Matrix
- Investment Business Case, Recommendation, and Approval Record

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Day 5: Practice Project Evaluation

- Exercise: Screen Engineering and Maintenance Alternatives
- Exercise: Assess Technical Feasibility and Evidence Quality
- Exercise: Build Lifecycle Cost, NPV, and IRR Models
- Exercise: Test Risk, Sensitivity, Scenarios, and Ranking
- Capstone Exercise: Build the Project Evaluation Decision Pack

Practical Exercises

The course uses suggested activities to connect technical evidence with transparent economic recommendations.

- Suggested activity: frame and screen alternative solutions for a utility-capacity constraint.
- Suggested activity: evaluate condition, reliability, integration, and implementation evidence for an industrial asset.
- Suggested activity: compare repair and replacement through lifecycle cost, NPV, IRR, and cost-benefit measures.
- Suggested activity: test uncertainty and prepare a ranked investment recommendation with review triggers.

FAQs

Who suits engineering and maintenance project evaluation training?

Engineering and maintenance project evaluation training suits experienced technical and commercial teams that already work with scopes, asset evidence, cost estimates, project alternatives, or investment submissions.

How does engineering project evaluation differ from general project management training?

Engineering project evaluation selects and justifies an option before or at approval through feasibility, lifecycle cost, risk, and value evidence, while general project management training focuses on planning and controlling delivery.

How is lifecycle cost used in maintenance project evaluation?

Lifecycle cost compares capital, operation, maintenance, replacement, downtime, and disposal effects across alternatives over a common evaluation period.

What do NPV and IRR show in engineering project evaluation?

NPV converts future cash flows to present value, while IRR indicates the discount rate at which modeled net value becomes zero; both depend on stated assumptions and should accompany technical evidence.

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How does sensitivity analysis strengthen a maintenance investment business case?

Sensitivity analysis reveals whether the recommendation changes when cost, asset life, failure risk, downtime, benefit, or discount assumptions vary, identifying thresholds and fragile conclusions.

Conclusion

Participants take back a Project Evaluation Decision Pack. The pack connects project need, alternatives, technical feasibility, asset evidence, lifecycle cost, cash flow, NPV, IRR, risk, sensitivity, prioritization, and approval records. It changes separate engineering and financial inputs into a traceable basis for maintenance and capital-investment choices.