
Equipment Life Cycle Costing and Renewal Economics Training Course

5 – 9 September 2027
Doha





Equipment Life Cycle Costing and Renewal Economics Training Course

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Programme Summary

Equipment life cycle costing and renewal economics is a one-week training course for senior leaders at strategic level, culminating in a costed equipment renewal plan for a fleet or plant of their own. Major equipment is often run to failure or replaced on age alone, so capital is spent too early on some assets and too late on others. The approach combines whole-life cost, failure data and risk into decisions finance and engineering can both defend. Mars Training Centre UK delivers this programme in equipment life cycle costing.

The Business Case

Decisions to repair, overhaul or replace major equipment commit large sums for many years, yet they are often driven by budget cycles or supplier proposals. Leaders who compare options on whole-life cost and risk spend capital where it returns most and give boards a renewal case they can approve.

- Total Cost of Ownership: Falls as acquisition, operating, downtime and disposal costs are weighed together.
- Unplanned Downtime and Risk Exposure: Reduce as ageing equipment is renewed before failure consequences become unacceptable.
- Capital Allocation Quality: Improves as renewals across sites are ranked on one economic and risk basis.

Principles and Evidence Base

- IEC 60300-3-3: Provides the life cycle costing process, cost breakdown structure and analysis steps applied in Sessions 1 and 2.
- ISO 55000 and ISO 55001: Frame whole-life value, asset management plans and decision criteria used in Sessions 1 and 4.
- Time Value of Money and Equivalent Annual Cost: Underpin the net present value and economic life models built in Session 3.
- ISO 31000: Guides the risk-based ranking of renewal candidates in Session 4.

Intended Participants

- Leaders accountable for the availability and cost of major production or utility equipment.
- Executives who approve maintenance budgets and capital renewal programmes.
- Finance partners who evaluate engineering investment proposals.
- Heads of reliability and asset management who set overhaul and replacement policy.



The programme serves oil and gas production, refining and petrochemicals, power generation and water utilities, mining and heavy transport fleets.

Learning Outcomes

1. Participants will be able to construct a life cycle cost model for a major equipment item using a structured cost breakdown.
2. Participants will be able to diagnose ageing and deterioration trends from failure and maintenance cost data.
3. Participants will be able to calculate the economic life of an asset and the optimal replacement point.
4. Participants will be able to evaluate repair, overhaul, refurbishment and replacement options on cost and risk.
5. Participants will be able to prioritise renewal candidates across a portfolio of sites and equipment classes.
6. Participants will be able to justify a capital renewal plan to finance and executive approvers.

Programme Structure

Day 1: Equipment Life Cycle Costing Foundations

What does a major equipment item really cost across its whole life?

- Whole-Life Value in an Asset Management System
- IEC 60300-3-3 Life Cycle Costing Process
- Cost Breakdown Structure From Acquisition to Disposal
- Cost of Downtime and Lost Production
- Data Sources in Maintenance and Finance Systems

Day 2: Diagnosing Ageing and Deterioration

How is the condition and cost trend of ageing equipment measured from evidence?

- Failure Data Collection and Cleansing
- Weibull Analysis of Failure Patterns
- Maintenance Cost Escalation Curves
- Condition and Obsolescence Indicators
- Remaining Useful Life Estimation

Day 3: Replacement Economics and Economic Life

When does keeping an asset in service cost more than renewing it?



- Discounting and Net Present Value
- Equivalent Annual Cost Model
- Economic Life and Optimal Replacement Interval
- Repair, Overhaul, Refurbish or Replace Comparison
- Sensitivity and Scenario Analysis

Day 4: Risk-Based Renewal Portfolio Planning

Which renewals should be funded first when capital is limited?

- Risk of Deferral and Consequence of Failure
- ISO 31000 Risk Criteria for Renewal Decisions
- Multi-Criteria Ranking Across Sites
- Spares, Rotables and Overhaul Timing
- Long-Term Renewal Forecast and Funding Profile

Day 5: Applying Renewal Economics to Participant Equipment

How are cost models, economic life and risk combined into one plan for approval?

- Life Cycle Cost Model of a Participant Asset
- Economic Life Review of a Participant Fleet
- Peer Challenge of Renewal Priorities
- Business Case Structure for Finance Approvers
- Equipment Renewal Plan Presentation

Methodology

The programme is built as a data workshop. Participants work with realistic failure records, cost histories and capital estimates from oil and gas, power and mining operations, building spreadsheet models and testing decisions against changing assumptions before applying each method to their own equipment.

- Suggested activity: Building a cost breakdown for a gas turbine over its full service life.
- Suggested activity: Calculating the economic life of a haul truck fleet from cost history.
- Suggested activity: Ranking compressor renewals across three sites under a capital ceiling.

Capstone Output

Each participant completes a costed equipment renewal plan for a fleet or plant they manage. It contains a life cycle cost model, an economic life assessment, an options comparison, a risk-ranked renewal list and a funding profile for the next capital budget.



Frequently Asked Questions

Is equipment life cycle costing suitable for leaders without a finance background?

Yes. It assumes senior management experience and basic spreadsheet use, and explains the discounting and statistical methods from first principles.

Which standards underpin equipment life cycle costing and renewal economics?

It draws on IEC 60300-3-3 for life cycle costing, ISO 55000 and ISO 55001 for whole-life asset management, ISO 31000 for risk criteria and established equivalent annual cost and Weibull methods.

How is the equipment renewal plan from the life cycle costing work used at work?

You take back a renewal plan whose models and rankings feed directly into your capital budget and board investment papers.

How does equipment life cycle costing differ from general reliability engineering programmes?

It focuses on when and how to renew equipment, linking failure data to cost, risk and funding, while reliability programmes concentrate on preventing failures.