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COURSE BROCHURE

# Decision Analysis for Operation and Maintenance Professionals Training Course

19 – 23 April 2027
Milan

# Decision Analysis for Operation and Maintenance Professionals Training Course

**Ref:** 1247_46922 **Date:** 19 – 23 April 2027 **Location:** Milan **Fees:** 7200 GBP

Decision Analysis for Operation and Maintenance Professionals is a 1-week training course for operations and maintenance engineers and supervisors who face daily choices on deferring tasks, running degraded equipment or committing scarce crews, and who leave with an O&M decision case file built on a real plant choice. Leaner crews and older assets now force these calls faster and with less margin. Jupiter Prime Training runs this course in decision analysis for operation and maintenance.

## Why Decision Analysis for Operation and Maintenance Matters Now

Production targets, shrinking craft headcount and sharper scrutiny from safety and finance functions all land on the shift supervisor and the area engineer. A plant that settles O&M dilemmas by habit or the loudest voice repeats the same costly breakdowns and struggles to explain its choices after an incident; a plant that frames options, probabilities and consequences explicitly can defend each call and learn from it. The course draws on ISO 55001 for asset management systems and EN 13306 for maintenance terminology, so options and failure modes are described in vocabulary that auditors and engineers share.

## Who Gains Most from Decision Analysis for Operation and Maintenance

- Shift and area supervisors who decide whether to keep running equipment showing warning signs
- Maintenance engineers who rank backlog jobs and defer or escalate work orders
- Operations engineers who weigh throughput against inspection and isolation windows
- Reliability engineers who estimate failure likelihood for competing intervention options
- Planners who allocate limited crews, cranes and permits across urgent requests

A production unit that sends its operations and maintenance supervisors together gains most, because both sides then frame trade-offs with the same decision tree and risk vocabulary.

## Decision Analysis for Operation and Maintenance Capabilities

Participants turn messy plant dilemmas into structured options with probabilities, consequences and a clear recommendation.

- Frame an O&M dilemma as options, uncertainties and consequences — the supervisor's run-or-stop call
- Build decision trees with expected cost and downtime for each branch — intervention choice
- Calculate failure likelihood from history and condition readings — backlog prioritisation
- Apply weighted multi-criteria scoring to safety, production and cost — contested resource allocation
- Weigh repair against replace using expected cost over the asset's remaining life — renewal timing

- Communicate the recommendation and its sensitivities to operations managers — approval of the chosen option

## Key Decision Analysis for Operation and Maintenance Terms

- Decision Tree — a branching diagram of choices, chance events and outcomes used to compare options by expected consequence.
- Expected Monetary Value — the probability-weighted average cost or benefit of an option across its possible outcomes.
- Risk Priority Ranking — an ordering of work requests by combined likelihood and severity of the failure each one addresses.
- Multi-Criteria Decision Analysis MCDA — scoring options against several weighted criteria such as safety, output and cost.
- Sensitivity Analysis — testing how far an input can move before the recommended option changes.
- Value of Information — the most an extra inspection or test is worth, judged by how it could change the decision.

## Decision Analysis for Operation and Maintenance Day by Day

### Day 1: How Plant Decisions Are Really Made

- Decision Framing Canvas — Separating Options, Uncertainties and Objectives on Site
- Common Bias in Shift Decisions — Anchoring, Sunk Cost and Overconfidence
- Consequence Categories From EN 13306 — Safety, Production and Equipment Damage
- Stakeholder Map for O&M Choices — Who Owns Each Decision
- Decision Log Review — Learning From Past Run-or-Stop Calls

### Day 2: Probability and Failure Evidence

- Failure History From the CMMS — Estimating Likelihood for Each Option
- Condition Readings as Evidence — Updating Probability After Inspection
- Expert Elicitation Protocol — Turning Technician Judgement Into Estimates
- Risk Matrix Calibration — Consistent Likelihood and Severity Scales
- Value of Information Check — Whether Another Inspection Is Worthwhile

### Day 3: Decision Trees and Expected Consequence

- Decision Tree Construction — Defer, Repair Online or Shut Down
- Expected Monetary Value Calculation — Ranking Intervention Options
- Downtime and Lost Output Modelling — Production Consequence per Branch
- Repair-or-Replace Expected Cost — Timing Renewal Under ISO 55001
- Sensitivity and Tornado Charts — Identifying the Inputs That Matter

## Day 4: Multi-Criteria Choices and Prioritisation

- Weighted MCDA Scoring — Balancing Safety, Output, Cost and Environment
- Pairwise Comparison for Criteria Weights — Agreeing Priorities With Operations
- Risk-Based Backlog Prioritisation — Sequencing Work Orders Against Crew Capacity
- Spare Part Stocking Choice — Holding Cost Against Outage Exposure
- Group Decision Session Format — Resolving Operations and Maintenance Disagreement

## Day 5: Practising the O&M Decision Case File

- Framing a Live Plant Dilemma — Applying the Framing Canvas
- Probability Estimates for the Case — Applying Failure and Condition Evidence
- Tree and Scoring Comparison — Applying Expected Value and MCDA
- Recommendation Briefing to Managers — Presenting Sensitivities and Residual Risk
- O&M Decision Case File — Completed Record Ready for Approval

## Applying Decision Analysis for Operation and Maintenance After the Course

- Rebuild one recent run-or-stop call as a decision tree and compare its expected cost with the choice actually made.
- Score the current maintenance backlog with the calibrated risk matrix and agree the top ten jobs with operations.

## Decision Analysis for Operation and Maintenance Questions FAQ

### What is decision analysis for operation and maintenance and why does it matter now?

Decision analysis for operation and maintenance is a structured way to compare plant options using probabilities and consequences. It matters now because leaner crews and older equipment leave less room for choices made by habit.

### Which roles gain most from decision analysis for operation and maintenance training?

Shift supervisors, maintenance and operations engineers, reliability engineers and planners gain most. They make frequent calls on deferring, repairing or stopping equipment and need a shared, defensible method.

### How does decision analysis for operation and maintenance differ from a strategic decision-making course?

Decision analysis for operation and maintenance applies trees, risk ranking and scoring to plant-floor choices such as deferral and backlog sequencing. Strategic decision-making courses address corporate investment and direction rather than equipment and crews.

## What do you bring back from decision analysis for operation and maintenance training?

You bring back a completed decision case for a real choice at your plant, with framed options, probability estimates, expected consequences, criteria scores and a recommendation ready to present.

## Decision Analysis for Operation and Maintenance: The Way Forward

The O&M decision case file first informs a pending run, repair or shutdown choice on the participant's own unit. Supervisors and engineers use it to brief operations managers and record why an option was chosen. After that first use, revisit the probability estimates against what actually happened, so the plant's failure evidence and judgement improve with every logged decision.