FMECA Study Leadership Training Course: Scope, Rank and Act

9 – 13 August 2027
Tokyo

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Programme Summary

FMECA study leadership is the subject of this one-week training course for reliability, maintenance and engineering managers, ending in a complete FMECA study pack for one asset system. Teams often score failure modes without agreed scope, and the ranking then fails to change any maintenance or design decision. The programme moves from study scope to failure mode capture, criticality ranking, facilitation technique and action planning, using prepared asset records and live scoring exercises. Mars Training Centre UK delivers this programme on FMECA study leadership to mixed-organisation cohorts.

The Business Case

Plants, fleets and networks carry far more failure modes than any team can treat, so leaders must show why some receive money and others do not. A study led with clear scope, calibrated scoring and a defensible record gives planners, designers and finance reviewers a ranking they accept.

- Unplanned Downtime: Falls when high-criticality failure modes are tied to named maintenance tasks and inspection intervals.
- Spares and Maintenance Spend: Is directed with more evidence when ranked failure modes drive stocking and task choices.
- Rework in Design Reviews: Reduces when effects, causes and controls are recorded once and agreed by the team.

Principles and Evidence Base

- IEC 60812: The international standard on analysis techniques for system reliability, covering FMEA and FMECA, applied in Sessions 1 and 2 to structure the study and the worksheet.
- MIL-STD-1629A: The source of the criticality number and criticality matrix, applied in Session 3 to rank failure modes.
- Pareto analysis: The principle that a few causes produce most of the loss, applied in Sessions 3 and 5 to focus actions.

Intended Participants

- Managers who commission FMECA studies and must judge whether their results are fit for decisions.
- Leaders who chair cross-functional reliability sessions and need to keep mixed teams productive.
- Maintenance and engineering heads who convert ranked failure modes into tasks, spares and design changes.
- Quality and risk leads who review failure analysis records before they are accepted.

Typical settings include oil and gas, power generation, manufacturing and transport operations.

Learning Outcomes

1. Participants will be able to define the scope, boundary and purpose of an FMECA study.
2. Participants will be able to construct a failure mode record covering effects, causes and detection controls.
3. Participants will be able to prioritise failure modes using criticality numbers, a criticality matrix and Pareto analysis.
4. Participants will be able to diagnose group behaviours that distort scoring and select a response.
5. Participants will be able to evaluate whether a team's scoring is consistent enough to defend.
6. Participants will be able to justify a register of maintenance, spares and design actions to decision makers.

Programme Structure

Day 1: FMECA Study Leadership Foundations

What decision should an FMECA study inform?

- Study Purpose and Decision Statement
- IEC 60812 Method Review
- System Boundary and Function Tree
- Team and Role Selection
- Study Charter Template

Day 2: Failure Modes, Effects and Causes

How are failure modes captured so that a team agrees on them?

- Failure Mode Prompt Questions
- Effect Chains Across Levels
- Cause and Mechanism Mapping
- Detection Control Inventory
- Facilitation Record Sheet

Day 3: Severity and Criticality Ranking

How are failure modes ranked in a way the team can defend?

- Severity and Occurrence Scales
- MIL-STD-1629A Criticality Number
- Criticality Matrix Plotting
- Risk Priority Number Comparison
- Pareto Chart of Ranked Modes

Day 4: Facilitation Technique and Team Dynamics

How does a leader keep a mixed team productive and honest?

- Dominant Voice Management
- Questioning and Challenge Methods
- Scoring Calibration Round
- Remote and Hybrid Session Design
- Disagreement Log and Escalation Route

Day 5: Action Planning and the FMECA Study Pack

Do the findings join into actions that owners accept?

- Applying the Session 2 Failure Mode Record
- Testing the Session 3 Criticality Ranking
- Reviewing the Session 4 Scoring Calibration
- Maintenance, Spares and Design Action Register
- Completing the FMECA Study Pack

Methodology

The programme is a structured exercise built on prepared records for a pump train, a conveyor line and a distribution transformer. Participants lead short study rounds in turn while peers play contributors with difficult habits.

- Suggested activity: Scoping a study and drafting its charter for a prepared asset system.
- Suggested activity: Leading a scoring round with a deliberately dominant contributor.
- Suggested activity: Turning the top-ranked failure modes into an action register for review.

Capstone Output

Each participant completes an FMECA study pack for one asset system. It holds the charter, a failure mode record, a criticality matrix, a Pareto view, a calibration note and an action register. At work it becomes the template for the next study and the paper taken to the maintenance and design review.

Frequently Asked Questions

Is FMECA study leadership training suitable for managers who have never led a study?

Yes. FMECA study leadership is taught from the method upwards with prepared records. You need responsibility for reliability, maintenance or engineering decisions, but no prior experience of leading a study or advanced statistics.

Which standards does FMECA study leadership rest on in this training?

FMECA study leadership here rests on IEC 60812 for the method, MIL-STD-1629A for criticality numbers and matrices, and Pareto analysis for focusing actions on the failure modes that matter most.

How is the FMECA study pack used at work after this training?

You use the FMECA study pack as the template for your next study, take its action register to maintenance and design reviews, and reuse its charter and calibration note with your own teams.

How does FMECA study leadership differ from a programme on root cause analysis?

FMECA study leadership looks ahead, ranking failure modes before they occur and leading a team to agree actions, while a programme on root cause analysis investigates failures that have already happened.