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COURSE BROCHURE

Engineering Technical Risk Management Training Course

21 – 25 March 2027
Muscat

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Registered in the United Kingdom and Saudi Arabia

Engineering Technical Risk Management Training Course

Ref: 3289_125403 **Date:** 21 – 25 March 2027 **Location:** Muscat **Fees:** 5500 GBP

Engineering technical risk management is a 1-week training course for engineers, project managers and asset managers who rate and treat threats in designs, interfaces and ageing equipment, and leave with a technical risk register carrying owned treatment actions. Plants, networks and capital projects now run closer to their design margins, so a missed failure mode quickly becomes lost output or a safety event. Jupiter Prime Training teaches engineering technical risk management as daily engineering practice.

Why Engineering Technical Risk Management Matters Now

Three forces shape the discipline today. Owners stretch the life of old plant, so degradation meets demands designers never pictured. Capital projects split engineering across many contractors and vendors, which multiplies the interfaces where assumptions go unchecked. Insurers and boards want evidence that technical exposures are controlled, not merely listed. An organisation that handles this well catches weak designs before fabrication and plans interventions before breakdown; one that handles it badly discovers its exposures through rework, outages and incident investigations. The course rests on international risk management guidance and structured hazard identification practice.

Who Gains Most from Engineering Technical Risk Management

- Design engineers proving a specification or modification performs within its envelope.
- Project engineers closing gaps between vendor and contractor scopes.
- Asset and maintenance engineers accountable for equipment condition and remaining life.
- Project managers weighing technical exposures against schedule when approving changes.
- Discipline leads who sign off designs and set acceptance criteria for residual exposure.

The greatest return comes when a project or asset team sends its design, operations and maintenance members together, so one register reflects every discipline's view.

Engineering Technical Risk Management Capabilities

Participants move from spotting a weak component to defending a treatment decision with testable evidence.

- Apply failure mode reasoning to components — design reviews and modifications.
- Assess interface exposures across contractor packages — interface owners.
- Calculate consistent ratings on a calibrated matrix — technical authorities.
- Design treatment actions with owners and triggers — maintenance planners.
- Test residual exposure against stated criteria — discipline lead sign-off.
- Communicate technical exposures to non-engineering approvers — steering committees.

Key Engineering Technical Risk Management Terms

- Failure mode — the specific way a component stops performing its function, such as cracking, seizure or drift.
- Interface risk — an exposure where two scopes meet and each assumes the other controls it.
- Design margin — the gap between the load or condition a design can withstand and the load expected in service.
- Technical risk register — a controlled record of technical exposures, their ratings, owners, treatment actions and current status.
- Residual risk — the exposure remaining after treatment actions are in place and verified as effective.
- Risk treatment — an action that removes, reduces, transfers or accepts an exposure, with a named owner and completion evidence.

Engineering Technical Risk Management Day by Day

Day 1: Technical Exposure in Projects and Assets

- Project Versus Operating Asset Exposure — Where Technical Threats Originate
- Lifecycle Risk Map From Concept to Decommissioning — Timing of Interventions
- Risk Management Guidance Principles — Shared Language Across Disciplines
- Technical Authority Roles and Sign-Off Chains — Who Accepts Residual Exposure
- Lessons From Equipment Failures and Project Rework — Patterns Worth Screening For

Day 2: Finding Failure Modes and Design Weaknesses

- Functional Breakdown of Systems and Components — Scope of the Failure Analysis
- Failure Mode and Effect Worksheets — Prioritising Weak Components for Redesign
- Guideword Hazard Studies for Process Systems — Deviations Needing Safeguards
- Design Margin and Load Case Checks — Adequacy of Specifications
- Degradation Mechanisms in Ageing Equipment — Inspection and Replacement Timing

Day 3: Interfaces, Vendors and Change

- Interface Matrices Between Packages — Ownership of Boundary Exposures
- Vendor Data and Technical Query Logs — Hidden Assumptions in Supplied Equipment
- Management of Change Screening — Approval Depth for Modifications
- Constructability and Commissioning Reviews — Late Discovery of Technical Gaps
- Obsolescence and Spares Exposure — Continuity of Critical Equipment Support

Day 4: Rating, Treatment and Tracking

- Calibrated Likelihood and Consequence Matrices — Consistent Ratings Across Teams
- Barrier and Safeguard Effectiveness Checks — Credit Given for Existing Controls
- Treatment Options and Cost of Mitigation — Choosing Between Redesign and Monitoring
- Action Tracking With Triggers and Evidence — Closure of Treatment Actions
- Technical Exposure Dashboards for Approvers — Escalation to Steering Committees

Day 5: Practising the Technical Risk Register

- Failure Mode Screening of a Case Asset — Applying Day Two Worksheets
- Interface Review of a Case Project — Applying Day Three Matrices
- Rating and Treatment Challenge Session — Applying Day Four Criteria
- Residual Exposure Acceptance Briefing — Technical Authority Sign-Off Rehearsal
- Completing the Technical Risk Register With Treatment Actions — Handover to the Home Team

Applying Engineering Technical Risk Management After the Course

- Lead a failure mode screening of one critical system and load findings into a register with owners.
- Run an interface review between two contractor packages and close each boundary exposure with an action.

Engineering Technical Risk Management Questions FAQ

What is engineering technical risk management and why does it matter now?

Engineering technical risk management is the practice of rating and treating threats rooted in designs, interfaces and equipment condition. It matters now because ageing plant and split contractor scopes leave little room for undiscovered failure modes.

Which roles gain most from engineering technical risk management?

Design, project, asset and maintenance engineers gain most, along with project managers and discipline leads who approve changes. You benefit whenever your signature decides whether an exposure is accepted or redesigned.

How does engineering technical risk management differ from enterprise or project schedule risk courses?

Engineering technical risk management works at component and interface level using engineering evidence. Enterprise courses address strategic exposures, and schedule courses quantify time uncertainty rather than how equipment fails.

What do you bring back from engineering technical risk management training?

You bring back a working register of technical exposures for a case asset or project, each with a rating, owner and treatment action. You also return with reusable worksheets and interface matrices.

Engineering Technical Risk Management: The Way Forward

The technical risk register built during the course first informs which exposures need redesign, monitoring or acceptance before the next design review or maintenance window. Engineers, planners and technical authorities use it to track treatment actions. After its first use, revisit the rating criteria, since operating experience reveals failure modes the first screening missed.