JUPITER PRIME
Consulting • Training • Advisory
جوبيتر برايم للاستشارات والتدريب

COURSE BROCHURE

Plant Reliability and Loss Prevention Risk Training Course

3 – 7 January 2027
Istanbul

jupiterprime.uk
info@jupiterprime.uk
Registered in the United Kingdom and Saudi Arabia

Plant Reliability and Loss Prevention Risk Training Course

Ref: 1662_60937 **Date:** 3 – 7 January 2027 **Location:** Istanbul **Fees:** 5500 GBP

Plant Reliability and Loss Prevention Risk is a 1-week training course for maintenance, reliability and loss prevention engineers who rank equipment failure hazards and decide which barriers keep a plant running, producing a site loss prevention risk register. Unplanned outages, fires and releases now cost operators far more than the repairs, as insurers judge sites on loss history. Jupiter Prime Training runs this course to join reliability evidence with loss prevention judgement.

Why Plant Reliability and Loss Prevention Risk Matters Now

Three groups press on this subject today: insurers who survey plants and price cover on their loss record, operations leaders who need longer runs between turnarounds, and an ageing asset base whose failure behaviour shifts with every extension of service life. A plant that ranks failure risk well spends its maintenance hours where a breakdown would hurt most; one that does not finds weak barriers only after an incident. The course rests on failure mode, effects and criticality analysis FMECA, bow-tie barrier analysis, reliability block diagrams and risk-based inspection RBI logic.

Who Gains Most from Plant Reliability and Loss Prevention Risk

- Engineers responsible for ranking equipment criticality and failure consequence
- Specialists who own loss prevention surveys and insurer recommendations
- Reliability staff who collect and interpret failure and downtime records
- Inspection and integrity coordinators setting examination intervals
- Shift and area engineers who keep safety-critical barriers in service

A site gains most when its reliability, inspection and loss prevention engineers attend together and agree one shared risk matrix for the plant.

Plant Reliability and Loss Prevention Risk Capabilities

Participants leave able to turn failure records into ranked loss exposures with barrier actions.

- Assess failure consequence and likelihood on a plant risk matrix — maintenance priority setting
- Calculate failure rates and mean time between failures from site records — reliability targets
- Design bow-tie diagrams linking threats, barriers and consequences — operations leaders
- Weigh redundancy, inspection and replacement options against loss exposure — capital planning
- Apply incident investigation findings to barrier upgrades — insurers and site management
- Build a ranked register of loss scenarios with owners and actions — plant leadership

Key Plant Reliability and Loss Prevention Risk Terms

- Loss prevention — engineering and organisational measures that stop fires, releases, breakdowns and outages from destroying assets or production.
- FMECA — failure mode, effects and criticality analysis, a structured method that ranks how equipment fails and how much each failure matters.
- Bow-tie diagram — a picture linking the threats that start an event with the barriers and consequences on either side.
- Safety-critical element — equipment whose failure could cause or fail to limit a major loss event.
- Mean time between failures — the average running time between successive failures of a repairable item.
- Estimated maximum loss — the largest damage a single event could cause when protective systems fail to work.

Plant Reliability and Loss Prevention Risk Day by Day

Day 1: Loss Exposure Across the Plant

- Loss Event Categories — Separating Fire, Release, Breakdown and Outage Losses
- Plant Risk Matrix Design — Agreeing Consequence and Likelihood Bands
- Insurer Survey Recommendations — Prioritising Engineering Actions by Loss Exposure
- Estimated Maximum Loss Scenarios — Sizing the Worst Credible Event
- Loss History Review — Spotting Repeat Failures Behind Past Claims

Day 2: Reliability Evidence and Failure Data

- Failure Rate and MTBF Calculation — Setting Realistic Reliability Targets
- Weibull Plotting Basics — Telling Wear-Out From Random Failures
- Reliability Block Diagrams — Judging Where Redundancy Pays Back
- Downtime Coding Rules — Turning Work Orders Into Usable Evidence
- Bad Actor Lists — Choosing Which Equipment Gets Engineering Attention

Day 3: Ranking Failure Hazards

- FMECA Worksheets — Ranking Failure Modes by Criticality
- Equipment Criticality Assessment — Directing Spares and Inspection Effort
- Risk-Based Inspection Logic — Setting Examination Intervals for Pressure Equipment
- Hazard Scenario Screening — Linking Failures to Fire and Release Outcomes
- Common Cause Failure Checks — Testing Whether Backups Really Stand Alone

Day 4: Barriers and Incident Learning

- Bow-Tie Barrier Analysis — Showing Which Controls Stop Each Threat
- Safety-Critical Element Registers — Assigning Performance Standards and Owners
- Barrier Degradation Tracking — Deciding When Bypassed Protection Needs Action
- Incident Investigation Methods — Finding Root Causes Behind Equipment Losses
- Near-Miss Trend Review — Feeding Weak Signals Into Maintenance Priorities

Day 5: Practising the Site Loss Prevention Risk Register

- Case Plant Risk Ranking — Applying the Matrix and FMECA Results
- Failure Data Pack — Applying MTBF and Weibull Findings to Priorities
- Barrier Gap Review — Applying Bow-Tie Findings to Upgrade Choices
- Action Owner Assignment — Agreeing Deadlines and Verification Checks
- Site Loss Prevention Risk Register — Ranking Scenarios, Barriers and Actions

Applying Plant Reliability and Loss Prevention Risk After the Course

- Run an FMECA on one critical unit and compare its ranking with the current inspection and spares plan.
- Draw a bow-tie for the plant's largest fire or release scenario and check each barrier's test record.

Plant Reliability and Loss Prevention Risk Questions FAQ

What is plant reliability and loss prevention risk, and why does it matter now?

It is the practice of ranking equipment failures by the losses they could cause and keeping the right barriers in place. It matters now because ageing assets, insurer scrutiny and longer run lengths raise the cost of every unplanned event.

Which roles gain most from plant reliability and loss prevention risk?

Reliability, inspection and loss prevention engineers gain most. Examples come from petrochemical processing and power generation.

How does plant reliability and loss prevention risk differ from a process safety course?

It starts from equipment failure records and maintenance choices rather than from process design reviews. Process safety courses centre on hazard studies of chemistry and design.

What do you bring back from plant reliability and loss prevention risk?

You bring back a ranked register of loss scenarios for a case plant, each with failure evidence, barriers, owners and actions, ready to adapt to your own site.

Plant Reliability and Loss Prevention Risk: The Way Forward

The site loss prevention risk register lists each credible loss scenario with its failure evidence, barriers and owners. Its first use is deciding which unit receives inspection and redundancy spending next. Reliability and loss prevention engineers maintain it together, and after the next turnaround or insurer survey the rankings deserve a fresh look, since new failure data moves rankings.