

Course No. 1129

Engineering Risk Management Training Course

**ENGINEERING MANAGEMENT
INDUSTRIAL ENGINEERING, MAINTENANCE & OPERATIONS**

DURATION

5 Days

DELIVERY

Classroom



Course Overview

The Engineering Risk Management Training Course is a comprehensive professional program designed to equip engineers, project leaders, technical specialists, and decision makers with the knowledge, methodologies, and practical tools required to identify, assess, mitigate, and monitor engineering risks throughout the lifecycle of projects, assets, and operational activities. As engineering projects become increasingly complex and organizations face greater technical, operational, financial, environmental, and regulatory challenges, effective engineering risk management has become a fundamental component of sustainable organizational success and operational resilience.

This course provides a structured approach to managing engineering risks by integrating internationally recognized risk management principles with practical engineering applications. Participants will learn how to establish risk management frameworks, identify potential hazards, perform qualitative and quantitative risk assessments, evaluate the effectiveness of existing controls, and implement proactive mitigation strategies that support project success, operational reliability, and business continuity.

Throughout the program, participants will develop practical competencies in engineering risk analysis techniques, including risk registers, risk matrices, Failure Mode and Effects Analysis (FMEA), Root Cause Analysis (RCA), Hazard Identification (HAZID), Hazard and Operability Studies (HAZOP), and risk-based decision-making methodologies. The course emphasizes real-world engineering scenarios, enabling participants to strengthen their ability to manage uncertainty while improving safety, quality, asset integrity, and operational performance.

The Engineering Risk Management Training Course also explores the integration of risk management with engineering governance, project management, asset management, maintenance strategies, health and safety systems, regulatory compliance, and organizational performance. By completing this course, participants will be able to establish a proactive risk culture, improve engineering decision-making, reduce operational disruptions, and support long-term organizational objectives across government entities, public sector organizations, financial institutions, energy companies, oil and gas facilities, infrastructure projects, and large industrial enterprises.

Objectives

- Analyze engineering risks associated with projects, assets, operations, and organizational activities throughout the course.
- Develop structured engineering risk management frameworks aligned with organizational objectives.
- Evaluate engineering risks using qualitative and quantitative assessment techniques.
- Apply internationally recognized engineering risk assessment methodologies to real workplace situations.
- Design effective engineering risk mitigation and control strategies that improve operational performance.
- Improve engineering decision-making by incorporating risk-based analysis into project planning and execution.
- Strengthen organizational resilience through proactive engineering risk monitoring and continuous improvement.
- Implement engineering risk registers, reporting systems, and performance monitoring processes.
- Assess the effectiveness of engineering controls, mitigation measures, and corrective actions.
- Align engineering risk management practices with governance, compliance, safety, quality, and asset management objectives.

Who Should Attend

This course is designed for engineering managers, project managers, maintenance managers, operations managers, engineering supervisors, reliability engineers, mechanical engineers, electrical engineers, civil engineers, process engineers, industrial engineers, safety engineers, quality engineers, planning engineers, design engineers, asset management professionals, maintenance planners, project coordinators, and technical specialists responsible for engineering projects, facilities, and critical infrastructure.

The program is equally valuable for executives, department heads, engineering consultants, technical advisors, operational excellence professionals, enterprise risk specialists, business continuity professionals, compliance officers, HSE professionals, and decision makers responsible for engineering governance, infrastructure development, operational risk management, and organizational performance improvement.

The course is particularly beneficial for professionals working within government entities, ministries, public sector organizations, oil and gas companies, power generation and utility providers, manufacturing industries, construction firms, transportation organizations, mining companies, infrastructure authorities, financial institutions managing engineering assets, and large multinational organizations seeking to strengthen engineering risk management capabilities.

Learning Outcomes

- By the end of this course, participants will be able to:
- Explain the principles, objectives, and organizational value of engineering risk management.
- Identify and categorize engineering risks affecting projects, operations, assets, and business performance.
- Conduct comprehensive engineering risk assessments using recognized analytical techniques.
- Develop and maintain engineering risk registers that support effective risk governance.
- Apply engineering risk analysis tools including FMEA, HAZOP, HAZID, and Root Cause Analysis.
- Evaluate the effectiveness of existing engineering controls and recommend improvements.
- Design practical engineering risk treatment and mitigation plans for complex operational environments.
- Integrate engineering risk management into project management, asset management, maintenance, and operational planning.
- Prepare professional engineering risk reports and communicate risk information effectively to stakeholders and senior management.
- Promote a proactive organizational culture focused on continuous risk assessment, operational resilience, and engineering excellence.

Course Outline

DAY 01

Foundations of Engineering Risk Management

- Principles and concepts of engineering risk management
- Types of engineering, operational, technical, financial, and environmental risks
- Engineering risk management frameworks and international best practices
- Risk governance, organizational responsibilities, and leadership

DAY 01 — CONTINUED

PRACTICAL

Practical workshop on identifying engineering risks within projects and operational environments

DAY 02

Risk Identification and Assessment Techniques

- Engineering risk identification methodologies
- Risk registers and structured documentation
- Qualitative and quantitative risk assessment techniques
- Risk matrices, probability analysis, and impact evaluation

PRACTICAL APPLICATION

Practical application involving engineering risk assessment and prioritization exercises

DAY 03

Engineering Risk Analysis Tools

- Failure Mode and Effects Analysis (FMEA)
- Hazard Identification (HAZID)
- Hazard and Operability Study (HAZOP)
- Root Cause Analysis (RCA) and lessons learned

PRACTICAL

Practical workshop using engineering risk analysis tools on real engineering case studies

DAY 04

Risk Mitigation and Risk-Based Decision Making

- Engineering risk treatment strategies and mitigation planning
- Control measures and engineering safeguards
- Integrating engineering risk management with project management and asset management

DAY 04 — CONTINUED

- Monitoring risk performance and measuring control effectiveness

PRACTICAL EXERCISE

Practical exercise on developing engineering risk mitigation plans for critical infrastructure

DAY 05

Engineering Risk Governance and Continuous Improvement

- Engineering risk reporting and executive communication
- Organizational risk culture and continuous improvement
- Compliance, auditing, and performance evaluation
- Developing enterprise-wide engineering risk management strategies

FINAL WORKSHOP

Final workshop involving the development of a comprehensive Engineering Risk Management implementation plan, including risk identification, assessment, mitigation, monitoring, governance, and performance measurement tailored to participants' organizational environments.

Register or Request More Information

Course page: <https://quest-training.com/courses/engineering-risk-management-training-course>

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