aractech

Global Learning for Operational Leaders

AUDITING AND GOVERNANCE RISK AND COMPLIANCE

Advanced Risk, Reliability & Safety Management Techniques

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Course content

Why Attend

This Advanced Risk, Reliability & Safety Management Techniques training course examines advanced analytical techniques for risk, reliability and safety management. In doing so, we incorporate operational research methods and multiple criteria decision making and demonstrate their practical application to cases of major failures and disasters. The idea of the Advanced Risk, Reliability & Safety Management Techniques training course is to look at Learning from Failures. With the rapid acceleration of product technology, reliability engineering is an urgent technical and business issue that requires the expertise of well-educated, trained engineers and technology leaders.

In this multidisciplinary training course, you'll learn to identify, manage, and eliminate product and system failures using advanced risk and reliability practices and data analysis techniques. This Advanced Risk, Reliability & Safety Management Techniques training course will cover state-of-the-art research in risk assessment and management, reliability engineering, decision analysis and safety management.

Course Methodology

Course Objectives

• Explain the benefits of acquiring best practices from High Reliability Organizations (HROs)

• Show how activities play a part in helping their organization perform at a higher level

• Determine methods for generating and implementing effective performance metrics

• Analyze critically the methodologies employed in the organization & implement improvements

• Link theory with practice and exposes the delegates to the evolutionary trends in risk, safety and reliability analyses

• Learn how to serve on an investigation team of a disaster

Target Audience

• This Advanced Risk, Reliability & Safety Management Techniques training course is highly recommended for all Operations, Maintenance, Reliability, Engineering and Technical Support staff.

• Also, this course is applicable to any person actively involved or contemplating safety, performance measurement, improvement and/or quality and reliability related activities.

• Mechanical, Process, and Energy engineers

• Production Engineers and Reliability Engineers

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Course outline

Detailed course outline

Day-by-day outline for Advanced Risk, Reliability & Safety Management Techniques.

Day 1 - Why there is a need for Advanced Risk, Reliability and Safety Management Techniques?

• What is Risk, and Hazard?

• Advantages and Disadvantages of Risk Management

• Proactive vs Reactive Altitudes towards Risk

• Qualitative and Quantitative Risk Analysis

• What is Reliability Engineering

• Choice of Models and Existing Assumptions

Day 2 - The Concept of Generic Lessons & Benchmarking

• Attributes of the generic lessons

• Best practice of learning from failures from different industries

• Best practice can be learned from worst practice

• The ten generic lessons and the three underpinning factors

• What is benchmarking? History of benchmarking

• Different methods of benchmarking and how they relate to each other

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Day 3 - A Framework of Learning and Unlearning Excellence

• Fault Tree Analysis (FTA) and Event Tree Analysis (ETA)

• Systems modelling using Reliability Block Diagrams

• Failure Mode and Effects Analysis (FMEA) / Failure Mode Effects and Criticality Analysis (FMECA)

• Hazard and Operability Study (HAZOP)

• A framework for analysing near-misses and failures

• High severity with low frequency versus high severity with high frequency

Day 4 - Other Frameworks / Models of Learning from Incidents

• Reliability, Availability, Maintainability (RAM)

• Risk control and decision support systems

• Failure consequences

• Introduction to stochastic modelling

• Attributes of Organisational Crises

• Inspection and Structural Health Monitoring (SHM)

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Day 5 - Towards Achieving Organisational Excellence

- Design and Reliability of Control Systems
- Design and Reliability of Protective Systems
- Quantitative reliability analysis
- A framework for Benchmarking of Resilience
- Towards an Operational Excellence Award
- Group Projects and Presentations

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Seminar dates

Available seminar dates

Live dates and pricing for Advanced Risk, Reliability & Safety Management Techniques generated from the course details page.

Date	Location	Format	Fee
15 - 19 June 2026	Kuala lumpur	Classroom	**€1,575**
20 - 24 July 2026	Barcelona	Classroom	**€2,695**
3 - 7 August 2026	London	Classroom	**€2,940**
7 - 11 September 2026	Munich	Classroom	**€2,415**
12 - 16 October 2026	Amsterdam	Classroom	**€2,975**
9 - 13 November 2026	Istanbul	Classroom	**€1,995**
14 - 18 December 2026	Rome	Classroom	**€2,975**

Live online option	Online delivery is available at €1,250.