



External Training Course

Advanced Risk, Reliability & Safety Management Techniques

From 19 May To 23 May 2025

From 28 Jul. To 01 Aug. 2025

From 15 Sep. To 19 Sep. 2025

**Movenpick Hotel Amsterdam City Centre,
Amsterdam, Netherlands**

Mr. Ghanem F. Al-Otaibi

GM & Institute Owner

Tel.: 00965 22248901

Fax: 00965 22204999

Mob.: 00965 65548855

Mob.: 00965 97273712

Email: admin@agi-kw.com

Email: agi-kw@hotmail.com

W/SITE: WWW.AGI-KW.COM

External Training Course:

**Advanced Risk, Reliability & Safety
Management Techniques**

From 21 Jul. To 25 Jul. 2025

From 25 Aug. To 29 Aug. 2025

From 15 Sep. To 19 Sep. 2025

Fees: 1950 KD

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Course Introduction

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.

This Advanced Risk, Reliability & Safety Management Techniques training course will feature:

- How do we learn from failures?
- An interdisciplinary approach, combining risk analysis, reliability engineering, decision analysis and management science.
- Feedback from the users (maintenance) to design.
- Application of advanced tools for safety and integrity.

Course Objectives

By the end of this training course, participants will be able to:

- 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.

This Advanced Risk, Reliability & Safety Management Techniques training course is suitable to a wide range of professionals but will greatly benefit:

- Mechanical, Process, and Energy engineers.
- Production Engineers and Reliability Engineers.
- Maintenance Engineers.
- Plant managers, General managers and Quality managers.
- All individuals involved in maintenance and reliability management strategies and tasks.

Training Methodology

This Advanced Risk, Reliability & Safety Management Techniques training course will utilise a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. This includes tutor facilitation, direct input, delegate discussions, case studies, reviews, interactive exercises and video. This Advanced Risk, Reliability & Safety Management Techniques training course combines instruction on the latest developments in the field of current safety applications and processes with real-world case studies, video dramatizations, self-assessments, participatory discussions, and many exercises to make the course an exciting and enriching learning experience.

Course Content

Day One: 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 Attitudes towards Risk.
- Qualitative and Quantitative Risk Analysis.
- What is Reliability Engineering.
- Choice of Models and Existing Assumptions.

Day Two: 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.

Day Three: 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 Four: 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).

Day Five: 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.

Course Agenda:

(1st Day) Agenda

8.30	9.00	Opening Remarks (30 Min.).
9.00	11.30	<u>DISCUSS COURSE OBJECTIVES:</u> <ul style="list-style-type: none"> • Why there is a need for Advanced Risk, Reliability and Safety Management Techniques? • The Concept of Generic Lessons & Benchmarking. • A Framework of Learning and Unlearning Excellence. • Other Frameworks / Models of Learning from Incidents. • Towards Achieving Organisational Excellence.
11.30	12.00	Coffee Break
12.00	14.00	<u>Why there is a need for Advanced Risk, Reliability and Safety Management Techniques?</u> <ul style="list-style-type: none"> • 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.
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

(2nd Day) Agenda

9.00	11.30	<u>The Concept of Generic Lessons & Benchmarking:</u> <ul style="list-style-type: none"> • Attributes of the generic lessons. • Best practice of learning from failures from different industries. • Best practice can be learned from worst practice.
11.30	12.00	Coffee Break
12.00	14.00	<u>The Concept of Generic Lessons & Benchmarking:</u> <ul style="list-style-type: none"> • 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.
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

(3rd Day) Agenda

9.00	11.30	<u>A Framework of Learning and Unlearning Excellence:</u> <ul style="list-style-type: none"> • 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).
11.30	12.00	Coffee Break
12.00	14.00	<u>A Framework of Learning and Unlearning Excellence:</u> <ul style="list-style-type: none"> • Hazard and Operability Study (HAZOP). • A framework for analysing near-misses and failures. • High severity with low frequency versus high severity with high frequency.
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

(4th Day) Agenda

9.00	11.30	<u>Other Frameworks / Models of Learning from Incidents:</u> <ul style="list-style-type: none"> • Reliability, Availability, Maintainability (RAM). • Risk control and decision support systems. • Failure consequences.
11.30	12.00	Coffee Break
12.00	14.00	<u>Other Frameworks / Models of Learning from Incidents:</u> <ul style="list-style-type: none"> • Introduction to stochastic modelling. • Attributes of Organisational Crises. • Inspection and Structural Health Monitoring (SHM).
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

(5th Day) Agenda

9.00	11.30	<u>Towards Achieving Organisational Excellence:</u> <ul style="list-style-type: none"> • Design and Reliability of Control Systems. • Design and Reliability of Protective Systems. • Quantitative reliability analysis.
11.30	12.00	Coffee Break
12.00	14.00	<u>Towards Achieving Organisational Excellence:</u> <ul style="list-style-type: none"> • A framework for Benchmarking of Resilience. • Towards an Operational Excellence Award. • Group Projects and Presentations.
14.00	14.30	Questions, Discussion & Conclusion Training Course.
14.30		Buffet Lunch