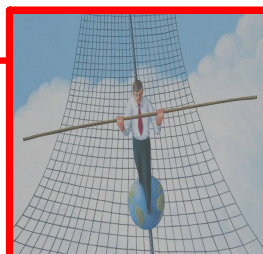




Training Catalogue 2010



Helping to develop competent risk and safety management professionals for industry



Risktec is recognised as a leading provider of professional training in health, safety, security, environmental (HSSE) and business risk assessment and management. We actively share the knowledge that underpins our consulting services and help clients build in resilience to the risks they face by focusing on the competency of their people.

Our set of courses, which spans the breadth of our consulting business and those of selected partners, may be customised for each client to deliver the specific training they need, when and where they need it.

WHY RISKTEC?

Helping organisations to manage HSSE and business risk is our core focus.

We go beyond traditional training. We offer structured and integrated programmes, formally assess learning and award accredited post-graduate qualifications.

We bring best practice risk management processes from a range of major hazard industries as well as commercial and public sectors.

We deliver specific learning, by tailoring case studies and methods to the client company.

We provide real-world learning – our teachers are all practising consultants with specific industry experience.

Overall, our approach makes effective use of a client's training budget through structured training that meets business needs.



ACCREDITED PROGRAMME

Risktec offers a structured programme of accredited risk management modules which leads to formal post-graduate (Pg) qualifications. Courses are delivered in partnership with Liverpool John Moores University (LJMU) in the UK.

LJMU teaches over 24,000 students from all over the world and holds a UK award for international excellence in research in general engineering.

The available qualifications in *Risk and Safety Management* are:

- Pg Certificate (PgCert)
- Pg Diploma (PgDip)
- Master of Science (MSc)

Alternatively, single modules can be delivered on a stand-alone basis to gain Continuous Professional Development (CPD) points. Modules can also be delivered without assessment. All modules and programmes can be delivered at client premises.

POST-GRADUATE CERTIFICATE

The PgCert in Risk and Safety Management requires participants to gain 60 credits from 6 modules, of which 5 modules are core and one is chosen from a number of options. Each module usually involves 2 days of classroom teaching and an assessment of 2,000 to 3,000 words. The programme typically takes one year for participants in full-time employment.

POST-GRADUATE DIPLOMA

The PgDip in Risk and Safety Management builds on the PgCert and requires participants to study an additional 6 modules to gain a further 60 credits, resulting in a total of 120 credits. These modules are all optional. Again, the programme typically takes one year.

MASTER OF SCIENCE

The Master of Science builds on the PgDip by requiring a Research Methods module to be completed and an academic project (thesis) of 60 credits. The thesis is completed directly with LJMU, with support from a Risktec supervisor. The project typically takes one year part-time.

OUR ASSESSMENTS

Each module has a specific set of learning outcomes, detailing what the participant will have learned by the end of the session. For the Pg qualifications, these learning outcomes are usually assessed by way of an industry-related case study.

OUR TEACHERS

Risktec has a proven track record of quality delivery and uses our experienced consultants to deliver the modules.

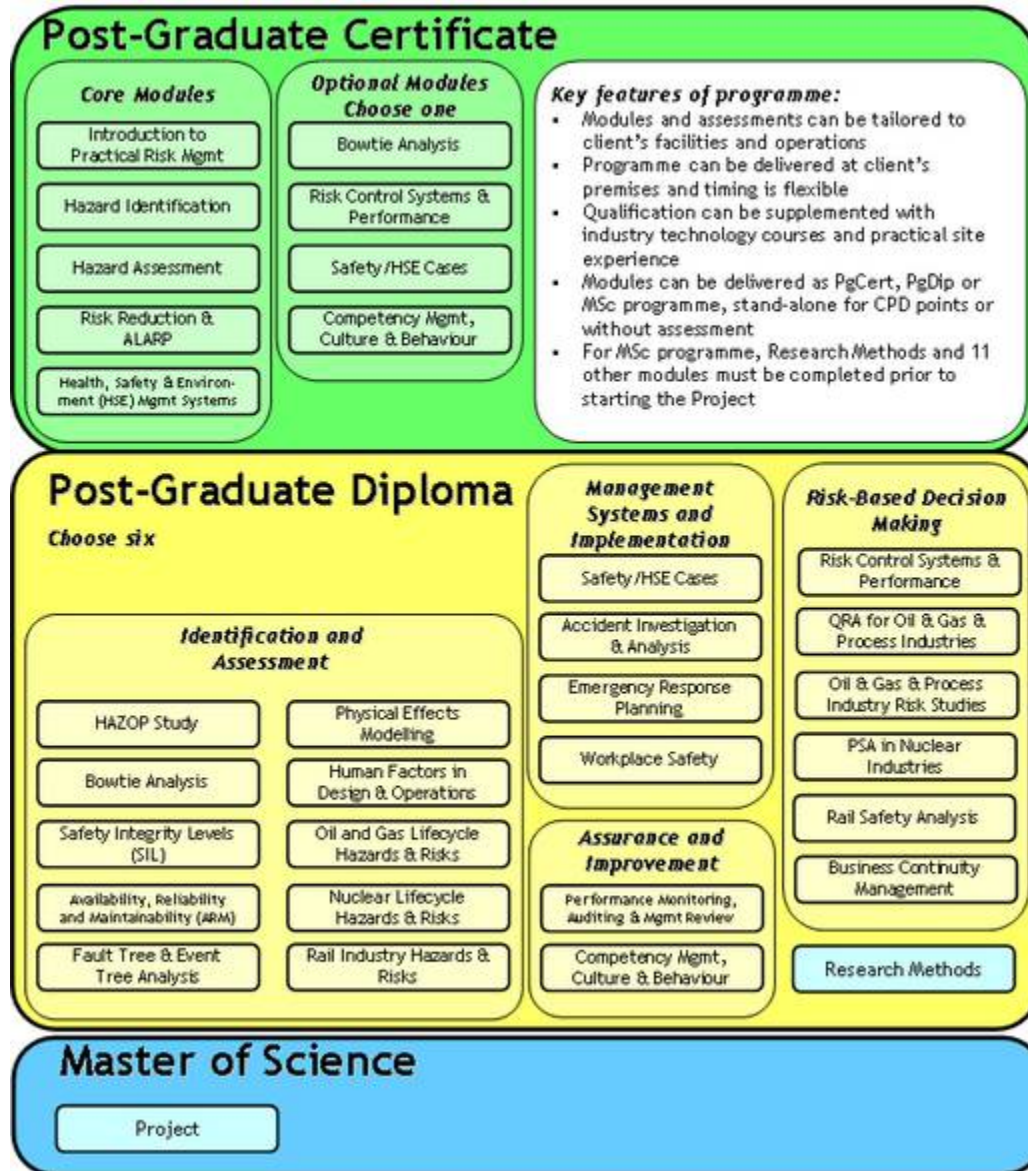
All our teachers have been through a comprehensive development process in order to teach at post-graduate level. As a result, we provide a mixture of theory and practical experience that is unparalleled in the industry.

CLIENT SPECIFIC TRAINING

To meet specific client requirements, we customise our modules to create business-specific courses. In this way, the training tackles the important issues cost-effectively for each client, by ensuring that all learning relates to the client's operations and facilities, while still being at an accredited post-graduate level.

The approach ensures participants attend courses which are attractive to them as individuals and also completely relevant to their job role and their employer.

ACCREDITED PROGRAMME IN RISK AND SAFETY MANAGEMENT



PROGRAMME AIMS

The post-graduate programme has been designed to meet the growing need for industry-related courses and qualifications in risk management, delivered by teachers with industrial experience. The courses are practical and aim to develop the skills and knowledge of students.

At the end of the programme students should be able to:

- Justify the use of risk assessment through illustration of its objectives and drivers
- Analyse and evaluate a broad range of practical risk management tools and techniques and demonstrate expertise in selected techniques
- Devise practical solutions for real-life risk management problems
- Develop a questioning and critical attitude to management of risks
- Display mastery of clear and effective communication of risk
- Practise self-learning and demonstrate a commitment to the risk management profession

Identification and Assessment

- Introduction to Practical Risk Management
- Hazard Identification (HAZID)
- Hazard Assessment
- HAZOP Study
- Bowtie Analysis
- Safety Integrity Levels (SIL)
- Availability, Reliability and Maintainability (ARM)
- Fault Tree and Event Tree Analysis
- Physical Effects Modelling
- Human Factors in Design and Operations
- Oil and Gas Lifecycle Hazards and Risks
- Nuclear Lifecycle Hazards and Risks
- Rail Industry Hazards and Risks

Introduction to Practical Risk Management

Purpose

The course forms the basis for all other modules in the programme in that it provides an overview of the objectives of, and drivers for, risk assessment and the tools and techniques available. You will learn the definitions and terminology used throughout the programme and will gain an understanding of tools and techniques available for risk management.

At the end of the course you will be able to

1. Deconstruct the risk management process into its constituent components
2. Demonstrate expertise in the various drivers for managing risk
3. Compare and contrast some of the key tools and techniques available to identify hazards and carry out risk assessments
4. Critically analyse organisations' suggested risk tolerability criteria
5. Apply the concept of "tolerability of risk" and "As Low As Reasonably Practicable (ALARP)"

Outline programme

The Risk and Safety Management Course:

- Aims
- Structure - core modules and optional modules

Drivers for risk management

- Attitudes to risk / perception of risk
- Tolerability of risk
- Regulatory regimes
- Company drivers
- The cost of accidents

Basic definitions / terminology

The elements of risk management / the risk management process

Risk assessment and decision making

Demonstration of ALARP

Example tools, techniques and studies

The HSE / Safety Case

- Purpose
- Structure

Components of an HSE Management System

Examples of major accidents

Bibliography, sources of information and common abbreviations

Who should attend

Managers, engineers, operators, HSE advisors and risk management practitioners.

Details

Module Code: RSKIAM013
 Level: Masters
 Duration: 2 days (taught session)
 Assessment: Approx. 10 days (private study)
 CPD Credits: 10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgCert core module
- PgDip core module

Hazard Identification (HAZID)

Purpose

This course provides understanding and awareness of the tools and techniques available for hazard identification and explains their application and limitations.

At the end of the course you will be able to

1. Contrast the terms "hazard", "consequence" and "risk"
2. Critically review the tools and techniques available to carry out effective hazard identification
3. Design a fit for purpose hazard identification study across a range of industries and lifecycle stages.

Outline programme

Introduction

- Definitions
- Module overview

HAZID

- The HAZID team
- The HAZID process
- Example HAZID checklists
- Recording the HAZID (the Hazard Register / Fault Schedule / Hazard Log)
- Raising effective corrective actions

Introduction to other hazard identification techniques

- HAZOP (more detail in RSKIAM010)
- Failure Modes and Effects Analysis (FMEA)
- Plant walkdowns / audits
- What If? Analysis

Task analysis / Job Hazard Analysis (JHA) (more detail in RSKMSM002)

Hazard identification through the project / facility life cycle

Module conclusions and close out

Recommended prior study

Introduction to Practical Risk Management

Who should attend

Managers, engineers, operators, HSE advisors and risk management practitioners.

Details

Module Code: RSKIAM012
 Level: Masters
 Duration: 2 days (taught session)
 Assessment: Approx. 10 days (private study)
 CPD Credits: 10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgCert core module
- PgDip core module

Hazard Assessment

Purpose

The basis of this course is to provide a broad understanding of risk assessment tools. The focus is on the concept of risk and qualitative risk assessment techniques, but quantitative techniques are introduced (and are the subject of separate, more detailed, training in dedicated modules).

At the end of the course you will be able to

1. Interpret the terms "hazard", "consequence" and "risk"
2. Logically deduce the most appropriate risk assessment tool / technique to be used, depending on the circumstances
3. Apply risk assessment techniques
4. Critically review example risk assessments, illustrating strengths and weaknesses.

Outline programme

Introduction

- Module overview
- Definitions
- The hazard management process

Hazard identification (more detail in RSKIAM012)

Qualitative risk assessment

Overview of specific qualitative risk assessment techniques

- Bowtie analysis (more detail in RSKIAM009)
- Significance of environmental aspects
- Health Risk Assessment (HRA)
- Task Risk Assessment (TRA) / Job Hazard Analysis (JHA) (more detail in RSKMSM002)
- Hazard indices and look-up methods

Quantifying risk

Overview of specific Quantitative Risk Assessment (QRA) techniques

Risk reduction and decision making (more detail in RSKDMM002)

Risk assessment through the project / facility life cycle (more detail in RSKIAM001, RSKIAM002 and RSKIAM003)

Module conclusions and close

Recommended prior study

Introduction to Practical Risk Management

Hazard Identification

Who should attend

Managers, engineers, operators, HSE advisors and risk management practitioners.

Details

Module Code: RSKIAM011
Level: Masters
Duration: 2 days (taught session)
Assessment: Approx. 10 days (private study)
CPD Credits: 10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgCert core module
- PgDip core module

HAZOP Study

Purpose

HAZOP study is a very effective technique for ensuring design safety. The course will enable you to understand the uses, application and limitations of HAZOP study methodology and will give you hands on practice of using the technique.

At the end of the course you will be able to

1. Critically review the HAZOP technique identifying its strengths and weaknesses
2. Apply the HAZOP process at different stages of a project's lifecycle such as design, operation debottlenecking, or decommissioning and analyze the issues associated with proposed design and modifications
3. Generate a HAZOP report
4. Critique examples of HAZOP actions

Outline programme

Introduction to risk assessment

Review of major accidents – lessons learnt

Traditional design review

HAZOP - what, when, how

HAZOP guideword and parameters

HAZOP - teams, roles and responsibilities

HAZOP - recording methods and software

Managing HAZOP studies

Managing HAZOP teams

HAZOP reporting and close-out

Other forms of HAZOP – of procedures, software, transport

Recommended prior study

Introduction to Practical Risk Management

Hazard Identification

Who should attend

Managers, engineers, operators, HSE advisors and risk management practitioners.

Details

Module Code: RSKIAM010
Level: Masters
Duration: 2 days (taught session)
Assessment: Approx. 10 days (private study)
CPD Credits: 10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgDip optional module

Bowtie Analysis

Purpose

Bowties provide a simple, graphical representation of the relationship between the causes and consequences of business upsets, the control measures in place and the tasks, procedures, responsible individuals and competencies which support and enforce the controls.

The purpose of this course is to provide an introduction to bow-tie methodology, its practical uses and benefits, with hands-on practice at using the technique.

At the end of the course you will be able to

1. Deconstruct the various components of a bowtie diagram
2. Analyse hazard scenarios by applying the bowtie method and designing a bowtie diagram
3. Design HSE critical tasks to support the bowtie diagram

Outline programme

Introduction to risk assessment and bowtie theory

The bowtie method – how to build a bowtie

HSE-critical activities and tasks

HSE-critical elements

Control effectiveness and ALARP

Practical uses of bowties

Bowtie software tools

Recommended prior study

Introduction to Practical Risk Management

Who should attend

Managers, engineers, operators, HSE advisors and risk management practitioners.

Details

Module Code: RSKIAM009
Level: Masters
Duration: 2 days (taught session)
Assessment: Approx. 10 days (private study)
CPD Credits: 10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgCert optional module
- PgDip optional module

Safety Integrity Levels (SIL)

Purpose

The concept of Safety Integrity Levels (SIL) is used to promote system safety. The purpose of this course is to provide an understanding of the SIL assignment, assessment and verification processes.

At the end of the course you will be able to

1. Apply the methodology of IEC 61508 and other associated sector specific standards
2. Evaluate SIL targets for safety related systems
3. Analyse the degree to which SIL targets assigned to safety related systems have been achieved
4. Illustrate limiting factors with respect to safety related systems achieving their assigned SIL targets and logically deduce how these may be addressed
5. Demonstrate expertise in planning and performing SIL assignments and assessments and generating SIL reports

Outline programme

Introduction to SIL assessment
 Overview of IEC 61508
 Overview of hazard identification methods (more detail in RSKIAM012)
 SIL assignment
 SIL and the design process
 SIL assessment / verification
 Interactive discussion
 Programmable Electronic Systems (PES)
 Layers of Protection Analysis (LOPA)
 Verification and validation
 Management of SIL assessments
 Summary and concluding remarks

Recommended prior study

Introduction to Practical Risk Management
 Hazard Identification

Who should attend

Electrical and mechanical engineers, operators, HSE advisors and risk management practitioners.

Details

Module Code: RSKIAM008
 Level: Masters
 Duration: 2 days (taught session)
 Assessment: Approx. 10 days (private study)
 CPD Credits: 10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgDip optional module

Availability, Reliability and Maintainability (ARM)

Purpose

The course provides an understanding of Availability, Reliability and Maintainability (ARM) assessment methods and how to use them to improve maintenance management, maintainability and reliability.

At the end of the course you will be able to

1. Apply the analysis methodologies to systems and sub-systems, including both design and operation restrictions, to determine the Availability, Reliability and Maintainability of these systems
2. Critically review and balance the requirements of design for ARM and safety
3. Logically deduce how ARM results for a system may be improved
4. Categorise and determine ARM requirements / processes for a project

Outline programme

Introduction to availability, reliability and maintainability.
 Availability and safety – potential conflicts
 ARM planning and choice of methodology
 ARM assessment methods – deterministic
 Numerical ARM analysis techniques
 Critical and life limited items
 Maintainability and maintainability demonstrations
 Reliability Centred Maintenance (RCM)
 Methods of improving reliability

Recommended prior study

Introduction to Practical Risk Management

Who should attend

Managers, discipline engineers and HSE and reliability professionals seeking to improve asset performance.

Details

Module Code: RSKIAM007
 Level: Masters
 Duration: 2 days (taught session)
 Assessment: Approx. 10 days (private study)
 CPD Credits: 10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgDip optional module

Fault Tree and Event Tree Analysis

Purpose

The course enables students to understand the principles of fault and event tree analysis and to perform their own assessments.

At the end of the course you will be able to

1. Design and analyse fault tree models incorporating appropriate reliability data for components, human error and common cause / common mode failures
2. Generate and analyse event tree models

Outline programme

Introduction to fault and event trees
 Basic probability theory
 Fault tree model development
 Reliability data for fault trees
 Common cause / common mode failures
 Fault tree analysis
 Event tree model development
 Event tree analysis

Recommended prior study

Introduction to Practical Risk Management

Who should attend

Managers, engineers, operators, HSE advisors and risk management practitioners.

Details

Module Code: RSKIAM006
 Level: Masters
 Duration: 2 days (taught session)
 Assessment: Approx. 10 days (private study)
 CPD Credits: 10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgDip optional module

Physical Effects Modelling

Purpose

The physical effects of hazards can present dangers to personnel, assets, and the environment. The course enables students to understand the range of hazardous physical effects that can occur and the uses and limitations of physical effects modelling.

At the end of the course you will be able to

1. Analyse an industrial plant/installation and devise scenarios covering the range of expected physical effects
2. Evaluate how these physical effects affect people and plant
3. Justify which of the available modelling techniques is appropriate to analyse physical effects in different circumstances
4. Critically review the range of commercial physical effects modelling software and available specialist consultancy services
5. Demonstrate expertise in physical effects modelling using simple hand calculation methods and/or publicly available software models, whilst understanding the limitations of these techniques

Outline programme

Introduction to physical effects modelling

Overview of human vulnerability to physical effects

Release and discharge calculation: steady state, time varying, accounting for depressurization

Dispersion analysis: Gaussian, jet, dense gas, unified modelling

Fires: jet fires, pool fires; flash fires, BLEVEs, compartment fires

Explosions: confined, unconfined (congested) on and offshore, detonations, types of models

Detail of human and plant vulnerability: Single value levels for thermal radiation and toxics (SLOT, SLOD, EPRG, etc.); Probit functions for thermal radiation, common toxic materials and explosions

Common mitigation measures and accounting for them in analyses

Commercial and public domain software tools available to the analyst

Drawing conclusions from physical effects modelling

Recommended prior study

Introduction to Practical Risk Management

Who should attend

Managers, engineers, operators, HSE advisors and risk management practitioners.

Details

Module Code:	RSKIAM005
Level:	Masters
Duration:	2 days (taught session)
Assessment:	Approx. 10 days (private study)
CPD Credits:	10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgDip optional module

Human Factors in Design and Operations

Purpose

An understanding of human abilities, limitations, and needs, can be applied to the design and assessment of tasks, equipment, systems and processes, in order to reduce human error, improve safety and increase efficiency. The course highlights how and why human errors occur, and describes the methods, tools and techniques that can be used to identify, analyse and reduce them.

At the end of the course you will be able to

1. Justify the application of human factors to the design and assessment of tasks, equipment, systems and processes
2. Compare and contrast the different types of human error and violations, and devise appropriate strategies for prevention / reduction
3. Critically review the tools and techniques available to support human error identification and quantification
4. Illustrate and interpret models of accident causation, relating them to actual industrial accidents and strategies for improving safety

Outline programme

Introduction to ergonomics / human factors

- Historical background; Defining human factors
- Human centred design

Introduction to physical ergonomics

- Fitting the task to the user
- Anthropometry and relationship to the workspace
- Design and assessment of manual tasks
- Interface design and Physical environment

Introduction to cognitive ergonomics

- Human information processing
- Skill, rule and knowledge based behaviour
- Human error theory; Job design considerations

Safety and human reliability

- Health and Safety issues
- Accident causation and Causes of human error
- Human reliability analysis
- Accident prevention and Safety culture

Human Factors Integration (HFI)

- Methods and tools
- HFI in the project lifecycle

Recommended prior study

None

Who should attend

Managers, supervisors and HSE professionals.

Details

Module Code:	RSKIAM004
Level:	Masters
Duration:	2 days (taught session)
Assessment:	Approx. 10 days (private study)
CPD Credits:	10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgDip optional module

Oil and Gas Lifecycle Hazards and Risks

Purpose

The course provides an overview of oil and gas industry facilities and activities and the typical hazards associated with this industry. It also provides an understanding of the role of risk management through the oil and gas project lifecycle.

At the end of the course you will be able to

1. Critically review, from an HSE perspective, the engineering options for developing an oil and/or gas reservoir and delivering the products to market
2. Analyze the oil and gas industry project life cycle with regard to the change in the hazard and risk profile, and devise a programme of HSE and risk studies appropriate for each stage of the life cycle
3. Critically compare and contrast the different approaches to governance and regulation of the oil and gas industry around the world

Outline programme

Hydrocarbon industries sources of risk:

- Drilling
- Production
- Pipelines and shipping
- Refining and storage

Regulatory regimes

Why include risk management within a project?

Typical phases of a project and opportunities for risk reduction

Overview of risk assessment tools and techniques (more detail in RSKIAM012 and RSKIAM011)

Risk management objectives and methods for each project phase

- Initiation
- Feasibility
- Concept Selection
- Project Definition
- Detailed Design
- Construction and Commissioning
- Operation
- Abandonment

Recommended prior study

Introduction to Practical Risk Management

Who should attend

Managers, engineers and HSE professionals who need to lead or undertake risk management processes for their organisation and facilities. Individuals new to the oil and gas industry who require an overview of the industry's risks.

Details

Module Code:	RSKIAM003
Level:	Masters
Duration:	1 day (taught session)
Assessment:	Approx. 11 days (private study)
CPD Credits:	10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgDip optional module

Nuclear Lifecycle Hazards and Risks

Purpose

The course provides students with a broad understanding of the nuclear lifecycle, its risks and hazards and the standard risk mitigation techniques

At the end of the course you will be able to

1. Identify and analyse the nuclear risks/hazards associated with a process or facility relevant to any stage of the nuclear cycle
2. Devise an effective means of avoiding each hazard or mitigating its consequences

Outline programme

Introduction to the nuclear lifecycle

Risk and safety regulations in the nuclear industry

Hazards and controls in fuel manufacture and transport – criticality

Hazards and controls in reactor operation – overpower/loss-of-cooling/loss-of-containment

Hazards and controls in transport and storage of irradiated fuel – direct radiation/dispersion

Hazards and controls in reprocessing irradiated fuel – criticality/loss-of-containment

Hazards and controls in long term storage of radioactive waste

Recommended prior study

Introduction to Practical Risk Management

Risk Reduction and ALARP

Who should attend

Managers, engineers and HSE professionals who need to lead or undertake risk management processes for their organisation and facilities. Individuals new to the nuclear industry who require an overview of the industry's risks.

Details

Module Code:	RSKIAM002
Level:	Masters
Duration:	1 day (taught session)
Assessment:	Approx. 11 days (private study)
CPD Credits:	10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgDip optional module

Rail Industry Hazards and Risks

Purpose

The course provides an overview of rail industry infrastructure, operations and activities and the typical hazards associated with this industry. It also provides an understanding of the role of risk management through the rail project lifecycle.

At the end of the course you will be able to

1. Apply knowledge of the principal types of infrastructure, operations and activities which exist within the rail industry
2. Evaluate typical rail industry project phases and hazard sources
3. Interpret the standard means of avoiding or mitigating those hazards

Outline programme

Rail industry sources of risk:

- Collisions between trains
- Collisions of trains with objects
- Derailment
- Fires
- Explosion
- Flood
- Slips, trips, falls
- Hit by train
- Electricity
- Structural

Regulatory regimes

Why include risk management within a project?

Typical phases of a project and opportunities for risk reduction

Overview of risk assessment tools and techniques (more detail in RSKIAM012 and RSKIAM011)

Risk management objectives and methods for each project phase

Recommended prior study

Introduction to Practical Risk Management

Who should attend

Managers, engineers and HSE professionals who need to lead or undertake risk management processes for their organisation and facilities. Individuals new to the rail industry who require an overview of the industry's risks.

Details

Module Code:	RSKIAM001
Level:	Masters
Duration:	1 day (taught session)
Assessment:	Approx. 11 days (private study)
CPD Credits:	10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgDip optional module

Risk-Based Decision Making and Reporting

- Risk Reduction and ALARP
- Risk Control Systems and Performance
- Quantitative Risk Assessment (QRA) for the Oil, Gas and Process Industries
- Oil, Gas and Process Industries Risk Studies
- Probabilistic Safety Assessment (PSA) in Nuclear Industries
- Rail Safety Analysis
- Business Continuity Management

Risk Reduction and ALARP

Purpose

ALARP is a commonly used but often misunderstood concept. The course explains how to apply tools at critical points to assure that risk levels associated with new projects, operating facilities or planned changes are demonstrably reduced to ALARP levels.

At the end of the course you will be able to

1. Critically review the different options available for risk reduction (the risk control hierarchy)
2. Deconstruct the concepts underpinning ALARP
3. Apply the ALARP concept and generate a demonstration that risks have been reduced to ALARP levels

Outline programme

Hierarchy of risk reduction measures

Options for risk reduction in the project lifecycle

The ALARP concept

- Guidance
- Approach versus risk level
- Tolerability criteria

Qualitative and quantitative demonstration of ALARP

- Benefit / effort matrix
- Bowties
- Cost Benefit Analysis (CBA)
- Implied Cost of Averting a Fatality (ICAF)

Other concepts used in risk reduction

- Best Industry Practice / Best Available Technology, etc.

Recommended prior study

Introduction to Practical Risk Management

Who should attend

Project and operational managers, engineers and HSE professionals who are responsible for assuring that risk levels are low enough.

Details

Module Code:	RSKDMM002
Level:	Masters
Duration:	2 days (taught session)
Assessment:	Approx. 10 days (private study)
CPD Credits:	10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgCert core module
- PgDip core module

Risk Control Systems and Performance

Purpose

The course provides an understanding of Safety Critical Elements and the need for Performance Standards and Technical Integrity Verification Schemes.

At the end of the course you will be able to

1. Critically review the application of risk control systems
2. Analyse a system to logically deduce the relevant Safety Critical Elements
3. Devise Performance Standards
4. Illustrate how the risk control systems studied contribute to maintenance of technical integrity over the lifetime of the asset

Outline programme

Definition of a Safety Critical Element and the need for Performance Standards

Examples of Risk Control Systems/ Safety Critical Elements

Defining Performance Standards

- Functional requirements
- Availability and Reliability (more detail in RSKIAM007)
- Survivability
- Interdependencies

Performance Assurance

Verification of Performance

Technical integrity assurance throughout an assets' lifecycle

- Codes and standards
- Material selection
- Design reviews
- Fabrication tests, certification etc.
- Construction reviews and inspections
- Commissioning tests

Preventive maintenance systems

Recommended prior study

Introduction to Practical Risk Management

Who should attend

Managers, discipline engineers, operators and HSE professionals required to identify SCEs, develop performance standards and verification schemes and implement performance assurance tasks.

Details

Module Code:	RSKDMM001
Level:	Masters
Duration:	2 days (taught session)
Assessment:	Approx. 10 days (private study)
CPD Credits:	10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgCert optional module
- PgDip optional module

Quantitative Risk Assessment (QRA) for the Oil, Gas and Process Industries

Purpose

The course enables students to understand and apply QRA techniques with particular relevance to the oil, gas and process industries.

At the end of the course you will be able to

1. Critically review the use of QRA in the oil, gas and process industries
2. Interpret the legislative and regulatory requirements behind the use of QRA.
3. Apply QRA to simple process industry operations to analyse the risks to personnel, the asset and/or the environment
4. Design a QRA report for a simple process industry operation
5. Logically deduce whether the risks generated are ALARP

Outline programme

Introduction to safety and risk assessment

Regulatory regimes and use of QRA

Hazard identification (more detail in RSKIAM012)

Consequence analysis (more detail in RSKIAM005)

Frequency analysis (more detail in RSKIAM006)

Reliability of safety systems (more detail in RSKIAM007 and RSKIAM006)

Quantitative Risk Assessment (QRA)

Risk criteria

Application of the ALARP principle (more detail in RSKDMM002)

Sensitivity Analysis

Cost Benefit Analysis

Recommended prior study

Introduction to Practical Risk Management

Hazard Identification

Availability, Reliability, Maintainability

Fault Tree and Event Tree Analysis

Physical Effects Modelling

Who should attend

Managers, engineers, HSE advisors and risk management practitioners.

Details

Module Code: RSKDMM007

Level: Masters

Duration: 2 days (taught session)

Assessment: Approx. 10 days (private study)

CPD Credits: 10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgDip optional module

Oil, Gas and Process Industries Risk Studies

Purpose

The course provides an understanding of the various types of specialist risk study which may be carried out for an oil, gas or process industry facility or operation.

At the end of the course you will be able to

1. Critically review the use of specialist risk studies in the oil, gas and process industries
2. Interpret the legislative and regulatory requirements behind the use of specialist risk studies in the oil, gas and process industries
3. Apply specialist risk techniques to simple process industry operations to analyse the risks to personnel, the asset and/or the environment
4. Design a report to illustrate application of a specialist risk study, evaluation of the results and key conclusions

Outline programme

Introduction to oil and gas industry risk assessment (more detail in RSKIAM003)

Summary of Quantitative Risk Assessment (more detail in RSKDMM007)

- QRA method;
- Risk measures and criteria

Oil and gas / process industry safety and risk studies

- Fire and Explosion Risk Assessment (FERA)
- Escape, Evacuation and Rescue Analysis (EERA)
- TR Impairment (TRI) study
- Occupied Building Risk Assessment (OBRA)
- Offshore ship collision QRA
- Dropped object analysis
- Pipeline QRA
- Emergency Systems Survivability Analysis (ESSA)
- Occupational (Workplace) Risk Assessment
- Health Risk Assessment (HRA)
- Transportation QRA (helicopter, marine, road, rail)

Recommended prior study

Introduction to Practical Risk Management

QRA / Risk Integration in the Oil and Gas and Process Industries

Who should attend

Managers, engineers, operators, HSE advisors and risk management practitioners.

Details

Module Code: RSKDMM006

Level: Masters

Duration: 2 days (taught session)

Assessment: Approx. 10 days (private study)

CPD Credits: 10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgDip optional module

Probabilistic Safety Assessment (PSA) in Nuclear Industries

Purpose

The course enables students to understand and apply PSA techniques with particular relevance to the nuclear industry.

At the end of the course you will be able to

1. Critically review the legal and regulatory obligations placed on the owners of a nuclear plant to demonstrate that the risks posed to people and the environment by operation of their plant are both tolerable and "as low as reasonably practicable"
2. Demonstrate expertise of the theory and concepts that are embedded within PSA
3. Deduce the PSA techniques appropriate to a real-life nuclear plant and evaluate the risks associated with the operation/design of that plant
4. Identify and critically examine any additional measures that may be required to ensure that the risks are both tolerable and ALARP

Outline programme

Introduction to safety assessment in the nuclear industry

Safety assessment, guidelines and principles

Reliability theory and concepts

System reliability and modelling (more detail in RSKIAM005)

Fault and hazard identification, including:

- Failure Modes and Effects Analysis
- Hazard and Operability Studies (HAZOP) (more detail in RSKIAM010)

Frequency analysis

- Event tree analysis; Fault tree analysis (more detail in RSKIAM006)

Supporting data, including:

- Reliability data; Dependent failures; Human factors

Consequence analysis in the nuclear industry

Hazards PSA; Application of results, including ALARP demonstration

Recommended prior study

Introduction to Practical Risk Management

Hazard Identification

Fault Tree and Event Tree Analysis

Who should attend

Managers, engineers, operators, HSE advisors and risk management practitioners.

Details

Module Code: RSKDMM005

Level: Masters

Duration: 2 days (taught session)

Assessment: Approx. 10 days (private study)

CPD Credits: 10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgDip optional module

Rail Safety Analysis

Purpose

The course enables students to understand and implement the requirements of formal safety assessment in the rail industry.

At the end of the course you will be able to

1. Illustrate how rail safety may be controlled
2. Apply techniques to evaluate safety of the rail environment from both design and operation aspects
3. Generate a quantitative and/or qualitative rail formal safety assessment

Outline programme

Introduction to safety and risk

Risk and safety regulations in rail engineering

Hazard identification techniques (more detail in RSKIAM012)

Historical data

Potential escalation events e.g. speed, derailment

Human factors and safety management

Organisational responsibilities

Risk reduction and criteria

Novel risk modelling and decision making techniques

Recommended prior study

Introduction to Practical Risk Management

Hazard Identification

Fault Tree and Event Tree Analysis

Who should attend

Managers, engineers, operators, HSE advisors and risk management practitioners.

Details

Module Code:	RSKDMM004
Level:	Masters
Duration:	2 days (taught session)
Assessment:	Approx. 10 days (private study)
CPD Credits:	10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgDip optional module

Business Continuity Management

Purpose

Recognising that business continuity is about more than just terrorism and IT failures is the first step in successfully managing your business. The course provides the underpinning knowledge and understanding of 'Business Continuity Management' and the role that this plays in organisations of various sizes in readiness to face various threats.

At the end of the course you will be able to

1. Critically review the internal and external threats which impact on business operations
2. Undertake a business risk analysis and evaluate the outcomes, identifying how these findings will be then managed
3. Undertake research to design a Business Continuity Plan for your organisation
4. Justify the BCP process; illustrate implementation barriers in its execution

Outline programme

Introduction to Business Continuity Planning

Business Continuity Planning process

Risk assessment and analysis (more detail in RSKIAM011)

Business input reviews

Contingency and recovery

BCP development and implementation

Incident control management (more detail in RSKMSM003)

Recommended prior study

Introduction to Practical Risk Management

Who should attend

Managers, engineers, operators, HSE advisors and risk management practitioners.

Details

Module Code:	RSKDMM003
Level:	Masters
Duration:	2 days (taught session)
Assessment:	Approx. 10 days (private study)
CPD Credits:	10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgDip optional module

Management Systems and Implementation

- Health, Safety and Environment (HSE) Management Systems
- Safety / HSE Cases
- Accident Investigation and Analysis
- Emergency Response Planning
- Workplace Safety

Health, Safety and Environment (HSE) Management Systems

Purpose

The course highlights what constitutes a Health, Safety & Environment Management System (HSE MS), how it is implemented and why more organisations are developing and implementing HSE MS to international standards.

At the end of the course you will be able to

1. Deconstruct an HSE MS into its various elements
2. Design a policy/process/procedure/work instruction for the key elements of an HSE MS
3. Devise techniques to facilitate the implementation of an HSE MS

Outline programme

Definition of an HSE MS

Elements of an HSE MS

- Policy / objectives
- Organisation
- Plan and set standards
- Documents
- Hazard management
- Management of change
- Training and competency
- Measure performance
- Audit and review (more detail in RSKACM002)

Guidance and legislation

Implementation aspects

- Training
- Integration with quality systems
- Facilitating organisational change

Documenting and implementing the HSE MS

- Manuals, procedures and systems
- Intranet / CD based HSE MS

Recommended prior study

Introduction to Practical Risk Management

Who should attend

Managers, HSE advisors and risk management practitioners.

Details

Module Code: RSKMSM001
 Level: Masters
 Duration: 2 days (taught session)
 Assessment: Approx. 10 days (private study)
 CPD Credits: 10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgCert core module
- PgDip core module

Safety / HSE Cases

Purpose

The course explains the purpose of a Safety / HSE Case and provides an understanding of the case content and structure. Particular attention is focused on the best practical approaches for HSE cases.

At the end of the course you will be able to

1. Critically review the reasons for having Safety/HSE Cases in regulatory and non-regulatory environments
2. Analyse the role of the safety/HSE Case in safety/HSE management
3. Design the contents of a case
4. Devise a plan for the production of a safety/HSE Case
5. Evaluate example Safety/HSE Cases to determine their fitness for purpose

Outline programme

Historical drivers

Legal Requirements - UK, Europe, worldwide

Company and industry body requirements

Differing types of case by project phase (e.g. PSR, PCSR, design, operational, decommissioning)

Safety/HSE Case structure and approach by industry

- Nuclear
- Offshore oil and gas
- Onshore process
- Transport
- Others

Bridging documents

Links between the case and supporting studies

Links between the case and the management system

Documentation and management / maintenance of the Safety / HSE Case

Roll-out and implementation - keeping the case as a working document

Recommended prior study

Introduction to Practical Risk Management

Who should attend

Managers, supervisors and HSE practitioners seeking to gain practical insights into how to structure a Safety/HSE case.

Details

Module Code: RSKMSM005
 Level: Masters
 Duration: 2 days (taught session)
 Assessment: Approx. 10 days (private study)
 CPD Credits: 10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgCert optional module
- PgDip optional module

Accident Investigation and Analysis

Purpose

The course provides an awareness and understanding of accident investigation and analysis.

At the end of the course you will be able to

1. Critically review the advantages and disadvantages of carrying out accident investigation and analysis
2. Compare and contrast the underlying theories behind accident cause analysis
3. Generate an incident report
4. Critique published incident and accident reports including the recommendations

Outline programme

Introduction

- An understanding of why we investigate accidents
- An overview of the accident investigation process
- An introduction to accident cause investigation theory and the concept of immediate, underlying and root causes

Immediate actions in the event of an accident

- Emergency response / make the area safe
- Secure the scene / preserve the evidence
- Make notifications

Planning the investigation

- Determine the extent of the investigation / set terms of reference
- Appointing the investigation team – roles, responsibilities
- Planning the investigation team activities

Collecting Data

- Types of data / information available
- Interviews and witness statements

Data organisation / analysis

- Defining what happened (the timeline)
- Identifying why things happened (the analysis)
- Understanding immediate, underlying and root causes

Concluding the analysis

- How to raise effective corrective actions and reporting your findings

Recommended prior study

Introduction to Practical Risk Management

Who should attend

Managers, supervisors and HSE professionals who may be called on to participate in accident investigations.

Details

Module Code: RSKMSM004
Level: Masters
Duration: 2 days (taught session)
Assessment: Approx. 10 days (private study)
CPD Credits: 10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgDip optional module

Emergency Response Planning

Purpose

The course provides an understanding of, and ability to apply, the principles of Emergency Response Planning.

At the end of the course you will be able to

1. Compare and contrast the various levels of emergency response and illustrate the different types of emergency situation where their use is appropriate
2. Generate emergency response procedures
3. Design emergency response drills and exercises and devise a plan for carrying them out.

Outline programme

The need for emergency response planning

- Incidents
- Regulations (Seveso II, COMAH, etc.)

Hierarchy of emergency response (field response to crisis management)

Emergency organisation

- Resources
- Roles and responsibilities
- External support

Emergency response procedures

- Decision flowcharts
- Call out lists
- Offsite plans

Communicating emergency response

- Inductions, booklets, station bills, etc.

Emergency response drills and exercises

- Types / level (desktop, field, joint exercise, muster drills, fire alarm tests, etc.)

Planning for emergency response drills and exercises

Recommended prior study

Introduction to Practical Risk Management

Who should attend

Managers, supervisors and HSE professionals who may be required to develop emergency response plans or exercises.

Details

Module Code: RSKMSM003
Level: Masters
Duration: 2 days (taught session)
Assessment: Approx. 10 days (private study)
CPD Credits: 10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgDip optional module

Workplace Safety

Purpose

The course provides an appreciation of workplace hazards and systems for controlling them.

At the end of the course you will be able to

1. Critically review the Permit to Work system and illustrate the different types of permit commonly used
2. Analyse the risks associated with workplace activities by applying appropriate Task Risk Assessment techniques
3. Categorise industrial facilities by applying hazardous area zone classification
4. Devise appropriate PPE requirements for different workplace activities

Outline programme

Workplace hazards

- Height, electricity, pressure, chemicals, flammables, rotating equipment etc.

Permit to Work

- Types of permit / certificate (hot/ cold work, confined space, work at height, excavation, isolation etc.)
- The PTW form; the PTW process, raising to close-out
- Roles and responsibilities

Task Risk Assessment (TRA) / Job Safety Analysis (JBA)

- Risk assessment process and hazard checklist
- Hierarchy of controls
- TRA form; Toolbox / tailgate talks

Behavioural safety systems

- STOP, SET, etc.

Hazardous area classification

Personal Protective Equipment (PPE)

- General, work at height, work with chemicals etc.

Hazardous Chemicals / Goods

- Material Safety Data Sheets
- Segregation / Storage / Handling
- Legislation for transporting hazardous goods

Emergency Response (spill clean up, showers, eye baths etc.)

Recommended prior study

Introduction to Practical Risk Management

Who should attend

Managers, supervisors and HSE professionals who have a responsibility for workplace safety.

Details

Module Code: RSKMSM002
Level: Masters
Duration: 2 days (taught session)
Assessment: Approx. 10 days (private study)
CPD Credits: 10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgDip optional module

Assurance, Improvement and Culture

- Performance Monitoring, Auditing and Management Review
- Competency Management, Culture and Behaviour

Performance Monitoring, Auditing and Management Review

Purpose

The course provides an understanding of the requirements for a structured approach to performance monitoring and management review as detailed in the standards ISO 9001:2000 (quality), ISO 14001 (environmental) and OHSAS 18001 (health and safety) and some of the common pitfalls associated with implementation of performance monitoring systems and management review.

At the end of the course you will be able to

1. Generate objectives and Key Performance Indicators (KPIs)
2. Devise a performance monitoring process
3. Generate an auditing process / audit plan
4. Apply auditing techniques
5. Devise a management review process

Outline programme

Introduction to the requirements for performance monitoring, auditing and management review based on the international standards ISO 9001:2000 (quality), ISO 14001 (environmental) and OHSAS 18001 (health and safety)
Establishing a performance monitoring processes
Objectives and Key Performance Indicators (KPIs) for the management system
Management system auditing processes and techniques
Establishing a management review process
Implementation aspects and lessons learned

Recommended prior study

HSE Management Systems

Who should attend

Managers, HSE advisors and risk management practitioners.

Details

Module Code: RSKACM002
Level: Masters
Duration: 2 days (taught session)
Assessment: Approx. 10 days (private study)
CPD Credits: 10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgDip optional module

Competency Management, Culture and Behaviour

Purpose

The course provides the underpinning knowledge and understanding of Competency Management and its relationship with culture and behaviour, to aid in ensuring organisations are compliant with regulatory and business requirements.

At the end of the course you will be able to

1. Deconstruct competency management into its constituent components
2. Justify the requirements for competency management
3. Critically review the importance of culture and behaviour and demonstrate how they can be successfully managed
4. Design a competency framework for your organisation
5. Evaluate the relationship between competency, training and resourcing

Outline programme

Introduction to competency management
Competency management process
Training management process
Training delivery options
Understanding and assessing safety culture
Improving behavioural safety
Process of audit, review and continuous improvement
The need for organisational change control

Recommended prior study

Introduction to Practical Risk Management
HSE Management Systems

Who should attend

Managers, HSE advisors and risk management practitioners.

Details

Module Code: RSKACM001
Level: Masters
Duration: 2 days (taught session)
Assessment: Approx. 10 days (private study)
CPD Credits: 10

Module is available as:

- Attendance (without assessment)
- Single module (assessed - CPD credits)
- PgCert optional module
- PgDip optional module

CONTACT DETAILS

For prices and further information, or to book a course, please contact **Roisin Smyth** or **David Patten**.

Principal Office:

Risktec Solutions Ltd
Wilderspool Park
Greenall's Avenue
Warrington
WA4 6HL
United Kingdom

Tel +44 1925 611 200

Fax +44 1925 611 232

training@risktec.co.uk

www.risktec.co.uk

Other Risktec Locations:

Aberdeen Office

Riverside House
Riverside Drive
Aberdeen AB11 7LH
United Kingdom

Tel: +44 (0) 1224 224454

Fax: +44 (0) 1224 224455

Ashford Office

No. 5 Belmont Farm Business Centre
Bethersden
Ashford
Kent TN26 3DY
United Kingdom

Tel: +44 (0) 1233 820784

Fax: +44 (0) 1233 822018

Edinburgh Office

Regus House
10 Lochside Place
Edinburgh Park
Edinburgh EH12 9RG
United Kingdom

Tel: +44 (0)131 2010 190

Fax: +44 (0)131 2010 199

Glasgow Office

Unit 21-22, The Technology Centre
Scottish Enterprise Technology Park
East Kilbride
Glasgow G75 0QD
United Kingdom

Tel: +44 (0)1355 340200

Fax: +44 (0)1355 340201

London Office

Suite 105, 1st Floor
3 More London Riverside
London SE1 2RE
United Kingdom

Tel: +44 (0) 207 357 9942

Fax: +44 (0) 208 912 4384

Dubai Office

Suite T09, 3rd Floor
Building 17, Knowledge Village
PO Box 500538
Dubai

United Arab Emirates

Tel: +971 4 433 8248

Fax: +971 4 438 9538

Muscat Office

PO Box: 788
PC 116 - MAF
Muscat
Sultanate of Oman

Tel: +968 24499862

Fax: +968 24499827

Calgary Office

Suite 700, One Executive Place
1816 Crowchild Trail NW
Calgary AB T2M 3Y7
Canada

Tel: +1 403 313 8306

Fax: +1 403 220 1389

Houston Office

1110 NASA Parkway, Suite 203
Houston, TX 77058
United States of America

Tel: +1 (281) 333-5080

Fax: +1 (281) 333 5089