Postgraduate

Risk Management

SWINBURNE UNIVERSITY OF TECHNOLOGY

swinburne.edu.au/postgrad

Postgraduate programs in risk management

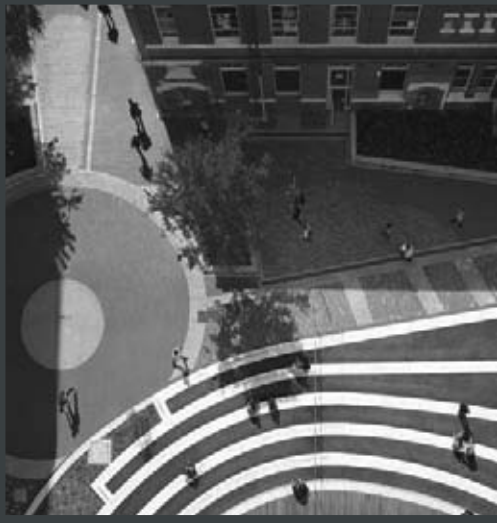
With increasing global uncertainties, all organisations now face the complex challenge of managing various risks. There is a growing need for practical knowledge and skills on managing threats and opportunities in order to achieve objectives such as reducing hazards, preventing losses and maximising gains.

Risk management involves processes and techniques aimed at effective prevention and mitigation of various threats as well as efficient escalation and recovery of opportunities in an organisation's business and assets.

Swinburne's postgraduate risk management program covers risk management areas relating to occupational health, safety, plant, property, finance and environment – especially with respect to design, construction, operation and maintenance in production, process and project-based industries.

The program provides further studies for graduates from all branches of engineering and for professionals working in technical roles in applied science and business who wish to gain more specialist knowledge in risk management.

The contribution of industry professionals and specialists enriches the course content, which will accelerate your career and ensure you gain an advanced understanding of relevant theories, principles and practices to achieve and sustain a competitive advantage.



Program at a glance

Risk Management	
Award	Graduate Certificate in Risk Management Graduate Diploma of Risk Management Master of Risk Management
Focus	This program is designed primarily to meet the needs of personnel currently involved in, or wishing to be involved in, the analysis and management of risks in various industries.
Suitable for	Recent engineering graduates and professional engineers in industry.
Average duration	Graduate certificate – six months full-time or equivalent part-time Graduate diploma – one year full-time or equivalent part-time Master – one-and-a-half years full-time or equivalent part-time
Delivery mode	Distance education/online. Some units may also be delivered on campus.
Location	Hawthorn campus
Entry requirements	A four-year undergraduate degree in engineering (or equivalent), or qualifications or experience which, in the opinion of the selection committee, is of a satisfactory standard and is a suitable preparation for entry to the program.
Structure	Graduate certificate – four units Graduate diploma – eight units Master – 12 units, or 10 units plus a research project
2012 fees	$2350 per unit (FEE-HELP is available for eligible students)
Intake	February and August

Program details

Master of Risk Management

Graduate Diploma of Risk Management

Graduate Certificate in Risk Management

This program is designed primarily to meet the needs of personnel currently involved in, or wishing to be involved in, risk management. In addition, the program is designed to have considerable application for personnel in a wide range of technologically based industries including rail, shipping, heavy industry, the chemical industry and energy production.

Areas covered include health, safety, plant, property, financial control and maintenance. At the graduate diploma and master levels, students can select projects from topics that reflect their specialisation.

The risk management postgraduate program aims to provide useful learning experiences in relevant risk management knowledge sets and in related knowledge areas. Students gain an understanding of specific principles, practices and advanced and/or emerging risk management strategies as well as technologies.

It is expected that graduates of this program will be sufficiently competent to manage risks and safety in products, services and facilities in engineering as well as non-engineering industries.

Career opportunities

Students will gain theoretical and practical risk management knowledge, allowing them to apply these skills in a business setting.

For those already established in a business career, the key vocational outcomes will accelerate current job performance and position them for new career opportunities requiring risk management skills.

Admission requirements

Applicants must have one of the following:

- a degree or diploma in a professional field at a recognised tertiary institution
- qualifications or experience which, in the opinion of the selection committee, is of a satisfactory standard and is a suitable preparation for entry to the program.

Location

Most of the units in this program are offered off-campus by distance learning. On-campus units are delivered at the Hawthorn campus.

Program length

Graduate certificate: Six months full-time or equivalent part-time

Graduate diploma: One year full-time or equivalent part-time

Master: One-and-a-half years full-time or equivalent part-time

Program structure

All units of study are valued at 12.5 credit points unless otherwise indicated.

Graduate Certificate in Risk Management

In order to gain this qualification, students must successfully complete four units of study to the value of 50 credit points. These consist of two discipline-specific units and a further two discipline-specific or elective units.

Graduate Diploma of Risk Management

In order to gain this qualification, students must satisfactorily complete eight units of study to the value of 100 credit points comprising five discipline-specific units and a further three discipline-specific or elective units.

Master of Risk Management

In order to gain this qualification, students can complete either the coursework with research project program, or coursework-only program.

a) Coursework with research project:

Students must complete nine units, comprising six discipline-specific units, a further three discipline-specific or elective units, and three research units.

b) Coursework only:

Students must complete 12 units, comprising seven discipline-specific units and a further five discipline-specific or elective units.

Units of study

Discipline-specific units	
HES6720	Risk Perception and Analysis
HES6721	Risk Management Principles
HES6723	Financial Risk Management
HES6724	Risk Management Systems
HES6727	Introduction to Risk and Due Diligence*
HES6740	Quantitative Risk Modelling
HES6741	Advanced Quantitative Risk Modelling and Hazard Analysis
HES6742	Qualitative Risk Modelling
HES6743	Environmental Risk Management
HES6744	Physical Human Factors
HES6745	Psychological Human Factors
HES6746	Advanced Risk Management Systems
HES6798	Procurement and Risk Management in Projects*

Recommended elective units	
HES6131	Procurement and Inventory Management
HES6132	Managing Modern Distribution
HES6175D	Project Costing
HES6176D	Environmental Sustainability in Construction
HES6177D	International Construction
HES6607	Safety Management Systems
HES6617	Emergency Planning and Management – Part 1
HES6618	Emergency Planning and Management – Part 2
HES6619	Aviation Risk and Insurance
HES6690D	Engineering Project Control
Research units	
HES7605	Research Design and Methodology
HES7608R1	Risk Management Research Project – Part 1**
HES7608R2	Risk Management Research Project – Part 2**

* Delivered on campus only.

** Flexible options for on-campus and/or distance education study.

(On-campus options are not available to international students.)

Units of study outlines

Discipline-specific units

HES6720 Risk Perception and Analysis

In this unit, students will gain an understanding of the process leading to injury, damage and loss, and principles of risk estimation and assessment. They will also become aware of psychological and social issues relating to risk perception and reaction. Topics include: risk terminology and system modelling, human perception of risk, risk analysis and use of modelling, risk estimation and loss rate concept and fault tree and event trees analysis.

HES6721 Risk Management Principles

The aim of this unit is to give students an understanding of fundamental principles related to loss prevention and a fundamental understanding of functional management concepts and processes. Students will study practical applications concerning the effective management of risk, and gain an awareness of the legal structures and processes within Australia and an introductory understanding of health and safety law and related legal obligations.

HES6723 Financial Risk Management

This unit covers financial risk management in theoretical and practical terms. Students will develop the ability to identify and manage financial risks and the capacity to apply financial risk management techniques in commercial situations. They will gain an understanding of the elements of finance, tax, and accounting which are necessary to deal with financial risks and the methods used to analyse the risks associated with investments. This unit will also cover forecasting for investment decisions, the methods used to control financial risks and financial modelling.

HES6724 Risk Management Systems

The aim of this unit is to develop the students' ability to critically evaluate contemporary risk management systems. Students will gain a detailed understanding of the theoretical basis of a management system as it applies to risk. Topics include: risk management systems with respect to loss forecasting and estimation, management practice applied to health and safety, management practices of plant and property, and resource management.

HES6727 Introduction to Risk and Due Diligence

This unit provides students with a broad understanding of the concepts and techniques inherent within risk management including fundamental risk and reliability concepts, organisational risk paradigms and models, liability, causation and risk criteria. Students will learn how to use top-down and bottom-up techniques, ranking and modelling techniques and generative techniques. Further topics may include: risk and reliability maths, corporate governance, OH&S, process industry, finance and market risk, safety case arguments, project due diligence, SIL allocation and availability profiling.

HES6740 Quantitative Risk Modelling

Prerequisite: HES6720 Risk Perception and Analysis

This unit provides students with an understanding of the principles of quantified risk analysis, including that of the analytical methods used and the mathematical principles of quantification. This unit will also cover the theory behind the development and quantification of risk models and the skills necessary to construct risk models and apply probability estimates to risk models using mean values. Students will also gain skills in the development and quantification of fault tree and outcome trees. Topics include: A review of descriptive statistics, probability theory and Boolean algebra, reliability mathematics, the theory and practice of quantified risk analysis.

HES6741 Advanced Quantitative Risk Modelling and Hazard Analysis

Prerequisite: HES6740 Quantitative Risk Modelling

The aim of this unit is to extend students understanding of analytical risk methods and develop an understanding of their limitations and the limitations of their quantification. Students will gain an understanding of the application of reliability mathematics to the quantification of risk models and of the relationship between reliability mathematics and risk management systems in the choice of numerical estimates of failure probability that reflect real world conditions.

HES6742 Qualitative Risk Modelling

This unit covers the origins, applications and limitations of contemporary methods for understanding and analysing risk and hazard. Students will gain an understanding of the range of contemporary techniques used to understand risk and hazard, other than the quantitative methods of quantified risk analysis (QRA) and understand the applications and limitations of these methods. Topics include: logic diagrams (their form and use), 'bow-tie' diagrams, systematic 'cause' analysis, management oversight and risk tree (MORT), the choice and use of risk factors, HAZOP.

HES6743 Environmental Risk Management

The aim of this unit is to explore the ways in which the principles of risk management can be applied to environmental risk management, including resource use, contamination, waste, and sustainability. Students will learn how risk models can be applied to the subject of environmental management and gain an understanding of how environmental management systems differ from risk management systems.

Topics include: Environmental adverse consequences, uncertainty in environmental damage processes, the present value of future adverse environmental effects, the role of legislation in environmental risk management, theoretical basis of environmental risk management systems and comparison with risk management systems.

Units of study outlines

HES6744 Physical Human Factors

The aim of this unit is to develop in students an understanding of how human performance, particularly the propensity for error is affected by the physical and organisational aspects of the environment in which they work. Topics include: Illumination, noise, heat, toxicology, vibration, organisational stressors (fatigue, shift work, conflict, and workload), human limitations and capabilities (including anthropometrics).

HES6745 Psychological Human Factors

The aim of this unit is to develop in students an understanding of how organisations create the circumstances in which human error flourishes. Topics include: models of human information processing (perception, cognition, and stimulus response), the study of human limitations and capabilities (stereotypes), and understanding human error.

HES6746 Advanced Risk Management Systems

In this unit students will critically evaluate contemporary risk management systems and develop an understanding of how the design of a risk management system is affected by organisational culture, management capability, maintenance organisation and technical needs.

Students will develop a comprehensive understanding of how to apply this understanding in their professional practice and develop skills in the design and implementation of risk management systems in industry. Topics include: Overview of maintenance and reliability engineering principles and practices, management styles and capability, short-term pressures and strategic needs, developing a robust management system, application to a chosen work environment.

HES6798 Procurement and Risk Management in Projects

This unit addresses essential knowledge areas of procurement and risk management in project-based industries, as well as project/program settings in production/process-based industries. Topics may include: procurement/project-delivery options; project-based contracting mechanisms; bidding/tendering in project settings; source selection arrangements for project teams; relational frameworks (such as partnering and alliancing) and value networking in projects; project procurement through public-private partnerships; e-procurement fundamentals; mapping risks in different procurement routes and contractual arrangements; managing risks in international procurement, government/quasi-government projects and public-private partnerships; safety and security risks in project settings.

Recommended elective units

HES6131 Procurement and Inventory Management

Students will develop an understanding of the procurement concepts and inventory management fundamentals that are required to procure and manage inventory. They will also develop the required purchasing and materials management skills for cost analysis, decision-making, quality management and value analysis.

HES6132 Managing Modern Distribution

The aim of this unit is to give students an understanding of the skills required for supply chain management and modern distribution process management. This unit covers supply chain management principles and theories, distribution process management in various industries, supply chain management strategies for distribution activities and modern distribution process management techniques.

HES6175 Project Costing

This unit introduces students to project costing and project controls, focusing on civil engineering projects. It gives an overview of the main challenges and opportunities associated with project execution, risk, economics, estimating, tendering, planning and scheduling for project success. Factors that need to be familiar to and understood by project cost engineers are also outlined.

HES6176D Environmental Sustainability in Construction

The aim of this unit is to impart environmental sustainability related learning outcomes essential for the construction industry. Students will develop an understanding of the basic concepts of sustainability, sustainable development and sustainable construction and have an appreciation of the practical measures that can be implemented in design. This unit also covers the effects of energy usage on greenhouse gas production and relevance of energy efficiency in buildings. Topics include: Basic concepts – terminology, international developments, national developments; Sustainability issues – climate change, energy, resources and materials, indoor environment, quality of building services, outdoor environment; and Implementation – strategies, design issues, tools and indicators.

HES6177D International Construction

This unit is an introduction into international construction and covers the global construction market, construction industries in developing countries, national and cultural differences, privately-financed infrastructure projects, financial risk management, international joint ventures, technology transfer and skills for international construction professionals, and construction in the knowledge-based economy.

HES6607 Safety Management Systems

Students will gain an in-depth knowledge of safety management systems, its contemporary needs, multi-modal framework and elements that will enable the use of practical tools to manage workplace safety, instilling a 'Just Culture' and a system-view towards incident/mishap/accident investigation. This unit will also explore the aspects of managing reporting systems, incident/accident investigation, violation management and maintaining corporate discipline.

HES6617 Emergency Planning and Management – Part 1

At the end of this unit, students should have a good understanding of emergency planning and management procedures and practices, particularly relating to search and rescue and fire services and how they relate to national and international requirements particularly those of C.A.S.A. and I.C.A.O. It covers many different organisations and areas of expertise. Topics studied in detail will be drawn from the following: Emergency, incident, accident – planning and management on and off airport; Search and rescue, rescue and fire services, A/P categorisation; International rules and obligations.

HES6618 Emergency Planning and Management – Part 2

This unit is an extension of Emergency Planning and Management Part 1 (HES6617). The topics studied in detail will be drawn from the following: Accident investigation and accident prevention; Coronial inquiry; Operator obligations; Planning and management; and Contingency/crisis management.

HES6619 Aviation Risk and Insurance

This unit is divided into two sections, Risk Management and Insurance. Risk Management has been designed to give students an understanding of the risk management process and how this process applies in the field of aviation. This unit covers the threat and vulnerability model; the risk management process model; the methods available for assessing risk and the formal methods of analysis of processes leading to damage, damages and loss and be familiar with the application of these methods to commercial aviation. Students will also gain an understanding of the distinction between proactive and reactive approaches to risk management.

Insurance will be covered in the broadest sense with some of the issues and examples applied to air transportation. Asset/hull/installation insurance should not be viewed in isolation as after the asset or device is lost the major issue could be the consequential loss of business. Frequently the two are balanced after a risk analysis has been completed. The effect on the aviation industry of the September 11 World Trade Centre attack is covered in depth. Additionally, 'liability risk' has to be considered under a wide range of situations.

Units of study outlines continued

HES6690D Engineering Project Control

The aim of this unit is to introduce the techniques for establishing and maintaining control of a project. Students will gain an understanding of the particular phases that constitute an engineering project and how each of these phases can be controlled with respect to time (schedule), cost, quality and safety.

This unit also covers the various forms of contract and the advantages/disadvantages of the various mechanisms of delivery of projects. Topics include: The nature of the construction industry, project phases, control of project costs, project programming and scheduling, project quality control and project occupational health and safety.

Research Units

HES7605 Research Design and Methodology

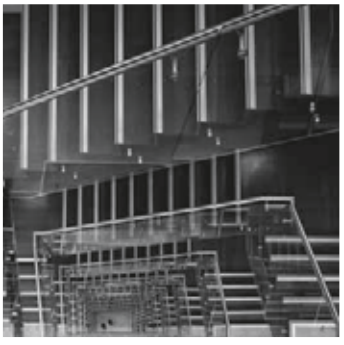
This unit gives an introduction to the principles and processes involved in research practise. It is a skills-oriented unit, which means that the assignments enable students to develop the competencies needed to undertake a research investigation. The unit has been designed to assist students to make better use of human-factors training, by enabling them to critically evaluate the basis upon which other researchers draw conclusions and make recommendations. Major modules in the unit include framing research in practice, designing research and conducting research.

HES7608R1 Risk Management Research Project – Part 1

The aim of this unit is to provide students with the opportunity to consolidate critical thinking and analysis skills developed throughout the postgraduate program and extend their knowledge by undertaking focused research on an approved research topic. In consultation with their supervisor, students are expected to identify a research problem and define the aims and objectives of their research. The research topic should be approved by relevant staff. Appropriate research methods and procedures should be followed. The paper may be completed via basic research and/or applied or industry-based research.

HES7608R2 Risk Management Research Project – Part 2

This research project unit is designed to enable students to undertake a rigorous research study of considerable standing. It provides students with the opportunity to conceive and develop research problems, consolidate critical thinking and analysis skills developed throughout the postgraduate program and extend their knowledge by completing focused research on an approved research problem. Advanced research will be undertaken on a topic selected in agreement with supervising staff and approved by the unit convener. The research project may be completed via basic research and/or applied and industry-based research.



General information

Facilities

As a Swinburne student you will automatically gain access to a range of facilities. These include a well-resourced library, computer laboratories, fitness and health facilities, personal and career counselling, housing, employment and financial advice.

Students who are located outside Melbourne will benefit from online library resources, inter-library loans, online communication tools and a Swinburne email address.

Fees

In 2012, tuition fees for Australian citizens and permanent residents are based on $2350 per 12.5 credit point unit of study. The fee for the Master of Risk Management program is therefore $28,200 (including the graduate certificate and graduate diploma). The fee for the graduate diploma is $18,800 (including the graduate certificate); for the graduate certificate it is $9400.

In the event that a unit of study is derived from another program, the applicable fee will be that of the other program. All fees are reviewed each year and may increase without notice.

FEE-HELP

FEE-HELP is a government-funded loan that helps eligible fee-paying students pay their tuition fees. FEE-HELP is not available to New Zealand citizens and most holders of Australian permanent visas, however is available to Australian citizens and holders of a permanent humanitarian visa.

For further information visit **www.goingtouni.gov.au**

Application procedure

Australian citizens, holders of Australian permanent residency visas and international applicants wishing to study the program outside Australia via distance education should complete the 'Postgraduate Application Form for On-Campus, Distance Education and Online Programs'.

Application forms can be downloaded from **www.swinburne.edu.au/postgrad/apply**

Please include the following with your completed application:

- certified* proof of identification and citizenship
- certified* transcript(s) of results.

Overseas applicants or those living in remote locations wishing to study the program by distance education should allow additional time for postage of application and enrolment papers.

* Accepted identification is a certified copy of your passport, birth certificate or Australian citizenship certificate. A certified copy is a photocopy certified as a true and correct copy of the original by the issuing body or by a person qualified to accept statutory declaration or witness a document.

International students

If you want to study on campus at Swinburne but are not an Australian resident, telephone Swinburne International on (+61 3) 8676 7002 or 1800 897 973 from within Australia, or visit **www.swinburne.edu.au/international**

Application closing dates

Semester 1 – Round one (timely) applications close early November. Round two (late) applications close mid-January. Classes begin in late February.

Semester 2 – Applications close late June, with classes beginning in late July. Round two (late) applications are subject to the availability of places.

For closing dates visit **www.swinburne.edu.au/postgrad**

Recognition of Prior Learning

Recognition of Prior Learning (RPL) allows students to be granted credit or partial credit towards a qualification in recognition of skills and knowledge gained through work experience, tertiary qualifications and/or formal training.

For more information, visit **www.swinburne.edu.au/postgrad**

Information sessions

Information sessions are held regularly throughout the year. They are a great opportunity to meet and talk to staff about your postgraduate study options. The sessions help you understand what your chosen postgraduate program entails – what you can learn and what your study options are and where your qualification may take you.

For session dates visit **www.swinburne.edu.au/postgrad**

Further information

Telephone: 1300 275 794
Email: postgrad@swin.edu.au
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ANY QUESTIONS?

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CAMPUSES

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