CVEN30008 Risk Analysis

Credit Points:	12.50
Level:	3 (Undergraduate)
Dates & Locations:	2012, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 48 hours (Lectures: 2 hours per week, Tutorials: 1 hour per week, Consultations: 1 hour per week) Total Time Commitment: 120 hours
Prerequisites:	Admission to Master of Engineering OR one of the following subjects:

Subject	Study Period Commencement:	Credit Points:
MAST10007 Linear Algebra	Summer Term, Semester 1, Semester 2	12.50
MAST10008 Accelerated Mathematics 1	Semester 1	12.50

Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	Credit will not be given for the following subjects:

Subject	Study Period Commencement:	Credit Points:
ECON10005 Quantitative Methods 1	Semester 1, Semester 2	12.50
ECON20003 Quantitative Methods 2	Summer Term, Semester 1, Semester 2	12.50

Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry. It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: http://services.unimelb.edu.au/disability
Coordinator:	Dr Lihai Zhang
Contact:	Dr Lihai Zhang **lihzhang@unimelb.edu.au (mailto:lihzhang@unimelb.edu.au)**
Subject Overview:	This subject will focus on how risk analysis and management principles and techniques can be applied to engineering projects. Topics covered include: probability, random variables and their probability distributions and simulation techniques; confidence intervals and significance testing; parameter estimation, least squares modelling; an introduction to the history of engineering failures; the forms of risk and risk identification; the sociological implications of acceptable risk; approaches to risk management, monitoring for compliance, risk perception and design implications

Objectives:	On successful completion of this subject students should be able to: # Identify information sources and risks for engineering projects # Identify and develop a plan for managing risks and opportunities # Use statistical methods to analyse empirical data and develop a risk based simulation model. Undertake a sensitivity analysis to identify critical variables that have the potential for threatening the success of a project # Develop a Monte-Carlo simulation model to determine the likelihood a project will be financially viable # Implement a risk management framework based on AS/NZS/ISO 31000: 2009 including the context establishment, risk identification, risk analysis, risk evaluation, risk treatment # Identify and classify risk in terms of their severity and likelihood # Use tools to diagrams to assist in identifying and representing risks # Define a range of performance metrics for an engineering system
Assessment:	2-hour examination, end of semester (60%) Assignments totalling 3000 words, due mid-semester and end of semester (30%) Attendance and contribution to discussion in tutorials, during semester (10%)
Prescribed Texts:	Risk Analysis: A Quantitative Guide, 3rd Edition. (David Vose). John Wiley & Sons Ltd. Statistics for Engineers and Scientists, 2nd Edition. (William Naridi). McGraw-Hill.
Breadth Options:	This subject potentially can be taken as a breadth subject component for the following courses: # **Bachelor of Arts (https://handbook.unimelb.edu.au/view/2012/B-ARTS)** # **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2012/B-COM)** # **Bachelor of Environments (https://handbook.unimelb.edu.au/view/2012/B-ENVS)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2012/B-MUS)** You should visit **learn more about breadth subjects (http://breadth.unimelb.edu.au/breadth/info/index.html)** and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	# Ability to apply knowledge of science and engineering fundamentals # Ability to undertake problem identification, formulation, and solution # Understanding of social, cultural, global, and environmental responsibilities and the need to employ principles of sustainable development # Ability to utilise a systems approach to complex problems and to design and operational performance # Ability to function effectively as an individual and in multidisciplinary and multicultural teams, as a team leader or manager as well as an effective team member # Ability to communicate effectively, with the engineering team and with the community at large
Related Course(s):	Bachelor of Engineering
Related Majors/Minors/ Specialisations:	B-ENG Civil Engineering stream Civil (Engineering) Systems major Civil Systems Environments Discipline subjects Geomatics Geomatics (Geomatic Engineering) major Master of Engineering (Civil) Master of Engineering (Environmental) Master of Engineering (Geomatics) Master of Engineering (Structural) Physical (Environmental Engineering) Systems major Science-credited subjects - new generation B-SCI and B-ENG. Core selective subjects for B-BMED.