



Australia's  
Global  
University

# School of Civil and Environmental Engineering

Term 3, 2020

## CVEN9710 Management of Risk

### COURSE DETAILS

<b>Units of Credit</b>	6	
<b>Contact hours</b>	3 hours per week	
<b>Class</b>	Monday, 12:00pm – 2:00pm Thursday, 2:00pm – 4:00pm	Online (Links will be provided in Moodle) Online
<b>Course Coordinator and Lecturer</b>	Steven Davis email: s.davis@unsw.edu.au office: 208 Civil Engineering Building phone: +61 (2) 9385 5052 (likely to be changed due to telephone upgrade)	

### INFORMATION ABOUT THE COURSE

This subject explores risk management. It follows the process of risk management through the various stages as presented in ISO 31 000. Mathematical techniques applicable to risk analysis will be covered. Applications to project management, particularly Civil Engineering projects, will be discussed.

This course will contain both internal and distance students.

### HANDBOOK DESCRIPTION

<http://www.handbook.unsw.edu.au/postgraduate/courses/2020/CVEN9710.html>

### TEACHING STRATEGIES

<b>Lectures</b>	<ul style="list-style-type: none"> <li>Find out what you must learn</li> <li>Follow worked examples</li> <li>Hear announcements on course changes</li> <li>Lectures will be recorded and made available to students</li> </ul>
<b>Workshops</b>	<ul style="list-style-type: none"> <li>For most weeks example questions will be provided for you to work on.</li> <li>If the lecture finishes in less than three hours then the remaining time will be allocated to working on these example questions.</li> <li>Solutions to these problems will be provided on Moodle.</li> <li>It is recommended that you work on the example questions before looking at the solutions so that you can identify what parts of the question you find most difficult and would benefit most from practice.</li> </ul>
<b>Assessments (examinations and assignments)</b>	<ul style="list-style-type: none"> <li>Demonstrate your knowledge and skills</li> <li>Demonstrate higher understanding and problem solving</li> </ul>
<b>Private Study</b>	<ul style="list-style-type: none"> <li>Review lecture material</li> <li>Do set problems and assignments</li> <li>Join Moodle discussions of problems</li> <li>Reflect on class problems and assignments</li> <li>Keep up with notices and download materials from Moodle</li> <li>find out marks via Maple TA</li> </ul>

**EXPECTED LEARNING OUTCOMES**

After successfully completing this course, you should be able to:

Learning Outcome		EA Stage 1 Competencies
1.	<i>Produce a risk management plan for a project by following the risk management process</i>	PE1.3, PE1.5, PE1.6, PE2.1, PE2.2, PE2.4
2.	<i>Identify risks using a variety of techniques</i>	PE1.1, PE1.2, PE1.3, PE2.2, PE2.3
3.	<i>Analyse risks using a variety of tools</i>	PE1.1, PE1.2, PE1.3, PE2.1, PE2.2, PE2.4, PE3.4
4.	<i>Treat risks to eliminate or mitigate their impact</i>	PE1.1, PE1.3, PE1.5, PE1.6, PE2.1, PE2.2, PE2.3, PE2.4

For each hour of contact it is expected that you will put in at least 1.5 hours of private study.

**COURSE PROGRAM**

**Term 3, 2020**

Week	Date	Topic	Online Quizzes	
			Given	Due
1	14, 17 / 9	Introduction to Risk The Risk Management Process		
2	21, 24 / 9	Identification of Risk Sources Qualitative Analysis Semi-Quantitative Analysis		
3	28 / 9, 1 / 10	Review of Probability Statistical Inference	Web Quiz 1	
4	5, 8/10	Fault and Event Trees Decision Trees		
5	12, 15/10	Monte Carlo Simulation	Web Quiz 2	Web Quiz 1
6		No lecture to allow other courses to hold field trips		
7	26, 29/10	Reliability and FMEA		
8	2, 5/11	Portfolio Theory	Web Quiz 3	Web Quiz 2
9	9, 12/11	Human Error		
10	16, 19/11	Project Issues and Contract Issues		Web Quiz 3

**ASSESSMENT****Assignments:****Rationale and Assessment Criteria**

A large portion of what you will learn in this course regards how to apply quantitative techniques to analyse the risks of projects. In order to assess your ability to understand these quantitative techniques and apply them to scheduling problems a series of assignments will be administered as online quizzes. They will enable you to get a better understanding of the detail involved in some of the tools used in risk analysis.

## Accessing the Online Quizzes

The quizzes will be administered through MapleTA, which can be found at <https://mapletap.telt.unsw.edu.au:8443/mapleta/login/login.do>.

The web based interface for the quizzes will be demonstrated during the lecture in week 3. Where a quiz has a more sophisticated user interface for particular questions a demonstration will be given during the lecture that the quiz is released and the assessment of that question will be explained.

The weighting for each quiz will be proportional to the number of points for the quiz displayed in Maple TA. They will not be all the same value.

Detailed feedback for each question will be provided through the same web based interface one week after the quiz is due.

## Due Dates and Late Penalties

Generally the quizzes will be due two weeks after the relevant material has been covered in the class. The actual week that each of the quizzes is released and is due can be found in the Course Program above. All online quizzes will be due at 1:00pm on the Thursday in the week shown above in the Course Program.

There is no time limit other than the due date/time, you can print out the questions one day and type the answers into the computer on another day.

If you need to submit your quiz late then submit your answers in the "Late Submission of Assignments" forum. The answers should be in the body of the posting. No attachments unless a question asks for a picture. You will be penalised 10% per day late or part thereof based on the time of the posting. No submissions will be accepted more than 1 week late.

## Exam:

In addition to the quantitative techniques mentioned above we will be covering a great deal of risk management theory. Your ability to understand and apply this theory, as well as the quantitative techniques, will be assessed in an online open book exam, which will take 2 hours during the formal exam period. **Any topic covered in class can be covered in the exam.** Approved calculators will be permitted in the exam. To find out how to get your calculator approved please see <https://student.unsw.edu.au/exam-approved-calculators-and-computers>.

The Exam date is set by Exams Branch, and is confirmed in about Week 10 of session. You can access the time and date of the exam via MyUNSW.

The formal exam scripts will not be returned.

## Final Grade:

The final grade for this course will normally be based on the sum of the scores from each of the assessment tasks. However, not all topics will be assessed by the online quizzes, while all topics may potentially be assessed in the exam. Therefore to ensure that you have met the learning outcomes you must achieve a mark of at least 40% in the exam in order for the assignment marks will be included. The Final Examination is worth 60% of the Final Mark if the assignment marks are included and 100% if class work is not included. The assignments are worth 40% of the Final Mark if included.

For students who score over 40% in the final exam	For students who score under 40% in the final exam
1. Online quizzes 40%	1. Exam 100%
2. Exam 60%	

Note: The Coordinator or Lecturer reserves the right to adjust the final scores by scaling if agreed to by the Head of School.

## Supplementary Examinations:

Supplementary Examinations for Term 3 2020 will be held on Monday 11th January – Friday 15th January 2021 (inclusive) should you be required to sit one. You are required to be available during these dates. Please do not to make any personal or travel arrangements during this period.

## PENALTIES

If you need to submit your quiz late then submit your answers in the "Late Submission of Assignments" forum. The answers should be in the body of the posting. No attachments unless a question asks for a picture. You will be penalised 10% per day late or part thereof based on the time of the posting. No submissions will be accepted more than 1 week late.

## RELEVANT RESOURCES

There is no prescribed textbook for this course.

ISO 31 000:2018, "Risk Management" (International Standard Organisation) (Available to students online through UNSW library via SAI Global) **It is highly recommended that you read this.**

Also see ISO/IEC 31010:2009, *Risk management – Risk assessment techniques*

Project Management Institute (USA), 2013, Guide to the Project Management Body of Knowledge, Chapter 11, "Risk Management", Project Management Institute, Sylvania.

There are numerous books in the library covering risk management. If you are having trouble following the lectures then it is recommended that you look at one of these.

## DATES TO NOTE

Refer to MyUNSW for Important Dates available at:

<https://student.unsw.edu.au/dates>

## PLAGIARISM

Beware! An assignment that includes plagiarised material will receive a 0% Fail, and students who plagiarise may fail the course. Students who plagiarise are also liable to disciplinary action, including exclusion from enrolment.

Plagiarism is the use of another person's work or ideas as if they were your own. When it is necessary or desirable to use other people's material you should adequately acknowledge whose words or ideas they are and where you found them (giving the complete reference details, including page number(s)). The Learning Centre provides further information on what constitutes Plagiarism at:

<https://student.unsw.edu.au/plagiarism>

## ACADEMIC ADVICE

(Formerly known as Common School Information)

For information about:

- Notes on assessments and plagiarism,
- School policy on Supplementary exams,
- Special Considerations: [student.unsw.edu.au/special-consideration](https://student.unsw.edu.au/special-consideration),
- Solutions to Problems,
- Year Managers and Grievance Officer of Teaching and Learning Committee, and
- CEVSOC.

Refer to Academic Advice on the School website available at:

<https://www.engineering.unsw.edu.au/civil-engineering/student-resources/policies-procedures-and-forms/academic-advice>

**Appendix A: Engineers Australia (EA) Competencies**

*Stage 1 Competencies for Professional Engineers*

	<b>Program Intended Learning Outcomes</b>
<b>PE1. Knowledge and Skill</b>	PE1.1 Comprehensive, theory-based understanding of underpinning fundamentals
	PE1.2 Conceptual understanding of underpinning maths, analysis, statistics, computing

	PE1.3 In-depth understanding of specialist bodies of knowledge
	PE1.4 Discernment of knowledge development and research directions
	PE1.5 Knowledge of engineering design practice
	PE1.6 Understanding of scope, principles, norms, accountabilities of sustainable engineering practice
<b>PE2: Engineering Application Ability</b>	PE2.1 Application of established engineering methods to complex problem solving
	PE2.2 Fluent application of engineering techniques, tools and resources
	PE2.3 Application of systematic engineering synthesis and design processes
	PE2.4 Application of systematic approaches to the conduct and management of engineering projects
<b>PE3: Professional and Personal Attributes</b>	PE3.1 Ethical conduct and professional accountability
	PE3.2 Effective oral and written communication (professional and lay domains)
	PE3.3 Creative, innovative and pro-active demeanour
	PE3.4 Professional use and management of information
	PE3.5 Orderly management of self, and professional conduct
	PE3.6 Effective team membership and team leadership