

CVEN9701

Engineering Economics and Financial Management

Term 1, 2023



Course Overview

Staff Contact Details

Convenors

Name	Email	Availability	Location	Phone
Steven Davis	s.davis@unsw.edu.au	Contact via Moodle forum	208	9385 5052

School Contact Information

[Engineering Student Support Services](#) – The Nucleus - enrolment, progression checks, clash requests, course issues or program-related queries

[Engineering Industrial Training](#) – Industrial training questions

[UNSW Study Abroad](#) – study abroad student enquiries (for inbound students)

[UNSW Exchange](#) – student exchange enquiries (for inbound students)

[UNSW Future Students](#) – potential student enquiries e.g. admissions, fees, programs, credit transfer

Phone

(+61 2) 9385 8500 – Nucleus Student Hub

(+61 2) 9385 7661 – Engineering Industrial Training

(+61 2) 9385 3179 – UNSW Study Abroad and UNSW Exchange (for inbound students)

Course Details

Units of Credit 6

Summary of the Course

Project initiation and development, feasibility studies, planning; economics, review of practical decision making problems and relevant techniques, benefit/cost analysis, methods of economic appraisal; consideration of inflation and taxation in investment decisions; depreciation; management decision processes, decision theory, utility; life-cycle costing, value management; models and techniques to assist the manager, forecasting; optimisation; applications; multiple objective planning; project delivery systems; financial planning, accounting.

Course Aims

The objectives of this course are to:

- Introduce you to the theory of engineering economics
- Provide you with tools that will help you to cost projects
- Understand project financial procedures
- Gain an insight into the associated skills
- Enable you to perform more effectively

Course Learning Outcomes

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

Learning Outcome	EA Stage 1 Competencies
1. Appraise a project through cost benefit analysis and account for uncertainties	PE1.1, PE1.2, PE1.3, PE2.1, PE2.2, PE2.4
2. Prepare financial accounts for simple case studies	PE1.1, PE1.2, PE1.3, PE2.4, PE3.4
3. Analyse the performance of an engineering project	PE1.1, PE1.2, PE1.3, PE2.1, PE2.2, PE2.4, PE3.4
4. Systematically examine a project for ways in which it can be improved	PE1.1, PE1.2, PE1.3, PE1.5, PE2.4

Teaching Strategies

Each week pre-lecture material will be available in Moodle to give you an orientation to the topics covered that week.

Lectures will be delivered on campus and live streamed using Echo 360. Links for each lecture can be found in Moodle. Part of the lecture will be devoted to answering student questions.

Workshop questions are provided for you to work through after the lecture. Solutions are provided for you to check your work, and, for some of the questions, videos working through the solutions step by step are also provided.

Four online assignments will be run throughout the term to assess your grasp of the quantitative aspects of the course and give you feedback on your progress.

Several Moodle forums are available for you to ask questions about lecture and workshop material in general, and also about particular assignments.

Additional Course Information

The lecture notes are fairly simple and are primarily provided so that students have an outline to annotate during the lecture. As such they do not contain the stories and anecdotes that I use to illustrate the theory and the numerical examples that I work through on the screen. Thus if you miss the live lecture then you are expected to watch the lecture recording.

Assessment

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 to be included. The Final Examination is worth 60% of the Final Mark if the assignment marks are included and 100% if the assignment marks are not included. The assignments are worth 40% of the Final Mark if included.

For students who score over 40% in the final exam

1. Online quizzes 40%
2. Exam 60%

For students who score under 40% in the final exam

1. Exam 100%

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

Assessment task	Weight	Due Date	Course Learning Outcomes Assessed
1. Online Assessments	40%	1pm on the Tuesdays of the weeks listed in the schedule	1, 2, 3, 4
2. Final Exam	60%	During exam period	1, 2, 3, 4

Assessment 1: Online Assessments

Start date: Released during the Tuesday lectures of the weeks listed in the schedule

Due date: 1pm on the Tuesdays of the weeks listed in the schedule

A large portion of what you will learn in this course regards how to apply quantitative techniques to real projects. In order to assess your ability to understand these quantitative techniques and apply them to projects 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 engineering economics and financial management.

This is not a Turnitin assignment

Additional details

Accessing the Online Quizzes

The quizzes will be administered through Moodle.

The web based interface for the quizzes will be demonstrated during the second lecture of the first week. 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 Moodle. 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. All online quizzes will be due at **1pm on the Tuesday** in the week shown 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 type your answers into the "Late Submissions of Assignments" Moodle Forum. **Do not use attachments** unless a question asks for a picture. You will be penalised 5% per day late or part thereof based on the time of posting. No submissions will be accepted more than 5 days (120 hours) late.*

Assessment 2: Final Exam

Start date: During exam period

Assessment length: 2 hours + 10 minutes reading time

Submission notes: The exam will be administered through Inspira

Due date: During exam period

Your ability to understand and apply this theory, as well as the quantitative techniques, will be assessed in a closed book exam, which will take 2 hours during the formal exam period. Any topic covered in class can be covered in the exam.

This is not a Turnitin assignment

Hurdle requirement

A mark of at least 40% in the final examination is required before the class work is included in the final mark.

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

Course Schedule

[View class timetable](#)

Timetable

Date	Type	Content
Week 1: 13 February - 17 February		Economic Evaluation: The Time Value of Money Project Appraisal Criteria Web Quiz 1 Released
Week 2: 20 February - 24 February		Project Appraisal Issues
Week 3: 27 February - 3 March		Cost Estimation Web Quiz 1 Due
Week 4: 6 March - 10 March		Risk and Uncertainty Web Quiz 2 Released
Week 5: 13 March - 17 March		Monte Carlo Simulation Real Options
Week 6: 20 March - 24 March		No classes Web Quiz 2 Due Web Quiz 3 Released
Week 7: 27 March - 31 March		Introduction to Accounting
Week 8: 3 April - 7 April		Cost Planning and Reporting Microeconomics Web Quiz 3 Due Web Quiz 4 Released
Week 9: 10 April - 14 April		No class on Monday (Public Holiday) Microeconomics

Week 10: 17 April - 21 April		Macroeconomics Value Management Web Quiz 4 Due
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Resources

Prescribed Resources

Textbook

There is no prescribed textbook for this course

Several of the topics covered in this course are detailed in many textbooks that you can find in the library.

Moodle

This subject has a Moodle site. The address is <http://moodle.telt.unsw.edu.au>.

Interactive lessons will be available on Moodle that you should complete before the Lecture.

The site will contain additional resources for you. The assignments will be given in the form of online quizzes. Discussion forums have been set up in Moodle. Questions about the course, assignments, exams etc are best asked through the discussion forums, so that all students can see the replies.

In addition one of the Moodle discussion groups will be used as a class email list. Any announcements that cannot be made in the lecture will be posted to this group, and will be forwarded to your Unimail address. It is University policy that information sent to your unimail address has been received by you. It is therefore recommended that you check your email regularly for any announcements that might not be made in lectures etc.

Course Evaluation and Development

Please complete the MyExperience student survey at the conclusion of the term.

Submission of Assessment Tasks

Please refer to the Moodle page of the course for further guidance on assessment submission.

UNSW has a standard late submission penalty of:

- 5% per day, for all assessments where a penalty applies, capped at five days (120 hours), after which a student cannot submit an assessment, and no permitted variation.

Academic Honesty and 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 Information

Final Examinations:

Final Exams in T1 2023 will be held on campus between the 28th of April and the 11th of May, and Supplementary Exams between the 22nd of May and the 26th of May. You are required to be available on these dates. Please do not make any personal or travel arrangements during this period.

ACADEMIC ADVICE

- Key Staff to Contact for Academic Advice (log in with your zID and password): <https://intranet.civeng.unsw.edu.au/key-staff-to-contact-during-your-studies-at-unsw>
- [Key UNSW Dates](#) - eg. Census Date, exam dates, last day to drop a course without academic/financial liability etc.
- CVEN Student Intranet (log in with your zID and password): <https://intranet.civeng.unsw.edu.au/student-intranet>
- Student Life at CVEN, including Student Societies: <https://www.unsw.edu.au/engineering/civil-and-environmental-engineering/student-life>
- Special Consideration: <https://student.unsw.edu.au/special-consideration>
- General and Program-Specific Questions: [The Nucleus: Student Hub](#)
- Book an Academic Advising session: <https://unswengacademicadvising.as.me/schedule.php>

Disclaimer

This course outline sets out description of classes at the date the Course Outline is published. The nature of classes may change during the Term after the Course Outline is published. Moodle should be consulted for the up to date class descriptions. If there is any inconsistency in the description of activities between the University timetable and the Course Outline (as updated in Moodle), the description in the Course Outline/Moodle applies.

Image Credit

Photo: Steven Davis

CRICOS

CRICOS Provider Code: 00098G

Acknowledgement of Country

We acknowledge the Bedegal people who are the traditional custodians of the lands on which UNSW Kensington campus is located.

Appendix: Engineers Australia (EA) Professional Engineer Competency Standard

Program Intended Learning Outcomes	
Knowledge and skill base	
PE1.1 Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline	✓
PE1.2 Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline	✓
PE1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline	✓
PE1.4 Discernment of knowledge development and research directions within the engineering discipline	
PE1.5 Knowledge of engineering design practice and contextual factors impacting the engineering discipline	✓
PE1.6 Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline	
Engineering application ability	
PE2.1 Application of established engineering methods to complex engineering 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	✓
Professional and personal attributes	
PE3.1 Ethical conduct and professional accountability	
PE3.2 Effective oral and written communication in 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	