



UNSW
AUSTRALIA

Co r e O line

Seme er 1 2017

Never Stand Still

Engineering

Mechanical and Manufacturing Engineering

GSOE9830

ECONOMIC DECISION ANALYSIS IN ENGINEERING

Con en

1.

1. Staff Contact Details

Contact details and consultation times for course convenor

Name: Dr Maruf Hasan

Office Location: Room 208H, Building J17

Tel: (02) 9385 5629

Fax: (02) 9663 1222

Email: m.hasan@unsw.edu.au

Consultation time for Maruf Hasan is on Fridays between 2.00 and 5.00 pm.

Contact details and consultation times for additional lecturers/demonstrators/lab staff

Name: Guy Allinson

Office Location: School of Petroleum Engineering, Room 249, Tyree Energy Technology Building

Tel:

Summary of the Course

The course consists of two sections:

- x Section 1 (Week 1-6, 13) : Dr Maruf Hasan
- x Section 2 (Week 7-12): Guy Allinson

The course will focus on providing comprehensive coverage of the concepts of economic decision analysis in engineering and will also address practical concerns of engineering economic analysis.

This includes such items as project initiation and development, review of practical decision-making problems and relevant techniques, benefit/cost analysis, time value of money, Nominal and effective interest rate, calculation involving multiple interest formulae, internal rate of return, payback period

5.	Value information and analyse a portfolio of investments	PE 2.1, PE 2.2, PE 2.3, PE3.1 - PE 3.6
6.	Carry out Monte Carlo simulations	PE 2.1, PE 2.2, PE 2.3, PE2.4

3. Teaching strategy

Readings and lectures will be used to introduce and explain the theoretical foundations of various economic analysis principles. Problem solving exercises will be used to apply and reinforce the understanding of the concepts and how they can be applied to solve problems encountered in the real world. Students are expected to complete the assigned readings prior to lectures so that they can contribute to class discussions. Students will be required to form groups to discuss and solve the case study problems.

For Section 2 of the course, students should bring a laptop computer to each lecture and each demonstration. Students will use these to help solve the class exercises and demonstration questions.

4. Core schedule

Module A

Week	Date	Topic	Text reference	Demonstration exercises
1	01/03	Engineering economic decisions, cost concepts, time value of money, interest formulae	1,4	4.1, 5,6, 8, 31, 36, 57, 65, 66, 68, 70, 71, 73, 77, 79, 80, 81, 82, 85, 91, 111, 115
2	08/03	Present worth(NPV)analysis, future worth, annual worth	5	5.3, 4, 21, 23, 24, 27, 32 81,

	distributions		
19/04	Mid-semester break		

5. A e men

Assessment Overview

The assessment will be

Calculators

You will need to provide your own calculator, of a make and model approved by UNSW, for the examinations. The list of approved calculators is shown at

<https://student.unsw.edu.au/exam-approved-calculators-and-computers>

It is your responsibility to ensure that your calculator is of an approved make and model, and to obtain an “Approved” sticker for it from the School Office or the Engineering Student Centre prior to the examination. Calculators not bearing an “Approved” sticker will not be allowed into the examination room.

Special Consideration and Supplementary Assessment

For details of applying for special consideration and conditions for the award of supplementary assessment, see the School [intranet](#), and the information on UNSW’s [Special Consideration page](#).

6. Expected Resource for the Semester

Text book 1

W.G. Sullivan, E.M. Wicks, C.P. Koelling, “Engineering Economy”, Prentice Hall International, 16th Ed., 2014.

This textbook is available for purchase at the UNSW book shop.

Textbook 2 (optional)

Decision Analysis for Petroleum Exploration

Paul Newendorp and John Schuyler

Planning Press 2000

Lecture outlines and course notes will be provided on Moodle.

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Appendix A: Engineer Australia (EA) Professional Engineer Competency Standard

	Program Intended Learning Outcomes
PE1: Knowledge and Skill Base	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
PE2: Engineering Application Ability	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
PE3: Professional and Personal Attributes	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