Contents

1. Staff Contact Details

Summary of the Course

The course consists of two sections:

Section 1 (Week 1,3,4,5,11,12) : Dr Maruf Hasan
Section 2 (Week 2,6-10): 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.

Aims of the Course

The objective of the course is to provide engineers and managers with the knowledge of principles, basic concepts and methodology of economic decision analysis. This will assist the students to develop proficiency with the methods and with the process for making rational decision they are likely to encounter in professional practice.

Student learning outcomes

This course is designed to address the below learning outcomes and the corresponding Engineers Australia Stage 1 Competency Standards for Professional Engineers as shown. The full list of Stage 1 Competency Standards may be found in Appendix A.

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

Learning Outcome		**EA Stage 1 Competencies**
1.	Apply the knowledge of systematic evaluation of the costs and benefits of proposed technical and business project and ventures	PE 1.2, PE1.3, PE2.4, PE3.4
2.	Understand cost concepts, cash flows, their estimation and interest formulae. Also, to understand various depreciation methods and learn about the effect of income tax on economy studies	PE1.2, PE1.3, PE3.4
3.	Be familiar with various methods for economy studies and comparing alternative investments	PE 2.3, PE 2.4, PE3.4
4.	Understand the role of probability analysis in decision making and decision tree analysis	PE1.1, PE 1.2, PE 1.3, PE2.4, PE3.4
5.	Value information and analyse a portfolio of investments	PE 2.1, PE 2.2, PE 2.3, PE 3.1 - PE 3.6
6.	Carry out Monte Carlo simulations	PE 2.1, PE 2.2, PE 2.3, PE2.4

3. Teaching strategies

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. Course schedule

Module A

Week	Date	Topic	Text reference	Demonstration exercises
1	02/03	Engineering economic decisions, cost concepts, time value of money, interest formulae	1,4	4.1, 5,6, 8,

Module B

Week	Date	Topic
2	9/03	Limitations of sensitivity analysis Using probability distributions
6	13/04	Exploration decisions
7	20/04	Binomial distributions
8	27/04	Decision trees
9	4/05	Value of information
10	11/05	Monte Carlo simulation Portfolio analysis

Course revision (Week 13)

13	01/06	Course Revision

We reserve the right to change lecturers and topics depending on the availability of the lecturers and the progress of the course

5. Assessment

The assessment will be through class tests and a final examination. The various parts of the course contributing to the overall grade is as follows:

Assessment task	Weight	Learning outcomes assessed	Due date, time, and submission requirements	Marks returned to students
Module A class test	15%	1-3	Week 5	Two weeks after submission
Module B class test	15%	4-6	Week 8	Two weeks after submission
Final exam	70% overall (35% Module A) (35% Module B)	1-6	Exam period, date TBC	During results period

The class test consists of short questions that require short descriptive answers and/or short calculations.

The final examination for the course is a written end of session examination of three hours duration and will include material covered in the whole course (Section 1 and 2). The final exam has questions that require more substantial descriptive answers and/or calculations.

You must be available for all tests and examinations. Final examinations for each course are held during the University examination periods, which are June for Semester 1 and November for Semester 2.

Provisional Examination timetables are generally published on myUNSW in May for Semester 1 and September for Semester 2

For further information on exams, please see the Exams section on the intranet.

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

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 Special Consideration page.

6. Expected Resources for students

Text book 1
W.G.

e6J4blying hehe16(he)142u3(r)-3( )-1 rgd(sw)lcul2(r)-01(he40 g0 G 0 Tc[,)]TJf4599264 355.85 cmn-US)>> e1T3 a cula be

7. Course evaluation and development

Feedback on the course is gathered periodically using various means, including the Course and Teaching Evaluation and Improvement (CATEI) process, informal discussion in the final

Further information on School policy and procedures in the event of plagiarism is available on the intranet.

9. Administrative Matters

All students are expected to read and be familiar with School guidelines and polices,

Appendix A: Engineers Australia (EA) Professional Engineer Graduate Attributes

	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	