



**UNSW**  
AUSTRALIA

Never Stand Still

Engineering

**GSOE9340**

**LIFE CYCLE ENGINEERING**

C

## 1. Staff contact details



you understand the lecture material, completing the set assignments, further reading, and revising for any examinations.

### Contact hours

	<b>Day</b>	<b>Time</b>	<b>Location</b>
<b>Lectures</b>	Wednesday	6 - 8pm	G02, Ainsworth Building
<b>Demonstrations</b>	Wednesday	8pm – 9pm	G02, Ainsworth Building

### Summary of the course

Manufacturing has always been by far the largest contributor to waste generation in our society and therefore provides a huge potential for waste reduction. This is due to the fact that current manufacturing systems are considered to be of an open loop style, where by manufacturers main interests are focused in the areas of design, development, sales and distribution. A shift to a closed loop manufacturing system is proposed to enable manufacturers to take into account the whole product life cycle and move away from open loop manufacturing. This will require engineering of the whole product life cycle of a product from raw material selection, production, usage to disposal in order to reduce the environmental impact of industrial society

## 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.	Have gained knowledge in the inter-disciplinary field of Life Cycle Engineering	PE1.3, PE1.5, PE1.6
2.	Develop in-depth understanding of various tools and techniques associated with engineering and managing the whole life cycle of a product	PE2.2
3.	Develop an appreciation of the future trends in the area of triple bottom line of sustainability (economic, ecological and social)	PE1.4

## 3. The course

This course is included to give you the skills to appreciate the engineering of product life cycles in order to reduce environmental impact and ultimately to achieve the three pillars of sustainability; namely economic, environmental and social sustainability. The content reflects my experience as a lecturer as well as my practical experience in manufacturing environment, and practical examples drawn from that experience are used throughout the lectures and demonstrations. Effective learning is supported when you are actively engaged in the learning process and by a climate of enquiry, and these are both achieved in the lectures and demonstrations by way of practical case studies. You become more engaged in the learning process if you can see the relevance of your studies to professional, disciplinary and/or personal contexts, and the relevance is shown in all parts of the lectures and assignments by way of examples drawn from industry.

lecturNyand/(el)2.6(ei)2.6(nd)10.5(t6(enc).enc)r.

discussed in class. In other cases (particularly numerical exercises) worked solutions will be handed out separately.

#### 4. Curriculum

Topic	Date	Location	Lecture Content	Demonstration Content	Suggested Readings
Unit 1: Introduction	26/7/16	G02, Ainsworth Building	Introduction to the subject and key drivers of change	N/A	Readings 1 and 2
Unit 2: Life Cycle Strategy and Management	2/8/16	G02, Ainsworth Building	EMS, ISO14000, PAS2050, Cleaner Production and Product Stewardship	N/A	Readings 3 and 4
Unit 3: Energy and Resource Efficiency of Product and Processes	9/8/16	G02, Ainsworth Building	Efficiency, Effectiveness, Star rating at the process and factory level	Energy Efficiency Assessment	Reading 5 and 6
Unit 4: Environmental Footprint of Product and Processes	16/8/16	G02, Ainsworth Building	LCA and application, Four basic steps, LCA tools	LCA Demonstration	

Unit 7:





## Assessment Criteria

A detail assessment criteria will be provided with the Assignment hand outs and uploaded on Moodle

## **Examinations**

There is no final exam in this course. However there will be two midsession tests. You must be available for all tests. Please see the assessments table for further details.

Calculators

You will need to provide your own

### Recommended Internet sites

None

## 7. Course evaluation and improvement

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 class for the course, and the School's Student/Staff meetings. Your feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback.

In this course, recent improvements resulting from student feedback include changing the guest lecturers, more demonstrations and taking into account diverse student background through different demonstrations.

## 8. Academic standards

UNSW has an ongoing commitment to fosteri.7(s)6.5(m)]TJ E.6(o)-1f

(like plagiarism in an honours thesis) even suspension from the university. The Student Misconduct Procedures are available here:

[www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf](http://www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf)

Further information on School policy and procedures in the event of plagiarism is available on the [intranet](#).

## 9. A

All students are expected to read and be familiar with School guidelines and policies, available on the intranet. In particular, students should be familiar with the following:

- x [Attendance, Participation and Class Etiquette](#)
- x [UNSW Email Address](#)
- x [Computing Facilities](#)
- x [Assessment Matters](#) (including guidelines for assignments, exams and special consideration)
- x [Academic Honesty and Plagiarism](#)
- x [Student Equity and Disabilities Unit](#)
- x [Health and Safety](#)
- x [Student Support Services](#)

Prof. S. Kara  
July 2016

A | | | | A: E | | | | | AL | ra | a (EA) S a | | | | | IC | | | | | |  
Pr | | | | | a | E | | | | |

**PE1: Knowledge  
and Skill Base**

**Program Intended Learning Outcomes**

PE1.1 Comprehensive, theory-based understanding of J E6