



UNSW
AUSTRALIA

September 201

Never Stand Still

Engineering

Mechanical and Manufacturing Engineering

GtTj EMC.12h 15.6

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Contact details

Course Convenor: Dr Shaun Chan
J17 room 402D
Email: qing.chan@unsw.edu.au

Main: Ms Zoe Hart

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.	Implement the basic elements of managing a design project and be able to plan and schedule work activities in accordance with standard practice	1.6, 2.1, 2.3, 2.4, 3.1, 3.4, 3.5, 3.6
2.	Apply an effective problem solving approach that is deliverable in practice and justify and defend the selection	1.1, 1.2, 1.3, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 3.3, 3.6
3.	Appreciate the need to critically review and reflect on your own capability and to invite peer review ; to benchmark your performance against appropriate standards and to determine areas for your further development	1.6, 2.1, 2.3, 2.4, 3.2, 3.3, 3.4, 3.5, 3.6

4. Execute effective design solutions in accordance with standard practice and industry standards. (C0007, C11.04, C19.56, C96.04, C100.04, C100.05, C100.06, C100.07, C100.08, C100.09, C100.10, C100.11, C100.12, C100.13, C100.14, C100.15, C100.16, C100.17, C100.18, C100.19, C100.20, C100.21, C100.22, C100.23, C100.24, C100.25, C100.26, C100.27, C100.28, C100.29, C100.30, C100.31, C100.32, C100.33, C100.34, C100.35, C100.36, C100.37, C100.38, C100.39, C100.40, C100.41, C100.42, C100.43, C100.44, C100.45, C100.46, C100.47, C100.48, C100.49, C100.50, C100.51, C100.52, C100.53, C100.54, C100.55, C100.56, C100.57, C100.58, C100.59, C100.60, C100.61, C100.62, C100.63, C100.64, C100.65, C100.66, C100.67, C100.68, C100.69, C100.70, C100.71, C100.72, C100.73, C100.74, C100.75, C100.76, C100.77, C100.78, C100.79, C100.80, C100.81, C100.82, C100.83, C100.84, C100.85, C100.86, C100.87, C100.88, C100.89, C100.90, C100.91, C100.92, C100.93, C100.94, C100.95, C100.96, C100.97, C100.98, C100.99, C100.100)

- A series of Master Classes and CAD/CAE **demonstrations** and **group sessions** will be provided in the School's computer **laboratories** that align to the technical needs of the design problems provided by industry. Students will be expected to determine which of these are relevant to their projects and organise themselves to obtain the necessary information, or help.
- Your work in a **major design project** where you can practise your design skills and demonstrate your understanding of the fundamental concepts of design, teamwork and project management. Study of the diverse disciplines of engineering science has occupied much of your time in previous years. You were mostly assessed only in one

Note that the schedule shown here may be subject to change at short notice to suit exigencies. Check *Moodle* for the latest announcements.

Week	Day	Date	Time	Activity	Location	Task Due	
01	Wed	29-Jul-15	9-10	Lecture 1: Introduction	K-E19-105		
	Wed		10-11	Lecture 2a: Problem Definition			
	Wed		11-12	Lecture 2b: Student enterprise			
	Wed						
02	Wed	05-Aug-15		No tute			
	Wed		9-10	Project Introductions	K-E19-105		
	Wed		10-11	Project Introductions			
	Wed		11-12	Project Introductions			
	Wed				T1		
03	Wed	12-Aug-15	9-10	Lecture 3: Reflective writing	K-E19-105		
	Wed		10-11	Lecture 4: Business culture			
	Wed		11-12	Lecture 4: Business culture			
	Wed			(Client Meetings)			T2
04	Wed	19-Aug-15	9-10	Lecture 5: Innovation	K-E19-105		
	Wed		10-11	Lecture 5: Innovation			
	Wed		11-12	Lecture 5: Innovation			T3
	Wed		16-17	Group Session		K-J17-203/K-J17-204	
Wed	17-18	Group Session					
05	Wed	26-Aug-15	9-10	Lecture 6: Fatigue Analysis	K-E19-105		
	Wed		10-11	Lecture 6: Fatigue Analysis			
	Wed		11-12	Lecture 6: Fatigue Analysis			
	Wed		16-17	Consultations/ Group Session		K-J17-203/K-J17-204	T4
Wed	17-18	Consultations/ Group Session					
06	Wed	02-Sep-15	9-10	Lecture 7: Technical Presentation	K-E19-105		
	Wed		10-11	Lecture 7: Technical Presentation			
	Wed		11-12	Lecture 7: Technical Presentation			
	Wed		16-17	Consultations/ Group Session		K-J17-203/K-J17-204	
Wed	17-18	Consultations/ Group Session					
07	Wed	09-Sep-15	9-10	Lecture 8: Meeting etiquette	K-E19-105		
	Wed		10-11	Lecture 8: Meeting etiquette			
	Wed		11-12	Lecture 8: Meeting etiquette			
	Wed		16-17	Consultations/ Group Session		K-J17-203/K-J17-204	
Wed	17-18	Consultations/ Group Session					



For some assessment tasks you will split into groups and be required to attend different rooms. Details will be posted on *Moodle* prior to the assessments.

Again note: Details regarding the submission of each assessment will be provided when the assessment task is set. These details will be presented in lectures and posted on *Moodle*.

Content

Content

Week 2 and you will then get the opportunity to express a preference for which project you would like to work on. **If you don't submit your preferences by the specified means and date, Course staff will allocate you to a project of their choosing.**

T6A Final Presentation

This

- Written assessments should usually be submitted electronically. Again, watch *Moodle* and attend lectures for exact details of the submission due dates and times.
- *All written assignments will be assessed on your ability to adhere to the recommended formats for submission and on the quality of your discussion in relation to the content.* Whilst it is appreciated that, for some students, English is a second language - this Course will require you to submit written work that is of a reasonable standard for a first year engineering student. If you feel that this may be a problem for you, please contact the Learning Centre as soon as possible for additional assistance: www.lc.unsw.edu.au
- Late submissions attract a penalty of five marks per calendar day, unless prior dispensation has been given; i.e. see the Course Convenor before the due date to avoid penalty. It is always worth submitting as, in the event of difficulty making the final grade, any late penalties may be removed. For assignments where peer reviews are involved, late submissions will not be permitted.
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Client Meetings

Wisdom is gained most effectively by attempting to avoid the (often painful) mistakes of those who have come before you. Your client will be able to assist you – within reason – by providing you with the advice, feedback and encouragement so that you may perform effectively as an engineering designer. Make full use of these experienced people but do so in a professional manner. **Your clients are busy people - like yourselves – often with the added responsibility of having multi-million dollar budgets to juggle. Please make specific arrangements with them if contact is required outside of the allocated meeting times for your team.**

Suggested Reading

Whilst there is not a prescribed textbook for this Course, you may find the following materials instructive:

- Dym, C.L and Little, P. (2009). *Engineering Design: A Project-Based Introduction*, 3rd edition, John Wiley and Sons.
- Voland, G. (2004). *Engineering by Design*, 2nd Edition, Pearson/Prentice Hall.
- Dominick, P.G. et al. (2001). *Tools and Tactics of Design*, John Wiley and Sons.
- Cross, N. (2000). *Engineering Design Methods: Strategies for Product Design*, 3rd edition, John Wiley and Sons.

There are numerous valuable resources available on the web and additional sources will be provided in lectures and group sessions.

The UNSW Library

Students seeking additional resources can also obtain assistance from the UNSW Library. One starting point for assistance is: <http://www.library.unsw.edu.au/servicesfor/index.html>.



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.

Engineering Design is a team effort and we are interested in your feedback. We want your suggestions of what is good and should be retained, and what is not so good and should be improved – with ideas on how to do it. *The usual UNSW Course and Teaching Evaluation and Improvement (CATEI) surveys will be distributed at the end of Semester, though we welcome your informal feedback throughout the duration of the Course.* From 2013, the main improvement has been to broaden the range of Industry Partners and Projects available. The LEAP sessions has also been postponed to give students more time to give further

thoughts about their projects, prior to the meetings and consultation sessions. The group size (number of students per group) has been increased to reduce students' workload.



UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. *Plagiarism at UNSW is defined as using the words or ideas of others and passing them off as your own.*

Plagiarism is a type of intellectual theft. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. UNSW has produced a website with a wealth of resources to support students to understand and avoid plagiarism: <https://student.unsw.edu.au/plagiarism> The Learning Centre assists students with understanding academic integrity and how not to plagiarise. They also hold workshops and can help students one-on-one.

You are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and the proper referencing of sources in preparing all assessment tasks.

If plagiarism is found in your work when you are in first year, your lecturer will offer you assistance to improve your academic skills. They may ask you to look at some online resources, attend the Learning Centre, or sometimes resubmit your work with the problem fixed. However more serious instances in first year, such as stealing another student's work or paying someone to do your work, may be investigated under the Student Misconduct Procedures.

Repeated plagiarism (even in first year), plagiarism after first year, or serious instances, may also be investigated under the Student Misconduct Procedures. The penalties under the procedures can include a reduction in marks, failing a course or for the most serious matters (like plagiarism in an honours thesis) even suspension from the university. The Student Misconduct Procedures are available here:

<http://www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf>

Further information on School policy and procedures in the event of plagiarism is presented in a School handout, [Administrative Matters](#), available on the School website.

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This document contains important information on student responsibilities and support, including special consideration, assessment, health and safety, and student equity and diversity.

Shaun Chan
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