MMAN2100

ENGINEERING DESIGN 2

Contents

1. Contact Staff

1.1 Contact details and consultation times for course convenor

Name: Dr. Ang Liu
Office Location: Ainsworth Building (J17) Level 4, Room 408
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Email: ang.liu@unsw.edu.au
Consultation Hours: 9:00am-11:00am every Thursday in lecturer's office

In addition to the weekly consultation hours that are the best time to meet the lecturer in person, all students and teams are welcomed to schedule extra face-to-face meetings with the lecturer in an alternative time. Since this is a very large class of almost 400 students, a meeting appointment via email beforehand is necessary. You are always welcomed to email the lecturer any question, comment, and suggestion about the course anytime.

1.2 Contact details and consultation times for demonstrators

Chief Demonstrator: Shawn Manuel <shawn_manuel_000@yahoo.com>

Demonstrator (1): Olivia Ishac <oishac@hotmail.com>
Demonstrator (2): Tzi-Chieh Chi <t.chi@unsw.edu.au>
Demonstrator (3): Jeffrey Min <jeffrey.min@unsw.edu.au>
Demonstrator (4): Joseph Rowlands <jrowlands1993@outlook.com>
Demonstrator (5): Gabriel Low <g.low@student.unsw.edu.au >
Demonstrator (6): Panagiotis Thrasou <p.thrasou@gmail.com>
Demonstrator (7): Alexander Euripidou <alexanderdanieleuripidou@gmail.com>
Demonstrator (8): Aravind Baratha Raj <ravi.raj@sunswift.unsw.edu.au>
Demonstrator (9): Malik Muhammad Awais <m.awais@student.unsw.edu.au>
Demonstrator (10): Christopher Miller <chrisj.miller1993@gmail.com>
Demonstrator (11): Mitchell Andrew Kazmierczak <m.kazmierczak@unsw.edu.au>
Demonstrator (12): Harrison James Abbot <h.j.abbot@hotmail.com>

2. Course Details

2.1 Credit points

This is a 6 unit-of-credit (UoC) course, and involves <*6*> hours per week (h/w) of face-to-face contact. The UNSW website states "The normal workload expectations of a student are approximately 25 hours per semester for each UoC, including class contact hours, other learning activities, preparation and time spent on all assessable work. Thus, for a full-time enrolled student, the normal workload, averaged across the 12 weeks of teaching, study and examination periods, is about 48 hours per week." This means that you should aim to spend about 12 h/w on this course. The additional time should be spent in making sure that you

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

2.2 Contact hours

	Section	Day	Time	Location	Week
Lectures	A and Web	Mon	14:00 – 16:00	Ainsworth Building G03 (K-J17-G03)	1-4, 6-13
		Thu	14:00 – 15:00	Rex Vowels Theatre (K-F17-LG3)	1-4, 6-13
Demonstrations	M16A	Mon	16:00 - 17:00	Mathews 102 (K-F23-102)	2-5
		Mon	16:00 - 17:00	Ainsworth Building 203 (K-J17-203)	6-9,10-13
		Wed	09:00 - 10:00	Mathews 102 (K-F23-102)	2-5
		Wed	09:00 - 10:00	Ainsworth Building 203 (K-J17-203)	6-9,10-13
	M16B	Mon	16:00 - 17:00	Mathews 312 (K-F23-312)	2-5
		Mon	16:00 - 17:00	Ainsworth Building 204 (K-J17-204)	6-9,10-13
		Wed	09:00 - 10:00	Tyree Energy Technology G17 (K-H6-G17)	2-5
		Wed	09:00 - 10:00	Ainsworth Building 204 (K-J17-204)	6-9,10-13
	M17A	Mon	17:00 - 18:00	Mathews 102 (K-F23-102)	2-5
		Mon	17:00 - 18:00	Ainsworth Building 203 (K-J17-203)	6-9,10-13
		Wed	15:00 - 16:00	Mathews 102 (K-F23-102)	2-5
		Wed	15:00 - 16:00	Ainsworth Building 203 (K-J17-203)	6-9,10-13
	M17B	Mon	17:00 - 18:00	Mathews 312 (K-F23-312)	2-5
		Mon	17:00 - 18:00	Ainsworth Building 204 (K-J17-204)	6-9,10-13
		Wed	15:00 - 16:00	Tyree Energy Technology G16 (K-H6-G16)	2-5
		Wed	15:00 - 16:00	Ainsworth Building 204 (K-J17-204)	6-9,10-13
	T17A	Tue	17:00 - 18:00	Goldstein G16 (K-D16-G16)	2-5
		Tue	17:00 - 18:00	Ainsworth Building 203 (K-J17-203)	6-9,10-13
		Fri	09:00 - 10:00	Tyree Energy Technology G17 (K-H6-G17)	2-5
		Fri	09:00 - 10:00	Ainsworth Building 203 (K-J17-203)	6-9,10-13
	T17B	Tue	17:00 - 18:00	Tyree Energy Technology G17 (K-H6-G17)	2-5
		Tue	17:00 - 18:00	Ainsworth Building 204 (K-J17-204)	6-9,10-13
		Fri	09:00 - 10:00	Mathews 102 (K-F23-102)	2-5
		Fri	09:00 - 10:00	Ainsworth Building 204 (K-J17-204)	6-9,10-13

2.3 Summary of the course

This course focuses on the emerging engineering subject of innovative design thinking, which navigates an engineer to think like a designer along a systemic, rational, and creative pathway, towards breakthrough innovations of new products/services. On one hand, it provides students with a holistic understanding of the big picture, wide spectrum, and structured process of engineering design. On the other hand, it dives into the early stages of engineering design, in specific to functional design and conceptual design, which greatly determines the ultimate success of any new product development.

2.4 Aims of the course

Unlike those purely technical engineering subjects, engineering design is characterized by the synergy between “analysis and “synthesis”, between ””rationality” and “optimality”, as well as between “do the right thing” and “do the thing right”. Therefore, this course aims to make you understand the sociotechnical nature of engineering design that concerns both social reality and physical reality, and provide you with the capability not only to solve a

design problem using relevant engineering knowledge, but also to formulate a unique design problem in the first place.

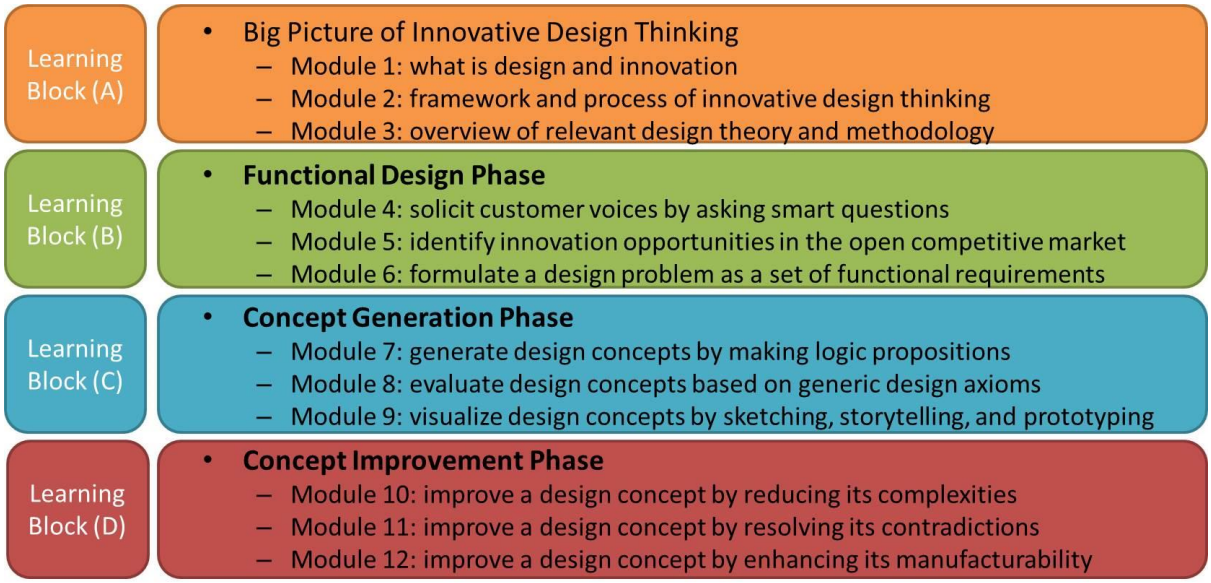
Design thinking is a fundamental skill that every engineer must have for the 21st Century. It is one of the key skills that profoundly distinguish human intelligence from artificial intelligence, and it greatly impacts an engineer's long-term career success in the workplace. Therefore, this course aims to equip you with the domain-independent design thinking and the spirit of life-long learning, which can be applied to whatever stream (e.g., aerospace, mechanical, manufacturing, mechatronic, or naval engineering) you choose to pursue in the future.

Today's engineering problem is becoming too complex to be addressed by a single engineer using individual disciplinary knowledge. Therefore, this course also aims to help you understand both opportunities and challenges of collaborative design. Through the pedagogy of project-based learning, it's expected that your collaborative communication, negotiation, decision-making skills will become significantly enhanced.

Due to the continuous advancement of information and communication technologies, everyone and everything is becoming increasingly interconnected and "intelligent". Against such a background, this course aims to increase your awareness and preparedness of employing Internet and smart devices to actively seek for unmet innovation opportunities and collect relevant design information not only in the physical world but also in the cyberspace.

2.5 Learning outcomes

The course content will be structured into 4 learning blocks. Each block is composed of 3 learning modules, and every module consists of 5-6 key design principles/methods. In total, the course is composed of 12 learning modules and 60-80 design principles/methods.



This course is designed to address the learning outcomes below 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	Follow a systemic process to conduct engineering design	PE 1.1 and PE 2.4
2	Ask intelligent questions to interview customers and solicit their voices	PE 2.3
3	Observe customer's behaviours to identify innovation opportunities	PE 3.3
4	Formulate a design problem as a set of functional requirements	PE 1.5
5	Generate design concepts by making logic propositions	PE 2.3
6	Evaluate design concepts based on generic design axioms	PE 1.2
7	Visualize design concepts using sketching, storytelling and prototyping	PE 1.5 and 2.2
8	Diagnosis and address the acquired complexities of a complex system	PE 2.1
9	Collaborate with a team of engineers to jointly solve a design problem	PE 2.4 and PE 3.6
10	Familiarize with the patent searching and application process	PE 3.4

3. Teaching Strategies

Design is the hallmark of human creativity in general and the essence of engineering profession in particular. Students can learn "design" most effectively when they:

- Profoundly understand the social-technical nature of engineering design, as well as the fundamental difference between "do the right thing" and "do the thing right".
- Actively engage in ongoing interactions with instructor, classmates, teammates, and practitioners in order to construct not only novel artifacts but also new knowledge, skill, wisdom, and entrepreneurship.
- Proactively employ the design insights gained in classroom to frame their daily life struggles, decisions, and observations as a unique innovation opportunity and to create both purposeful and functional "artifacts" to capture the opportunity.

Based on the above teaching philosophy, this course adopts the following pedagogies: lecture, demonstration, project-based learning, personalized learning, and 24/7 learning.

Lecture: the purpose of lectures is to deliver knowledge and deepen understanding of the so delivered knowledge. Generally speaking, the lectures for this course are classified into two types: content-oriented and context-focused. The former is intended to teach you the theoretical foundations of a design principle/method, whereas the latter focuses on the practical guidelines of how to effectively utilize the so taught design principle/method. The importance of lectures cannot be overstated. In class, you are expected to participate in every lecture and pay 100% of your attentions. In other words, any behaviour that distracts yourself or others (such as small talks or checking Facebook) is NOT welcomed during the live lectures. Taking notes in class is highly suggested.

Demonstration: during a demonstration session, the demonstrators will showcase how to use the design principle/method covered in the lectures to address real-world design problems, answer any questions about the course assignments, and provide guidance and feedback to your team project. Different from the lectures, there is no standard format for a demonstration session. Depending on schedule availability, the lecturer himself may occasionally drop by a demonstration session. It should be made crystally clear that, the demonstrator is not your team leader! But rather, they should be treated as your "coach" who only guides you through the practice. You are still the ones who actually "play" in the field.

Before you attend a demonstration session, it's critical that you thoroughly reflect the lecture content and purposefully prepare a set of lead-in questions. Demonstration is not intended to repeat the content that's already covered during the lectures.

Project-based learning: the best way to learning design thinking is through design practicing on a specific project, together with other designers. The class will be divided into 60-70 independent project teams, and these teams will employ the design principles and/or methods learnt from the lectures to collaboratively accomplish a design project and its associated assignments (more details are specified in the Section 5.3-5.5). Note that, provided the large class size, the team formation will be performed bounded by each demonstration session of the 60-67 enrolled students. Details of team formation will be announced in the week 1. You are encouraged to ask questions or clarify confusions about the team project during the demonstration sessions.

Personalized learning: everything is becoming customized in the 21st Century, learning should be no exception. Various kinds of interactions, student-content interaction, student-teacher interaction, and student-student interaction are the key to achieve a personalized learning of design thinking. Firstly, you should frequently revisit and reflect the past learning content to develop new understandings, in particular, with respect to how different modules are interrelated. Secondly, as much as possible, you are encouraged to approach the lecturer and demonstrators to discuss any course-related matters. Thirdly, you should not only collaborate with your team members for the design project, but also interact with your peer classmates for social constructions of a design culture.

Life-long and 24/7 Learning: it used to be that the knowledge a student learns in college for four years can secure him/her a high-salary job for 40 years. Nowadays, as knowledge becomes a commodity that everyone can easily access on the Internet, it is critical that you develop a habit of life-long and 24/7 learning. This is especially true for the learning of design thinking. Therefore, as much as possible, you are encouraged to discover the design opportunities (e.g., good and/or bad products, effective and/or ineffective design practices) that exist in your daily life, document them in your personal logbook, and share them with the class on Facebook and other social media such as Twitter, Instagram, Pinterest, etc.

4. Course Schedule

Week[a]	Monday Lecture (Content)	Thursday Lecture (Context)	Block	Module	Demonstration (Practice)[b]	Deliverable
1	Course overview + what is design, innovation, and design thinking		A	(1)	n/a	n/a
2	The principles, framework, and process of innovative design thinking		A	(2)	Use verbs to describe a product	n/a
3	Solicit customer voices by asking smart questions		B	(4)	Exemplify the sociotechnical paradigm	-Design exercise (1)
4	Identify innovation opportunities in the open competitive market		B	(5)	Mock interviews of target customers	
5[c]	n/a	n/a	n/a	n/a	Discuss life-style meanings of products	-Design exercise (2)
6	Formulate a design problem as a set of functional requirements		B	(6)	Exemplify functional requirements	
7	Generate design concepts by making logic propositions		C	(7)	Exemplify analytic-synthetic propositions	-Design Report (I) -Design Exercise (3)
8	Evaluate design concepts based on generic design axioms		C	(8)	Exemplify design axioms	-Logbook (midterm inspection)
9	Visualize design concepts by sketching, storytelling, and prototyping		C	(9)	Demonstrate concept sketching	-Design exercise (4)
10	Improve a design concept by reducing its complexities		D	(10)	Exemplify various complex systems	-Design Report (II)
11	Improve a design concept by resolving its contradictions		D	(11)	Demonstrate how to use TRIZ	-Design Exercise (5)
12	Improve a design concept by forming a habit of using it		D	(12)	Discuss various habit forming products	
13	Overview of relevant design theory and methodology		A	(3)	Final presentation	-Design Report (III) -Final Presentation -Logbook (final submission)
14	Consultation hour	Consultation hour	n/a	n/a	Office hour	-Patent report -Peer Evaluation

[a]The lecturer reserves the right to adjust the above schedule based on learning progressions.
[b]The lecturer may occasionally drop by the demonstration sessions to guide project in person.
[c]The lecturer is on travel in week 5. There are no lectures scheduled, while the demonstration will carry on as usual.

5. Assessment Scheme

Assessment	Outcome	Work Type	Length	Weight	Assessment Criteria	Submission	Due Date[2]	Marks
5 design exercises	Module 2, 4, 6, 8, 10	Individual Efforts	No length requirement	10%	• Relevance of answer to the question • Level of details of your answer • Novelty of your answer • Technical writing and drawing	• Digital report • Formats vary per exercise	Week 3, 5, 7, 9, and 11	Within one week after submission
Logbook	Module 2-12	Individual Efforts	No length requirement	30%[1]	• Individual contribution to team project • Personal reflection of learning content • Personal design observations	• Handwritten • Submit the original copy to demonstrator	Week 13	Upon release of the final mark
Design Report (I)	Module 4-6	Team Efforts	Up to 30 pages	10%	• Use the design method correctly • Quantity and variety of generated ideas • Novelty and quality of the chosen idea • Quality of technical writing	• Digital report • WORD format • Submit via Moodle	Week 7	Within two weeks after submission
Design Report (II)	Module 7-9	Team Efforts	Up to 30 pages	10%	• Use the design method correctly • Quantity and variety of design ideas • Novelty and quality of the chosen idea Quality of technical writing	• Digital report • WORD format • Submit via Moodle	Week 10	Within two weeks after submission
Design Report (III)	Module 9-12	Team Efforts	Up to 30 pages	10%	• Use the design method correctly • Quantity and variety of design ideas • Novelty and quality of the chosen idea • Quality of technical writing	• Digital report • WORD format • Submit via Moodle	Week 13	Within two weeks after submission
Final Presentation	Module -12	Team Efforts	15 minutes	10%	• Organization and structure • Content and Visual Aids • Team efforts • Interaction with the audience	• Digital report • PPT format • Submit via Moodle	Week 13	Within one week after presentation
PPA Repot	Module 12	Team Efforts	No length requirement	10%	• Follow the correct PPA report format • Completeness of the report • Quality of a report's content • Quality of technical writing and drawing	• Digital report • PDF format • Submit via Moodle	Nov 3rd, 2016	Upon release of the final mark
Peer Evaluation	Module 1-3	Confidential	No length requirement	10%	• Individual contribution • Overall team effectiveness	• Via an online survey	Nov 3rd, 2016	Upon release of the final mark

1. 10% is allocated to the mid-term inspection in the week 8, and 20% is allocated to the final inspection in the week 13
2. Unless otherwise required, the due day and time of every assignment is 22:00 on Sunday of the above specified week.

Your final mark will be determined based on assessment your performance in the following assignments, which are associated with different weights of importance:

- 10% - Five (5) design exercises based on individual efforts
    - Each exercise counts for 2% of your final mark
- 30% - One (1) design logbook based on individual efforts
    - 10% - the midterm inspection in the week 8
    - 20% - the final inspection in the week 14
- 30% - Three (3) design reports based on team efforts
    - 10% - the design report (I) for functional design
    - 10% - the design report (II) for concept generation
    - 10% - the design report (III) for concept improvement
- 10% - One (1) final design presentation based on team efforts
- 10% - One (1) confidential peer-evaluation of teamwork
- 10% - One (1) Provisional Patent Application (PPA) report based on team efforts

The students who enrolled in the same demonstration session will be divided into multiple design teams, and each team is composed of 6-7 students. These design teams will work together for the whole semester to collaboratively accomplish a design project and its associated assignments (i.e., design reports, design presentation, and PPA report).

Unless otherwise required, the due day and time of an assignment is 22:00 on Sunday of the specified week in the Table of Assessment Scheme.

5.1 Design exercises

A total of five (5) design exercises will be assigned on a fortnightly basis, which must be completed by each individual student in a completely independent fashion. The specific requirements of the exercise will be announced in the week 1, 3, 5, 7 and 9. Each exercise takes two weeks to be completed, and the result is due in the week 3, 5, 7, 9, and 11.

5.2 Design logbook

Every student is required to create a personal logbook, the purpose of which is to track and keep a record of your entire learning process towards a good habit of life-long and 24/7 learning progress and work done towards the project. In industry, the logbook serves as a professional and legal document that indicates the complete research, planning, and thinking process of an engineer working on that project such that if a new engineer takes over the project, the logbook allow them start off right where the previous engineer finished. The logbook can also be used as a timestamped proof for an engineer’s original invention when filing for a patent.

The content of the logbook is suggested to include but are not limited to: (1) your personal reflections of the course content; (2) your personal observations of good and/or bad designs in the real-world; (3) your personal documentation of and contributions to the team project. Note that, the logbook must be prepared and submitted as the original copy of your own handwriting, with important dates added. No digital copy is allowed, unless pre-approved. The logbook will be inspected in the week 8 and 13.

5.3 Design report

Throughout the semester, each team is required to submit a total of three (3) design reports that comprehensively document your complete design process and outcome during the three design phases: functional design, concept generation, and concept improvement. A specification of report requirement, structure and content will be provided in the week 2, 6 and 9. The 1st, 2nd and 3rd design report is each due in the week 7, 10 and 13, respectively.

The report submissions are structured in a fashion similar to what you will experience in industry, and you should treat your demonstrator as you would a customer or an employer. All assignments are "deliverables", completed by the team. Your team will need to show the ability to complete each assignment to a high standard (80% or better) in order to be allowed submission of the next deliverable. However, each team is allowed four resubmissions for any of the three assignments during the semester so you will have a chance to recover from the types of mistakes that would normally put you in peril of losing a job. For example, if your team scored 7/10 for the first report, 1 resubmission would be used up for you to resubmit a revised first report to achieve an 8+/10. You would then have 3 resubmissions (above the original submission) to resubmit any following reports scoring <8/10.

5.4 Final presentation

At the conclusion of the course, each team is required to prepare and make a 15-minute presentation about your final design outcome in front of the lecturers, demonstrators and your peer classmates. The purpose is to practice your public speaking and presentation skill. Note that, your performance will be peer assessed. In other words, everyone including each student has a vote to determine the top performing team(s). A suggested presentation structure and a peer evaluation form will be provided in the week 10. The final presentation is scheduled in the week 13, and it will be organized per each demonstration session.

5.5 Provisional Patent Application report

The final design outcome should be documented in the form of a Provisional Patent Application (PPA) report, according to the requirements defined by the IP Australia (https://www.ipaustralia.gov.au/patents). The PPA report should include at least the following components: description, claims (independent claim and dependent claim), an abstract, drawings, and a gene sequence listing. Note that, you are not required to actually file~~l~~ the patent, unless you want to. After the course is concluded, the lecturer could help those most creative teams to seek for internal and/or external resources to obtain a real patent. Samples of patent report can be provided upon request. The PPA report is due in the week 14.

5.6 Peer Evaluation

At conclusion of the course, a confidential peer evaluation will be conducted in order to evaluate the teamwork dimension of the design project. Each student will be asked to fill out a questionnaire, which evaluates every team member (excluding him/herself) for the percentage contribution to the teamwork in different categories. The evaluations are

averaged in order to find each student's contribution and the weighting factor is made proportional to the average. The peer evaluation result is intended to reward the active contributors and penalise the inactive ones. The peer evaluation determines 10% of your final mark.

5.7 Policy of late submission

According to the School Guideline, late submissions will be penalised 5 marks (i.e., 5% of the assignment's total mark) per calendar day (or part thereof, including weekends). An extension may only be granted in exceptional circumstances. Where an assessment task is worth less than 20% of the total course mark and you have a compelling reason for being unable to submit your work on time, you must seek approval for an extension from the course convenor ***before the due date***. Special consideration for assessment tasks of 20% or greater must be processed through student.unsw.edu.au/special-consideration. On the other hand, it is always worth submitting late assessment tasks when possible. Completion of the work, even late, may be taken into account in cases of special consideration.

5.8 Examinations

There is NO examination for course, based on the assumptions that every design problem should be formulated in a unique fashion, while there is no unique solution to the same design problem.

5.9 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 Resources

No required textbook is assigned, while students are encouraged to gain easy accesses to some recommended reference books as following:

[1] "Axiomatic Design – advances and applications", by Nam Suh, Oxford University Press.
[2] "The sciences of the artificial", by Herbert Simon, MIT press.
[3] *"Thinking, fast and slow"*, Daniel Kahneman, Macmillan.
[4] "Engineering design – A systematic approach", G. Pahl and W. Beitz, Springer-Verlag.
[5] "A more beautiful question: the power of inquiry to spark breakthrough ideas", by Warren Berger, Bloomsbury Publishing.
[6] "Hooked: How to build habit-forming products", by Nir Eyal, Penguin Canada.
[7] "The life-changing magic of tidying up: The Japanese art of decluttering and organizing", by Marie Kondo, Shannon Stacey.
[8] "Systematic Innovation – an introduction to TRIZ", by John Terninko, Alla Zusman, and Boris Zlotin, St. Lucie Press.
[9] "Complexity: theory and applications", by Nam P. Suh, Oxford University Press.

[10] “Universal principles of design, revised and updated: 125 ways to enhance usability, influence perception, increase appeal, make better design decisions, and teach through design”, by William Lidwell, Holden Kritina and Butler Jill, Rockport Publishing.

Some, if not all, of the above suggested books may be found in the UNSW Library:

- http://info.library.unsw.edu.au/web/services/services.html

You are expected to frequently check the course website <www.idt-unsw.org> to follow the recently added books and videos that you are suggested to read and watch.

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 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 previous student feedback include: (1) cancel the mid-term examination; (2) assign an individual design exercise on a fortnightly basis; (3) add more practical examples in the lecture content; (4) make visible the course structure in terms of how different modules are related; (5) add weekly consultation hours of the lecturer; (6) replace the final report with a PPA report; (7) create an external website as the course portal.

8. Academic Honesty and Plagiarism

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: 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:
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. Administrative Matters

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

- Attendance, Participation and Class Etiquette
- UNSW Email Address
- Computing Facilities
- Assessment Matters
- Academic Honesty and Plagiarism
- Student Equity and Disabilities Unit
- Health and Safety
- Student Support Services

Dr. Ang Liu
July 21st, 2016

10. Appendix A: Engineers Australia (EA) Stage 1 Competencies for Professional Engineers

	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