UNSW AUSTRALIA

Course Outline

Semester 2 2015

Never Stand Still | Engineering | Mechanical and Manufacturing Engineering

MMAN3000

PROFESSIONAL ENGINEERING AND COMMUNICATION

Contents

1. Staff Contact Details 2
2. Course details 2
3. Teaching strategies 5
4. Course schedule 5
5. Assessment 6
6. Expected Resources for students 7
7. Course evaluation and development 8
8. Academic honesty and plagiarism 8
9. Administrative Matters 9
Appendix A: Engineers Australia (EA) Professional Engineer Competency Standards 10

1. Staff Contact Details

Contact details and consultation times for course convenor

Mark Whitty
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Tel: (02) 9385 4230
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Consultation concerning this course should in the first instance be made with your demonstrators, then using the Moodle discussion forums and as a last resort by email to the course lecturers.

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

Demonstrator Name	Contact email address
Samira Alvandi (head demonstrator)	samira_alvandi@yahoo.com
Jay Sul	j.sul@unsw.edu.au
Bradley Alderton	b.alderton@student.unsw.edu.au
Stacey Rigney	stacey.rigney@unsw.edu.au
Mark Kerollos	z3371616@zmail.unsw.edu.au

2. Course details

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 16 weeks of teaching, study and examination periods, is about 37.5 hours per week.”

This means that you should aim to spend about 9 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.

There is no parallel teaching in this course.

Contact Hours

	Day	Time	Location
Lectures	Thursday	2pm – 5pm	Science Theatre (K-F13-G09)
Problem Solving Sessions (PSSs)	Tuesday	9am – 12noon	OMB144A
	Tuesday	9am – 12noon	Red Centre West M010
	Tuesday	9am – 12noon	EE225
	Tuesday	12noon – 3pm	EE225
	Tuesday	12noon – 3pm	Red Centre West M010
	Friday	9am – 12noon	OMB144A
	Friday	9am – 12noon	OMB145A
	Friday	9am – 12noon	Quad G031
	Friday	12noon – 3pm	Quad G031
	Friday	12noon – 3pm	OMB144A

Lectures commence in week 1 and run until week 12. Problem Solving Sessions commence in week 2 and run until week 13. You should attend the problem solving session you have been enrolled in (see my.UNSW).

Summary of the Course

Increasingly, undergraduate university programs are not just about providing you with a breadth and depth of discipline knowledge and technical skills, but also a range of skills that prepare you for professional life. These are referred to variously as graduate attributes, graduate capabilities, generic skills, transferable skills, even success skills, and the list goes on…

Incorporation of teaching of such skills is particularly important in professional and accredited programs such as those offered by the Faculty of Engineering. As a budding Professional Engineer, you are expected to demonstrate professional and personal attributes commensurate with Stage 1 Competencies laid down by Engineers Australia.

This course will allow you to develop three aspects of preparedness; it is hoped that you will be more job-ready, thesis-ready and team-ready. Further, each of you, along with your colleagues, should assume more responsibility for your own learning than might be the case in other courses.

Aims of the Course

1. Develop your confidence and skills in oral communication using audio-visual aids.
2. Improve skills in design and presentation of a range of professional documents, from your own CV to technical or scientific writing.
3. Develop your ability to work effectively as part of a group or team.
4. Expose you to a range of solutions used by professional engineers for project management and dealing with ethical considerations.

One focus of the course is on communication, in various modes and pertaining, in a broad and ‘arms-length’ sense, and non-exclusively, to preparation for your undergraduate thesis. A second focus is on instruction and activities relating to career readiness, with many of you starting to consider most immediately your search for industrial training, but also likely some early thought on what you’ will do with your lives beyond UNSW. The third focus provides instruction and activities, relating to group roles, dynamics and evaluation of performance. The final focus is on preparing you for your role as professional engineers by providing insight into the tools and techniques used in industry and academic for managing projects and ethical considerations.

These are all non-technical aspects of professional practice that are important to engineers working in a professional environment. Despite their non-technical nature, the concepts involved can be just as challenging (or perhaps more so for some) as those associated with the technical analyses with which most engineering students are more familiar.

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 demonstrate:

Learning Outcome		**EA Stage 1 Competencies**
1	Improved confidence and skills in oral communication	3.2
2	Ability to write various technical documents to a high standard of professionalism.	3.2, 3.4
3	Understanding of the importance and relevance of ethical and moral considerations in professional engineering life and the ability to apply reasoned decision making processes to resolve ethical dilemmas and potential conflicts of interest.	1.6, 3.1, 3.4, 3.5
4	Ability to develop and apply planning strategies - and utilise basic project management approaches - for large and small tasks.	2.4, 3.4, 3.5
5	Understanding of the psychology and dynamics of team projects and interpersonal interactions, and an ability to demonstrate effective teamwork strategies based on this.	3.3, 3.5, 3.6
6	Development and application of high-level research skills suitable for academic and industrial environments.	1.3, 1.4

3. Teaching strategies

Lectures in the course are designed to cover the underlying concepts that will be needed to complete assignments and exercises. These lectures give a framework for understanding and developing the confidence and skills required to give oral presentations, write technical documents to a high standard, and engage in effective self-presentation in applying for jobs and lifelong networking. Many of these tasks are an almost-daily feature of professional engineering life, and performance at a high level is required for the effective operation of a company and, individually, for advancement in the corporate environment. The approach in teaching this course is based on a model of instruction and practice, including learning through peer review.

Lectures will also cover the importance and relevance of ethical and moral considerations in professional engineering life.

The problem solving sessions are designed to provide you with a platform to hone your writing and presentation skills, discuss ethical scenarios, participate in recruitment processes and to provide feedback on required assignments. They are intended to provide an open and inclusive environment for discussion of ideas and constructive criticism.

Online: The online forum for participation in this class is the Moodle Platform, specifically the course at http://moodle.telt.unsw.edu.au/course/view.php?id=16738. All official online interactions will take place or be linked clearly and appropriately from this site.

In class: There are two in-class activities in a typical week which we refer to as the Thursday Lecture and Problem Solving Session based on the timetable above.

4. Course schedule

Week	Lecture Topics	Assessment Task
1	Introduction to course and major project	
2	Project management overview	
3	Applying for jobs, resume preparation	
4	Interview preparation	Job application
5	Oral communication and presentation skills	
6	Project management – part 2	Peer assessment of job application
7	Project management – part 3	Video
8	Ethics and intellectual property	Peer assessment of video
9	Writing and research skills	
	Mid-semester break	
10	Writing and research skills (continued)	Quiz
11	Engineers Australia, graduate pathways.	Research proposal
12	Major project presentations	Presentation; Reflection activity
13	No lecture	Peer assessment of reflection activity
	Stuvac	
	Exam period	Project management report

5. Assessment

Week	Assessment task	Mark	Learning outcomes assessed	Reason for Assessment	Due date, time
4	Job application	10	1, 2	Experience at writing job application documentation, conducting and participating in interviews.	Start of week 4 PSS.
6	Peer assess job application	10			Friday 4 Sep, 11:55pm.
7	Video	10	1	To convey information of a topic of general interest, taking care to engage the audience's attention and convey a story.	Friday 11 Sep, 11:55pm.
8	Peer assess video	5			Friday 18 Sep, 11:55pm.
10	Quiz	10	3	Knowledge test on various aspects of the course material.	Friday 9 Oct, 11:55pm.
11	Research proposal	10	2, 6	Write an individual short research proposal which may be used when approaching academics for a thesis topic.	Friday 16 Oct, 11:55pm
12	Major project presentations	10	1, 2	Presentation of major project results to the class in lecture.	Thursday 22 Oct, 2pm.
12	Reflection activity	10	3, 5	As an individual, reflect on the processes by which group members interacted throughout the major group project.	Friday 23 Oct, 11:55pm.
13	Peer assess reflection activity	5			Friday 30 Oct, 11:55pm.
Exam period	Project management report (no final exam)	20	2, 4, 5, 6	As a group, prepare the project management documentation associated with a major engineering task.	Friday 13 Nov, 11:55pm.

Assignments

Late submission of assessments is **not** permitted in this course. Where 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 may be granted according to the policy listed in the section titled 'Administrative Matters' below.

All assessment tasks must be submitted to Moodle. No school cover sheet is required.

Assessment Criteria

Further details of individual assessment tasks will be provided on Moodle, including submission procedures and the criteria by which grades will be assigned.

Peer assessment tasks will have a proportion of their marks assigned to how well your feedback matched that of other students.

Examinations

There is no final examination in this course. An in-course quiz will be available on Moodle as listed in the table above.

Special Consideration and Supplementary Assessment

For details of applying for special consideration and conditions for the award of supplementary assessment, see Administrative Matters, available on the School website and on Moodle, and the information on UNSW's Special Consideration page.

6. Expected Resources for students

There are no mandatory texts for this course, as it is difficult if not impossible to identify a single text that would cover all aspects of the course. Below are suggested readings that you might consider more as resources that relate to various aspects of the course. While taking the course, if you identify resources that you feel may be particularly useful, please let the course coordinator know, so this list can be updated for the benefit of other students.

Eisenberg, A., 1992, *Effective Technical Communication*, 2nd Ed., McGraw-Hill, New York.
AGPS ,1994, *Style Manual for Authors, Editors and Printers*, 5th ed., Australian Government Publishing Service, Canberra.
Anderson, J. and Poole, M., 1995, *Thesis and Assignment Writing*, 2nd ed., Jacaranda Wiley, Brisbane.
AS1000-1979, *The International System of Units (SI) and its Application*, Standards Australia, Sydney.
AS1376-1973, *Conversion Factors*, Standards Australia, Sydney.
Bernard, J.R.L., 1986, *The Macquarie Thesaurus*, revised ed., Macquarie Library, Sydney.
Delbridge, A., 1991, *The Macquarie Dictionary*, 2nd revision, Macquarie Library, Sydney.
Dykes, B., 1992, *Grammar Made Easy*, Hale & Iremonger, Sydney.
Eagleson, R.D., 1990, *Writing in Plain English*, Australian Government Publishing Service, Canberra.
Hardie, R. G., 1990, *English Grammar*, Harper Collins Publishers, Glasgow.
Knuth, D.E., 1984, *The TEXbook*, Addison-Wesley, Reading MA.
Lamport, L., 1994, *LATEX: A Document Preparation System*, 2nd ed., Addison-Wesley, Reading MA.
Mohan, T., McGregor, H. Saunders, S. and Archee, R., 1997, *Communicating! Theory and Practice*, Harcourt Brace and Co., Sydney.
Peters, P., 1995, *The Cambridge Australian English Style Guide*, Cambridge University Press, Cambridge.
Rathbone, R.R., 1985, *Communicating Technical Information*, Addison-Wesley, Reading MA.

Roth, R.N. and van Haeringen, I.A., 1988, *Australian Engineering Drawing*
Martin, M.W., Schinzinger, R., Ethics in Engineering, 4th Edition, McGraw-Hill. ISBN: 0-07-283115-4

Additional online references

Moodle site for MMAN3000 Access via: http://moodle.telt.unsw.edu.au/my/
School's website http://www.engineering.unsw.edu.au/mechanical-engineering/
Library http://info.library.unsw.edu.au/web/services/services.html

Engineers Australia provides resources for career development (free registration): http://mycpd.engineersaustralia.org.au/#home

The Online Ethics Centre for Engineering and Science: http://www.onlineethics.org/

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.

Feedback from the previous instance of this course indicated that the excessive number of assessments and lack of cohesion and communication regarding deadlines and absence of feedback were major drawbacks. To address these concerns, the assessments have been rationalised into the size tasks listed above. A combination of peer and staff feedback has been planned to increase personal feedback and also for students to gain experience in evaluating the work of their peers. A major group project has been introduced for the first time, to add cohesion between the elements of this course and motivation for students as well as exposure to less technical aspects of engineering. A major focus has been on exposing students to life on both sides of the table, both interviewer and interviewee, manager and engineer.

You are also encouraged to comment on all aspects of the course using the discussion forum within Moodle while the course is being conducted.

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: 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.

9. Administrative Matters

You are expected to have read and be familiar with *Administrative Matters*, available on the School website: https://www.engineering.unsw.edu.au/mechanical-engineering/sites/mech/files/u41/S2-2015-Administrative-Matters_20150721.pdf

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

Mark Whitty
July 2015

Appendix A: Engineers Australia (EA) Professional Engineer Competency Standards

	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