



# Course Outline

Semester 2 2016

Never Stand Still

Engineering

Mechanical and Manufacturing Engineering

## **MMAN3000**

# **Professional Engineering and Communication**

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# I. Staff Contact Details

## **Contact details and consultation times for course convenor**

Mr Corey Martin

Office: Ainsworth Building (J17), Room 507

Email: [corey.martin@unsw.edu.au](mailto:corey.martin@unsw.edu.au)

Consultation concerning this course is available immediately after the classes. Face-to-face consultation outside this time is available by appointment only.

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

Dr Mark Whitty

Office: Ainsworth Building (J17) Room 510G

Tel: (02) 9385 4230

Email: [m.whitty@unsw.edu.au](mailto:m.whitty@unsw.edu.au)

### Online content co-ordinator

Ms Sandra Cowan

Email: [sandra.cowan@unsw.edu.au](mailto:sandra.cowan@unsw.edu.au)

### Demonstrators

Details for each of the demonstrators can be found on Moodle

## 2. Course details

### Credit Points

This is a 6 unit-of-credit (UoC) course, and involves 4 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 9-10 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

Students are required to attend the lecture as well as one of the demonstrations.

	Day	Time	Location
<b>Lecture</b>	Thursday	11am-1pm	Mathews Theatre A (K-D23-201)
<b>Demonstrations</b>	Monday	2pm-4pm	Blockhouse G13 (K-G6-G13)
	Monday	2pm-4pm	Blockhouse G15 (K-G6-G15)
	Wednesday	11am-1pm	Mathews 232 (K-F23-232)
	Wednesday	11am-1pm	Blockhouse G16 (K-G6-G16)
	Wednesday	11am-1pm	Blockhouse G6 (K-G6-G6)
	Wednesday	4pm – 6pm	Blockhouse G16 (K-G6-G16)
	Wednesday	4pm – 6pm	Law Building 276 (K-F8-276)
	Wednesday	4pm – 6pm	Law Building 388 (K-F8-388)
	Thursday	9am – 11am	Mathews 231 (K-F23-231)
	Thursday	9am – 11am	Mathews 232 (K-F23-232)

## Summary of the Course

Professional Engineers are primarily concerned with the advancement of technologies and with the development of new technologies through research and their applications through innovation, creativity and change.

As future engineers you may have already discovered that having technical skills is only part of the attributes and characteristics required for you to successfully practice engineering.

This course exposes you to fundamental elements underpinning the profession and explores the professional and personal attributes required by you to practice engineering and thus enable you to respond to future challenges faced by our society.

## Aims of the Course

This course takes a holistic approach to engineering with the goal of preparing you for life as a professional engineer.

The course will provide you with the opportunities to thoughtfully consider and respond to issues around being a global citizen including legal and ethical responsibilities as well as how to communicate effectively.

Part of being a professional engineer requires the ability for you to work with others and so an emphasis on leadership and teamwork is developed throughout the course.

## Student learning outcomes

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.	Understand what it means to be a professional engineer and how to apply it to oneself.	PE1.1, 1.6 PE2.1, 2.4 PE3.1, 3.3, 3.4, 3.5, 3.6
2.	Be able to apply high-level research as well as project management skills	PE1.1, 1.2, 1.4, 1.5, 1.6 PE2.1, 2.2, 2.3, 2.4 PE3.2, 3.6
3.	Be able to communicate effectively, both orally and in written form across a variety of media types.	PE1.1, 1.6 PE2.2, 2.4 PE3.1, 3.2, 3.4, 3.5, 3.6
4.	Demonstrate effective team membership and team leadership	PE3.1, 3.2, 3.3, 3.4, 3.5, 3.6

### 3. Teaching strategies

Lectures in the course are designed to cover the terminology, core concepts and fundamental aspects of being a professional engineer. The relationship between each area will be explored and developed so as to highlight the importance of an integrated approach to solving engineering problems.

Industry examples are used to illustrate how the theory is applied in practice and the details of when, where and how it should be applied.

The demonstrations are designed to provide you with the opportunity to put your learning into practice and allow you to strengthen your understanding of key concepts.

### 4. Course schedule

Date	Topics	Assessment task due
28-Jul-16	Engineering Foundations and context	
04-Aug-16	Team Dynamics	
11-Aug-16	Project Management – Introduction and defining the project	Project 1
18-Aug-16	Project Management - Project networks and scheduling	
25-Aug-16	Project Management – Monitoring and Closure	Project 2
01-Sep-16	Overview of the legal system	
08-Sep-16	Contract Law for Engineers	Project 3
15-Sep-16	Legal Applications	
22-Sep-16	Research Skills	Quiz
29-Sep-16	MID-SEMESTER BREAK (No Classes)	
06-Oct-16	Communication Skills	
13-Oct-16	Ethics and Leadership	Project 4
20-Oct-16	The Future Engineer	Project 5
27-Oct-16	<i>Demonstrations ONLY (No lecture)</i>	Reflection Report

## 5. Assessment

### Assessment Overview

You are assessed by way of web projects, quizzes and a reflection activity.

The parts of the course contribute towards the overall grade as follows:

ASSESSMENT	WEIGHTING	LEARNING OUTCOMES ASSESSED	MARKS RETURNED
Web Projects (x5)	70%	1, 2, 3, 4	Within 2 weeks of due date
Quiz	10%	1, 3	Within 2 weeks of due date
Reflection activity	20%	1, 3, 4	Within 2 weeks of due date
<b>TOTAL</b>	<b>100%</b>		

The assessments are designed to reinforce your understanding of the material being presented and focus on the key learning points.

### Web Projects

The purpose of the web-based activities is to provide students with the opportunity to consolidate and apply the materials covered in the lectures; therefore you are strongly advised to cover lecture/support materials regularly every week of the session.

These activities will be facilitated and assessed through individual and team discussions. Web-based participation marks will be assessed on your contributions to online discussions, exercises and other learning activities via UNSW Moodle.

There will be several web project groups. Each of you will need to self-assign yourself via Moodle to one of these web project groups by the end of Week 2. Your demonstrator will also be your web project facilitator.

#### Submission of web projects

All submissions should have a standard School cover sheet, which is available from this subject's Moodle page.

All submissions must be neat and clearly set out. Your results are the pinnacle of all your hard work. Presenting them clearly gives the marker the best chance of understanding your method, even if the numerical results are incorrect.

You are required to assess the effectiveness of other members of your group as part of your web project submission.

Each project is due on the date specified in Table 1.

**Late submission of assignments will be NOT accepted.**

<b>ACTIVITIES</b>	<b>Release Date (@ midnight)</b>	<b>Due Date (@ midnight)</b>
Project 1	04-AUG	11-AUG
Project 2	18-AUG	25-AUG
Project 3	01-SEP	08-SEP
Project 4	22-SEP	13-OCT
Project 5	06-OCT	20-OCT

Table 1 - Schedule for web projects

### **Quiz**

Details of the quiz will be posted on Moodle and may consist of both multiple choice as well as short answer questions.

### **Reflection Activity**

The reflection activity will run for the duration of the course and commences in week 1 of semester.

You are required each week to reflect on your own personal development and level of professionalism as an engineer in light of material presented.

You are required to keep a journal of your weekly reflections in the form of a web blog via the *Moodle Wiki tool*.

At the end of the semester you are required to submit in Week 13 a report summarising your reflections.

As your personal reflections are just that – for personal use and not designed for submission – and may be fragmented and lengthy. So here we ask you to refine your reflections into shorter summaries that you are happy to submit for feedback.

### **Examinations**

There is no final examination in this course.

### **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 for students

### Textbooks

None prescribed.

### Suggested readings

Gray C.F. and Larson E.W. Project Management, 6<sup>th</sup> edition, McGraw Hill International edition, 2014. ISBN: 9781743071809

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, 4<sup>th</sup> Edition, McGraw-Hill. ISBN: 0-07-283115-4

### Additional materials provided in UNSW Moodle

This course uses UNSW Moodle (<http://moodle.telt.unsw.edu.au>).

Items found on UNSW Moodle include:

- Web-based activities;
- Copies of weekly lectures;
- Class announcements.

## Recommended Internet sites

Engineers Australia provides a wide range of resources useful for developing your professional standing as an engineer within Australia  
<https://www.engineersaustralia.org.au>

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

There are many websites giving lectures, papers and data on project management in general. A useful reference site is <http://www.pmi.org>

## Other Resources

*If you wish to explore any of the lecture topics in more depth, then other resources are available and assistance may be obtained from the UNSW Library. One starting point for assistance is: <http://info.library.unsw.edu.au/web/services/services.html>*

## 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 student feedback include the restructure of the course to better link each area of professional practice. The course now also includes a legal component as well as deepening the project management content. Group work has been modified to reduce the team size as well as the introduction of peer evaluation tools for group work.

## 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](http://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](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. Administrative Matters

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:

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

*C. Martin & M. Whitty  
July 2016*

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

	<b>Program Intended Learning Outcomes</b>
<b>PE1: Knowledge and Skill Base</b>	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
<b>PE2: Engineering Application Ability</b>	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
<b>PE3: Professional and Personal Attributes</b>	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