



Mechanical and Manufacturing Engineering

# Course Outline

Semester 2 2017

**MMAN3000**

**Professional Engineering and  
Communication**

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# 1. Staff contact details

## Contact details and consultation times for course convenor

Name: Mr Corey Martin

Office location: 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

Please see the course [Moodle](#).

# 2. Important links

- [Moodle](#)
- [UNSW Mechanical and Manufacturing Engineering](#)
- [Course Outlines](#)
- [Student intranet](#)
- [UNSW Mechanical and Manufacturing Engineering Facebook](#)
- [UNSW Handbook](#)

# 3. Course details

## Credit Points

This is a 6 unit-of-credit (UoC) course, and involves 5 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.

## Contact hours

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

	Day	Time	Location
<b>Lecture</b>	Thursday	3pm - 6pm	Central Lecture Block 7 (K-E19-104)
<b>Demonstrations</b>	Monday	12pm - 2pm	John Goodsell LG21 (K-F20-LG21)
	Monday	12pm - 2pm	John Goodsell LG19 (K-F20-LG19)
	Tuesday	2pm - 4pm	Ainsworth 101 (K-J17-101)
	Tuesday	2pm - 4pm	Ainsworth 201 (K-J17-201)
	Wednesday	4pm - 6pm	Ainsworth G01 (K-J17-G01)
	Wednesday	4pm - 6pm	Ainsworth 101 (K-J17-101)
	Thursday	9am - 11am	Mathews 312 (K-F23-312)
	Thursday	9am - 11am	Blockhouse G13 (K-G6-G13)
	Thursday	12pm – 2pm	Quadrangle G053 (K-E15-G053)
	Thursday	12pm – 2pm	Blockhouse G16 (K-G6-G16)

Please refer to your class timetable for the learning activities you are enrolled in and attend only those classes.

## Summary and Aims 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.

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

## 4. 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.

## 5. Course schedule

Date	Topics
27-Jul-17	Engineering Foundations and context
03-Aug-17	Team Dynamics
10-Aug-17	Ethics and Leadership
17-Aug-17	Project Management - Introduction and Defining the project
24-Aug-17	Project Management - Project networks and scheduling
31-Aug-17	The Future Engineer - Career Development
07-Sep-17	Project Management - Monitoring and Closure
14-Sep-17	Overview of the legal system
21-Sep-17	Contract Law for Engineers
28-Sep-17	MID-SEMESTER BREAK (No Classes)
05-Oct-17	Legal Applications
12-Oct-17	Research Skills
19-Oct-17	Communication Skills

## 6. Assessment

### Assessment overview

Assessment	Length	Weight	Learning outcomes assessed	Assessment criteria	Due date and submission requirements	Deadline for absolute fail	Marks returned
Industry Case Study	3000 words	30%	1, 2, 3 and 4	Refer to assessment task	31-Aug-17	02-Sep-17	Two weeks after submission
Research Proposal	5 pages	20%	1 and 3	Refer to assessment task	19-Oct-17	21-Oct-17	During exam period
Demonstration presentations	2 pages per presentation	30%	1, 2, 3 and 4	Refer to assessment task	Weeks 3-12	Week 13	Two weeks after submission
Reflection activity	2000 words	20%	1, 2, 3 and 4	Refer to assessment task	26-Oct-17	28-Oct-17	During exam period

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

## **Assignments**

### *Presentation*

All submissions are expected to be neat and clearly set out. Your results are the pinnacle of all your hard work and should be treated with due respect. Presenting results clearly gives the marker the best chance of understanding your method; even if the numerical results are incorrect.

### *Submission*

Late submissions will be penalised 5 marks per calendar day (including weekends). An extension may only be granted in exceptional circumstances. Special consideration for assessment tasks must be processed through [student.unsw.edu.au/special-consideration](http://student.unsw.edu.au/special-consideration).

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.

Where there is no special consideration granted, the 'deadline for absolute fail' in the table above indicates the time after which a submitted assignment will not be marked, and will achieve a score of zero for the purpose of determining overall grade in the course.

### *Marking*

Marking guidelines for assignment submissions will be provided at the same time as assignment details to assist with meeting assessable requirements. Submissions will be marked according to the marking guidelines provided.

## **Industry case study**

By the end of Week 2, each of you will be randomly assigned to one project group within your demonstration class.

As a group, you are to identify the main issues/problems in the case study, present an insightful and thorough analysis of all the identified issues/problems and provide a logical and well-researched diagnosis with supporting arguments.

This activity requires each individual student to purchase their own copy of a professional case study. The price is approximately US \$5. Details of which case study to purchase will be provided on UNSW Moodle.

## **Research Proposal**

In preparation for Thesis A & B, which is undertaken in your final year of study, you are required to write a research proposal on a topic of your choice formulated as a thesis project over two semesters.

## Demonstration Presentations

Each project group in every demonstration cohort will be responsible for running two (2) demonstration groups from weeks 3-12. Each member of the group will need to participate in some tangible and meaningful way. Audience participation and attendance is also necessary and will contribute to successful completion of this task.

## 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, as well as from **attending at least one** of the following careers events held during the semester:

Date	Event	Booking
20-JUL-17	Engineering Industry Panel	<a href="https://careersonline.unsw.edu.au/students/events/detail/331534/o-week-s2-engineering-industry">https://careersonline.unsw.edu.au/students/events/detail/331534/o-week-s2-engineering-industry</a>
26-JUL-17	July Careers Expo - Engineering and IT students	<a href="https://careersonline.unsw.edu.au/students/events/detail/312020/july-careers-expo-engineering-">https://careersonline.unsw.edu.au/students/events/detail/312020/july-careers-expo-engineering-</a>
Repeats over S2	Seminar: Writing a Successful Resume and Cover Letter	<a href="https://careersonline.unsw.edu.au/students/events">https://careersonline.unsw.edu.au/students/events</a>
Repeats over S2	Seminar: Ace the Interview! Effective Interview Preparation	<a href="https://careersonline.unsw.edu.au/students/events">https://careersonline.unsw.edu.au/students/events</a>
Repeats over S2	Seminar: Get that Professional Job: Strategies for Successful Job Seeking	<a href="https://careersonline.unsw.edu.au/students/events">https://careersonline.unsw.edu.au/students/events</a>

To attend these events/seminars students will need to:

1. Register an account on [www.careers.unsw.edu.au](http://www.careers.unsw.edu.au) (if you don't have one already)
2. Book into individual events/sessions they wish to attend

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 – they 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](#).

## 7. Attendance

You are required to attend a minimum of 80% of all classes, including lectures, labs and seminars. It is possible to fail the course if your total absences equal to more than 20% of the required attendance. Please see the [School intranet](#) and the [UNSW attendance page](#) for more information.

## 8. Expected resources for students

### Case Study (Required)

Each individual student is to purchase their own copy of a professional case study. The price is approximately US \$5. Details of which case study to purchase will be provided on UNSW Moodle.

### 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 Arceee, 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.

UNSW Library website: <https://www.library.unsw.edu.au/>

## **9. Course evaluation and development**

Feedback on the course is gathered periodically using various means, including the UNSW myExperience 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 reduction in the number and frequency of assessment activities, the introduction of flipped classroom style demonstrations as well as clearer marking guidelines for each assessment task.

## 10. 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](#).

## 11. Administrative matters and links

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](#)

# Appendix A: Engineers Australia (EA) Competencies

## Stage 1 Competencies for Professional Engineers

	<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