



Mechanical and Manufacturing Engineering

Course Outline

Semester 2 2018

MMAN3000

**PROFESSIONAL ENGINEERING AND
COMMUNICATION**

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1. Staff contact details

Contact details and consultation times for course convenor

Name: Zoran Vulovic (course convenor)

Office location: Ainsworth Building, room 311

Tel: (02) 9385 6261

Email: z.vulovic@unsw.edu.au

Moodle: <https://moodle.telt.unsw.edu.au/login/index.php>

The most efficient way of communication is the Moodle forum. Face-to-face consultations email or telephone can also be used.

Face-to-face consultations will take place in Dr. Vulovic's office. The consultation time slot will be announced later. Consultations are possible outside the set time, but a prior appointment is preferred.

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

Name: Olivia Ng (lead demonstrator)

Email: olivia.ng@unsw.edu.au

The most efficient way of communication is the Moodle forum. Face-to-face consultations are by appointment only. Email is also a viable option.

Contact details and consultation times for class demonstrators will be announced in tutorials.

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 four hours (average) 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 lectures as well as one of the demonstrations, which will be the one they are enrolled into.

| | Day | Time | Location |
|-----------------------|------------|---------------|-------------------|
| Lectures | Monday | 13:00 – 16:00 | Mathews Theatre A |
| Demonstrations | Monday | 16:00 – 18:00 | CivEng 102 |
| | Monday | 16:00 – 18:00 | Webst 256 |
| | Tuesday | 16:00 – 18:00 | RedC M010 |
| | Tuesday | 16:00 – 18:00 | AinswthG01 |
| | Wednesday | 16:00 – 18:00 | OMB151 |
| | Wednesday | 16:00 – 18:00 | Mat 309 |
| | Thursday | 11:00 – 13:00 | Mat 105 |
| | Thursday | 11:00 – 13:00 | Col LG02 |
| | Friday | 11:00 – 13:00 | AinswthG01 |
| | Friday | 11:00 – 13:00 | Col LG01 |

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.

MMAN3000 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

| Week (Date) | Topic | Location | Suggested Readings |
|--------------------------------|--|-------------------|--------------------|
| 1 (23 rd July) | Introduction to MMAN3000 | Mathews Theatre A | Class reading |
| 2 (30 th July) | a) Research project management I b) Contract cheating | Mathews Theatre A | Class reading |
| 3 (6 th August) | a) Research project management II b) Writing skills | Mathews Theatre A | Class reading |
| 4 (13 th August) | Teamwork | Mathews Theatre A | Class reading |
| 5 (20 th August) | Resume / CV writing skills | Mathews Theatre A | Class reading |
| 6 (27 th August) | How to find IT / job | Mathews Theatre A | Class reading |
| 7 (3 rd September) | Overview of the legal system | Mathews Theatre A | Class reading |
| 8 (10 th September) | Contract Law for Engineers | Mathews Theatre A | Class reading |
| 9 (17 th September) | Legal Applications | Mathews Theatre A | Class reading |
| 10 (1 st October) | PUBLIC HOLIDAY | | |
| 11 (8 th October) | Expert witnesses | Mathews Theatre A | Class reading |
| 12 (15 th October) | Artificial Intelligence and Ethics | Mathews Theatre A | Class reading |
| 13 (22 nd October) | Contingency time | Mathews Theatre A | |

Most topics will be delivered by external speakers. Therefore the content, as well as the order, may change at short notice.

6. Assessment

Assessment overview

| Assessment | Length | Weight | Learning outcomes assessed | Assessment criteria | Due date and submission requirements | Deadline for absolute fail | Marks returned |
|--------------------|---|---------------|----------------------------|--------------------------|--|--|---|
| Research Proposal | 10 pages | 25% | 1 and 3 | Refer to assessment task | 14 th September 2018 | 18 th September 2018 | Two weeks after submission |
| Business setup | 20 pages (team) + 8 pages (individual) | 25% + 25% | 1, 2, 3 and 4 | Refer to assessment task | 5 th October (team); 19 th October (individual) | 9 th October (team); 23 rd October (individual) | Two weeks after submission (team); During exam period (individual) |
| Oral presentations | 10 minutes (group), 5 minutes (individual), 10 minutes (team) | 5% + 5% + 10% | 1, 2, 3 and 4 | Refer to assessment task | Refer to assessment task | Refer to assessment task | One week after the last presentation |
| Online completions | 5 – 20 minutes | 5% | 1 and 3 | Refer to assessment task | Refer to assessment task | Refer to assessment task | Two weeks after completion |

The assessment tasks may be found on Moodle.

Assignments

Presentation

All non-electric submissions should have a standard School cover sheet which is available from this course's Moodle page

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

Work submitted late without an approved extension by the course coordinator or delegated authority is subject to a late penalty of 20 per cent (20%) of the maximum mark possible for that assessment item, per calendar day.

The late penalty is applied per calendar day (including weekends and public holidays) that the assessment is overdue. There is no pro-rata of the late penalty for submissions made part way through a day.

Work submitted after the 'deadline for absolute fail' is not accepted and a mark of zero will be awarded for that assessment item.

For some assessment items, a late penalty may not be appropriate. These are clearly indicated in the course outline, and such assessments receive a mark of zero if not completed by the specified date. Examples include:

- a. Weekly online tests or laboratory work worth a small proportion of the subject mark,
or
- b. Online quizzes where answers are released to students on completion, or
- c. Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date, or
- d. Pass/Fail assessment tasks.

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.

Examinations

There is no final examination in this course.

However, you must be available for all team meetings and presentations. In addition, you must attend a certain number of presentations by other teams, groups and individuals. The exact numbers will be specified later.

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. Expected resources for students

Suggested readings

Gray C.F. and Larson E.W. Project Management, 6th 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, 4th 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>

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

Moodle: <https://moodle.telt.unsw.edu.au/login/index.php>

8. 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 a large number of changes including the lecturing and demonstrating staff. The most relevant change is the shift from continuously monitoring the students' activities throughout the semester through numerous, often tedious, tasks. This year, the need for a mature approach of future engineers to different projects will be emphasised. Efficient methods of evaluating the individuals' efforts and contributions will be applied at the end of the marking process.

9. 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](#).

10. 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)
- [Exams](#)
- [Approved Calculators](#)
- [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

| | 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 |