



# Course Outline

Semester 2 2015

Never Stand Still

Engineering

Mechanical and Manufacturing Engineering

## **MMAN4010**

## **THESIS A**

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# 1. Staff Contact Details

All academic staff together with some senior engineers from industry act as supervisors to the students undertaking BE thesis work. Support is also provided by the workshop and laboratory staff.

## Contact details of the Course Coordinator

Associate Professor Tracie Barber  
School of Mechanical and Manufacturing Engineering  
Electrical Engineering Room 464H  
Tel (02) 9385 4081  
Email [t.barber@unsw.edu.au](mailto:t.barber@unsw.edu.au)

It is recommended you email to make a specific appointment if you need to discuss any important issues, particularly if you want to discuss extensions, supervisor issues, etc. Always consult the course Moodle first in case your questions have already been answered, or in the event that others may benefit from reading what you are asking and the response.

## Contact details of the Thesis Administrator

Contact Kane directly, cc'ing Tracie, if you have issues relating to your enrolment, progress, or other administrative queries of a technical nature.

Mr Kane Murdoch      School of Mechanical and Manufacturing Engineering  
General Office      Tel (02) 9385 4154  
[kane.murdoch@unsw.edu.au](mailto:kane.murdoch@unsw.edu.au)

# 2. Course details

## Units of credit

This is a 6 unit-of-credit (UoC) course, but there are no prescribed contact hours per week other than what you have arranged with your supervisor.

**It is essential that you consult the Moodle site for the most up-to-date and detailed information relating to the thesis.**

The UNSW website states “The normal workload expectations of a student are approximately 25 hours per semester for each UoC, including class contact hours, learning activities, preparation and time spent on all assessable work.”

However, in this course you have no class contact hours and no assessable work other than your thesis submission.

For a standard 24 UoC in the semester, this means 600 hours, spread over an effective 15 weeks of the semester (thirteen weeks plus stuvac plus one effective exam week), or 40 hours per week, for an average student aiming for a credit grade. Various factors, such as your own ability, your target grade, etc., will influence the time needed in your case.

Some students spend much more than 40 h/w, but you should aim for not less than 40 h/w on coursework for 24 UoC.

This means that you should aim to spend not less than about 10 h/w on this course, including consultation with supervisor and workshop/laboratory staff and library/internet search. However, most students spend more time on their thesis work.

### **Contact Hours**

There are no set contact hours for this course.

### **Summary of the course**

BE Thesis is usually completed in two consecutive semesters during the last academic year. This is the only course where the students have complete freedom to work on his/her chosen thesis projects from the initiation to the end – the project contains a large amount of original research and/or novel design work or analysis. It is not the responsibility of the supervisor to tell the student what to do, nor should it be assumed that the supervisor is an expert in all areas of engineering. They are there to offer guidance and advice, as are laboratory staff, workshop staff, and others in the school that may have expertise in the area of your project. The successful execution of the project is solely the responsibility of the student.

### **Aims of the course**

Thesis A is to be taken in the second last semester required for the completion of all requirements for the award of the degree. This course, together with MMAN4020 Thesis B, which is to be taken in the following semester, requires each student to demonstrate managerial, technical and professional skills in planning and executing an approved engineering project within a stipulated time limit. Each student is guided by a supervisor, but successfully planning, executing and reporting on the project are the sole responsibility of each student. Thesis A does not require the submission of a thesis document, but a progress report is mandatory.

### **Laboratory Staff**

The laboratories are the responsibility of the staff-in-charge and you must operate within the accepted practices of the laboratory concerned. You should not expect laboratory staff to take responsibility for your thesis or carry out work for you. The laboratory staff are highly skilled and helpful; take full advantage of their experience.

If your project involves laboratory work, contact the officer-in-charge (OIC) of the laboratory in which you will be working as soon as possible to discuss your requirements. They will

issue you with a Laboratory Access Approval (LAA) form which you must complete and return to the OIC.

Before you start work in a laboratory or undertake any activity which might be considered hazardous in any way, you must read and understand the practices and procedures described in the OHS section of the School's website.

## Workshop

All student activities requiring manufacture in the Workshop should be discussed with the Workshop personnel at the inception of the work. The Workshop personnel must have the opportunity to advise and influence the design to help minimise assembly, manufacture or functional problems.

The Workshop is usually in high demand. If you require the Workshop to manufacture equipment essential to your thesis, then make sure that you discuss your requirements as early as possible with the Workshop/Laboratory Manager. You should provide engineering drawings which are first approved by the laboratory officer-in-charge. You should make every effort to minimise the Workshop load by modifying existing equipment rather than building from new, and by keeping your designs simple.

## Safety Training

A full list of safety training requirements for BE Thesis students is available on the School's website. Safety in any project is paramount and it is mandatory to complete risk paperwork for all activities. Always discuss with your supervisor what your plans are and what risk assessments will be required.

## 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:

Learning Outcome		EA Stage 1 Competencies
1.	You will be able to plan a major engineering project and see it to completion.	PE1.5, PE2.1, PE2.3, PE2.4
2.	You will learn how to collect and synthesise relevant information for the project.	PE1.4, 2.1, 2.2, 2.4,
3.	You will learn to communicate with others involved in the project, including professional-level discussions with your supervisor, workshop staff, and others helping you.	PE3.6
4.	You'll be able to produce a detailed, professional-standard technical document describing your work and outcomes and the "why" as much as the "what".	PE3.2, PE3.3, PE3.4, PE3.5

### 3. Teaching strategies

There is no formal teaching but the students learn from both internal and external sources. The supervisor, other academics and laboratory/workshop staff are the internal sources, whereas the Library, internet and industry mentors are the external sources.

### 4. Course schedule

There are no set lectures for this course.

### 5. Assessment

The final grade for Thesis A will be made from:

Thesis A Progress report	80%
Thesis A presentation	20%

For calculation of Honours, Thesis A is worth 25% and Thesis B is worth 75% of the total 12 unit course credit.

It is your responsibility to keep your project details (supervision, title, working abstract) up to date in the “your project details” section of Moodle. If you do not have information in here or the supervisor name is incorrect, your progress report will not get assigned for marking.

#### **Progress Report due Monday Week 13, 4pm.**

Please submit your Progress Report electronically, directly through the portal which will be made available on Thesis A Moodle.

The supervisor will assess the report and grade the work; in order to progress to MMAN4020 Thesis B the grade must be greater than 50%. The supervisor will provide feedback on the student’s progress, and may ask for additional material (i.e. expanded literature review). It is up to you to discuss with your supervisor the exact content of the report, but it should be based on the template that will be made available on Moodle.

Your supervisor will be asked:

- Did the student complete a progress report on time – normally end of week 13?
- Has the student completed an appropriate amount of work for a 6UoC component?
- Have you had regular contact with the student (i.e. at least once every 2 weeks or so)?
- Is the student on-track for timely completion?
- Does the student have all resources required to complete their project?

- Please provide a rough estimate of the student's performance to date (note: student must be marked satisfactory or higher to progress to Thesis B. There are no actual marks associated with these levels for Thesis A – only satisfactory or unsatisfactory will be awarded):
  - Outstanding (i.e. high distinction potential)
  - Good (credit or distinction standard)
  - Satisfactory (pass)
  - Unsatisfactory (please provide details)

If you Fail in Thesis A, you must re-enrol in Thesis A again.

If you Fail in Thesis B, you have three options:

- re-enrol for Thesis A & B again with a new project and supervisor
- re-enrol for Thesis B again with the same project (needs consent of an appropriate supervisor & student)
- the student does further work and re-submits the thesis after a maximum of 6 weeks. The course mark is capped at 50%. If still not satisfactory, then the student needs to re-enrol. [This option is only available if the original mark was  $\geq 40$ , or if the student is in their last semester before graduation regardless of the original mark].

### **Late Procedure**

In all cases, applications for late submission can be applied for before the due date. This is at the discretion of the thesis coordinator, but should only be granted in exceptional circumstances. As per normal, students can also apply through myUNSW for special consideration.

- For all other components beside thesis document – zero (0) mark is awarded
- For thesis document – 5 marks off the thesis for every day late. Penalty applies until the marks for the course decrease to 50, and further lateness does not result in failure of the course, but might be a failure of the thesis (weekends count as days).
- Any thesis not turned in within 6 weeks after the deadline will be finalised at zero (0) marks.

### **Discrepancy amongst thesis marks**

Thesis marks will be provided by the two assessors independently, without collusion or knowledge of the other mark.

- For any mark difference less than or equal to 10 marks, the unweighted average.
- For any mark difference of 11-15 marks, the Thesis Coordinator discusses with the two markers about why they gave their marks and assists the two markers to come to an agreement on a final mark.
- For any mark difference greater than 15 marks, and third assessor must be used. An unweighted average of the three marks will be used.
- If the situation arises that one mark is invalid, the Thesis Coordinator has the discretion to eliminate that mark and average the other two (if they fall within the 10 mark difference).

## 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

No prescribed textbook.

Content on the Moodle page will be updated often with tips and discussions and resources, so you are strongly advised to make sure you are able to receive updates.

Students may find other resources on their particular project at the UNSW library:

<https://www.library.unsw.edu.au/servicesfor/index.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 revised marking schemes, Faculty-wide marking guidelines and Faculty templates.

## 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: [www.engineering.unsw.edu.au/mechanical-engineering/sites/mech/files/u41/S2-2015-Administrative-Matters\\_20150721.pdf](http://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.

*A/Prof. Tracie Barber  
July 2015*

## 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