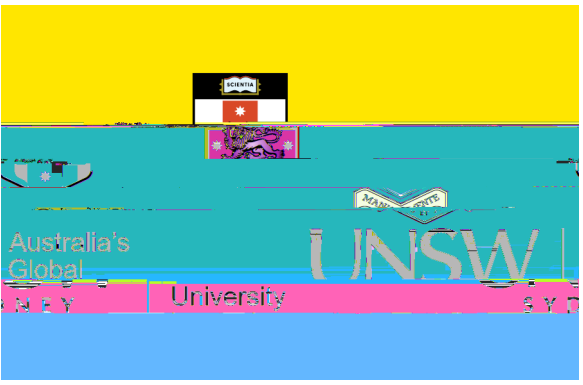

Mechanical and Manufacturing Engineering

Course Outline

Term 2 2019

MMAN4953

Research Thesis C

your supervisor.

Various factors, such as your own ability, your target grade, etc., will influence the time needed in your case.

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 thesis.

Summary and Aims of the course

Aims

The thesis provides an opportunity for the student to bring together engineering principles learned over their previous years of study and apply these principles to innovatively solve problems, such as the development of a specific design, process and/or the investigation of a hypothesis. Thesis projects must be complex, open-ended problems that allow room for student creativity, and the acquisition, analysis and interpretation of results. There must be multiple possible solutions or conclusions at the outset and sufficient complexity to require a degree of project planning from the student. The thesis requires the student to formulate problems in engineering terms, manage an engineering project and find solutions by applying engineering methods. Students also develop their ability to work in a research and development environment.

This course

C. If you need to complete your Thesis in two terms only and your program allows it, then you should choose the Practice thesis stream (MMAN4010-MMAN4020).

B+C in one Term

early as possible with the Workshop/Laboratory Manager. You should provide engineering drawings which are first approved by the laboratory OIC. 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 Thesis students is available on the School's intranet. 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 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.	Develop a design or a process or investigate a hypothesis following industry and professional engineering standards.	PE2.1, PE2.2, PE2.3, PE2.4
2.	Critically reflect on a specialist body of knowledge related to their thesis topic.	PE1.3
3.	Apply scientific and engineering methods to solve an engineering problem.	PE2.1
4.	Analyse data objectively using quantitative and mathematical methods.	PE1.2, PE2.1, P2.2
5.	Demonstrate oral and written communication in professional and lay domains.	PE3.2

4. Teaching strategies

There is no formal teaching, but 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.

5. Course schedule

There are no set lectures for this course.

6. Assessment

The following details might undergo some changes depending on Faculty guidelines. Any change will be clearly communicated on the Moodle page.

Thesis A and B will initially carry a ‘satisfactory’ (EC grade) or ‘not satisfactory’ mark. Only students receiving a ‘satisfactory’ evaluation in Thesis A will be allowed to enroll in Thesis B, and only students receiving a ‘satisfactory’ evaluation in Thesis B will be allowed to enroll in Thesis C. After the successful completion of Thesis C, a student’s final Thesis mark will reflect the overall weighted percentage of marks achieved during all three courses (A, B and C)

Marking criteria and rubrics for Participation

Note: The points in the marking criteria below will be scaled on Moodle by the associated weighting.

Student's Name:	Student ID:	Program Code:
Thesis/Project Title:		

Important note: This assessment is to evaluate only one particular aspect of student's performance, namely the level of student's participation th-2.6 (13.3 (paspar)3.7ghpar)3.7og5n

Marking criteria and rubrics for Final Thesis Report

Note: The points in the marking criteria below will be scaled on Moodle by the associated weighting.

Criterion	Wt	Accomplished	Distinguished	Solid	Adequate	Deficient
		85-100%	**75-84%**	**65-74%**	**50-64%**	**0-49%**
Literature review/ background and putting the results in context	10%	In addition to meeting the quality at the previous band the student has made a critical assessment of the literature in the context of their research project to a depth and breadth that is of the quality that could be anticipated to be seen in a journal review paper.	The most significant			

Criterion	Wt	Accomplished	Distinguished	Solid	Adequate	Deficient
		85-100%	75-84%	65-74%	50-64%	0-49%
Execution of the research project, quality of analysis, discussion of results	50%	Student would have to have achieved as at the previous level but additionally has achieved something unexpected, thoughtful and original, such as a novel perspective or theory. This requires deep thinking of the student.	At this level the student has assembled the pieces of their research project (which could include literature, different sets of experiments or measurements, simulations or analyses) into a coherent scientific story. Overall, you are left with a clear and convincing picture of what the research question was and what the answer is (along with its caveats). A student is generally not going to be able to achieve this if there are conceptual or methodological problems with their work, or if their review of literature is inadequate.	The student probably has a number of components to their research, such as literature, experiments, designs, simulations etc. They have interpreted T7J0 -1. aeb8.1 (e c)-8 (onv)-8 (i48 (o)11.1 (f)-13.1.2 ( )]TJT[wa .1 (t)-1.151 Tw [nt)-1		

Criterion	Wt	Accomplished	Distinguished	Solid	Adequate	Deficient
		85-100%	75-84%	65-74%		

Criterion	Wt	Accomplished	Distinguished	Solid	Adequate	Deficient
		85-100%	**75-84%**	**65-74%**	**50-64%**	**0-49%**
Document presentation	20%	The document follows a clear and logical structure indicated using headings and other conventions. The report is very easy to read: well- written, with good spelling and grammar, and appropriate language style. Text spacing aids readability. All aspects of formatting are consistent throughout the document. Graphical and tabular presentation of data is appropriate, clear, consistent and economical. Discernment is shown in the placement of graphical elements (figures, tables, etc.), whether in the body of the work or in the appendices. References in text match reference list (and vice versa) and are cited properly.	The document makes good use headings, sub-headings and other stylistic conventions to indicate document structure. The report is easy to read: writing is clear enough, with good spelling and grammar, and reasonable choice of language style. Graphical elements (figures, tables, etc.) are labelled, largely formatted consistently and cited correctly. References in text match reference list (and vice versa) and are cited properly.	The document makes some use headings and other stylistic conventions to indicate document structure. The report is reasonably easy to read: there may be some issues with spelling, grammar or style but it doesn't affect comprehension. Figures and diagrams are generally fine, although there may be some issues with the graphical presentation of data - poor choice of axes, overcrowding, poor use of chart space, etc. References in text match reference list (and vice versa) and are cited properly.		

Submission

Please submit your report electronically, directly through the submission inbox which will be made available on the Moodle page of the course, unless you have been granted “confidential submission”.

Presentations do not require document submission, as they will be assessed by the academics at your oral delivery.

No document submission is required for participation assessment item.

Confidential Submission

Confidential submission of reports can be granted by the course conveners in case of

convener. In our efforts to provide a rich and meaningful learning experience, we have continued to evaluate and modify our delivery and assessment methods.

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, visit: 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

11. Administrative