Mechanical and Manufacturing Engineering

Course Outline

Term 1 2019

MMAN4951

Research Thesis A

3. Course details

Credit points

This is a 4 unit-of-credit (UoC) course, and involves an unprescribed number of contact hours per week (h/w) with your supervisor. This varies on a case-by-case basis, as agreed with 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.

Thesis A 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 their supervisor, but successfully planning, executing and reporting on the project are the sole responsibility of each student.

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.

Thesis and can be started in any of the three terms. Thesis A is a prerequisite for Thesis B, and Thesis B is a prerequisite for Thesis C. With School permission and only in exceptional circumstances, students may take Thesis A in the first term, then Thesis B and C together in the second term. This option is limited to students who can demonstrate the ability to progress and requires a prerequisite waiver to waive the Thesis B requirement for Thesis C.

Process for the initiation and update of the Thesis. **You must identify a supervisor and project prior to enrolling in this course.** This has to be formalised by the student using the

Workshop

You must seek guidance and approval from your Thesis supervisor prior to requesting any workshop activities.

All student activities requiring manufacture in the Mechanical and Manufacturing Engineering (MME) 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.

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, but a number of workshops may be provided to assist students to complete their thesis to a high standard. The date and time of any workshops will be announced on Moodle.

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 ósatisfactoryô(EC grade) or ónot satisfactoryô(EF grade). Only students receiving a ósatisfactoryôevaluation in Thesis A will be allowed to enroll in Thesis B. After the completion of Thesis C, a studentôs final Thesis mark will reflect the overall weighted percentage of marks achieved during all three courses (A, B and C), and the earlier EC grades will be replaced with the final mark at that time.

There is one assessment item in Thesis A: the ñInterim Report and Project Planò The ñInterim Report and Project Planòis a written document which must include:

a) A literature review or equivalent
b) Problem statement, hypothesis and aims
c) Project planning: proposed method & possible solutions, thesis timeline
d) Risk assessment
e) Thesis outline

For more details on the required components, please read the marking criteria provided further in this document.

Note that the participation in Thesis A, B and C (i.e. engagement, attendance and commitment) will also contribute to your final evaluation, and you will receive a mark for this in Thesis C.

Assessment overview

Assessment	Group Project?	Length	Weight (% of entire Thesis A+B+C grade)	Learning outcomes assessed

Submission

Please submit your Interim Report and Project Plan 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 MMAN4952 Research Thesis B, the grade must be greater than 50% total. 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 ideally it should be based on the template that will be made available on Moodle.

No late submission is allowed without an approved extension.

Normal cases for special consideration (illness, misadventure) should be lodged through the formal UNSW system and dealt with accordingly. For details of applying for Special Consideration and conditions for the award of supplementary assessment, please see the information on UNSW's Special Consideration page.

Other applications for extension of submission of thesis reports (e.g. equipment breakdown, etc.) must comply with the following:

1. The request for extension must come from the supervisor. That is, it is written by, and justified, by the supervisor.
2. Request must be lodged by week 7 of term.

Work submitted after the due date without a previously approved extension is therefore not accepted and a mark of zero will be awarded (Fail).

Marking criteria and rubrics for Interim Report and Project Plan

Marking criteria for the Interim Report and Project Plan are as follows:

Criterion 1: Literature Review (50%)

Grade	Mark	Brief description	Longer explanation / examples
Fail	0-49	Deficient	Deficient work may be characterised by a number of features, including inappropriate reliance on sources not peer reviewed (such as the internet), not reviewing what should be the core of the literature in a particular area, or not reviewing any recent work (within, for example, the last 5 years although this will depend somewhat on the field).
Pass	50-64	Adequate	The literature reviewed is sufficient to inform the proposed research, although it is likely that further review will be required as the work progresses. What distinguishes work at this level from work at the next level up is quantity: an adequate review of the literature sketches enough that the reader can see what the picture is about, but neglects significant aspects. i.e., are there significant holes in this review?
Credit	65-74	Solid	The most significant areas of literature relevant to the proposed work have been reviewed. There are

Criterion 3: Project Dependent Preparations (20%)

Grade	Mark	Brief description

Criterion 4: Document Presentation (10%)

Grade	Mark	Brief description	Longer explanation / examples
Fail	0-49	Impedes document reading	Presentation is poor to the extent that it impedes reading of the document. Examples include multiple inconsistent citation styles or incomplete citations, unintelligible grammar, figures or tables not labelled or badly inconsistent document formatting.
Pass	50-64	Poor formatting / document structure	Document is not at a professional level. Although figures and diagrams are labelled and references in text match reference list (and vice versa), formatting is unclear and inconsistent to the extent that the reader can lose track of the context when reading.
Credit	65-74	Poor judgement with respect to layout, possible padding	Appropriate use of section and sub-section heading structures, . Figures and diagrams are labelled, formatting is consistent, references in text match reference list (and vice versa), pictures are clear and attributed, sections clearly labelled. There may be superfluous material present, such as unnecessary, repetitive or unusually large figures, unnecessarily lengthy text, unusually wide margins, unnecessary appendices, etc.
Distinction	75-84	Professional, may have issues with data presentation	Everything from above, plus a logical flow of sections, and appropriate judgement in the placement data, tables or figures in the body of the work or the appendices. Figures and diagrams are correctly and clearly labelled, text spacing aids readability, consistent formatting, references in text match reference list (and vice versa), pictures are clear and attributed, sections clearly labelled. Some of the graphical presentation of data is inappropriate - poor choice of axes, overcrowding, poor use of chart space etc.
High Distinction	85-100	Professional, concise and	

7. Expected r[illegible]

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 longer presentation times, listing of resources and multiple information sessions.

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, 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

10. Administrative matters [redacted]

All students are expected to read and be familiar with School guidelines and polices, available on the intranet. In particular, students should be familiar with the following:

- Attendance
- UNSW Email Address
- Computing Facilities
- Special Consideration
- Exams
- Approved Calculators
- Academic Honesty and Plagiarism
- Student Equity and Disabilities Unit
- Health and Safety
- Lab Access
- Makerspace
- UNSW Timetable
- UNSW Handbook
- UNSW Mechanical and Manufacturing Engineering