Mechanical and Manufacturing Engineering

Course Outline

Term 1 2020

MMAN9453

Masters Project C

Contents

solely the responsibility of the student.

Organisation and prerequisites

The postgraduate Research Thesis is organised in three courses: Project A (MMAN9451), B (MMAN9452) and C (MMAN9453). By default, students must ordinarily take Project A, Project B and Project C in consecutive terms. Project A is therefore the first course you have to undertake for the completion of the Research Thesis and can be started in any of the three terms. Project A is a prerequisite for Project B, and Project B is a prerequisite for Project 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 (MMAN9001-MMAN9002).

B+C in one Term

With School permission and only in exceptional circumstances, students may apply to take Research Project A in one term, then Research Project B and C together in the subsequent term. This option is limited to students who have exceptional circumstances, have a compelling reason to not choose the Practice thesis stream (i.e. enrolled in 8621 PG Program) and can demonstrate an outstanding ability to progress. Moreover, it requires a prerequisite waiver to waive the Project B requirement for Project C.

Laboratory Activities and Staff

You must seek guidance and approval from your thesis supervisor prior to any laboratory activities.

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. 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

https://eng-intranet.unsw.edu.au/mech-engineering/whs/SitePages/Home.aspx

For more informati
website: https://www.engineering.unsw.edu.au/mechanical-engineering/resources/lab-access-how-to-forms

Workshop

You must seek guidance and approval from your thesis supervisor prior to requesting any

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.

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.

in Project C. After the successf
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 achieved in Thesis C at that time.

There are three assessment items in Project C Thesis Presentation
whose details are reported below. In order to pass Research Project C and complete Research Thesis in its entirety, the grade of your Final Thesis Report must be greater than 50% and the overall weighted mark of Project A + B + C

Marking criteria and rubrics for Participation

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

ame:	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 throughout the course of doing thesis/project work. The supervisor would have the best knowledge on this aspect and thus is the most appropriate authority to make this judgment. Please complete this assessment independently of the written report.

Criteria	Weightings	Marking Guide	Mark
Initiative and engagement: Did the student actively engage in the thesis work, take ownership of the task with enthusiasm, initiate own ideas to overcome various roadblocks along the journey?	1/3	0-49: Deficient none or minimal effort across all areas, need a lot of pushing from supervisor to make things happen 50-64: Satisfactory some evidence of student driving the project; student put in some effort but considerable need for improvement 65-74: Good above satisfactory effort, clear evidence of student driving the project 75-84: Very good student showed genuine interest and enthusiasm in the work, initiated many own ideas during the process 85-100: Excellent superior evidence of effort; student intellectually and practically led the project all the way, went beyond what was expected of a student	
Sustained activity: lab, regular meetings/contacts with supervisor throughout the term, etc	1/3	0-49: Deficient irregular, sporadic engagement in the project 50-64: Satisfactory regular engagement but only just adequate	

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 areas of literature relevant to the proposed work have been reviewed (including recent works) and the student has clearly identified one or more knowledge gaps. The student will have shown that they understand the conceptual relationships between reviewed works and between reviewed works and the			

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 meaning from the results but have overall not succeeded in linking the components of their research together as a coherent scientific story. There's no clear "big picture".	The student has completed a body of work and presented some results but not succeeded in interpreting meaning from them (=intellectual input is largely absent from the discussion, which is essentially equivalent to observation of the results). Performance at this level may also indicate a lack of engagement with the project, sometimes evidenced as a "thin" or "one-dimensional" investigation characterised by attempted padding.	Work at this level is clearly deficient - in not addressing the stated project aims or in containing major problems that the student should reasonably have been aware of but did not address in the thesis.

Criterion	Wt	Accomplished	Distinguished	Solid	Adequate	Deficient
		85-100%	**75-84%**	**65-74%**	**50-64%**	**0-49%**
Conclusions and value added	20%	This work can easily form the basis of a peer-reviewed journal publication, or other form of professional dissemination/presentation appropriate to the field (i.e. patent application, best practice document at a company, trade publication, workshop, etc.).	The results and discussion can eventually form the core of a research publication or change in industry practice (It may have already been included in a conference publication during the course of the thesis). However, further work will first be required such as repeated experiments before the work is			

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.			

students. Please forward any feedback (positive or negative) on the course to the course 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
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 matters and links

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
- Special Consideration
- Exams
- Approved Calculators
- Academic Honesty and Plagiarism
- Equitable Learning Services

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