



Course Outline

Term 2 2020

MMAN9451

Research Thesis A



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 requires each student to demonstrate managerial, technical and professional skills in planning and executing an approved engineering project within a stipulated time limit.

compelling reason not to choose the Practice thesis stream and can demonstrate an

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.

Assessment overview

Assessment

**Group
Project?**

Criterion 4: Document Presentation

| 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 readable | Everything from above, plus text is clear and concise. Graphical presentation of data is appropriate, clear and economical. |

consideration, please see the

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 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 policies, 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 |