



ENGG801

Engineering Management Thesis

S2 Evening 2016

Dept of Engineering

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Disclaimer

Macquarie University has taken all reasonable measures to ensure the information in this publication is accurate and up-to-date. However, the information may change or become out-dated as a result of change in University policies, procedures or rules. The University reserves the right to make changes to any information in this publication without notice. Users of this publication are advised to check the website version of this publication [or the relevant faculty or department] before acting on any information in this publication.

General Information

Unit convenor and teaching staff Tony Parker tony.parker@mq.edu.au Raheel Hashmi raheel.hashmi@mq.edu.au
Credit points 4
Prerequisites Admission to MEngMgt
Corequisites
Co-badged status
Unit description Students in this unit will complete a major project in the field of engineering management, under the supervision of an academic member of staff. Where the work is carried out externally a suitable, industrially-based co-supervisor may be required. At the end of the work a comprehensive research report will be submitted.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

Learning Outcomes

On successful completion of this unit, you will be able to:

Ability to undertake a complex engineering specific research project involving the development of new knowledge, using appropriate technical laboratory skills, data management and synthesis, critical analysis and interpretation of results; culminating in an effective written dissertation and oral presentation to a variety of audiences in research fora.

Ability to demonstrate an advanced knowledge of contextual factors, research direction, and underpinning information impacting the engineering discipline, including risk identification and management, design metrics and alternatives, systems measurement, simulation, modelling and analysis, and environmental constraints and safety issues.

Ability to identify, formulate and solve engineering problems in an ethical manner, including complex and open-ended problems, using established engineering methods, processes, and procedures.

Ability to apply research principles, research methods, and technical standards as well as further learning to identify and provide solutions to complex problems with intellectual independence.

Ability to design and implement the necessary experimental or computational processes, information management, records keeping, project management, and communications that should be undertaken for an engineering research investigation.

Ability to manage, and participate in, complex intra- and cross-disciplinary engineering projects through applying established systematic approaches.

General Assessment Information

Notifications

Formal notification of assessment tasks, grading rubrics and due dates will be posted on iLearn. Although all reasonable measures are taken to ensure the information is accurate, The University reserves the right to make changes without notice. Each student is responsible for checking iLearn for changes and updates.

Report Submissions

All reports must be submitted electronically through iLearn (in pdf format). Submissions will undergo plagiarism checkers using the turnitin software and any work deemed to have 30% or higher similarity score may incur academic penalty. For more details on the policies of academic penalties relating to academic honesty, please refer to the policies and procedures section below.

Submissions are expected to be typed set in a logical layout and sequence. The expected workload includes preparation of final copies and clear diagrams.

Late submissions

Late submissions will not be accepted without prior arrangement made at least one week before the submission date. Extenuating circumstances will be considered upon lodgement of a formal notice of disruption of studies.

Grading and passing requirement for unit

For further details about grading, please refer below in the policies and procedures section.

In order to pass this unit a student must obtain a mark of 50 or more for the unit (i.e. obtain a passing grade P/ CR/ D/ HD).

Student Responsibilities

Be familiar with University policy and College procedures and act in accordance with those

policy and procedures.

It is the responsibility of the student to retain a copy of any work submitted. Students must produce these documents upon request. Copies should be retained until the end of the grade appeal period each term.

Student is to perform the required due diligent for their assessment grade and rectify as soon as possible upon finding any errors.

Assessment Tasks

Name	Weighting	Due
<u>Progress Report</u>	20%	Week 6
<u>Final Report</u>	60%	Week 13
<u>Presentation/Poster</u>	20%	Exam Period

Progress Report

Due: **Week 6**

Weighting: **20%**

Guidelines and template are provided on iLearn.

On successful completion you will be able to:

- Ability to undertake a complex engineering specific research project involving the development of new knowledge, using appropriate technical laboratory skills, data management and synthesis, critical analysis and interpretation of results; culminating in an effective written dissertation and oral presentation to a variety of audiences in research fora.
- Ability to demonstrate an advanced knowledge of contextual factors, research direction, and underpinning information impacting the engineering discipline, including risk identification and management, design metrics and alternatives, systems measurement, simulation, modelling and analysis, and environmental constraints and safety issues.
- Ability to identify, formulate and solve engineering problems in an ethical manner, including complex and open-ended problems, using established engineering methods, processes, and procedures.
- Ability to apply research principles, research methods, and technical standards as well as further learning to identify and provide solutions to complex problems with intellectual independence.
- Ability to design and implement the necessary experimental or computational processes,

information management, records keeping, project management, and communications that should be undertaken for an engineering research investigation.

- Ability to manage, and participate in, complex intra- and cross-disciplinary engineering projects through applying established systematic approaches.

Final Report

Due: **Week 13**

Weighting: **60%**

Detailed guidelines are available in Unit Introduction on iLearn along with the template.

On successful completion you will be able to:

- Ability to undertake a complex engineering specific research project involving the development of new knowledge, using appropriate technical laboratory skills, data management and synthesis, critical analysis and interpretation of results; culminating in an effective written dissertation and oral presentation to a variety of audiences in research fora.
- Ability to demonstrate an advanced knowledge of contextual factors, research direction, and underpinning information impacting the engineering discipline, including risk identification and management, design metrics and alternatives, systems measurement, simulation, modelling and analysis, and environmental constraints and safety issues.
- Ability to identify, formulate and solve engineering problems in an ethical manner, including complex and open-ended problems, using established engineering methods, processes, and procedures.
- Ability to apply research principles, research methods, and technical standards as well as further learning to identify and provide solutions to complex problems with intellectual independence.
- Ability to design and implement the necessary experimental or computational processes, information management, records keeping, project management, and communications that should be undertaken for an engineering research investigation.
- Ability to manage, and participate in, complex intra- and cross-disciplinary engineering projects through applying established systematic approaches.

Presentation/Poster

Due: **Exam Period**

Weighting: **20%**

Detailed guidelines are available in Unit Introduction on iLearn along with templates and instructions. Schedule for this activity will be posted on iLearn.

On successful completion you will be able to:

- Ability to undertake a complex engineering specific research project involving the development of new knowledge, using appropriate technical laboratory skills, data management and synthesis, critical analysis and interpretation of results; culminating in an effective written dissertation and oral presentation to a variety of audiences in research fora.
- Ability to demonstrate an advanced knowledge of contextual factors, research direction, and underpinning information impacting the engineering discipline, including risk identification and management, design metrics and alternatives, systems measurement, simulation, modelling and analysis, and environmental constraints and safety issues.
- Ability to apply research principles, research methods, and technical standards as well as further learning to identify and provide solutions to complex problems with intellectual independence.
- Ability to design and implement the necessary experimental or computational processes, information management, records keeping, project management, and communications that should be undertaken for an engineering research investigation.

Delivery and Resources

The students need to discuss with their supervisors on the resources related to their projects.

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#). Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

New Assessment Policy in effect from Session 2 2016 http://mq.edu.au/policy/docs/assessment/policy_2016.html. For more information visit http://students.mq.edu.au/events/2016/07/19/new_assessment_policy_in_place_from_session_2/

Assessment Policy prior to Session 2 2016 <http://mq.edu.au/policy/docs/assessment/policy.html>

Grading Policy prior to Session 2 2016 <http://mq.edu.au/policy/docs/grading/policy.html>

Grade Appeal Policy <http://mq.edu.au/policy/docs/gradeappeal/policy.html>

Complaint Management Procedure for Students and Members of the Public http://www.mq.edu.au/policy/docs/complaint_management/procedure.html

Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the [Learning and Teaching Category](#) of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Results

Results shown in *iLearn*, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit ask.mq.edu.au.

Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module for Students](#)
- [Ask a Learning Adviser](#)

Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

PG - Capable of Professional and Personal Judgment and Initiative

Our postgraduates will demonstrate a high standard of discernment and common sense in their professional and personal judgment. They will have the ability to make informed choices and decisions that reflect both the nature of their professional work and their personal perspectives.

This graduate capability is supported by:

Learning outcomes

- Ability to undertake a complex engineering specific research project involving the development of new knowledge, using appropriate technical laboratory skills, data management and synthesis, critical analysis and interpretation of results; culminating in an effective written dissertation and oral presentation to a variety of audiences in research fora.
- Ability to identify, formulate and solve engineering problems in an ethical manner, including complex and open-ended problems, using established engineering methods, processes, and procedures.
- Ability to apply research principles, research methods, and technical standards as well as further learning to identify and provide solutions to complex problems with intellectual independence.
- Ability to design and implement the necessary experimental or computational processes, information management, records keeping, project management, and communications that should be undertaken for an engineering research investigation.
- Ability to manage, and participate in, complex intra- and cross-disciplinary engineering projects through applying established systematic approaches.

Assessment tasks

- Progress Report
- Final Report
- Presentation/Poster

PG - Discipline Knowledge and Skills

Our postgraduates will be able to demonstrate a significantly enhanced depth and breadth of knowledge, scholarly understanding, and specific subject content knowledge in their chosen fields.

This graduate capability is supported by:

Learning outcomes

- Ability to undertake a complex engineering specific research project involving the development of new knowledge, using appropriate technical laboratory skills, data management and synthesis, critical analysis and interpretation of results; culminating in an effective written dissertation and oral presentation to a variety of audiences in research fora.
- Ability to demonstrate an advanced knowledge of contextual factors, research direction, and underpinning information impacting the engineering discipline, including risk identification and management, design metrics and alternatives, systems measurement, simulation, modelling and analysis, and environmental constraints and safety issues.

Assessment tasks

- Progress Report
- Final Report
- Presentation/Poster

PG - Critical, Analytical and Integrative Thinking

Our postgraduates will be capable of utilising and reflecting on prior knowledge and experience, of applying higher level critical thinking skills, and of integrating and synthesising learning and knowledge from a range of sources and environments. A characteristic of this form of thinking is the generation of new, professionally oriented knowledge through personal or group-based critique of practice and theory.

This graduate capability is supported by:

Learning outcomes

- Ability to undertake a complex engineering specific research project involving the development of new knowledge, using appropriate technical laboratory skills, data management and synthesis, critical analysis and interpretation of results; culminating in an effective written dissertation and oral presentation to a variety of audiences in research fora.
- Ability to demonstrate an advanced knowledge of contextual factors, research direction, and underpinning information impacting the engineering discipline, including risk identification and management, design metrics and alternatives, systems measurement, simulation, modelling and analysis, and environmental constraints and safety issues.
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- Final Report
- Presentation/Poster

PG - Research and Problem Solving Capability

Our postgraduates will be capable of systematic enquiry; able to use research skills to create new knowledge that can be applied to real world issues, or contribute to a field of study or practice to enhance society. They will be capable of creative questioning, problem finding and problem solving.

This graduate capability is supported by:

Learning outcomes

- Ability to undertake a complex engineering specific research project involving the development of new knowledge, using appropriate technical laboratory skills, data management and synthesis, critical analysis and interpretation of results; culminating in an effective written dissertation and oral presentation to a variety of audiences in research fora.
- Ability to identify, formulate and solve engineering problems in an ethical manner, including complex and open-ended problems, using established engineering methods, processes, and procedures.
- Ability to apply research principles, research methods, and technical standards as well as further learning to identify and provide solutions to complex problems with intellectual independence.

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- Final Report
- Presentation/Poster

PG - Effective Communication

Our postgraduates will be able to communicate effectively and convey their views to different social, cultural, and professional audiences. They will be able to use a variety of technologically supported media to communicate with empathy using a range of written, spoken or visual formats.

This graduate capability is supported by:

Learning outcomes

- Ability to undertake a complex engineering specific research project involving the development of new knowledge, using appropriate technical laboratory skills, data management and synthesis, critical analysis and interpretation of results; culminating in an effective written dissertation and oral presentation to a variety of audiences in research fora.
- Ability to design and implement the necessary experimental or computational processes, information management, records keeping, project management, and communications that should be undertaken for an engineering research investigation.
- Ability to manage, and participate in, complex intra- and cross-disciplinary engineering projects through applying established systematic approaches.

Assessment tasks

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- Final Report
- Presentation/Poster

PG - Engaged and Responsible, Active and Ethical Citizens

Our postgraduates will be ethically aware and capable of confident transformative action in relation to their professional responsibilities and the wider community. They will have a sense of connectedness with others and country and have a sense of mutual obligation. They will be able to appreciate the impact of their professional roles for social justice and inclusion related to national and global issues

This graduate capability is supported by:

Learning outcomes

- Ability to demonstrate an advanced knowledge of contextual factors, research direction, and underpinning information impacting the engineering discipline, including risk identification and management, design metrics and alternatives, systems measurement, simulation, modelling and analysis, and environmental constraints and safety issues.
- Ability to identify, formulate and solve engineering problems in an ethical manner,

including complex and open-ended problems, using established engineering methods, processes, and procedures.

Assessment tasks

- Progress Report
- Final Report
- Presentation/Poster