ENGG411
Engineering Research Thesis
S1 Day 2015
Dept of Engineering

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General Information

<table>
<thead>
<tr>
<th>Unit convenor and teaching staff</th>
<th>Unit Convenor</th>
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<tr>
<td></td>
<td>Eryk Dutkiewicz</td>
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<td>Contact via <a href="mailto:eryk.dutkiewicz@mq.edu.au">eryk.dutkiewicz@mq.edu.au</a></td>
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Credit points
12

Prerequisites
75cp and ENGG460 and (ELEC426 or ELEC436 or ELEC446 or ELEC466 or ELEC476 or ELEC486 or MECH401)

Co-requisites

Co-badged status

Unit description
This unit is an individual research thesis in which students conduct research on a topic in their Engineering major under the direction of an academic supervisor.

Important Academic Dates
Information about important academic dates including deadlines for withdrawing from units are available at https://students.mq.edu.au/important-dates

Learning Outcomes

1. Ability to undertake a major engineering project from conception to completion, involving literature search, design, problem solving, implementation, testing and demonstration of outcomes.
2. Ability to produce a detailed professional report describing the project activities and outcomes.
3. Ability to incorporate into the project activities social, economic and environmental influences and outcomes.
4. Ability to understand processes, and procedures involved in an engineering project in an industrial or academic setting.
## Assessment Tasks

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Due</th>
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<tbody>
<tr>
<td>Progress Report</td>
<td>10%</td>
<td>2 April 2015</td>
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<tr>
<td>Final Report</td>
<td>70%</td>
<td>7 June 2015</td>
</tr>
<tr>
<td>Presentation, Demo and Poster</td>
<td>20%</td>
<td>17 June 2015</td>
</tr>
</tbody>
</table>

### Progress Report

**Due:** 2 April 2015  
**Weighting:** 10%

The detailed requirements are available in the slides of the first lecture.

This Assessment Task relates to the following Learning Outcomes:

- Ability to undertake a major engineering project from conception to completion, involving literature search, design, problem solving, implementation, testing and demonstration of outcomes.
- Ability to incorporate into the project activities social, economic and environmental influences and outcomes.
- Ability to understand processes, and procedures involved in an engineering project in an industrial or academic setting.

### Final Report

**Due:** 7 June 2015  
**Weighting:** 70%

The detailed requirements are available in the slides of the first lecture.

This Assessment Task relates to the following Learning Outcomes:

- Ability to undertake a major engineering project from conception to completion, involving literature search, design, problem solving, implementation, testing and demonstration of outcomes.
- Ability to produce a detailed professional report describing the project activities and outcomes.
- Ability to incorporate into the project activities social, economic and environmental influences and outcomes.
- Ability to understand processes, and procedures involved in an engineering project in an
industrial or academic setting.

Presentation, Demo and Poster
Due: 17 June 2015
Weighting: 20%

Each presenter will be allocated 20 mins for the talk plus 5 mins for Q&A

This Assessment Task relates to the following Learning Outcomes:

- Ability to undertake a major engineering project from conception to completion, involving literature search, design, problem solving, implementation, testing and demonstration of outcomes.
- Ability to incorporate into the project activities social, economic and environmental influences and outcomes.
- Ability to understand processes, and procedures involved in an engineering project in an industrial or academic setting.

Delivery and Resources
The students need to talk to their supervisors on the project related resources.

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:


In addition, a number of other policies can be found in the [Learning and Teaching Category](http://mq.edu.au/policy/docs) 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/](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](http://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/](http://students.mq.edu.au/support/)

Learning Skills

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

- [Workshops](http://mq.edu.au/learningskills)
- [StudyWise](http://mq.edu.au/learningskills)
- [Academic Integrity Module for Students](http://mq.edu.au/learningskills)
- [Ask a Learning Adviser](http://mq.edu.au/learningskills)

Student Enquiry Service

For all student enquiries, visit Student Connect at [ask.mq.edu.au](http://ask.mq.edu.au)

Equity Support

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

IT Help


When using the University’s IT, you must adhere to the [Acceptable Use Policy](http://informatics.mq.edu.au/help/). The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

**Discipline Specific Knowledge and Skills**

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.
This graduate capability is supported by:

**Learning outcome**
- Ability to undertake a major engineering project from conception to completion, involving literature search, design, problem solving, implementation, testing and demonstration of outcomes.

**Assessment tasks**
- Progress Report
- Final Report
- Presentation, Demo and Poster

**Problem Solving and Research Capability**
Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

**Learning outcome**
- Ability to undertake a major engineering project from conception to completion, involving literature search, design, problem solving, implementation, testing and demonstration of outcomes.

**Assessment tasks**
- Progress Report
- Final Report
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**Effective Communication**
We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

**Learning outcomes**
- Ability to produce a detailed professional report describing the project activities and
outcomes.

• Ability to understand processes, and procedures involved in an engineering project in an industrial or academic setting.

Assessment tasks

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Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

Learning outcomes

• Ability to incorporate into the project activities social, economic and environmental influences and outcomes.
• Ability to understand processes, and procedures involved in an engineering project in an industrial or academic setting.

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Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcome

• Ability to undertake a major engineering project from conception to completion, involving literature search, design, problem solving, implementation, testing and demonstration of outcomes.
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Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

Learning outcomes

• Ability to undertake a major engineering project from conception to completion, involving literature search, design, problem solving, implementation, testing and demonstration of outcomes.
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Engaged and Ethical Local and Global citizens

As local citizens our graduates will be aware of indigenous perspectives and of the nation's historical context. They will be engaged with the challenges of contemporary society and with knowledge and ideas. We want our graduates to have respect for diversity, to be open-minded, sensitive to others and inclusive, and to be open to other cultures and perspectives: they should have a level of cultural literacy. Our graduates should be aware of disadvantage and social justice, and be willing to participate to help create a wiser and better society.

This graduate capability is supported by:

Learning outcomes

• Ability to incorporate into the project activities social, economic and environmental influences and outcomes.
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Socially and Environmentally Active and Responsible

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

Learning outcomes

• Ability to produce a detailed professional report describing the project activities and outcomes.
• Ability to incorporate into the project activities social, economic and environmental influences and outcomes.
• Ability to understand processes, and procedures involved in an engineering project in an industrial or academic setting.

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Commitment to Continuous Learning

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

Learning outcomes

• Ability to incorporate into the project activities social, economic and environmental influences and outcomes.
• Ability to understand processes, and procedures involved in an engineering project in an industrial or academic setting.
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