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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

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Michael Johnson
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Contact via email
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Credit points
6

Prerequisites
69cp at 100 level or above including (COMP332 and COMP333 and COMP335)

Corequisites
COMP430 or COMP434

Co-badged status
ENGG460 and all ENGG units of the form xxx410 (ELEC/MECH/ and so on). note: this unit
guide is copied from ELEC410 as per our policy to synchronise final year thesis across the
ENG degree.

Unit description
In this unit students will conduct the first half of an individual research thesis on a topic in the
Software Engineering major under the direction of an academic supervisor. The focus of the
work will be on the developing the project proposal, conducting the literature review and
project planning and design.
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. At the end of this unit students will be able 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.

2. At the end of this unit students will be able to demonstrate an advanced knowledge of contextual factors, research direction, and underpinning information impacting the engineering discipline.

3. At the end of this unit students will be able to identify, formulate and solve engineering problems in an ethical manner, including complex and open-ended problems, using established engineering methods, processes, and procedures.

4. At the end of this unit students will be able 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.

General Assessment Information

Grading and passing requirement for unit

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).

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

Hurdle Requirements

The Preliminary Thesis is a hurdle requirement. A grade of 50% or more on the Preliminary Thesis is a condition of passing this unit. If you are given a second opportunity to submit your thesis as a result of failing to meet the minimum mark required, your submission will be due during the supplementary examination period and will be notified of the exact day and time by the unit convenor. The second attempt at a hurdle assessment is graded as pass fail. The maximum grade for a second attempt is the hurdle threshold grade.

Regular meetings with thesis supervisor is a hurdle requirement. See details in assessment task description.

Late submissions and Re-submissions

Late submissions will attract a penalty of 10% marks per day. Extenuating circumstances will be
considered upon lodgement of a special consideration application.

Resubmissions of work are not allowed after due date.

Assessment Tasks

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Hurdle</th>
<th>Due</th>
</tr>
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<tbody>
<tr>
<td>Preliminary Thesis</td>
<td>70%</td>
<td>Yes</td>
<td>Week 13</td>
</tr>
<tr>
<td>Management and Engagement</td>
<td>10%</td>
<td>No</td>
<td>All Session</td>
</tr>
<tr>
<td>Meetings with Supervisors</td>
<td>0%</td>
<td>Yes</td>
<td>Week 13</td>
</tr>
<tr>
<td>Presentation</td>
<td>20%</td>
<td>No</td>
<td>Week 14-16</td>
</tr>
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Preliminary Thesis

Due: **Week 13**

Weighting: **70%**

This is a hurdle assessment task (see assessment policy for more information on hurdle assessment tasks)

Refer to iLearn for guidelines.

This Assessment Task relates to the following Learning Outcomes:

- At the end of this unit students will be able 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.

- At the end of this unit students will be able to demonstrate an advanced knowledge of contextual factors, research direction, and underpinning information impacting the engineering discipline.

- At the end of this unit students will be able to identify, formulate and solve engineering problems in an ethical manner, including complex and open-ended problems, using established engineering methods, processes, and procedures.

- At the end of this unit students will be able 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.

Management and Engagement

Due: **All Session**
Weighting: 10%

Students are required to actively engage with the project-related activities, and to demonstrate a professional demeanour towards project management and record-keeping. Students are also required to maintain a logbook for this unit, where dated records of day-to-day activities associated with the project are maintained. More guidelines are provided on iLearn.

This Assessment Task relates to the following Learning Outcomes:

- At the end of this unit students will be able 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.
- At the end of this unit students will be able to demonstrate an advanced knowledge of contextual factors, research direction, and underpinning information impacting the engineering discipline.
- At the end of this unit students will be able to identify, formulate and solve engineering problems in an ethical manner, including complex and open-ended problems, using established engineering methods, processes, and procedures.
- At the end of this unit students will be able 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.

Meetings with Supervisors

Due: **Week 13**
Weighting: 0%

**This is a hurdle assessment task** (see [assessment policy](https://unitguides.mq.edu.au/unit_offerings/103926/unit_guide/print) for more information on hurdle assessment tasks)

Students are expected to meet with their supervisor on a weekly basis, once the project commences. Such weekly meetings should aim to seek feedback and steer the project, and would normally last at least 15-30 minutes or more. In order to pass this unit, a student must attend at least 5 out of 10 weekly meetings between Week 4 to Week 12. In case a face-to-face meeting is not possible, a meeting must be conducted using telephone or video-conference. Meetings should be logged using the consultation meeting log sheet provided on iLearn.

This Assessment Task relates to the following Learning Outcomes:

- At the end of this unit students will be able 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.

• At the end of this unit students will be able to demonstrate an advanced knowledge of contextual factors, research direction, and underpinning information impacting the engineering discipline.

• At the end of this unit students will be able to identify, formulate and solve engineering problems in an ethical manner, including complex and open-ended problems, using established engineering methods, processes, and procedures.

• At the end of this unit students will be able 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.

Presentation

Due: **Week 14-16**

Weighting: **20%**

Refer to iLearn for guidelines.

This Assessment Task relates to the following Learning Outcomes:

• At the end of this unit students will be able 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.

• At the end of this unit students will be able to demonstrate an advanced knowledge of contextual factors, research direction, and underpinning information impacting the engineering discipline.

• At the end of this unit students will be able to identify, formulate and solve engineering problems in an ethical manner, including complex and open-ended problems, using established engineering methods, processes, and procedures.

• At the end of this unit students will be able 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.

**Delivery and Resources**

**Unit Delivery**

This is a project-based unit and has no scheduled lectures or tutorial sessions. Special lectures
may be organised and related announcements will be made via iLearn.

Logbook

This unit requires a logbook. The students should maintain an individual logbook which should contain a dated log of day-to-day activities undertaken in relation to the project.

Technology Used and Required

The students are required to discuss with their supervisor about the software/hardware resources required for analysis, simulation, testing and experiments related to their project. In addition, word processing software (MS Word, Latex etc.) will be required to produce the preliminary thesis and MS PowerPoint or equivalent software will be required for presentation slides.

Unit Webpage: Access from the online iLearn System at http://ilearn.mq.edu.au

Required and Recommended Texts/Materials

There is not set textbook for this unit. The students are required to discuss with their supervisor regarding required/recommended reading materials, as suited to individual project needs.

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Grade Appeal Policy
- Complaint Management Procedure for Students and Members of the Public
- Special Consideration Policy (Note: The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.)

Undergraduate students seeking more policy resources can visit the Student Policy Gateway (https://students.mq.edu.au/support/study/student-policy-gateway). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/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/study/getting-started/student-conduct

Results
Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) 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 or if you are a Global MBA student contact globalmba.support@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 Enquiry Service
For all student enquiries, visit Student Connect at ask.mq.edu.au

If you are a Global MBA student contact globalmba.support@mq.edu.au

Equity 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.

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

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 outcomes**

- At the end of this unit students will be able 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.
- At the end of this unit students will be able to demonstrate an advanced knowledge of contextual factors, research direction, and underpinning information impacting the engineering discipline.
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- At the end of this unit students will be able 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.

**Assessment tasks**

- Preliminary Thesis
- Management and Engagement
- Meetings with Supervisors
- Presentation

**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 outcomes**

- At the end of this unit students will be able 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.

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- At the end of this unit students will be able 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.

**Assessment tasks**

- Preliminary Thesis
- Management and Engagement
- Meetings with Supervisors
- Presentation

**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**

- At the end of this unit students will be able 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.
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- At the end of this unit students will be able 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.

Assessment tasks

• Preliminary Thesis
• Management and Engagement
• Meetings with Supervisors
• Presentation

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

• At the end of this unit students will be able 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.
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• At the end of this unit students will be able 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.

Assessment tasks

• Preliminary Thesis
• Management and Engagement
• Meetings with Supervisors
• Presentation
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**

- At the end of this unit students will be able 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.
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**Assessment tasks**

- Preliminary Thesis
- Management and Engagement
- Meetings with Supervisors
- Presentation

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

- At the end of this unit students will be able 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.
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Assessment tasks

- Preliminary Thesis
- Management and Engagement
- Meetings with Supervisors
- Presentation

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

- At the end of this unit students will be able 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.
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Assessment tasks

- Preliminary Thesis
- Management and Engagement
- Meetings with Supervisors
- Presentation

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系统ically 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 outcomes

- At the end of this unit students will be able 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.
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Assessment tasks

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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

- At the end of this unit students will be able 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.
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Assessment tasks

- Preliminary Thesis
- Management and Engagement
- Meetings with Supervisors
- Presentation
Changes in Response to Student Feedback

Preliminary thesis is now a hurdle.