



MECH4092

Mechanical Engineering Research Thesis A

Session 1, Special circumstances 2021

School of Engineering

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Notice

As part of [Phase 3 of our return to campus plan](#), most units will now run tutorials, seminars and other small group activities on campus, and most will keep an online version available to those students unable to return or those who choose to continue their studies online.

To check the availability of face-to-face activities for your unit, please go to [timetable viewer](#). To check detailed information on unit assessments visit your unit's iLearn space or consult your unit convenor.

General Information

Unit convenor and teaching staff

Unit Convenor

Hazer Inaltekin

hazer.inaltekin@mq.edu.au

Contact via 9850 2280

44 WTR, Room 133

Wednesday 4pm-5pm

Credit points

10

Prerequisites

(MECH3001 or MECH301) and (MECH3002 or MECH302) and (MECH3003 or MECH303) and (MECH3004 or MECH304)

Corequisites

(MECH401 or MECH4001) or (MECH402 or MECH4002)

Co-badged status

Unit description

In this unit students will conduct the first half of an individual research project on a topic in the Mechanical Engineering specialisation under the direction of an academic supervisor. The focus of the work will be on developing the project proposal, conducting the literature review; and project planning and design. The research (experimental or computational) will usually begin during this unit.

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:

ULO1: Analyse a complex Mechanical Engineering problem, and propose solutions involving the development of new knowledge or the application of cutting edge techniques.

ULO3: Demonstrate an advanced knowledge of contextual factors, research direction, and foundational concepts in Mechanical Engineering.

ULO2: Plan a major Mechanical Engineering research project, including the design of necessary processes, information management, records keeping, project management, and communications.

ULO4: Apply core Mechanical Engineering principles and practices to a research or industry challenge.

ULO5: Demonstrate intellectual independence and an in-depth understanding of a specialist topic within Mechanical Engineering, through verbal and written communication.

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

Name	Weighting	Hurdle	Due
<u>Preliminary Thesis</u>	70%	Yes	Week 13
<u>Management and Engagement</u>	10%	No	All Session
<u>Meeting with Supervisors</u>	0%	Yes	Week 13
<u>Presentation</u>	20%	No	Week 14-16

Preliminary Thesis

Assessment Type ¹: Thesis

Indicative Time on Task ²: 50 hours

Due: **Week 13**

Weighting: **70%**

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

Students are required to prepare a preliminary thesis report about their projects, including the literature review, project planning & design, progress and achievements.

On successful completion you will be able to:

- Analyse a complex Mechanical Engineering problem, and propose solutions involving the development of new knowledge or the application of cutting edge techniques.
- Demonstrate an advanced knowledge of contextual factors, research direction, and foundational concepts in Mechanical Engineering.
- Plan a major Mechanical Engineering research project, including the design of necessary processes, information management, records keeping, project management, and communications.
- Apply core Mechanical Engineering principles and practices to a research or industry challenge.
- Demonstrate intellectual independence and an in-depth understanding of a specialist topic within Mechanical Engineering, through verbal and written communication.

Management and Engagement

Assessment Type ¹: Participatory task

Indicative Time on Task ²: 10 hours

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.

On successful completion you will be able to:

- Analyse a complex Mechanical Engineering problem, and propose solutions involving the development of new knowledge or the application of cutting edge techniques.
- Demonstrate an advanced knowledge of contextual factors, research direction, and foundational concepts in Mechanical Engineering.
- Plan a major Mechanical Engineering research project, including the design of necessary processes, information management, records keeping, project management, and communications.
- Apply core Mechanical Engineering principles and practices to a research or industry challenge.
- Demonstrate intellectual independence and an in-depth understanding of a specialist topic within Mechanical Engineering, through verbal and written communication.

Meeting with Supervisors

Assessment Type ¹: Participatory task

Indicative Time on Task ²: 5 hours

Due: **Week 13**

Weighting: **0%**

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

Students are required to meet with their supervisors 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 from Week 4 to Week 13. Meetings can be conducted using telephone or video-conference. Meetings should be logged using the consultation meeting log sheet provided on iLearn.

On successful completion you will be able to:

- Analyse a complex Mechanical Engineering problem, and propose solutions involving the development of new knowledge or the application of cutting edge techniques.
- Demonstrate an advanced knowledge of contextual factors, research direction, and foundational concepts in Mechanical Engineering.
- Plan a major Mechanical Engineering research project, including the design of necessary processes, information management, records keeping, project management, and communications.
- Apply core Mechanical Engineering principles and practices to a research or industry

challenge.

- Demonstrate intellectual independence and an in-depth understanding of a specialist topic within Mechanical Engineering, through verbal and written communication.

Presentation

Assessment Type ¹: Presentation

Indicative Time on Task ²: 10 hours

Due: **Week 14-16**

Weighting: **20%**

Students are required to deliver a comprehensive oral presentation about their project progress at the end of the unit.

On successful completion you will be able to:

- Analyse a complex Mechanical Engineering problem, and propose solutions involving the development of new knowledge or the application of cutting edge techniques.
- Demonstrate an advanced knowledge of contextual factors, research direction, and foundational concepts in Mechanical Engineering.
- Plan a major Mechanical Engineering research project, including the design of necessary processes, information management, records keeping, project management, and communications.
- Apply core Mechanical Engineering principles and practices to a research or industry challenge.
- Demonstrate intellectual independence and an in-depth understanding of a specialist topic within Mechanical Engineering, through verbal and written communication.

¹ If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the [Writing Centre](#) for academic skills support.

² Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

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 \(https://policies.mq.edu.au\)](https://policies.mq.edu.au). 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](#)

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

To find other policies relating to Teaching and Learning, visit [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au) and use the [search tool](#).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/admin/other-resources/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 help you improve your marks and take control of your study.

- [Getting help with your assignment](#)
- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

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](#)

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