



ENGG3000

Engineering Project Practice

Session 2, In person-scheduled-weekday, North Ryde 2022

School of Engineering

Contents

<u>General Information</u>	2
<u>Learning Outcomes</u>	3
<u>General Assessment Information</u>	3
<u>Assessment Tasks</u>	4
<u>Delivery and Resources</u>	7
<u>Unit Schedule</u>	7
<u>Policies and Procedures</u>	7
<u>Changes from Previous Offering</u>	9
<u>Engineers Australia Competency Mapping</u>	9

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General Information

Unit convenor and teaching staff

Convenor

Rex Di Bona

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50 Waterloo Road

Tue and Wed (at 44WR)

Co-Convenor

Nicholas Tse

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Contact via Email appointment

50 Waterloo Road

Tue and Wed (at 44WR)

Credit points

10

Prerequisites

((ENGG2000 or ENGG200) and (ENGG450 or ENGG2050)) or admission to MEngElecEng or MEngEnvSafetyEng or MEngMechEng or MEngNetTeleEng

Corequisites

Co-badged status

Unit description

The 6th SPINE unit aimed to develop professional, transferable and employability skills. The Unit consists of a series of online modules and integrated project-based learning activities. Students will be able to demonstrate structured problem-solving skills and learnt technical knowledge from preceding units. Students will be expected to apply systems thinking in a real-world inspired engineering project. The students will be expected to apply appropriate management and leadership skills to ensure project success is achieved. Students will demonstrate proficiency in technical communication for their engineering design and solution.

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: Demonstrate systems thinking and holistic thinking with an emphasis on trade-off analysis in all decision-making process.

ULO2: Demonstrate effective communication skill of technical and non-technical knowledge through a range of mediums such as technical documents and elevator pitch.

ULO3: Provide analysis and simulation to optimise the system based on enumerated parameters.

ULO4: Demonstrate leadership and management skills to achieve team deliverables.

ULO5: Ensure project continuation through the synthesis of project documentation and handover documents.

ULO6: Explain and discuss the social and technical impact of engineering and demonstrate continual professional development.

General Assessment Information

General Assessment Information

Grading and passing requirements for unit

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

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

Hurdle Requirements

There will be a "Fitness to Practice (FTP)" hurdle requirement that students must meet in order to pass this unit. Any students who do not meet the professionalism required of the Unit will first be warned formally via email and an in-person meeting. This includes following the given lab safety requirements and adherence to the COVID safety policy. For further details please refer to the policies and procedures section, specifically the Fitness to Practice Procedure.

Late Assessment Submission Penalty

From 1 July 2022, Students enrolled in Session-based units with written assessments will have the following university standard late penalty applied. Please see <https://students.mq.edu.au/study/assessment-exams/assessments> for more information.

Unless a Special Consideration request has been submitted and approved, a **20% penalty** (of the total possible mark) will be applied each day a written assessment is not submitted, up until the 7th day (including weekends). After the 7th day, a grade of '0' will be awarded even if the

assessment is submitted. Submission time for all written assessments is set at 11:55 pm. A 1-hour grace period is provided to students who experience a technical concern. **You should contact your convenor for any anticipated issues that might prevent you from a timely submission of work.**

Re-submission for any submitted and/or graded work will not be allowed.

Late submission will require justification via an approved Special Consideration process, if not late penalty procedure will be followed.

Assessment Tasks

Name	Weighting	Hurdle	Due
<u>Fitness to Practice Hurdle</u>	0%	Yes	Week 13
<u>A1 Online materials</u>	15%	No	Throughout Semester
<u>A2. Reflective writing</u>	10%	No	Week 7 and 13
<u>A3. Portfolio</u>	5%	No	Week 13
<u>A4. Sociotechnical Perspective Essay</u>	10%	No	Week 8
<u>A5. Vertically Integrated Project</u>	60%	No	Week 13

Fitness to Practice Hurdle

Assessment Type ¹: Practice-based task

Indicative Time on Task ²: 0 hours

Due: **Week 13**

Weighting: **0%**

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

This non weighted hurdle requires students to demonstrate achievement and compliance with the Engineers Australia Stage 1 Competency. In particular, but not limited to Section 3: Professional and Personal Attributes. This is a "fitness to practice" demonstration task.

On successful completion you will be able to:

- Demonstrate leadership and management skills to achieve team deliverables.
- Explain and discuss the social and technical impact of engineering and demonstrate continual professional development.

A1 Online materials

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 10 hours

Due: **Throughout Semester**

Weighting: **15%**

A range of topics delivered via podcasts, video recordings and other reading materials. Periodic online assessment around these topics. Material content will include but not limited to project management, team management, project organisation.

On successful completion you will be able to:

- Demonstrate systems thinking and holistic thinking with an emphasis on trade-off analysis in all decision-making process.
- Provide analysis and simulation to optimise the system based on enumerated parameters.
- Demonstrate leadership and management skills to achieve team deliverables.
- Ensure project continuation through the synthesis of project documentation and handover documents.
- Explain and discuss the social and technical impact of engineering and demonstrate continual professional development.

A2. Reflective writing

Assessment Type ¹: Reflective Writing

Indicative Time on Task ²: 5 hours

Due: **Week 7 and 13**

Weighting: **10%**

Reflective writing on transferable skills learnt. There will be two required submission at two-time points in the semester. Refer to iLearn for more information.

On successful completion you will be able to:

- Demonstrate leadership and management skills to achieve team deliverables.
- Explain and discuss the social and technical impact of engineering and demonstrate continual professional development.

A3. Portfolio

Assessment Type ¹: Portfolio

Indicative Time on Task ²: 2 hours

Due: **Week 13**

Weighting: **5%**

Continue professional development. A core part of the SPINE unit where students are to continually improve on their Portfolio development.

On successful completion you will be able to:

- Explain and discuss the social and technical impact of engineering and demonstrate continual professional development.

A4. Sociotechnical Perspective Essay

Assessment Type ¹: Essay

Indicative Time on Task ²: 15 hours

Due: **Week 8**

Weighting: **10%**

A sociotechnical Perspective Essay on a chosen engineering topic. More information on iLearn.

On successful completion you will be able to:

- Explain and discuss the social and technical impact of engineering and demonstrate continual professional development.

A5. Vertically Integrated Project

Assessment Type ¹: Practice-based task

Indicative Time on Task ²: 20 hours

Due: **Week 13**

Weighting: **60%**

Working collectively as a team of engineers (different disciplines and years), students are to design, conceive, document, implement and communicate a detailed plan to a multi-disciplinary real-world inspired engineering problem. The work will have multiple subcomponents and

milestone and will require teams to peer evaluate. More information on iLearn.

On successful completion you will be able to:

- Demonstrate systems thinking and holistic thinking with an emphasis on trade-off analysis in all decision-making process.
- Demonstrate effective communication skill of technical and non-technical knowledge through a range of mediums such as technical documents and elevator pitch.
- Provide analysis and simulation to optimise the system based on enumerated parameters.
- Demonstrate leadership and management skills to achieve team deliverables.
- Ensure project continuation through the synthesis of project documentation and handover documents.

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

B. S. Blanchard & W. J. Fabrycky, Systems Engineering and Analysis, Pearson, 5th edition, 2014.

It is expected that every student will have access to this textbook

Unit Schedule

Refer to iLearn pages for more information.

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](#)
- [Assessment Procedure](#)
- [Complaints Resolution 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

Academic Integrity

At Macquarie, we believe [academic integrity](#) – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free [online writing and maths support](#), [academic skills development](#) and [wellbeing consultations](#).

Student Support

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

The Writing Centre

[The Writing Centre](#) provides resources to develop your English language proficiency, academic writing, and communication skills.

- [Workshops](#)
- [Chat with a WriteWISE peer writing leader](#)
- [Access StudyWISE](#)
- [Upload an assignment to Studiosity](#)
- [Complete the 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

Macquarie University offers a range of [Student Support Services](#) including:

- [IT Support](#)
- [Accessibility and disability support](#) with study
- Mental health [support](#)
- [Safety support](#) to respond to bullying, harassment, sexual harassment and sexual assault
- [Social support including information about finances, tenancy and legal issues](#)

Student Enquiries

Got a question? Ask us via [AskMQ](#), or contact [Service Connect](#).

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.

Changes from Previous Offering

In response to LEU and other students feedback from previous years, there has been a slight change to the due dates and workload requirement of the unit.

Also, the Engineering challenge was changed to ensure authentic projects are used in running this unit.

Engineers Australia Competency Mapping

EA Competency Standard		Unit Learning Outcomes
Knowledge and Skill Base	1.1 Comprehensive, theory-based understanding of the underpinning fundamentals applicable to the engineering discipline.	
	1.2 Conceptual understanding of underpinning maths, analysis, statistics, computing.	
	1.3 In-depth understanding of specialist bodies of knowledge	
	1.4 Discernment of knowledge development and research directions	

	1.5 Knowledge of engineering design practice	
	1.6 Understanding of scope, principles, norms, accountabilities of sustainable engineering practice.	
Engineering Application Ability	2.1 Application of established engineering methods to complex problem solving	ULO3
	2.2 Fluent application of engineering techniques, tools and resources.	ULO3
	2.3 Application of systematic engineering synthesis and design processes.	ULO1
	2.4 Application of systematic approaches to the conduct and management of engineering projects.	ULO3, ULO5
Professional and Personal Attributes	3.1 Ethical conduct and professional accountability.	ULO6
	3.2 Effective oral and written communication in professional and lay domains.	ULO2
	3.3 Creative, innovative and pro-active demeanour.	ULO6
	3.4 Professional use and management of information.	ULO3
	3.5 Orderly management of self, and professional conduct.	ULO4
	3.6 Effective team membership and team leadership	ULO4