



ENGG4001

Professional Practice

Session 1, In person-scheduled-weekday, North Ryde 2022

School of Engineering

Contents

<u>General Information</u>	2
<u>Learning Outcomes</u>	2
<u>General Assessment Information</u>	3
<u>Assessment Tasks</u>	3
<u>Delivery and Resources</u>	6
<u>Unit Schedule</u>	7
<u>Policies and Procedures</u>	7
<u>Changes from Previous Offering</u>	8
<u>Engineers Australia Competency Mapping</u>	9

Disclaimer

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General Information

Unit convenor and teaching staff

Convenor

Rex Di Bona

rex.dibona@mq.edu.au

Contact via Email

Level 1, 50 Waterloo Road

Schedule via email

Credit points

10

Prerequisites

ENGG3000 or ENGG300

Corequisites

Co-badged status

Unit description

In this professional practice capstone unit students will work as teams of consulting engineers to provide an engineering solution to a real societal need or problem, and which addresses a Sustainable Development Goal (SDG). The teams may be multidisciplinary, as required by the nature of the project, and will source a valuable exposure to an in-depth understanding of the problem, the relevant industry, and the socio-technical and other contexts in which the need or problem arose, and the engineered system or solution required. The teams will be expected to organise, plan, and perform all other tasks associated with good engineering practice, including discussion and reflection around the engineering problem and the engineering process. Individual and collective technical and professional competencies will be demonstrated through the production of a substantial report and presentation for consideration. An appreciation of the various contexts and factors impacting upon engineering practice will be developed.

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: Work productively in teams of professional engineers.

ULO2: Effectively and professionally communicate engineering concepts in multiple modes to a range of audiences.

ULO3: Develop and deliver a professional engineering report, detailing the problem to be solved, the proposed problem solution, a critique of the solution and the reasons why the solution was chosen or recommended.

ULO4: Examine and reflect on the socio-technical and other contexts in which engineering is practiced.

ULO5: Exercise professional and self reflective practice.

General Assessment Information

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).

Online quizzes, in-class activities, or scheduled tests and exam must be undertaken at the time indicated in the unit guide. Should these activities be missed due to illness or misadventure, students may apply for Special Consideration.

All other assessments must be submitted by 5:00 pm on their due date.

Should these assessments be missed due to illness or misadventure, students should apply for Special Consideration.

Assessments not submitted by the due date will receive a mark of zero.

Resubmission of work is not allowed

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

Assessment Tasks

Name	Weighting	Hurdle	Due
<u>Fitness to Practice Hurdle</u>	0%	Yes	Continuous
<u>In session quizzes</u>	30%	No	Weeks 2, 8, 10 and 12
<u>Progress Report</u>	15%	No	Week 6
<u>Final report</u>	30%	Yes	Week 13
<u>Engineering presentation</u>	15%	No	Week 13
<u>Portfolio</u>	10%	No	Week 13

Fitness to Practice Hurdle

Assessment Type ¹: Practice-based task

Indicative Time on Task ²: 0 hours

Due: **Continuous**

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.

In session quizzes

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 15 hours

Due: **Weeks 2, 8, 10 and 12**

Weighting: **30%**

A series of small quizzes to reflect on the foundation scaffolding learning materials supporting the design of a solution

On successful completion you will be able to:

- Examine and reflect on the socio-technical and other contexts in which engineering is practiced.
- Exercise professional and self reflective practice.

Progress Report

Assessment Type ¹: Report

Indicative Time on Task ²: 15 hours

Due: **Week 6**

Weighting: **15%**

A preliminary progress report outlining preliminary findings, a plan for the remaining work including individual roles within the team

On successful completion you will be able to:

- Work productively in teams of professional engineers.
- Effectively and professionally communicate engineering concepts in multiple modes to a range of audiences.
- Examine and reflect on the socio-technical and other contexts in which engineering is practiced.

Final report

Assessment Type ¹: Report

Indicative Time on Task ²: 30 hours

Due: **Week 13**

Weighting: **30%**

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

Groups will produce a professional engineering report on the engineering solution to the chosen problem

On successful completion you will be able to:

- Work productively in teams of professional engineers.
- Effectively and professionally communicate engineering concepts in multiple modes to a range of audiences.
- Develop and deliver a professional engineering report, detailing the problem to be solved, the proposed problem solution, a critique of the solution and the reasons why the solution was chosen or recommended.
- Examine and reflect on the socio-technical and other contexts in which engineering is practiced.

Engineering presentation

Assessment Type ¹: Presentation

Indicative Time on Task ²: 15 hours

Due: **Week 13**

Weighting: **15%**

Each group will provide a presentation of their engineering solution

On successful completion you will be able to:

- Work productively in teams of professional engineers.
- Effectively and professionally communicate engineering concepts in multiple modes to a range of audiences.
- Develop and deliver a professional engineering report, detailing the problem to be solved, the proposed problem solution, a critique of the solution and the reasons why the solution was chosen or recommended.
- Examine and reflect on the socio-technical and other contexts in which engineering is practiced.

Portfolio

Assessment Type ¹: Portfolio

Indicative Time on Task ²: 12 hours

Due: **Week 13**

Weighting: **10%**

Students will contribute regularly to an individual portfolio, recording a summary of professional practice engagement activities. (Note: the portfolio should be updated regularly, as appropriate depending on the variety of tasks).

On successful completion you will be able to:

- Exercise professional and self reflective practice.

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

Lecture and practical sessions start in Week 1.

This unit will require you to work in an engineering group solving a hypothetical real world problem. In 2022 we will be focusing on an Environmental and Sustainable problem that will affect engineering going forward.

You are expected to have access to a copy of the SPINE textbook: B. S. Blanchard & W. J. Fabrycky, Systems Engineering and Analysis, Pearson, 5th edition, 2014.

Unit Schedule

Refer to iLearn for detailed schedule.

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

The project has changed, and because of the omni-threat of Covid is not being undertaken with

Industry partners this year.

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	3
	2.2 Fluent application of engineering techniques, tools and resources.	3
	2.3 Application of systematic engineering synthesis and design processes.	3
	2.4 Application of systematic approaches to the conduct and management of engineering projects.	3
Professional and Personal Attributes	3.1 Ethical conduct and professional accountability.	4,5
	3.2 Effective oral and written communication in professional and lay domains.	2,4
	3.3 Creative, innovative and pro-active demeanour.	4,5
	3.4 Professional use and management of information.	
	3.5 Orderly management of self, and professional conduct.	1
	3.6 Effective team membership and team leadership	1