

ENGG1050 Engineering Design

Session 2, Online-scheduled-weekday 2023

School of Engineering

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General Information

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Ines Benavente Molina ines.benaventemolina@mq.edu.au Contact via email 50WR email Credit points 10 Prerequisites ENGG1000 Corequisites Co-badged status Unit description The 2nd SPINE unit aimed to develop professional, transferable and employability skills. The unit consists of a series of online modules, electoral and project-based learning activities. This

unit consists of a series of online modules, electoral and project-based learning activities. This unit introduces engineering challenges that demand the students to apply fundamental knowledge in resolving ill-defined engineering problems. Students will be exposed to a teambased working environment that is representative of any working engineering groups. Through project-based learning and scaffolded activities, students will develop the competencies and transferable skills required to tackle more advance and domain-specific engineering problems.

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: Evaluate an engineering problem and enumerate related constraints and requirements.

ULO2: Communicate an engineering problem and associated solutions professionally, both orally and in writing.

ULO3: Employ strategies to collaborate effectively with a team on solving an engineering problem.

ULO4: Apply the structured engineering design process framework in defining and solving imprecisely defined engineering problems.

ULO5: Apply constructive techniques to reflect upon positive and negative experiences

for personal and professional growth.

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 for 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.

Late Assessment Submission Penalty

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 t-exams/assessments for more information.

Unless a Special Consideration request has been submitted and approved, a **5% 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 <u>Special Consideration</u> process, if not late penalty procedure will be followed.

Your assessments are a key element in your learning process. Find out about the types of asses sments you may need to complete at Macquarie.

Assessment Tasks

Name	Weighting	Hurdle	Due
A1. Practice Based Task	10%	No	W1-W13
A2. Professional development	15%	No	W1 and W12
A3. Periodic Quizzes	20%	No	W1, W2, W3, W8, W9 and W10
A4. Project	35%	No	W7 and W13
A5. Technical Writting	15%	No	W8

Name	Weighting	Hurdle	Due
A6. Reflection	5%	No	W6 and W11

A1. Practice Based Task

Assessment Type 1: Practice-based task Indicative Time on Task 2: 1 hours Due: **W1-W13** Weighting: **10%**

Students will demonstrate practice based skills and contribute to workshop activities throughout the session.

On successful completion you will be able to:

• Employ strategies to collaborate effectively with a team on solving an engineering problem.

A2. Professional development

Assessment Type ¹: Portfolio Indicative Time on Task ²: 2 hours Due: **W1 and W12** Weighting: **15%**

Professional development and portfolio managing. As a part of the development of professional identity and personal development, students are required to participate in a range of professional development activities which may include attending seminars by industry experts or demonstrate contribution towards student society.

On successful completion you will be able to:

- Communicate an engineering problem and associated solutions professionally, both orally and in writing.
- Apply constructive techniques to reflect upon positive and negative experiences for personal and professional growth.

A3. Periodic Quizzes

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 2.5 hours Due: **W1, W2, W3, W8, W9 and W10** Weighting: **20%**

Ongoing fortnightly online quizzes on podcast related topics and materials from designated study texts.

On successful completion you will be able to:

- Evaluate an engineering problem and enumerate related constraints and requirements.
- Apply the structured engineering design process framework in defining and solving imprecisely defined engineering problems.
- Apply constructive techniques to reflect upon positive and negative experiences for personal and professional growth.

A4. Project

Assessment Type 1: Project Indicative Time on Task 2: 4 hours Due: **W7 and W13** Weighting: **35%**

A small team-based project. Students are required to apply strategies learnt in this unit and apply hands on skills when required to work in a team-based engineering challenge. Students will have weekly deliverables and project milestones and will be required to present at the end of the project.

On successful completion you will be able to:

- Evaluate an engineering problem and enumerate related constraints and requirements.
- Communicate an engineering problem and associated solutions professionally, both orally and in writing.
- Employ strategies to collaborate effectively with a team on solving an engineering problem.
- Apply the structured engineering design process framework in defining and solving imprecisely defined engineering problems.

A5. Technical Writting

Assessment Type 1: Report Indicative Time on Task 2: 5 hours Due: **W8** Weighting: **15%**

Students will be required to collect data and present technical data and experimental design in a technical report.

On successful completion you will be able to:

• Communicate an engineering problem and associated solutions professionally, both orally and in writing.

A6. Reflection

Assessment Type 1: Reflective Writing Indicative Time on Task 2: 2 hours Due: **W6 and W11** Weighting: **5%**

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:

• Apply constructive techniques to reflect upon positive and negative experiences for personal and professional growth.

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

All unit materials are contained in the ENGG1050 iLearn pages. There is a weekly 3 hour STGA on Thursdays 9-12.plus one 3 hour student self organised STGA each week. The recommended text book for this unit is: B. S. Blanchard & W. J. Fabrycky, Systems Engineering and Analysis, Pearson, 5th edition, 2014.

Unit Schedule

Refer to iLearn for more details.

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://policie s.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 <u>Student Policies</u> (<u>https://students.mq.edu.au/su</u> <u>pport/study/policies</u>). 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 <u>Policy Central</u> (<u>https://policies.mq.e</u> <u>du.au</u>) and use the <u>search tool</u>.

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 <u>eStudent</u>, (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 <u>eStudent</u>. For more information visit <u>ask.mq.edu.au</u> or if you are a Global MBA student contact <u>globalmba.support@mq.edu.au</u>

Academic Integrity

At Macquarie, we believe <u>academic integrity</u> – 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 <u>online writing an</u> d maths support, academic skills development and wellbeing consultations.

Student Support

Macquarie University provides a range of support services for students. For details, visit <u>http://stu</u> dents.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
- <u>Student Advocacy</u> provides independent advice on MQ policies, procedures, and processes

Student Enquiries

Got a question? Ask us via AskMQ, or contact Service Connect.

IT Help

For help with University computer systems and technology, visit <u>http://www.mq.edu.au/about_us/</u>offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the <u>Acceptable Use of IT Resources Policy</u>. The policy applies to all who connect to the MQ network including students.

Changes from Previous Offering

None since S1 2023

Engineers Australia Competency Mapping

Engineers Australia Competency Mapping

Туре	Description	Unit Learning Outcomes
KNOWLEDGE AND SKILL BASE	1.1 Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline.	
	1.2 Conceptual understanding of the mathematics, numerical analysis, statistics, and Electronic and information sciences which underpin the engineering discipline.	ULO4
	1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline	ULO4
	1.4 Discernment of knowledge development and research directions within the engineering discipline.	
	1.5 Knowledge of engineering design practice and contextual factors impacting the engineering discipline.	ULO4
	1.6 Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline.	
ENGINEERING APPLICATION ABILITY	2.1 Application of established engineering methods to complex engineering problem solving.	ULO1
	2.2 Fluent application of engineering techniques, tools and resources.	ULO1
	2.3 Application of systematic engineering synthesis and design processes	ULO1, ULO4
	2.4 Application of systematic approaches to the conduct and management of engineering projects.	ULO1

PROFESSIONAL AND PERSONAL ATTRIBUTES	3.1 Ethical conduct and professional accountability.	ULO5
	3.2 Effective oral and written communication in professional and lay domains.	ULO1, ULO2
	3.3 Creative, innovative and pro-active demeanour.	ULO5
	3.4 Professional use and management of information.	
	3.5 Orderly management of self, and professional conduct.	ULO5
	3.6 Effective team membership and team leadership	ULO3