ENGG1000
Introduction to Engineering
Session 1, In person-scheduled-weekday, North Ryde 2023
School of Engineering

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Unit guide ENGG1000 Introduction to Engineering

General Information

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Via appointment

Credit points
10

Prerequisites

Corequisites

Co-badged status

Unit description
The 1st SPINE unit aimed to develop professional, transferable and employability skills. The unit has two objectives; 1) to develop the required self-management skills to be successful in the field of engineering. This includes time management skills, professional behaviour, empathy and metacognitive skills. 2) to develop related and transferable hands-on prototyping skills through a series of workshops. In the process, students will be able to contextualise their learning and develop basic fundamental prototyping skills required for them to be involved in a team-based project by the subsequent SPINE unit.

The SPINE units are serious of scaffolded units across the engineering curriculum that aims to develop self-agency and self-efficacy that will help you transition into University study.

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 practical skills in prototyping engineering designs.
- **ULO2**: Follow safe working procedures when working with others.
- **ULO3**: Apply strategies and tools to organise and conduct knowledge discovery independently.
- **ULO4**: Work and interact in accordance to the code of ethics and guidelines of engineering accreditation organisations.
- **ULO5**: Articulate independent thinking and effectively communicate ideas and concepts.

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).

There is no hurdle assessment in this unit.

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 **11:55 pm** on their due date. Should these assessments be missed due to illness or misadventure, **students should apply for Special Consideration**.

Late Assessment Submission

Late assessments are not accepted in this unit unless a **Special Consideration** has been submitted and approved.

Special Consideration

The **Special Consideration Policy** aims to support students who have been impacted by short-term circumstances or events that are serious, unavoidable and significantly disruptive, and which may affect their performance in assessment. If you experience circumstances or events that affect your ability to complete the assessments in this unit on time, please inform the convenor and submit a Special Consideration request through **ask.mq.edu.au**.

Assessment Tasks

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Hurdle</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prototyping skill development 1</td>
<td>20%</td>
<td>No</td>
<td>Week 7</td>
</tr>
<tr>
<td>Name</td>
<td>Weighting</td>
<td>Hurdle</td>
<td>Due</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-----------</td>
<td>--------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Prototyping skill development 2</td>
<td>20%</td>
<td>No</td>
<td>Week 13</td>
</tr>
<tr>
<td>Reflective writing</td>
<td>10%</td>
<td>No</td>
<td>Week 7 and Week 13</td>
</tr>
<tr>
<td>Professional portfolio on professional development</td>
<td>10%</td>
<td>No</td>
<td>Week 2-13</td>
</tr>
<tr>
<td>Weekly Practice-based Tasks</td>
<td>10%</td>
<td>No</td>
<td>Week 2-13</td>
</tr>
<tr>
<td>Weekly Quiz</td>
<td>30%</td>
<td>No</td>
<td>Weeks 3, 10</td>
</tr>
</tbody>
</table>

**Prototyping skill development 1**
Assessment Type ¹: Design Implementation  
Indicative Time on Task ²: 5 hours  
Due: Week 7  
Weighting: 20%

Developing the required hands-on competency relating to a chosen engineering field. The hands-on skill development will be translatable across other engineering domains. The skills will be chosen based on a preference selection during week 1. The availability of the skills will be dependent on whether students choose to engage in face-to-face mode or via online medium. Some skills are only available in face-to-face mode.

Example of cross-disciplinary hands-on skills: Technical drawing skill is an underpinning skill in both mechanical and civil engineering design communication.

On successful completion you will be able to:
- Demonstrate practical skills in prototyping engineering designs.
- Follow safe working procedures when working with others.
- Articulate independent thinking and effectively communicate ideas and concepts.

**Prototyping skill development 2**
Assessment Type ¹: Design Implementation  
Indicative Time on Task ²: 5 hours  
Due: Week 13  
Weighting: 20%
This is the 2nd skill development activity. Similar to the 1st skill development, it emphases on the hands prototyping skill required in any engineering field. The skill allocation will be assigned in week 1 as well.

The iterative exposure to new skills development is also to develop the required metacognitive skills in being successful with embarking with new knowledge fields. To put it simply is learning to learn.

On successful completion you will be able to:

- Demonstrate practical skills in prototyping engineering designs.
- Follow safe working procedures when working with others.
- Articulate independent thinking and effectively communicate ideas and concepts.

**Reflective writing**

Assessment Type 1: Reflective Writing
Indicative Time on Task 2: 5 hours
Due: **Week 7 and Week 13**
Weighting: **10%**

Reflective writing on learning experiences and transferable skills gained. Refer to iLearn for more information.

On successful completion you will be able to:

- Apply strategies and tools to organise and conduct knowledge discovery independently.
- Work and interact in accordance to the code of ethics and guidelines of engineering accreditation organisations.
- Articulate independent thinking and effectively communicate ideas and concepts.

**Professional portfolio on professional development**

Assessment Type 1: Portfolio
Indicative Time on Task 2: 15 hours
Due: **Week 2-13**
Weighting: **10%**

Curate a professional portfolio that demonstrates the development of professional identity, self-improvement and learning artifacts.
On successful completion you will be able to:

- Work and interact in accordance to the code of ethics and guidelines of engineering accreditation organisations.
- Articulate independent thinking and effectively communicate ideas and concepts.

**Weekly Practice-based Tasks**

Assessment Type: Practice-based task
Indicative Time on Task: 15 hours
Due: **Week 2-13**
Weighting: **10%**

Development of knowledge and skills requires continual practice at authentic problems and datasets. During each weekly workshop, you will need to complete a set task which will be marked in class.

Each week will be worth 1 mark out of a total of 100

On successful completion you will be able to:

- Demonstrate practical skills in prototyping engineering designs.
- Work and interact in accordance to the code of ethics and guidelines of engineering accreditation organisations.

**Weekly Quiz**

Assessment Type: Quiz/Test
Indicative Time on Task: 10 hours
Due: **Weeks 3, 10**
Weighting: **30%**

Weekly Quiz on audio podcasts and other professional development topics

On successful completion you will be able to:

- Follow safe working procedures when working with others.
- Apply strategies and tools to organise and conduct knowledge discovery independently.
- Articulate independent thinking and effectively communicate ideas and concepts.
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 slides and materials, recommended book list and pdfs will be provided on iLearn.

**Unit Schedule**

Refer to iLearn for detailed schedule

**Week 1**

There will be no pracs/SGTAs in week 1. The SGTAs will start from Week 2.

**Methods of Communication**

We will communicate with you via your university email or through announcements on iLearn. Queries to convenors can either be placed on the iLearn discussion board or sent to noushin.nasiri@mq.edu.au from your university email address.

**COVID Information**

For the latest information on the University’s response to COVID-19, please refer to the Coronavirus infection page on the Macquarie website: [https://www.mq.edu.au/about/coronavirus-faqs](https://www.mq.edu.au/about/coronavirus-faqs). Remember to check this page regularly in case the information and requirements change during semester. If there are any changes to this unit in relation to COVID, these will be communicated via iLearn.

**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

[https://unitguides.mq.edu.au/unit_offerings/156848/unit_guide/print](https://unitguides.mq.edu.au/unit_offerings/156848/unit_guide/print)
• 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). 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) 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.
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 Advocacy** 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 [http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/](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**

Changes to quiz and general reflection materials in response to the feedback received from students and staffs.

**Engineers Australia Competency Mapping**

<table>
<thead>
<tr>
<th>EA Competency Standard</th>
<th>Unit Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge and Skill Base</td>
<td>ULO1</td>
</tr>
<tr>
<td>1.1 Comprehensive, theory-based understanding of the underpinning fundamentals applicable to the engineering discipline.</td>
<td>ULO1</td>
</tr>
<tr>
<td>1.2 Conceptual understanding of underpinning maths, analysis, statistics, computing.</td>
<td>ULO1</td>
</tr>
<tr>
<td>1.3 In-depth understanding of specialist bodies of knowledge</td>
<td>ULO1</td>
</tr>
<tr>
<td>1.4 Discernment of knowledge development and research directions</td>
<td>ULO3</td>
</tr>
<tr>
<td>1.5 Knowledge of engineering design practice</td>
<td>ULO1, ULO2</td>
</tr>
<tr>
<td>1.6 Understanding of scope, principles, norms, accountabilities of sustainable engineering practice.</td>
<td>ULO1, ULO2</td>
</tr>
</tbody>
</table>
### Engineering Application Ability

| 2.1 Application of established engineering methods to complex problem solving | ULO1 |
| 2.2 Fluent application of engineering techniques, tools and resources. | ULO3 |
| 2.3 Application of systematic engineering synthesis and design processes. | ULO5 |
| 2.4 Application of systematic approaches to the conduct and management of engineering projects. | ULO2 |

### Professional and Personal Attributes

| 3.1 Ethical conduct and professional accountability. | ULO2, ULO4 |
| 3.2 Effective oral and written communication in professional and lay domains. | ULO5 |
| 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. | ULO2 |
| 3.6 Effective team membership and team leadership | ULO2 |