ENGG100

Introduction to Engineering

S1 Day 2017

Dept of Engineering

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General Information

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Credit points
3

Prerequisites

Corequisites

Co-badged status

Unit description
This unit involves a series of lectures, laboratory sessions, self-study, group work and other activities centred around a set of projects. Students learn about the process of engineering such as solving ill-defined problems, constrained design, and product development by working in groups on a sequence of projects. The unit also gives students an opportunity to develop and practise generic skills such as written and oral communication.

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:

Students will be able to recognise their strengths and weaknesses and demonstrate self-directed learning.

Students will be able to identify differences between engineering disciplines.
Students will be able to recognise and apply structured engineering design processes.
Students will be develop professional written and oral communication skills.
Students will be able to follow regulatory standards and policies, including codes of ethics, and will be aware of the purpose of Engineers Australia.

General Assessment Information

- In order to pass this unit, students must achieve **an overall passing grade of 50%, including satisfactory performance in the hurdle assessment.**
- Attendances of workshop sessions are compulsory. **A minimum of 75% of workshops must be attended.**
- Student's attendance is based on workshop participation. **All class activities are to be dated and documented in a bounded A4 book**.
- Any student who **misses 20 mins of a workshop will be deemed** absent for that workshop.

Assessment Tasks

Name	Weighting	Hurdle	Due
A1 Online diagnostic quiz	3%	No	Week 2
A2 First laboratory report	6%	No	Week 6
A3 Report, group presentations	12%	No	Week 9
A4 Engineering Marvels Report	7%	No	Week 10
A5 Report, group presentations	17%	No	Week 13
A6 Final Examination	55%	Yes	Exams period 14-30 Jun 2016

A1 Online diagnostic quiz

Due: **Week 2**
Weighting: **3%**

Quiz on mathematics, unit conversions, and other assumed knowledge. This is a diagnostic test for assumed knowledge needed for the MQ Engineering degree.

Refer to iLearn of more details on assessment and due date.

On successful completion you will be able to:

- Students will be able to follow regulatory standards and policies, including codes of ethics, and will be aware of the purpose of Engineers Australia.

A2 First laboratory report

Due: **Week 6**
Weighting: **6%**

Experimental report on material's mechanical testing. The report must adhere to the given standard template.

Refer to iLearn of more details on assessment and due date.

On successful completion you will be able to:

- Students will be develop professional written and oral communication skills.

A3 Report, group presentations

Due: **Week 9**
Weighting: **12%**

Group Project (Week 6-9) Assessment marks includes:

- Weekly group submission
- Group attendance
- Final group presentation

All marks will be moderated by a peer assessment process.

Refer to iLearn of more details on assessment and due date.

On successful completion you will be able to:

- Students will be able to recognise their strengths and weaknesses and demonstrate self-directed learning.
- Students will be able to recognise and apply structured engineering design processes.
- Students will be develop professional written and oral communication skills.

A4 Engineering Marvels Report

Due: **Week 10**
Weighting: **7%**

A report on an engineering marvel in an engineering discipline of your choice.

Refer to iLearn of more details on assessment and due date.

On successful completion you will be able to:

- Students will be able to identify differences between engineering disciplines.
- Students will be develop professional written and oral communication skills.

A5 Report, group presentations

Due: **Week 13**
Weighting: **17%**

Group Project (Week 10-13) Assessment marks includes:

- Weekly group submission
- Group attendance
- Final group report
- Final group presentation

All marks will be moderated by a peer assessment process.

Refer to iLearn of more details on assessment and due date.

On successful completion you will be able to:

- Students will be able to recognise their strengths and weaknesses and demonstrate self-directed learning.
- Students will be able to recognise and apply structured engineering design processes.
- Students will be develop professional written and oral communication skills.

A6 Final Examination

Due: **Exams period 14-30 Jun 2016**
Weighting: **55%**
This is a hurdle assessment task (see assessment policy for more information on hurdle assessment tasks)

Hurdle examination.

Students are encouraged to check the examination dates at www.timetables.mq.edu.au.

On successful completion you will be able to:

- Students will be able to recognise their strengths and weaknesses and demonstrate self-directed learning.
- Students will be able to identify differences between engineering disciplines.
- Students will be develop professional written and oral communication skills.

- Students will be able to follow regulatory standards and policies, including codes of ethics, and will be aware of the purpose of Engineers Australia.

Delivery and Resources

Access information on this unit on iLearn at https://ilearn.mq.edu.au/login/MQ/

Some resources to start with;

Useful books

Engineering Your Future: An Australasian Guide; Dowling, Carew, Hadgraft; John Wiley & Sons Australia, Ltd.; 2ndEd (2013).

To Engineer is Human, Henry Petroski; several publishers and editions starting 1985.

Useful URLs

www.engineersaustralia.org.au

Google Scholar

This video provides a quick introduction to Google Scholar and how to search it effectively. It also shows how to access it to ensure you link to full-text material Macquarie University Library already subscribe to.

https://www.youtube.com/watch?v=jI5ixQmCXDU&feature=youtu.be

How to find a government report

This short video provides you with tips and tricks for finding government reports easily using Google

https://www.youtube.com/watch?v=2vqS4P_Q2z8

Acknowledging the words and ideas of others

This video introduces Referencing the ideas and works of others, copyright and creative commons licencing.

https://www.youtube.com/watch?v=QXlo98z_yFs

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central. Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy http://mq.edu.au/policy/docs/assessment/policy_2016.html

Grade Appeal Policy http://mq.edu.au/policy/docs/gradeappeal/policy.html

Complaint Management Procedure for Students and Members of the Public http://www.mq.edu.au/policy/docs/complaint_management/procedure.html

Disruption to Studies Policy (in effect until Dec 4th, 2017): http://www.mq.edu.au/policy/docs/disruption_studies/policy.html

Special Consideration Policy (in effect from Dec 4th, 2017): https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policies/special-consideration

In addition, a number of other policies can be found in the Learning and Teaching Category of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Results

Results shown in *iLearn*, 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.

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 improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

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

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.

Graduate Capabilities

Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

Learning outcomes

- Students will be able to recognise their strengths and weaknesses and demonstrate self-directed learning.
- Students will be able to identify differences between engineering disciplines.
- Students will be able to recognise and apply structured engineering design processes.

Assessment tasks

- A3 Report, group presentations
- A4 Engineering Marvels Report
- A5 Report, group presentations
- A6 Final Examination

Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

Learning outcomes

- Students will be able to recognise their strengths and weaknesses and demonstrate self-directed learning.
- Students will be able to identify differences between engineering disciplines.
- Students will be develop professional written and oral communication skills.
- Students will be able to follow regulatory standards and policies, including codes of ethics, and will be aware of the purpose of Engineers Australia.

Assessment tasks

- A1 Online diagnostic quiz
- A2 First laboratory report

- A3 Report, group presentations
- A4 Engineering Marvels Report
- A5 Report, group presentations
- A6 Final Examination

Commitment to Continuous Learning

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

Learning outcomes

- Students will be able to recognise their strengths and weaknesses and demonstrate self-directed learning.
- Students will be able to identify differences between engineering disciplines.

Assessment tasks

- A3 Report, group presentations
- A4 Engineering Marvels Report
- A5 Report, group presentations
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Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcome

- Students will be able to recognise and apply structured engineering design processes.

Assessment tasks

- A3 Report, group presentations
- A5 Report, group presentations

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcomes

- Students will be able to recognise their strengths and weaknesses and demonstrate self-directed learning.
- Students will be able to identify differences between engineering disciplines.
- Students will be able to recognise and apply structured engineering design processes.

Assessment tasks

- A3 Report, group presentations
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- A5 Report, group presentations
- A6 Final Examination

Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcomes

- Students will be able to recognise their strengths and weaknesses and demonstrate self-directed learning.
- Students will be able to identify differences between engineering disciplines.
- Students will be able to recognise and apply structured engineering design processes.
- Students will be develop professional written and oral communication skills.

Assessment tasks

- A2 First laboratory report
- A3 Report, group presentations
- A4 Engineering Marvels Report

- A5 Report, group presentations
- A6 Final Examination

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcome

- Students will be develop professional written and oral communication skills.

Assessment tasks

- A2 First laboratory report
- A3 Report, group presentations
- A4 Engineering Marvels Report
- A5 Report, group presentations
- A6 Final Examination

Engaged and Ethical Local and Global citizens

As local citizens our graduates will be aware of indigenous perspectives and of the nation's historical context. They will be engaged with the challenges of contemporary society and with knowledge and ideas. We want our graduates to have respect for diversity, to be open-minded, sensitive to others and inclusive, and to be open to other cultures and perspectives: they should have a level of cultural literacy. Our graduates should be aware of disadvantage and social justice, and be willing to participate to help create a wiser and better society.

This graduate capability is supported by:

Learning outcomes

- Students will be able to identify differences between engineering disciplines.
- Students will be able to follow regulatory standards and policies, including codes of ethics, and will be aware of the purpose of Engineers Australia.

Assessment tasks

- A1 Online diagnostic quiz
- A4 Engineering Marvels Report
- A6 Final Examination

Socially and Environmentally Active and Responsible

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

Learning outcomes

- Students will be able to identify differences between engineering disciplines.
- Students will be able to follow regulatory standards and policies, including codes of ethics, and will be aware of the purpose of Engineers Australia.

Assessment tasks

- A1 Online diagnostic quiz
- A4 Engineering Marvels Report
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