



1. General Course Information

1.1 Course Details

Course Code:	1007ENG
Course Name:	Engineering Fundamentals
Trimester:	Trimester 2, 2020
Program:	Diploma of Engineering
Credit Points:	10
Course Coordinator:	Dr Andrew Wixted
Document modified:	29 May 2020

Course Description

This course provides students with core professional empowering skills required to complete their engineering degree, gain work experience and begin their engineering careers. The course is taught through using several modes including: Problem-, Project- and Experiential-Based Learning. Students learn by undertaking a design project using commercial methods and practices. The course provides basic techniques in the use of CAD software for preparation of drawings needed for their project. Oral and written communications also form major components of the course. The course also contains generic skills required for tertiary study of engineering including: engineering ethics, sustainability and engineering design theory. The course is intended to equip students with the generic Engineering skills and professional responsibility to others that should be integral to their University studies and later professional practice.

Assumed Knowledge

There are no prerequisites for this subject.

1.2 Teaching Team

Your lecturer/tutor can be contacted via the email system on the portal.

Name	Email
Dr Andrew Wixted	andrew.wixted@staff.griffithcollege.edu.au

1.3 Staff Consultation

Your lecturer/tutor is available each week for consultation outside of normal class times. Times that your lecturer/tutor will be available for consultation will be given in the first week of lectures. A list of times and rooms will be published on the Griffith College Portal under the "Support and Services/Teacher Consultation Times" link.

1.4 Timetable

Your timetable is available on the Griffith College Portal at Class Timetable in Student and Services.

1.5 Technical Specifications

All students must have access to a computer or suitable mobile device.

2. Aims, Outcomes & Generic Skills

2.1 Course Aims

This course within the Diploma of Engineering aims to assist students in preparing for university study and to place their study in the context of what it means to be a professional engineer.

This course focuses on developing student knowledge and skills in the areas of engineering design practice, professional ethics and communication skills. It also aims to highlight the need for professional communication in multidisciplinary teams, developing student ability to communicate verbally and in writing.

The course also aims to ensure students are competent in the operation of software essential in later courses within the program.



2.2 Learning Outcomes

After successfully completing this course you should be able to:

1. Describe the multi-faceted role of the professional engineer in society.
2. Explain the ethical and moral obligations of professional engineers to act in an environmentally, socially and economically responsible manner.
3. Demonstrate the skills required to communicate effectively in a professional manner both in written and oral form.
4. Apply basic project management skills and tools within a team project.
5. Analyse team effectiveness and prepare recommendations for enhancing team performance.
6. Prepare engineering drawings using basic CAD functionality.



2.3 Generic Skills and Capabilities

For further details on the Generic Skills please refer to the Graduate Generic Skills and Capabilities policy.

Griffith College aims to develop graduates who have an open and critical approach to learning and a capacity for lifelong learning. Through engagement in their studies, students are provided with opportunities to begin the development of these and other generic skills.

Studies in this course will give you opportunities to begin to develop the following skills:

Generic Skills and Capabilities		Taught	Practised	Assessed
Acquisition of discipline knowledge and skills with critical judgement		✓	✓	✓
Communication and collaboration		✓	✓	✓
Self-directed and active learning		✓	✓	✓
Creative and future thinking		✓	✓	✓
Social responsibility and ethical awareness		✓	✓	✓
Cultural competence and awareness in a culturally diverse environment		✓	✓	



3. Learning Resources

3.1 Required Learning Resources

Dowling, D., Carew, A., & Hadgraft, R., (2016) **Engineering your future: an Australasian Guide**, (3rd ed.), Milton, Qld., John Wiley & Sons.

Note: Although the final exam is open book, no electronic devices can be taken into the exam. Therefore, the hardcopy version of the textbook may be a better option to purchase.

Note: A number of copies of this text may be available from the University library.

3.2 Recommended Learning Resources

Kosky.P., Wise.G., Balmer.R., Keat.W (2010) Exploring Engineering: An Introduction to Engineering & Design (2nd ed.) Sydney: Elsevier•

Fowler.J., Guddmundsson.A., Whicker.L (2011) groups work! A guide for working in groups (2nd ed.). Palmer Higgs Books Online

3.3 College Support Services and Learning Resources

The College provides many facilities and support services to assist students in their studies. Links to information about College support resources that are available to students are included below for easy reference.

[Digital Library](#) – Databases to which Griffith College students have access to through the Griffith Library Databases.

MyStudy – there is a dedicated website for this course via MyStudy on the Griffith College Portal.

[Academic Integrity Tutorial](#) - this tutorial helps students to understand what academic integrity is and why it matters. You will be able to identify types of breaches of academic integrity, understand what skills you will need in order to maintain academic integrity, and learn about the processes of referencing styles.

Services and Support provides a range of services to support students throughout their studies including academic advice and assignment help from Student Learning Advisors, and personal and welfare support from Student Counsellors.

Jobs and Employment in the [Student Hub](#) can assist students with career direction, resume and interview preparation, job search tips, and more.

[IT Support](#) provides details of accessing support, information on s numbers and internet access and computer lab rules.

3.4 Other Information about your Learning

Attendance

You are expected to actively engage in all learning experiences and learning activities which underpin the learning content in this course. You are expected to engage with the learning content and learning activities outside of timetabled class times. This requires you to be an active agent of your learning. You are expected to bring all necessary learning resources to class such as the required textbook and /or Workbook. In addition, you are encouraged to BYOD (bring your own device) to class such as a laptop or tablet. This is not a requirement as computer lab facilities are available on campus, however, the use of such devices in the classroom is encouraged with appropriate and considerate use principles being a priority.

Preparation and Participation in Learning

In order to enhance your learning, you need to prepare before participating in the learning experiences. Absorb the learning content and complete the learning activities that are provided online before you attend the scheduled learning experiences. Make sure you complete the learning activities set each week, they are designed to support your learning. Active participation in your learning will enhance your success. Ask questions when something is unclear or when you want to bring some issue to your lecturer or tutor's attention; respond to questions to test your knowledge and engage in discussion to help yourself and others learn.

Consultation Sessions

Teachers offer extra time each week to assist students outside the classroom. This is known as 'consultation time.' You may seek assistance from your teacher on email or in person according to how the teacher has explained this to the class. Attendance during consultation time is optional but you are encouraged to use this extra help to improve your learning outcomes.

Course Learning Materials

Learning materials are made available to you in MyStudy on the Griffith College Portal. The learning materials are arranged in Modules. In each Module you will find the learning content, learning activities and learning experiences. Actively working your way through these course learning materials together with your lecturer or tutor will prepare you to succeed when completing the evidence of learning (assessment).

Self-Directed Learning

You will be expected to learn independently. This means you must organise and engage with the course learning content even when you are not specifically asked to do so by your lecturer or tutor. The weekly guide will be helpful to organise your learning. This involves revising the weekly course learning material and completing the learning activities. It also means you will need to find additional information to evidence your learning (assessment) beyond that given to you, and to construct your own response to a question or topic. All of this requires careful planning of your time. Expect to spend, on average, at least 10 hours per week including class time for each of your courses.

Program Progression

You are reminded that satisfactory Program Progression requires that attendance in classes is maintained at equal to or greater than 80%, and that GPA is maintained at equal to or greater than 3.5 [please see Griffith College Policy Library - Program Progression Policy - for more information].

Teacher and Course Evaluation

Your feedback is respected and valued by your lecturers and tutors. You are encouraged to provide your thoughts on the course and teaching, both positive and critical, directly to your lecturer and tutor or by completing course and lecturer evaluations via Griffith College's evaluation tool whenever these are available.



4. Learning Content, Learning Activities and Learning Experiences

4.1 Modules for Learning and Weekly Learning Content, Learning Activities and Learning Experience





	Learning Content 	Learning activities 	Learning experiences 	Evidence of learning 	Learning outcome 
Module 1: Project Initiation					
1	Course Introduction Introduction to Engineering	Developing problem solving & reflective practice.	Discussion of core activities. Problem Solving Reflective Practice	"Writing Skills"	1,2,3
2	The Engineering Method	Mind maps Initial team meetings Requirements analysis Project management plan (PMP) initiation.	Discuss content questions. Team Meeting (with Mentoring) (TMM)		1,2,4
3	Project Management	Team Meeting with minute taking (TM) Finishing project setup	Discuss content questions & application to project. Using PM tools (WBS/Gantt/Risk Mgmt etc)	"Writing Skills"	3,4,5
Module 2: Project Planning					
4	Engineering Drawing & CAD	Sketching/CAD TM with monitoring & control WBS/Gantt	Discuss content questions & application to project. CAD walkthrough TMM	Project Initiation	3,6
5	Enabling Skills Engineering Communications	Sketching/CAD TM with project monitoring & control	Discuss content questions & application to project. Document Creation TMM	Project Presentation	1,2,3
6	Problem Solving Information Skills	CAD TM with project monitoring & control	Discuss content questions & application to project. TMM	Individual Project Designs	2,3,6

Module 3: Project Execution					
7	Engineering Design 1	TM with project monitoring & control	Discuss content questions & application to project. TMM	Project Planning	2,3,4
8	Engineering Design 2	TM with project monitoring & control	Discuss content questions & application to project. TMM	Project Presentation	4,5
9	CAD/CAM Rapid Prototyping	TM with project monitoring & control	Discuss content questions & application to project. TMM	Project Presentation	3,5,6
Module 4: Project Closure					
10	Systems Engineering	Preparing Project Defence TM with project monitoring & control	Discuss content questions & application to project. Problem Solving Reflective Practice TMM	"Writing Skills" Project Design	3,6
11	Sustainable Engineering & Ethical Practice	Preparing Project Closure report TM with project monitoring & control	Discuss content questions & application to project. TMM	Project Defence	2,3,6
12	Engineering Futures	Final TMs	Reviewing new fields of engineering	Project Closure Presentation Project Report	1,2,5,6



5. Evidence of Learning (Assessment Plan)

5.1 Evidence of Learning Summary

	 Evidence of learning	 Weighting	 Learning outcome	 Due Date
1	Writing Skills (3x3%)	9%	3, 5	Week 1, 3, 10
2	Project Presentations	6%	3, 4, 5, 6	5, 8, 9, 12 (25% of class each session)
3	Project Designs	15%	3, 6	6, 10, 11
4	Project Reporting	35%	2, 3, 4, 5, 6	4, 7, 12
5	Final Exam	35%	1, 2, 3, 4, 5, 6	Final Exam Week

5.2 Evidence of Learning Task Detail

Item 1:

Writing Skills

Three short **in-class** "writing exercises" are required for Writing Skills assessment. The three short writing exercises are worth 3% each for a total of 9% of the final trimester mark. Students will write using a specific given problem-solving methodology on a topic as detailed by the class tutor. The sequence of the three exercises will assist students in developing Reflective Practice. This is an individual submission.

Item 2:

Design Project Progress and Individual Presentations

The design project involves you working together with other students as a team. As your project progresses, you will be required to report to the class on your team progress using PowerPoint slides to guide the audience through the presentation. A 1-2 page executive summary, at least 10 PowerPoint slides and a minimum five [5] minute talk will be required from each student for assessment worth 6% of the final 1007ENG marks. A copy of the presentation and any handouts are to be forwarded to the tutor BEFORE the presentation begins. The presentation can be pre-recorded or conducted live online. Each team member will have an opportunity to present in one of the four sessions reserved for presentations. The schedule is to be coordinated by the team. This is an individual submission.

Item 3:

Design Project Testing

A design project performance competition will be held in Week 11 to assess team achievements and learning outcomes. This is a group submission and is typically a presentation to the client of 20 to 30 minutes duration.

Item 4:

Design Project Reporting

The Design Project will become a comprehensive written report, which will include a critique on the chosen design and the strengths of your project, as well as on your team dynamics and team and peer assessments. Peer assessments of individual contributions are also collected and peer assessment factors are applied to determine an individual team member's Design Project results. The Design Projects must be available for inspection by your tutor upon request in Weeks 3-11. Details and specifications for the Design Project will be provided by your lecturer.

A professional report is required. The use of a word processor is mandatory. You will be required to use

- * Times New Roman or Arial 12 pt font
- * All four margins 20mm
- * A4 page size
- * Single or 1.15 line spacing
- * Correct page orientation in a 2-3-4 ring binder

Reports that do not comply with this format will not be accepted. The report will not be marked and will attract the specified late penalty until a correctly formatted report is submitted.

The Design Project is partitioned into 3 phases for assessment purposes including: Project Concept Planning (due Week 4), Project Management Planning (due Week 7) and the final Project File which includes: all Project Planning and Design File/s (due week 12) The sections will be submitted both as a softcopy and as a hardcopy at the beginning of the project tutorial class in the week due. This is both individual and group submission. Contribution to the teamwork assessed through peer assessment and individual project workbooks will affect final individual marks.

Item 5:

Final Exam

The final examination will be an open book exam covering all aspects of the lecture series and consists of both multiple choice and short answer questions.

5.3 Late Submission

An evidence of learning (assessment) item submitted after the due date, without an approved extension from the Course Coordinator, will be penalised. The standard penalty is the reduction of the mark allocated to the assessment item by 5% of the maximum mark applicable for the assessment item, for each working day or part working day that the item is late. Evidence of learning items submitted more than five working days after the due date are awarded zero marks.

Please refer to the Griffith College website - Policy Library > Assessment Policy for guidelines and penalties for late submission.

5.4 Other Information about Evidence of Learning

Retention of Originals

You must be able to produce a copy of all work submitted if so requested. Copies should be retained until after the release of final results for the course.

Requests for extension

To apply for an extension of time for an evidence of learning item, you must submit an [Application for Extension of Assignment](#) form to your teacher at least 24 hours before the date the assignment is due. Grounds for extensions are usually: serious illness, accident, disability, bereavement or other compassionate circumstances and must be able to be substantiated with relevant documentation [e.g. [Griffith College Student Medical Certificate](#)]. Please refer to the Griffith College website - Policy Library - for guidelines regarding extensions and deferred assessment.

Return of Evidence of Learning Items

1. Marks awarded for in-trimester evidence of learning items, except those being moderated externally with Griffith University, will be available on the Student Portal within fourteen [14] days of the due date. This does not apply to the final evidence of learning item in this course (marks for this item will be provided with the final course result).
2. Students will be advised of their final grade through the Student Portal. Students can review their final exam papers after student grades have been published. Review of final exam papers will not be permitted after the final date to enrol.
3. Marks for **all** evidence of learning items including the final exam (if applicable) will be recorded in the Moodle Course Site and made available to students through the Moodle Course Site.

The sum of your marks of evidence of learning items in this course does not necessarily imply your final grade for the course. Standard grade cut off scores can be varied for particular courses, so you need to wait for the official release of grades to be sure of your grade for this course.

6. Policies & Guidelines

Griffith College assessment-related policies can be found in the [Griffith College Policy Library](#) which include the following policies:

Assessment Policy, Special Consideration, Deferred Assessment, Alternate Exam Sitting, Medical Certificates, Academic Integrity, Finalisation of Results, Review of Marks, Moderation of Assessment, Turn-it-in Software Use. These policies can be accessed using the 'Document Search' feature within the [Policy Library](#)

Academic Integrity Griffith College is committed to maintaining high academic standards to protect the value of its qualifications. Academic integrity means acting with the values of honesty, trust, fairness, respect and responsibility in learning, teaching and research. It is important for students, teachers, researchers and all staff to act in an honest way, be responsible for their actions, and show fairness in every part of their work. Academic integrity is important for an individual's and the College's reputation.

All staff and students of the College are responsible for academic integrity. As a student, you are expected to conduct your studies honestly, ethically and in accordance with accepted standards of academic conduct. Any form of academic conduct that is contrary to these standards is considered a breach of academic integrity and is unacceptable.

Some students deliberately breach academic integrity standards with intent to deceive. This conscious, pre-meditated form of cheating is considered to be one of the most serious forms of fraudulent academic behaviour, for which the College has zero tolerance and for which penalties, including exclusion from the College, will be applied.

However, Griffith College also recognises many students breach academic integrity standards without intent to deceive. In these cases, students may be required to undertake additional educational activities to remediate their behaviour and may also be provided appropriate advice by academic staff.

As you undertake your studies at Griffith College, your lecturers, tutors and academic advisors will provide you with guidance to understand and maintain academic integrity; however, it is also your responsibility to seek out guidance if and when you are unsure about appropriate academic conduct.

In the case of an allegation of a breach of academic integrity being made against a student he or she may request the guidance and support of a Griffith College Student Learning Advisor or Student Counsellor.

Please ensure that you are familiar with the Griffith College Academic Integrity Policy; this policy provides an overview of some of the behaviours that are considered breaches of academic integrity, as well as the penalties and processes involved when a breach is identified.

For further information please refer to the Griffith College website - Policy Library > Academic Integrity Policy

Reasonable Adjustments for Assessment – The Disability Services policy

The Disability Services policy (accessed using the Document Search' feature with the [Policy Library](#)) outlines the principles and processes that guide the College in making reasonable adjustments to assessment for students with disabilities while maintaining academic robustness of its programs.

Risk Assessment Statement

There are no out of the ordinary risks associated with this course.

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