



1. General Course Information

1.1 Course Details

Course Code:	1007ENG
Course Name:	Engineering Fundamentals
Trimester:	Trimester 2, 2024
Program:	Diploma of Engineering
Credit Points:	10
Course Coordinator:	Dr Andrew Wixted
Document modified:	20/05/2024

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 and includes the students creating physical embodiments of their project designs. 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 teacher/s can be contacted via email as below:

You will also find their email in the Teacher's tile on your Course Site.

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

1.3 Meet with your teacher

Your teacher is available each week to meet outside of normal class times. This is called consultation. Times that your teacher will be available for consultation will be found on the Teacher's tile on your Course Site.

1.4 Timetable

Your timetable is available on the Griffith College Digital Campus at My Apps, Timetable.

1.5 Technical Specifications

The college provides computing resources in common use labs however students may prefer to use their own computers.

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



2.3 Graduate Capabilities and Employability Skills

For further details on the Graduate Capabilities and Employability Skills please refer to the [Graduate Generic Skills and Abilities Policy](#).

Griffith College is committed to producing graduates who are able to demonstrate progress toward the development of a number of generic skills / capabilities that will allow them to successfully continue their studies at the tertiary level. This set of skills includes employability related skills that will ensure graduates are capable in the workplace of the future.

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

Graduate Capabilities and Employability Skills			Focus within this course
Interacting with People	Teamwork		✓
	Communication		✓
	Respect for Culture and Diversity		
Readiness for the Workplace	Problem Solving		✓
	Planning and Organisation		✓
	Creativity and Future Thinking		✓



3. Learning Resources

3.1 Required Learning Resources

Dowling, D., Carew, A., & Hadgraft, R., et.al. (2019) **Engineering your future: an Australasian Guide**, (4th ed.), Milton, Qld., John Wiley & Sons.

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

3.2 Recommended Learning Resources

Kosky.P., Wise.G., Balmer.R., Keat.W (2017) Exploring Engineering: An Introduction to Engineering & Design (4th ed.) Sydney: Elsevier•

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

Portny, S.E., (2020) Project Management All-in-One For Dummies, John Wiley & Sons

3.3 College Support Services and Learning Resources

Griffith College provides many facilities and support services to assist students in their studies. Links to information about 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.
- [Study Toolbox](#) – there is a dedicated website for this course on the Griffith College Digital Campus.
- [Academic Integrity](#) - Griffith College is committed to ensuring academic integrity is understood and maintained by all staff and students. All students learn about academic integrity through engagement with Academic Integrity online modules within the Academic and Professional Studies course.
- [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

Preparation and Participation in Learning

You need to prepare before attending your scheduled Learning Experience (In Class). Work through the Learning Content (Before Class) prepared by your teacher which is found on the course site. Make sure you complete the Learning Activities (After Class) set each week. 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 teacher's attention; respond to questions to test your knowledge and engage in discussion to help yourself and others learn.

Attendance

You are expected to actively engage in all learning experiences which underpin the learning content in this course. Attendance will be recorded by your teacher in each learning experience to ensure you are meeting the requirements of the program you are studying and/or your visa conditions. You are expected to engage with the learning content and learning activities outside of timetabled class times. You are expected to bring all necessary learning resources to class such as the required textbook and /or Workbook.

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 the course site. The learning materials are arranged in Modules. In each Module you will find Learning Content (Before Class), Learning Experiences (In Class) and Learning Activities (After Class). **Learning Content (Before Class)** will be engaged with prior to the scheduled **Learning Experience (In Class)**. This will ensure you are prepared for the scheduled Learning Experience (In Class) by being aware of the content to be covered and therefore will be able to actively participate in the session. **Learning Activities (After Class)** are accessed after the scheduled session for purposes of review, consolidation of learning, and preparation for the Evidence of Learning Tasks (Assessments) in the course.

Self-Directed Learning

You will be expected to learn independently. This means you must organise and engage with the course Learning Content (Before Class) even when you are not specifically asked to do so by your teacher. The weekly guide (below) will be helpful to organise your learning. This involves revising the weekly course Learning Content (Before Class) and completing the Learning Activities (After Class). It also means you will need to find additional information to evidence your learning 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%, students are engaged in their learning 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].

International students enrolled in Language Development Modules (LDM100 / LDM200 or LDH100 / LDH200)

Successful completion of LDM100 and LDM200 or LDH100 and LDH200 is **required** to graduate with your Diploma award and progress to your Bachelor. If you do not achieve non-graded passes for these language modules your progression to your Bachelor will be affected. Please attend all your classes and submit your assessment.

Teacher and Course Evaluation

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



4. Weekly Guide: Learning Content, Learning Experiences and Learning Activities

The information below lays out how your learning will be organised throughout the trimester:

Week	Learning Content (Before Class)	Learning Experiences (In Class)	Learning Activities (After Class)	Evidence of Learning (Assessment)	Learning Outcome
Module 1: Project Initiation					
1	Intro to Course Intro to Teams	Writing Skills Activity	Reading. Reviewing sequence of tasks.	"Writing Skills" (3%) (in class)	2
2	Engineering Method	Team Forming. Documenting meetings. Document Templates	Team Meeting. Begin PMP.		2
3	Project Management	Writing Skills Activity Create WBS, Gantt Charts, Risk Register,	Team Meeting. Work on PMP.	"Writing Skills" (3%) (in class)	2,3
Module 2: Project Planning					
4	Engineering Communications (including presentations)	Materials Experiments Design Experiments Document Results (sub-team of 2)	Team Meeting. Project Planning.	Project Initiation (8%)	2,3
5	Engineering Drawing (including CAD)	Presentations. Create Prototype Document Prototype (sub-team of 2)	Team Meeting. Project Planning	Project Presentations (5%) (Project startup) Experimental Report 10%	2,3,5

6	Engineering Design 1	Individual Design & Prototype. Document including CAD	Team Meeting. Project Planning	Prototype Report 10%	2,3,4,5
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Module 3: Project Execution					
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7	Engineering Design 2	Individual Design Documenting.	Team Meeting. Updating docs. Monitoring	Project Planning (8%) Individual Designs (15%)	2,3,5
8	Sustainable Engineering	Presentations Evaluating Designs Project Building	Team Meeting. Updating docs. Monitoring	Project Presentations (5%) (Project Status Update & Alternate Designs)	1,2,3
9	Rapid Prototyping	Presentations Project Building	Team Meeting.	Project Presentations (5%) (Project Status Update & Design Evaluation)	1,2,3

Module 4: Project Closure					
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10	Ethical Practice	Writing Skills Project Building & Reporting	Team Meeting. Updating docs. Monitoring	"Writing Skills" (3%) Project Design	1,2,3
11	Systems Engineering	Project Design Defence (Whole Team Presentation) Project Building Report	Team Meeting. Project Closure Reports	Project Design Defence 5% Project Building Report 10%	1,2,3
12	Project Closeout	Project Testing. Completing Project Folders.	Team Meeting. Project Closure Reports	Project Closure Presentation 5% Project Report (19%)	1,2,3,4,5



5. Evidence of Learning (Assessment)

5.1 Evidence of Learning Summary

	Evidence of Learning (Assessment)	Weighting	Learning Outcome	Due Date
1	Writing Skills (3x3%)	9%	2, 4	Week 1, 3, 10 (in class)
2	Project Presentations	6%	2, 3, 4, 5	5, 8, 9, 12 (25% of class each session)
3	Materials & Design Experiments	20%	2, 5	Weeks 5 & 6
4	Project Designs	30%	1, 2, 3, 4, 5	6, 10, 11 Week 11 Team presentation
5	Project Management Reporting	35%	1, 2, 3, 4, 5	4, 7, 12 (in class)

5.2 Evidence of Learning Task Detail

Unless otherwise indicated, you are required to **submit your own work** for marking. All planning, notes and drafts need to be retained so they can be presented to your teacher if requested.

Tools that generate course content or extensively enhance a student's English language capability are not permitted to be used. Web applications such as ChatGPT, Google Translate, Grammarly and Youdao (or equivalent services) are not permitted for outright assessment creation, translation, or extensive language assistance purposes. In addition, Wikipedia, Baidu, Weibo and WeTalk are not permitted to be used.

Students should follow all teacher directions about the use of Generative Artificial Intelligence (Gen-AI) tools in relation to formative and summative assessment tasks (including how to cite Gen-AI tools, if relevant). It should be noted that Turnitin provides teaching staff with a Gen-AI percentage indicator as well as an Originality Report which detects plagiarism.

1. Evidence of Learning Task 1: Writing Skills (9%)

Task Type: Writing skills incorporating problem solving & reflection

Due Date: Week 1 (3%) **AND** Week 3 (3%) **AND** Week 10 (3%)

Weight: 9%, Marked out of 9

Length: N/A

Duration: N/A

Task Description: 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 Problem Solving and Reflective Practice. This is an individual submission.

Criteria & Marking: See "Assessment" in "Writing Skills Resources" in course site.

Submission: In person in-class.

2. Evidence of Learning Task 2: Design Project Progress, Individual Presentation (6%)

Task Type: Presentation

Due Date: Week 5 **OR** Week 8 **OR** Week 9 **OR** Week 12

Weight: 6%, Marked out of 6

Length: N/A
Duration: N/A

Task Description: The project (item 4 below) 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 presentation software (e.g., PowerPoint, Impress etc) to guide the audience through the presentation. A 1-to-2-page executive summary, at least 11 PowerPoint slides and a minimum five [5] minute talk will be required from each student for assessment worth 6% of the final trimester marks. A copy of the presentation and any handouts are to be presented to the tutor BEFORE the presentation begins. Each team member will have an opportunity to present in one of the four tutorial classes reserved for presentations. The schedule is to be coordinated by the team. This is an individual submission within the context of the group project.

Criteria and Marking: See "Project Assessment" in "Project Resources" on the course site.

Submission: In person or via video recording.

3. Evidence of Learning Task 3: Materials & Design Experiments (20%)

Task Type: In-class experiments and reporting.

Due Date: In-class Week 5 & 6

Weight: 20%, Marked out of 20

Length: N/A

Duration: N/A

Task Description: Materials & Design Experiments.

The team project will require the physical embodiment of some object using materials of unknown structural values and using a fixing system with unknown characteristics. Pairs of students will conduct experiments on the materials to determine their structural characteristics (shear strength, bending moment, tensile and compressive strength) and document these results (10%). The students will conduct mini-prototyping experiments, experimenting with different design patterns and performing destructive testing. The results of these experiments will be documented in a written report (10%). This work will prepare students for the actual Project Design tasks (Task 4)

Criteria and Marking: See "Project Assessment" in "Project Resources" on the course site.

Submission: Paper copies, in class

4. Evidence of Learning Task 4: Project Designs (30%)

Task Type: Conceptual Designs, Preliminary Designs and Design Defence Group Presentation

Due Date: End of weeks 7, 11 **AND in-class week 11 & 12**

Weight: 30%, Marked out of 30

Length: N/A

Duration: N/A

Task Description: Design Project

Students individually **prototype** and document a design in line with the project specification. The design will be documented using Computer Aided Design (CAD) software, as well as a discussion on the design decisions. (15%) Within the team, and as part of Task-5 below, the designs are evaluated against the criteria and from that a team design is developed, **implemented** and a report written. The written report should critically analyse the project design and report on its strengths, weaknesses and any issues with the design (10%). A design project performance presentation 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 (team of 4) (5%).

Criteria and Marking: See "Project Assessment" in "Project Resources" in the course site.

Submission: Physical prototypes and final product presented in class

Submission: Written documents via Moodle & turnitin

Submission: Team Presentation in person..

5. Evidence of Learning Task 5: Design Project Project Management Reporting (35%)

Task Type: Project Management team documents

Due Dates: In class weeks 4, 7 **AND 12**

Weight: 35%, Marked out of 35

Length: N/A

Duration: N/A

Task Description: Design Project, Project Management

The project is a team exercise with some individual assessment (see Tasks 2, 3 & 4 above). The Design Project will become a professional comprehensive written report, which will include a critique on the project management, the issues and successes of the team,, as well as on your team dynamics and team.. Peer assessments of individual contributions are also collected, and peer assessment factors are applied to determine an individual team member's Project Management contribution. The Project Files 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 that follows the layout of the supplied template is required. The use of a word processor is mandatory. 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 Project Management aspect of 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, Project Closure Reports, all Design File/s and every team and individual artifact created as part of the project (due week 12) The sections will be submitted as a hardcopy in class. This is a group submission. Contribution to the teamwork assessed through peer assessment and individual project workbooks will affect final individual marks.

Criteria and Marking: See "Project Assessment" in "Project Resources" on the course site.

Submission: Teams must bring their **printed copies** of team project work to class. Teamwork should be stored in a folder, not in plastic sleeves.

In order to pass this Course, students must:

- A. Demonstrate assurance of learning of all learning outcomes through graded Evidence of Learning Tasks.**
- B. Achieve the pass mark (50%)**

5.3 Late Submission

An Evidence of Learning Task submitted after the due date, without an approved extension from the teacher, will be penalised. The standard penalty is the reduction of the mark allocated to the Evidence of Learning Task by 5% of the maximum mark applicable for the Evidence of Learning Task, for each calendar day that the task is late. Evidence of learning tasks submitted more than seven calendar 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 task, 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 Evidence of Learning Tasks.

Return of Evidence of Learning Tasks

1. Marks awarded for in-trimester evidence of learning tasks, except those being moderated externally with Griffith University, will be available on the course site within fourteen [14] days of the due date. This does not apply to the final evidence of learning task in this course (marks for this task will be provided with the final course result).
2. Students will be advised of their final grade through the Digital Campus. 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 tasks including the final exam (if applicable) will be recorded in the Course Site and made available to students through the Course Site.

The sum of your marks of evidence of learning tasks 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 Evidence of Learning Tasks-related policies can be found in the [Griffith College Policy Library](#) which include the following policies:

[Assessment Policy](#), [Special Consideration](#), [Deferred Assessment](#), [Alternate Exam Sitings](#), [Medical Certificates](#), [Academic Integrity](#), [Finalisation of Results](#), [Review of Marks](#), [Moderation of Assessment](#), [Turn-it-in Software Use](#). These policies can be accessed 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 teachers 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 Evidence of Learning Tasks – The Disability Services policy

The [Disability Services policy](#) (accessed within the [Policy Library](#)) outlines the principles and processes that guide the College in making reasonable adjustments to Evidence of Learning Tasks 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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Note: Griffith College acknowledges content derived from Griffith University in Diploma level courses, as applicable.