ENEG13002 *Engineering Futures*
Term 2 - 2024

Profile information current as at 19/05/2024 06:01 am

General Information

Overview

The rapid development of technology continually influences and challenges how engineers practice. In this unit, you will learn about cutting-edge engineering projects incorporating multi-disciplinary teams, innovative methods to advance the United Nation's Sustainable Development Goals, and the application of big data, artificial intelligence, and the Internet of Things. The unit will also present future expectations for practicing engineers such as becoming a Registered Professional Engineer, understanding risk management in a changing world, complying with legislation, and promoting safety in engineering design and workplace operations.

Details

Career Level: *Undergraduate*
Unit Level: *Level 3*
Credit Points: *6*
Student Contribution Band: *8*
Fraction of Full-Time Student Load: *0.125*

Pre-requisites or Co-requisites

Prerequisite: ENEG11007 Industry Project Investigation OR ENEG12007 Creative Engineering.
Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the [Assessment Policy and Procedure (Higher Education Coursework)](#).

Offerings For Term 2 - 2024

- Bundaberg
- Cairns
- Gladstone
- Mackay
- Online
- Rockhampton

Attendance Requirements

All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

Website

[This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.](#)

Class and Assessment Overview

Recommended Student Time Commitment

Each 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

Class Timetable

Regional Campuses

Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

Metropolitan Campuses

Adelaide, Brisbane, Melbourne, Perth, Sydney

Assessment Overview

Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the University's Grades and Results Policy for more details of interim results and final grades.

CQUniversity Policies

All University policies are available on the CQUniversity Policy site.

You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the CQUniversity Policy site.

Unit Learning Outcomes

On successful completion of this unit, you will be able to:

1. Identify professional memberships and state registrations necessary to achieve career aspirations
2. Discuss functional safety, safety in design, and the compliance of a complex engineering project with legislation, guidelines, and Australian Standards
3. Evaluate risk management processes and safe work practices applied in a complex engineering project
4. Examine advances in engineering practice incorporating applications of big data, artificial intelligence, or the Internet-of-things
5. Evaluate the contributions of an engineering project to the United Nations sustainable development goals
6. Identify opportunities to enhance current engineering practice by applying advanced technologies adopted in cutting-edge engineering projects.
7. Provide evidence of a professional capacity to work, learn, and communicate effectively in a multi-disciplinary team.

The Learning Outcomes for this unit are linked with the Engineers Australia Stage 1 Competency Standards for Professional Engineers in the areas of 1. Knowledge and Skill Base, 2. Engineering Application Ability and 3. Professional and Personal Attributes at the following levels:

Intermediate

1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline. (LO: 2N 6I)

2.3 Application of systematic engineering synthesis and design processes. (LO: 2N 3N 5N 6I)

Advanced

1.1 Comprehensive, theory-based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline. (LO: 4I 6A)

1.4 Discernment of knowledge development and research directions within the engineering discipline. (LO: 2A 3A 4A 5A 6A)

1.5 Knowledge of engineering design practice and contextual factors impacting the engineering discipline. (LO: 2A 6A)

1.6 Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline. (LO: 2I 3I 4A 5A 6A)

2.1 Application of established engineering methods to complex engineering problem solving. (LO: 2I 6A)

2.2 Fluent application of engineering techniques, tools and resources. (LO: 2I 3I 4I 6A)

2.4 Application of systematic approaches to the conduct and management of engineering projects. (LO: 2I 3I 4I 5I 6A 7A)

3.1 Ethical conduct and professional accountability. (LO: 1I 2A 6A 7A)

3.2 Effective oral and written communication in professional and lay domains. (LO: 2A 3A 4A 5A 6A 7A)

3.3 Creative, innovative, and proactive demeanor. (LO: 2I 3I 4I 5A 6A 7A)

3.4 Professional use and management of information. (LO: 2A 3A 4A 5A 6A)

3.5 Orderly management of self, and professional conduct. (LO: 1A 4A 5A 6A 7A)

3.6 Effective team membership and team leadership. (LO: 4A 5A 6A 7A)

Note: LO refers to the Learning Outcome number(s) which link to the competency and the levels: N – Introductory, I – Intermediate, and A - Advanced.

Refer to the Engineering Undergraduate Course Moodle site for further information on Engineers Australia's Stage 1 Competency Standard for Professional Engineers and course-level mapping information

https://moodle.cqu.edu.au/course/view.php?id=1511

— N/A Level   Introductory Level   Intermediate Level   Graduate Level   Professional Level   Advanced Level

Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes						
	1	2	3	4	5	6	7
1 - Online Quiz(zes) - 20%	●						
2 - Online discussion forum - 30%		●	●				
3 - Report - 50%				●	●	●	●

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes						
	1	2	3	4	5	6	7
1 - Communication		●		●	●	●	●
2 - Problem Solving							
3 - Critical Thinking	●					●	
4 - Information Literacy		●					
5 - Team Work				●	●	●	●
6 - Information Technology Competence				●			
7 - Cross Cultural Competence			●				
8 - Ethical practice	●	●		●			
9 - Social Innovation				●			
10 - Aboriginal and Torres Strait Islander Cultures							

Textbooks and Resources

Information for Textbooks and Resources has not been released yet.
This information will be available on Monday 17 June 2024

Academic Integrity Statement

Information for Academic Integrity Statement has not been released yet.

This unit profile has not yet been finalised.