

In Progress

Please note that this Unit Profile is still in progress. The content below is subject to change.



ENEG11008 *Materials for Engineers*

Term 3 - 2023

Profile information current as at 05/10/2023 06:11 am

All details in this unit profile for ENEG11008 have been officially approved by CQU University and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

General Information

Overview

ENEG11008: Materials for Engineers introduces you to the essential knowledge of materials science and the ways in which engineers understand, select and use materials and processes for engineering applications. In this unit, you will gain knowledge of engineering materials, microstructure and its effect on the material properties. You will learn how to identify and explain the properties of engineering materials and processes and how to classify these materials. You will also learn how to select engineering materials and processes for engineering applications, as well as to conduct material tests and report on their results. Throughout this unit, you will develop teamwork, research and communication skills. In this unit, you must complete compulsory practical activities. Refer to the Engineering Undergraduate Course Moodle site for proposed dates.

Details

Career Level: *Undergraduate*

Unit Level: *Level 1*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

Pre-requisites or Co-requisites

There are no requisites for this unit.

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 3 - 2023

- Mixed Mode

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).

Residential Schools

This unit has a Compulsory Residential School for distance mode students and the details are:

Click here to see your [Residential School Timetable](#).

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

1. **Online Quiz(zes)**

Weighting: 20%

2. **Written Assessment**

Weighting: 25%

3. **Practical and Written Assessment**

Weighting: 20%

4. **Online Test**

Weighting: 35%

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](#).

Previous Student Feedback

Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

Feedback from SUTE unit comments report and self-observation

Feedback

Technical issues associated with ISL arose early weeks of the term.

Recommendation

The unit coordinator should arrange testing sessions with Teaching Technology Support before the term starts. Each local lecturer should be assigned as a co-host to address issues without disrupting the central delivery.

Feedback from SUTE unit comments report and self-observation

Feedback

The delivery of its residential school component was inconsistent across campuses due to staffing and equipment.

Recommendation

Students should be provided with more flexible options. Residential school activities will be arranged based on local specialties.

Feedback from SUTE unit comments report

Feedback

Students commented on calculation questions which were pushed to tutorial classes, instead of discussing them in detail during lectures.

Recommendation

The unit coordinator should provide one sample calculation question while ensuring local lecturers cover multiple examples for a firm understanding.

Unit Learning Outcomes

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

1. Define the atomic and microstructure of engineering materials and their relationship to physical behaviour
2. Classify engineering materials into metals, ceramics, polymers and composites
3. Characterise materials for mechanical properties based on Australian Standards and ASTM methods
4. Explain the role of mechanical, electrical, optical and thermal properties of materials in engineering
5. Apply the frameworks used to select materials for engineering applications.

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:

Introductory

- 1.2 Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline. (LO: 1N 3N)
- 1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline. (LO: 2N 4N 5N)
- 1.4 Discernment of knowledge development and research directions within the engineering discipline. (LO: 1N 2N 3N 5N)
- 1.6 Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline. (LO: 1N 2N 3N 4N 5N)
- 2.1 Application of established engineering methods to complex engineering problem solving. (LO: 1N 5N)
- 2.3 Application of systematic engineering synthesis and design processes. (LO: 5N)
- 3.2 Effective oral and written communication in professional and lay domains. (LO: 1N 2N 3N 4N 5N)
- 3.4 Professional use and management of information. (LO: 5N)
- 3.5 Orderly management of self, and professional conduct. (LO: 5N)
- 3.6 Effective team membership and team leadership. (LO: 5N)

Intermediate

- 1.1 Comprehensive, theory-based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline. (LO: 1I 2N 3I 4N)
- 1.5 Knowledge of engineering design practice and contextual factors impacting the engineering discipline. (LO: 2N 4I 5N)
- 2.2 Fluent application of engineering techniques, tools and resources. (LO: 3N 4N 5I)
- 3.3 Creative, innovative and pro-active demeanour. (LO: 5I)

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 the 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>



Alignment of Learning Outcomes, Assessment and Graduate Attributes



Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes				
	1	2	3	4	5
1 - Online Quiz(zes) - 20%	•	•			
2 - Written Assessment - 25%				•	•
3 - Practical and Written Assessment - 20%	•		•		
4 - Online Test - 35%		•	•	•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes				
	1	2	3	4	5
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 16 October 2023

Academic Integrity Statement

Information for Academic Integrity Statement has not been released yet.

This unit profile has not yet been finalised.