

In Progress

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



ENEM12006 *Fluid Mechanics*

Term 2 - 2024

Profile information current as at 19/05/2024 08:43 am

All details in this unit profile for ENEM12006 have been officially approved by CQUiversity 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

This unit introduces the fundamental properties of fluids, analysis of pipe flow, buoyancy, and stability of floating objects. It presents methods of analysing fluid systems using the concept of a control volume combined with the conservation of mass and momentum equations. You analyse incompressible flows in pipe systems and use similitude and modelling principles and techniques to solve problems in fluid mechanics. You will prepare technical and laboratory reports using appropriate 'mechanical engineering language', and document the process of modelling and analysis. You will use ANSYS Fluent software or equivalent to model fluid behaviour inside pipes and other mediums. You are required to act professionally in presenting information, communicating, working, and learning, both individually and in teams. 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 2*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

Pre-requisites or Co-requisites

Prerequisites: MATH11219 Engineering Mathematics AND ENEG11006 Engineering Statics.

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
- Mixed Mode
- 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).

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

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 Student email.

Feedback

Students appreciate the teaching strategies.

Recommendation

The practice should continue in the future offering.

Feedback from Student email

Feedback

Students appreciated that the Moodle site was set out well.

Recommendation

The practice should continue in the future offering.

Feedback from Have you Say

Feedback

Some students felt and reported that the assignment tasks were too high in terms of question numbers.

Recommendation

The unit assessments should be reviewed and will be shortened in the next offering.

Feedback from Have you Say

Feedback

Some laboratory experience was unsatisfactory as lab supervisors sometimes had difficulties operating the equipment.

Recommendation

Lab equipment should be checked before the labs to identify possible issues and the lab supervisors should be provided with adequate training to confidently operate the equipment.

Feedback from Have you Say

Feedback

The students' satisfaction regarding the assessment's feedback was a bit low.

Recommendation

The feedback for students should be given based on their thinking ability, the accuracy of numerical calculations, and the problem-solving approach that students will need to acquire these skills so that they don't come up with wrong processes or repeat common errors. This practice was also conducted in previous years and should carefully be looking at the next offering.

Unit Learning Outcomes

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

1. Apply the fundamentals of fluid mechanics to investigate pressure, buoyancy and hydrostatic forces
2. Analyse fluid motion by applying the conservation of mass and momentum in real-world engineering contexts
3. Identify the fluid flow regimes to apply Bernoulli Equation in pipe flows
4. Create solutions to fluid systems using similitude and modelling techniques
5. Measure flow regimes, rates and other basic fluid flow characteristics and compare with analytical data
6. Work autonomously and in teams to prepare reports using appropriate engineering language.

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 2.3 Application of systematic engineering synthesis and design processes. (LO: 1N 5N 6N)

Intermediate 1.4 Discernment of knowledge development and research directions within the engineering discipline. (LO: 1I 2I 3I 4I 5I 6I) 1.5 Knowledge of engineering design practice and contextual factors impacting the engineering discipline. (LO: 1N 4N 6I) 1.6 Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline. (LO: 1I 2I 3I 4I 6I) 2.2 Fluent application of engineering techniques, tools and resources. (LO: 1N 2N 3N 4I 5N 6I) 3.2 Effective oral and written communication in professional and lay domains. (LO: 1I 2I 5N 6I) 3.3 Creative, innovative and pro-active demeanour. (LO: 2N 4I 5I 6I) 3.4 Professional use and management of information. (LO: 1I 2I 3I 4I 5I 6I) 3.5 Orderly management of self, and professional conduct. (LO: 4I 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: 1N 3I 4A 5A 6I) 1.2 Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline. (LO: 1I 2I 3I 4A 5A 6I) 1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline. (LO: 1I 2I 3I 4I 5I 6A) 2.1 Application of established engineering methods to complex engineering problem solving. (LO: 1I 2I 3I 4A 5A 6I) 3.1 Ethical conduct and professional accountability. (LO: 6A) 3.6 Effective team membership and team leadership. (LO: 6A)

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	6
1 - Practical and Written Assessment - 20%					•	•
2 - Written Assessment - 20%	•					
3 - Written Assessment - 20%		•	•	•		
4 - Online Test - 40%	•	•	•	•	•	

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes					
	1	2	3	4	5	6
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.