

In Progress

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



ENAM12005 Thermal Energy Plant

Term 2 - 2024

Profile information current as at 13/05/2024 03:41 pm

All details in this unit profile for ENAM12005 have been officially approved by CQUniversity 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 analysis of thermal energy plants using basic principles of thermodynamics. You will use standard thermodynamics tables to solve fundamental problems relating to flow and non-flow processes. You will apply thermodynamics and energy equations to analyse the performance of thermal energy plants such as heat engines and refrigeration cycles. You are required to communicate effectively regarding technical aspects of thermodynamics, prepare technical and laboratory reports, clearly document technical procedures and problem solutions, and evaluate uncertainties and the results of your work. You are required to develop a capacity to work and communicate ethically and professionally, as individuals and in teams, to investigate and solve problems and present solutions. In this unit, you must complete compulsory practical activities.

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: ENEG11009 and MATH11160.

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

- 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

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 Res school discussion

Feedback

The labs for this unit were very interesting and provided an understanding of how the different concepts are applied in the real world.

Recommendation

This practice should be continued.

Feedback from SUTE/Res school discussion

Feedback

The weekly quizzes provided a good way to support the week's study, self-check progress, and understanding.

Recommendation

This practice should be continued.

Unit Learning Outcomes

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

1. Apply fluid properties to solve problems relating to flow and non-flow processes
2. Apply the first law of thermodynamics, second law of thermodynamics and other energy equations to basic problems in thermodynamics
3. Analyse typical heat engine cycles and refrigeration cycles
4. Prepare technical and laboratory reports with evidence of thorough evaluation of experimental uncertainties and results obtained
5. Solve problems by following established procedures and communicating effectively in a team.

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

Intermediate

- 1.1 Descriptive formula-based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the practice area. (LO: 1I 2I 3I 4I)
- 1.2 Procedural-level understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the practice area. (LO: 1I 2I 3I 4I 5I)
- 1.3 In-depth practical knowledge and skills within specialist sub-disciplines of the practice area. (LO: 1I 2I 3I 4I 5I)
- 1.4 Discernment of engineering developments within the practice area. (LO: 1I 2I 3I 4I)
- 1.5 Knowledge of engineering design practice and contextual factors impacting the practice area. (LO: 1I 2I 3I 4I)
- 1.6 Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the area of practice. (LO: 1I 2I 3I 4I 5I)
- 2.1 Application of established technical and practical methods to the solution of well-defined engineering problems. (LO: 1I 2I 3I 4I 5I)
- 2.2 Application of technical and practical techniques, tools and resources to well-defined engineering problems. (LO: 1I 2I 3I 4I)
- 2.3 Application of systematic design processes to well-defined engineering problems. (LO: 1I 3I)
- 2.4 Application of systematic project management processes. (LO: 2N 3N 4I)
- 3.2 Effective oral and written communication in professional and lay domains. (LO: 4I 5I)
- 3.6 Effective team membership and team leadership. (LO: 4I 5N)

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

 N/A Level	 Introductory Level	 Intermediate Level	 Graduate Level	 Professional Level	 Advanced Level
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Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes				
	1	2	3	4	5
1 - Online Quiz(zes) - 40%	•	•	•		
2 - Written Assessment - 35%	•	•	•		•
3 - Laboratory/Practical - 25%				•	•

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 17 June 2024

Academic Integrity Statement

Information for Academic Integrity Statement has not been released yet.

This unit profile has not yet been finalised.