

In Progress

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



ENEX13002 *Power Electronics*

Term 2 - 2027

Profile information current as at 07/09/2026 08:53 pm

All details in this unit profile for ENEX13002 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

In this unit, you will build on your electronics knowledge previously acquired. You will learn more about power semiconductor devices and their modeling, such as diodes, silicon-controlled rectifiers (SCRs), metal oxide silicon field effect transistors (MOSFETs), and isolated gate bipolar junction transistors (IGBTs), including their theory of operation and limitations. You will also learn to calculate thermal dissipation requirements of power semiconductors and to choose suitable heat sinks. You will be introduced to the concepts of alternating current (AC) to direct current (DC), AC to AC, DC to DC, and DC to AC converters. You will analyse circuits and it's waveforms using Fourier analysis. You will also review different types of motors and learn about their drives and control, including DC motor drives and AC motor drives. You will learn to design/develop power electronics solutions and test them by simulation and prototyping in the lab. 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 3*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

Pre-requisites or Co-requisites

Prerequisites: (ENEX12002 Introductory Electronics OR ENEE13018 Analogue Electronics) AND (ENEX12001 Electrical Power and Machines OR ENEE12015 Electrical Power Engineering) ENEE12015 Electrical Power Engineering may be studied as a co-requisite.

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 - 2027

- Mackay
- 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).

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

Information for Class and Assessment Overview has not been released yet.
This information will be available on Monday 17 May 2027

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
- Academic Progression Policy and Procedure
- Student Refund and Credit Balance Policy and Procedure
- 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 In class.

Feedback

Students enjoyed the LabVolt practicums and the reinforcement of theory work.

Recommendation

It is proposed that further work should be done to provide more links between the theoretical work and practicums, both in the laboratory instruction documents and during the actual laboratory sessions.

Feedback from Unit evaluation.

Feedback

Students felt that more useful feedback could be given on assignments.

Recommendation

It is proposed that more information on typical errors and corrections should be drafted before marking assignments, so that appropriate comments may be pasted for the student's benefit.

Unit Learning Outcomes

Information for Unit Learning Outcomes has not been released yet.
This information will be available on Monday 17 May 2027

Alignment of Learning Outcomes, Assessment and Graduate Attributes

Information for Alignment of Learning Outcomes, Assessment and Graduate Attributes has not been released yet.
This information will be available on Monday 17 May 2027

Textbooks and Resources

Information for Textbooks and Resources has not been released yet.
This information will be available on Monday 21 June 2027

Academic Integrity Statement

Information for Academic Integrity Statement has not been released yet.
This unit profile has not yet been finalised.