

Special Topic - Course Outline

ECEN 427: 2013 Trimester 2

This document sets out the workload and assessment requirements for ECEN 427. It also provides contact information for staff involved in the course. If the contents of this document are altered during the course, you will be advised of the change by an announcement in lectures and/or on the course web site. A printed copy of this document is held in the School Office.

Objectives

By the end of the course, students should be able to:

1. Explain and design soft switching and Zero Voltage Switching converters. (BE graduate attribute 3(a))
2. Explain the operation of Inversion, Analyse Inverter operation and design a practical Inverter. (BE graduate attribute 2(a, b), 3(a, b)).
3. Explain Electromagnetic principles, differentiate various Motors, and design basic motor drives (BE graduate attribute 3(a, b))
4. Appreciate and analyse different renewable energy sources and design a basic solution for residential purpose (BE graduate attribute 1(b), 2(a), 3(a, b,d, e))
5. Appreciate and analyse the utility application of power electronics. (BE graduate attribute 3(b,d,e))

Prerequisites

The prerequisites for ECEN 427 are:

- ECEN 405

Textbook

For all lectures students will be provided with a comprehensive study guide which contains the entire lecture slides and additional lecture material. A complete PDF of these slides is available via ECS Wiki for students. An effort will be made to provide lecture notes during the lectures.

The reference book for ECEN 427 is: *Mohan*, "Power Electronics – A first Course", 3rd (2012) edition, Wiley., *along with any other notes or materials required*

Lectures, Tutorials, Laboratories, and Practical work

A [schedule](#) of lecture topics, readings, and assignment due dates is available online

Lectures for ECEN 427 are: * **Lectures:** Monday, Tuesday and Thursday (Murphy 303) from 9 – 9.50 am

Timetable for any tutorials and/or labs, and help desks

Assignments and Projects

The assessment for ECEN427 involves assignments, a term test, and design report as detailed below:

Assessed Item	Length/ duration	Date due / exam period	% of final grade	Objectives assessed
Assignments	Weekly	Weeks 2 - 10	30%	1 - 5
Design Report	Week 12	Weeks 1 - 12	40%	1 - 5
Test	1 hour	16 Sept	10%	1 - 3
Feasibility Study Exercise	Week 1-10	Week 11	20%	1-5

----++ Assignments

Assignments will be given weekly every Monday from Weeks 2 to Week 10 and should be handed in at or before the following Wednesday lecture.

Workload

On average, students should plan to spend a minimum of 10 hours per week.

School of Engineering and Computer Science

The School office is located on level three of the Cotton Building ([Cotton 358](#)).

The notice board for ECEN 427 is located on the second floor of the Cotton Building.

Staff

The course organiser for ECEN 427 is [Ramesh Rayudu](#). His contact details are:

- [Ramesh Rayudu](#)
- [Cotton 352](#)
- +64 4 463 5733 Ext 8068
- Ramesh.Rayudu@ecs

Tutor details

Announcements and Communication

The main means of communication outside of lectures will be the ECEN 427 web area at http://ecs.victoria.ac.nz/Courses/ECEN427_2013T2/. There you will find, among other things, this document, the [lecture schedule](#) and [assignment handouts](#), and the [ECEN 427 Forum](#). The forum is a web-based bulletin board system. Questions and comments can be posted to the forum, and staff will read these posts and frequently respond to them.

Assessment

Your grade for ECEN 427 will be determined based on the following assessment weightings:

<u>Item</u>	<u>Weight</u>
Assignments	30%
Design Exercise	40%
Test	10%
Feasibility Study	20%

Tests and Exams

There is NO final exam for this course and there will be one term test on 16 September.

The [timetable for final examinations](#) will be available from the University web site and will be posted on a notice board outside the faculty office. The final examination will be three hours long. No computers, electronic calculators or similar device will be allowed in the final examination. Paper non-English to English dictionaries will be permitted. The examination period for trimester 2 is 25 October - 16 November.

Practical Work

Design Exercise and Report

Full details of the design and reporting requirements will be handed out during the course. Please note the deadline for design demonstration, which is one week after your last design laboratory session, as well as the deadline for the design report.

Policies and penalties for late submission

The solutions for your assignments will be discussed in the tutorial on Thursday. So late submissions might not be marked.

In the event of an aegrotat application, regular submission and performance in assignments and laboratories will contribute substantially to the outcome.

Plagiarism

Working Together and Plagiarism

We encourage you to discuss the principles of the course and assignments with other students, to help and seek help with programming details, problems involving the lab machines. However, any work you hand in must be your own work.

The [School policy on Plagiarism](#) (claiming other people's work as your own) is available from the course home page. Please read it. We will penalise anyone we find plagiarising, whether from students currently doing the course, or from other sources. Students who knowingly allow other students to copy their work may also be penalised. If you have had help from someone else (other than a tutor), it is always safe to state the help that you got. For example, if you had help from someone else in writing a component of your code, it is not plagiarism as long as you state (eg, as a comment in the code) who helped you in writing the method.

Mandatory Requirements

It is expected that ALL work will be completed and handed in for marking. An incomplete or fail grade (K) will be issued to any student who does not satisfy ANY of the below requirements

1. Hands in 8 out of 9 assignments
2. Scores more than 40% (average) in the internal test

Passing ECEN 427

To pass ECEN 427, a student must satisfy mandatory requirements and gain at least a **C** grade overall.

Withdrawal

The last date for withdrawal from ECEN 427 with entitlement to a refund of tuition fees is Friday 26 July 2013. The last date for withdrawal without being regarded as having failed the course is Friday 27 September 2013 -- though later withdrawals may be approved by the Dean in special circumstances.

Rules & Policies

Find key dates, explanations of grades and other useful information at <http://www.victoria.ac.nz/home/study>.

Find out about academic progress and restricted enrolment at <http://www.victoria.ac.nz/home/study/academic-progress>.

The University's statutes and policies are available at <http://www.victoria.ac.nz/home/about/policy>, except qualification statutes, which are available via the Calendar webpage at <http://www.victoria.ac.nz/home/study/calendar> (See Section C).

Further information about the University's academic processes can be found on the website of the Assistant Vice-Chancellor (Academic) at <http://www.victoria.ac.nz/home/about/avcacademic>

All students are expected to be familiar with the following regulations and policies, which are available from the school web site:

[Grievances](#)

[Student and Staff Conduct](#)

[Meeting the Needs of Students with Disabilities](#)

[Student Support](#)

[Academic Integrity and Plagiarism](#)

[Dates and Deadlines including Withdrawal dates](#)

[School Laboratory Hours and Rules](#)

[Printing Allocations](#)

[Expectations of Students in ECS courses](#)

The School of Engineering and Computer Science strives to anticipate all problems associated with its courses, laboratories and equipment. We hope you will find that your courses meet your expectations of a quality learning experience.

If you think we have overlooked something or would like to make a suggestion feel free to talk to your course organiser or lecturer.

[Course Outline as PDF](#)