

Analogue Electronics - Course Outline

ECEN 303: 2010 Trimester 2

This document sets out the workload and assessment requirements for ECEN 303. 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

The prime purpose of ECEN303 is to teach students to design analogue circuits for use in scientific instrumentation, data acquisition, and communications. The emphasis is on design skills. Analytical design skills are assessed by the examination, practical skills by the laboratory reports and the design exercise report.

Key Learning Objectives	Diagnostic Assessments	Major Learning Tasks	Formative Assessments	Summative Assessments
Understand the principles of Filters and be able to design active filters.	Class discussions	Lectures, examples	Laboratory experiments and assignments.	Exam questions on Filters
Understand Op Amp theory, limitations and applications	Class discussions	Lectures, examples	Laboratory experiments and assignments.	Exam questions on Op Amps
Investigate a range of devices and power electronic circuits	Class discussions	Lectures, examples	Laboratory experiments and assignments.	Exam questions on Power electronic circuits
To understand the design process		Design project	Design project report	

Course Content:

Operational Amplifiers, Filters, Diodes, BJTs, Differential Amplifiers, Linear Power Supplies, Switching Power Supplies, Power Amplifiers, Amplifier Imperfections, Noise, Feedback, Stability, Oscillators.

Textbook

The textbook for ECEN 303 is "Design with Operational Amplifiers and Analog Integrated Circuits" (3rd edition) by Sergio Franco. Two other useful texts for the course are Sedra & Smith, "Microelectronic Circuits" (4th or 5th edition), and Horowitz & Hill, "The Art of Electronics," (2nd edition) both available in the University bookshop (or 2nd hand for older editions). These texts are available on closed reserve in the library.

Lectures, Tutorials, Laboratories, and Practical work

A schedule of lecture topics, readings, and assignment due dates is available online

Lectures for ECEN 303 are:

Lectures: Tuesday at 1:10pm and Thursday at 1:10pm, AM104, starting on Tuesday 13th July.

Tutorials: To be arranged when required.

Labs: Held in Electronics Laboratory, Cotton 250. These will be on Tuesdays 9am-12pm. There are ten laboratory sessions, the last three of which will be completing a design exercise.

Assignments and Projects

Assignment questions will be issued every fortnight. Tutorials will discuss the assignments and other aspects of practical measurement and design.

The design exercise for 2010 will be to design an Infra-Red driveway beam sensor. This will be done in modular style, with the design built up over many weeks. The design exercise will largely be a paper one until the end of the first half of

the semester. The students will have an opportunity to build and test their designs in the last weeks. A formal report is required to be submitted no later than Friday 15th October. The assessment will be based on the report, regular inspections of the log book, and a final demonstration to show that the design specifications have been met. The design exercise will be done in groups.

Workload

In order to maintain satisfactory progress in ECEN 303, you should plan to spend an average of at least 10 hours per week on this paper. A plausible and approximate breakdown for these hours would be:

- Lectures and tutorials: 2
- Readings: 1
- Assignments: 2
- Labs/project: 5

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 303 is located on the second floor of the Cotton Building.

Staff

The course organiser for ECEN 303 is Person: Robin Dykstra. The lecturers for the course are Person: Robin Dykstra and Person: Chris Hollitt. Their contact details are:

- *Robin Dykstra*
- [[Room:AM226]
- +64 4 463 6730
- Robin.Dykstra@ecs.vuw.ac.nz

- *Chris Hollitt*
- [[Room:AM223]
- +64 4 463 6965
- Chris.Hollitt@ecs.vuw.ac.nz

Tutor details

Announcements and Communication

The main means of communication outside of lectures will be the ECEN 303 web area at http://ecs.victoria.ac.nz/Courses/ECEN303_2010T2/. There you will find, among other things, this document, the [lecture schedule](#) and [assignment handouts](#), and the [ECEN 303 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 303 will be determined based on the following assessment weightings:

<u>Item</u>	<u>Weight</u>
Assignments	10%
Design exercise	15%
Regular laboratories	20%
Final Examination	55%

There is no terms test. Lab reports are due in at the lab session immediately following that during which the work was done. The design exercise is due in on the last day of the trimester (Friday 15th October 2010).

Tests and Exams

Description of tests and what to do if you can't attend them

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 18 October - 14 November.

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

To fulfil mandatory requirements for the course (formerly "terms") you must attend and complete ten laboratory sessions, hand in the assignments, the design exercise, and attend at least 80% of the lectures.

Passing ECEN 303

To pass ECEN 303, a student must satisfy mandatory requirements and gain at least a **C** grade overall.

Withdrawal

The last date for withdrawal from ECEN 303 with entitlement to a refund of tuition fees is Fri 23 July 2010. The last date for withdrawal without being regarded as having failed the course is Fri 24 Sept 2010 -- 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.
