Analogue Electronics - Course Outline
ECEN 303: 2011 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.

1. Understand the principles of Filters and be able to design active filters 3(b).

2. Understand Op Amp theory, limitations and applications 3(b),3(e).

3. Investigate a range of devices and power electronic circuits 3(b).

4. To understand the design process 3(b),3(d),3(f).

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

Classes for ECEN 303 are:

Lectures: Tuesday and Wednesday at 1:10pm in CO228.

Tutorials: To be arranged when required.

Labs: Held in Electronics Laboratory, Cotton 250. There will be two laboratory sessions on Tuesday 9am-12pm and Friday 1pm-5pm. You will need to attend only one of these sessions. There are ten laboratory sessions, approximately half of which will be spent on a group design exercise.

Assignments and Projects

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

The design exercise this year will be a force-balance fruit weighing system. This will be done in modular style, with the design built up over several 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 14th October. The assessment will be based on the report 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 Robin Dykstra. The lecturers for the course are Robin Dykstra, Ramesh Rayudu and Christopher Hollitt. Their contact details are:
- *Robin Dykstra*
- Alan MacDiarmid 226
- +64 4 463 6730
- Robin.Dykstra@ecs.vuw.ac.nz

- *Ramesh Rayudu*
- Cotton 252
- 463 5233 x8068
- ramesh.rayudu@ecs.vuw.ac.nz

- *Chris Hollitt*
- Alan MacDiarmid 223
- +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_2011T2/. 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:

Item	Weight
Assignments	10%
Design exercise	15%
Regular laboratories	20%
Final Examination	55%

Assignments will be weighted equally. 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 (5pm Friday 14th October 2010). There is no terms test for ECEN 303.

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 21 Oct - 12 Nov.

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 22 July 2011. The last date for withdrawal without being regarded as having failed the course is Fri 23 Sept 2011 -- 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.