Signals and Systems - Course Outline
ECEN 220: 2011 Trimester 2

This document sets out the workload and assessment requirements for ECEN 220. 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. Calculate common Laplace and Fourier transforms from first principles (BE graduate attribute 3(a)),
2. Determine Laplace and Fourier transforms and inverse transforms using a table of common transforms and properties (BE graduate attribute 3(a)),
3. Produce mathematical models of electronic circuits and electromechanical systems (BE graduate attribute 3(c)),
4. Apply Laplace and Fourier theory to the analysis of electronic circuits, electromechanical systems and communication systems (BE graduate attribute 3(b)),
5. Understand the fundamentals of data analysis using statistical techniques (BE graduate attribute 3(a)),
6. Identify and interpret probability mass functions, probability density functions and cumulative density functions; understand the concept of a random variable (BE graduate attributes 3(a)),
7. Calculate confidence intervals, test hypotheses (BE graduate attributes 3(a),3(e)),
8. Perform a regression between two quantities; determine their correlation (BE graduate attributes 3(a),3(e)),
9. Use the Matlab programming language to solve problems in statistics, linear systems and signals (BE graduate attributes 3(f)).

Textbook

The recommended texts for ECEN 220 are: *Navidi "Statistics for Engineers and Scientists", 3rd edition* (Statistics module) and *Lathi "Linear Systems and Signals", 2nd edition* (Fourier and Laplace transforms sections).

There are many other excellent signals and systems texts available that would also be appropriate. In particular, should you be considering specialising in an area that requires an extended background in signals and systems, then you might consider a more comprehensive text, such as *Mandal and Asif "Continuous and Discrete Time Signals and Systems"* or *Oppenheim and Willsky "Signals and Systems", 2nd edition*. Feel free to consult with any of the lecturing staff for advice on an appropriate text for your needs.

Lectures, Tutorials, Laboratories, and Practical work

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

Lectures for ECEN 220 are held on Mondays, Tuesday and Friday at 14:10 in CO119. The three in-term tests will be held during the normal Friday lecture.

There will be laboratory sessions on Monday and Tues at 15:00-18:00 in CO249 and CO250.

Assignments and Practical Work

There will short weekly assignments for the course. Unless other arrangements are made the assignments should be submitted in hard copy at the lecture. Any code associated with the assignments should be provided in hard copy.

Six laboratory exercises, in addition to an introductory Matlab session, will be held as described in the Lecture Schedule. You will be expected to sign up for one of the two laboratory sessions during the first week of trimester and students will have priority in using the labs during their assigned session. However, you are welcome to use the laboratory at other times should there be space available.

Workload

In order to maintain satisfactory progress in ECEN 220, you should plan to spend an average of at least ten hours per week on this paper. A plausible and approximate breakdown for these hours would be:
- Lectures and tutorials: 3 hours
- Reading and Extra Problems: 3 hours
- Assignments: 4 hours

School of Engineering and Computer Science

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

Staff

The course coordinator and lecturer for ECEN 220 is Dr Pawel Dmochowski. Additional lecturers for the course are Prof Bastiaan Kleijn and Prof Paul Austin. Their contact details are:

- Bastiaan Kleijn
- Cotton 352
- +64 4 463 5045
- Bastiaan.Kleijn@vuw.ac.nz

- Pawel Dmochowski
- Alan MacDiarmid 227
- +64 4 463 5948
- Pawel.Dmochowski@vuw.ac.nz

- Paul Austin
- Office TBA
- +64 4 463 5045
- Paul.Austin@vuw.ac.nz

- Laboratory Tutor: Ahmed Sheik Deeb
- Marking Tutor: Brett Ryan

- Class Rep: TBD

Announcements and Communication

The main means of communication outside of lectures will be the ECEN 220 web area at http://ecs.victoria.ac.nz/Courses/ECEN220_2011T2/. There you will find, among other things, this document, the lecture schedule and assignment handouts, and the ECEN 220 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 respond to them.

Assessment

Your grade for ECEN 220 will be determined based on the following assessment weightings:

Item	Weight
Assignments	20%
Labs (6)	20%
Tests (3)	15%
Final Examination	45%

Work submitted late will be subject to a penalty of 10% of the total mark per day (or part thereof). No work will be accepted once the solutions have been posted and we may choose to post the solutions immediately after the due date.

The assignments will assess the students' mastery of all course objectives. The tests and exam will assess mastery of all course objectives except objective ten.

Bachelor of Engineering students should be aware that copies of their assessed work may be retained for inspection by an accreditation panel.

Tests and Exams

The three tests will be held during the normal lecture time and will each take approximately 50 minutes to complete. If you cannot attend a test please contact the appropriate lecturer as soon as possible so that we can make alternate arrangements.

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. Non-programmable, non-graphical calculators without a full alphanumeric keyboard will be permitted in the examination. Paper non-English to English dictionaries will also 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 and 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 submitted for assessment. An incomplete or fail grade will be issued to any student who fails to satisfy any of the conditions below:

- obtain an overall pass grade of C
- hand in at least 90% of assignments and labs by the due dates

Passing ECEN 220

To pass ECEN 220, a student must satisfy mandatory requirements and gain at least a **C** grade overall.

Withdrawal

The last date for withdrawal from ECEN 220 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.