

## ECEN403 (2017) - Advanced Electronics

### Prescription

Advanced analogue and digital electronics, design principles, transform methods of analysis, active and passive filters, oscillators, phase-locked loops, digital signal processors, digital synthesis, communication principles, RF design.

### Course learning objectives

Students who pass this course will be able to:

1. Analyse the small signal modeling methods of devices and circuits including device parasitic capacitances 3(c)
2. Analyse the frequency response of the circuits 3(c)
3. Design and analyse common BJT circuit elements 3(a) 3(b) 3(c)
4. Measure common analogue circuit imperfections 3(c)
5. Use the spice simulator to design and analysis of BJT and FET circuits 3(c) 3(f)

### Course content

The following is an outline of the topics covered in the lectures: Small Signal Modelling (SSM) SSM of MOSFETS SSM of Diodes SSM of BJTs \*Two Port Networks \*Introduction to RF (Week 7) Frequency Response

### Withdrawal from Course

Withdrawal dates and process:

<http://www.victoria.ac.nz/students/study/course-additions-withdrawals>

### Lecturers



**Robin Dykstra (Coordinator)**

robin.dykstra@vuw.ac.nz 04 463 5233 ext 7013

415 Alan MacDiarmid Building, Kelburn



**Ramesh Rayudu**

## Teaching Format

During the trimester there will be three lectures, 5 hours laboratories and assignments per week.

### Dates (trimester, teaching & break dates)

- Teaching: 17 July 2017 - 20 October 2017
- Break: 28 August 2017 - 08 September 2017
- Study period: 24 October 2017 - 26 October 2017
- Exam period: 27 October 2017 - 18 November 2017

### Class Times and Room Numbers

#### 17 July 2017 - 27 August 2017

- **Tuesday** 09:00 - 09:50 – 118, Cotton, Kelburn
- **Thursday** 09:00 - 09:50 – 118, Cotton, Kelburn
- **Friday** 09:00 - 09:50 – 118, Cotton, Kelburn

#### 11 September 2017 - 22 October 2017

- **Tuesday** 09:00 - 09:50 – 118, Cotton, Kelburn
- **Thursday** 09:00 - 09:50 – 118, Cotton, Kelburn
- **Friday** 09:00 - 09:50 – 118, Cotton, Kelburn

### Set Texts and Recommended Readings

#### Required

There are no required texts for this offering.

### Mandatory Course Requirements

In addition to achieving an overall pass mark of at least 50%, students must:

- To pass ECEN 403, a student must satisfy mandatory requirements and gain at least a C- grade overall.

*If you believe that exceptional circumstances may prevent you from meeting the mandatory course requirements, contact the Course Coordinator for advice as soon as possible.*

### Assessment

This course will be internally and externally assessed through test, laboratory, assignments and a final examination.

### Workload

In order to maintain satisfactory progress in ECEN 403, you should plan to spend an average of at least 10 hours per week on this course.

In the course, a plausible and approximate breakdown for these hours would be:

- Lectures and tutorials: 3 hours/week
- Laboratories and assignments: 5 hours/week
- Readings: 2 hours/week

2.5 hours/week is assigned for preparation towards tests and the exam.

# Teaching Plan

## Links to General Course Information

- Academic Integrity and Plagiarism: <http://www.victoria.ac.nz/students/study/exams/integrity-plagiarism>
- Academic Progress: <http://www.victoria.ac.nz/students/study/progress/academic-progress> (including restrictions and non-engagement)
- Dates and deadlines: <http://www.victoria.ac.nz/students/study/dates>
- Grades: <http://www.victoria.ac.nz/students/study/progress/grades>
- Special passes: Refer to the Assessment Handbook, at <http://www.victoria.ac.nz/documents/policy/staff-policy/assessment-handbook.pdf>
- Statutes and policies, e.g. Student Conduct Statute: <http://www.victoria.ac.nz/about/governance/strategy>
- Student support: <http://www.victoria.ac.nz/students/support>
- Students with disabilities: [http://www.victoria.ac.nz/st\\_services/disability/](http://www.victoria.ac.nz/st_services/disability/)
- Student Charter: <http://www.victoria.ac.nz/learning-teaching/learning-partnerships/student-charter>
- Terms and Conditions: <http://www.victoria.ac.nz/study/apply-enrol/terms-conditions/student-contract>
- Turnitin: <http://www.cad.vuw.ac.nz/wiki/index.php/Turnitin>
- University structure: <http://www.victoria.ac.nz/about/governance/structure>
- VUWSA: <http://www.vuwsa.org.nz>

**Offering CRN:** [18520](#)

**Points:** 15

**Prerequisites:** ECEN 303 (or PHYS 340); ECEN 220 or MATH 243 or 244;

**Restrictions:** PHYS 423

**Duration:** 17 July 2017 - 19 November 2017

**Starts:** Trimester 2

**Campus:** Kelburn