



## Prescription

This course covers the analysis of analogue electrical and electronic circuits. Topics covered include basic circuit theorems, operational amplifier circuits, the use of phasors for AC circuit analysis and the Laplace transform for switched systems. The use of computational and measurement tools for circuit characterisation is also covered.

## Course learning objectives

Students who pass this course should be able to:

1. Formulate differential equation-based models of analogue circuits containing passive components and operational amplifiers. (BE graduate attribute 3(a,c))
2. Use a range of circuit analysis techniques to find unknown voltages, currents and power. (BE graduate attribute 3(a))
3. Apply phasor and Laplace transform based circuit analysis techniques. (BE graduate attribute 3(b))
4. Describe, measure and characterise first and second order systems in the frequency domain. (BE graduate attribute 3(b))
5. Competently use electronic test equipment to measure analogue circuit performance. (BE graduate attribute 3(d,e,f))
6. Use industry standard software tools for the analysis of measured circuit data and simulate analogue circuit performance. (BE graduate attribute 3(f))
7. Understand magnetic materials and analyse circuits that use transformers.

## Course content

This course has a considerable lab component. Labs will require in-person attendance by students in the Wellington Region. There will be online options for students outside the Wellington region, but students will have to complete alternative substitutes to the physical lab requirements.

## Withdrawal from Course

Withdrawal dates and process:

<https://www.wgtn.ac.nz/students/study/course-additions-withdrawals>

## Lecturers

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**Dr Paul Teal (Coordinator)**

paul.teal@vuw.ac.nz 04 463 5966

AM 420 Alan Macdiarmid Building, Gate 7, Kelburn Parade, Kelburn

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## Dr Christopher Hollitt

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AM 223 Alan Macdiamid Building, Gate 7, Kelburn Parade, Kelburn

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## Dr Ramesh Rayudu

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AM 421 Alan Macdiamid Building, Gate 7, Kelburn Parade, Kelburn

## Teaching Format

The theory component of the course will be taught in two face to face weekly lectures and a weekly tutorial. The course requires mastery of the mathematical processes for circuit analysis, so students are expected to spend significant non-contact hours working on practice problems. The tutorial sessions will be used to support this work on practice problems, and the tests will assess the development of this skill.

## Student feedback

Student feedback on University courses may be found at:  
[www.cad.vuw.ac.nz/feedback/feedback\\_display.php](http://www.cad.vuw.ac.nz/feedback/feedback_display.php)

## Dates (trimester, teaching & break dates)

- Teaching: 28 February 2022 - 03 June 2022
- Break: 11 April 2022 - 24 April 2022
- Study period: 06 June 2022 - 09 June 2022
- Exam period: 10 June 2022 - 25 June 2022

## Class Times and Room Numbers

### 28 February 2022 - 10 April 2022

- **Tuesday** 09:00 - 09:50 – 305, 77 Fairlie Tce, Kelburn
- **Thursday** 09:00 - 09:50 – 305, 77 Fairlie Tce, Kelburn
- **Friday** 09:00 - 09:50 – 305, 77 Fairlie Tce, Kelburn

### 25 April 2022 - 05 June 2022

- **Tuesday** 09:00 - 09:50 – 305, 77 Fairlie Tce, Kelburn
- **Thursday** 09:00 - 09:50 – 305, 77 Fairlie Tce, Kelburn
- **Friday** 09:00 - 09:50 – 305, 77 Fairlie Tce, Kelburn

## Other Classes

There are eight lab sessions. Two of these are not assessed, and two are for one lab exercise.

## Set Texts and Recommended Readings

### Required

There are no required texts for this offering.

## Mandatory Course Requirements

There are no mandatory course requirements for this course.

- Achieve at least a **D** grade in the final examination.

*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

Assessment Item	Due Date or Test Date	CLO(s)	Percentage
4 in terms tests (1 hour each)	Weeks 4,7,10, assessment period	CLO: 1,2,3,4,7	52%
Assignments (9)	Weeks 2-10	CLO: 1,2,3,4,7	18%
5 lab reports (one of them worth twice the others)	Weeks 4,8,9,12	CLO: 5,6,7	30%

## Penalties

Work submitted late will be penalised at 10%/day; work submitted more than a week late will not be marked.

## Extensions

Individual extensions will only be granted in exceptional personal circumstances, and should be negotiated with the course coordinator before the deadline whenever possible. Documentation (eg, medical certificate) may be required.

## Submission & Return

Submission of assignments and labs must be done via the ECS online submission system, accessible through the 'Assignments' link on the course web pages: [https://ecs.wgtn.ac.nz/Courses/EEEN203\\_2022T1](https://ecs.wgtn.ac.nz/Courses/EEEN203_2022T1). Marks and comments will be returned through the ECS marking system, also available through the course web pages.

## Workload

The student workload for this course is 150 hours.

## Teaching Plan

See: [https://ecs.wgtn.ac.nz/Courses/EEEN203\\_2022T1/LectureSchedule](https://ecs.wgtn.ac.nz/Courses/EEEN203_2022T1/LectureSchedule)

# Communication of Additional Information

The main means of communication outside of lectures will be the EEEN 203 web area at [https://ecs.wgtn.ac.nz/Courses/EEEN203\\_2022T1/](https://ecs.wgtn.ac.nz/Courses/EEEN203_2022T1/)

## Links to General Course Information

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

**Offering CRN:** [33055](#)

**Points:** 15

**Prerequisites:** (ENGR 122 or MATH 142); (ENGR 142 or PHYS 115);

**Restrictions:** ECEN 203

**Duration:** 28 February 2022 - 26 June 2022

**Starts:** Trimester 1

**Campus:** Kelburn