



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

In 2021, it will be possible to take this course remotely, and distance-based versions of the lectures, labs, tutorials, and all other material will be available. However, the resources for the remote alternative to the labs are limited, and the remote option will only be available for students with a good justification (for example, enrolling from overseas). Students who can be in Wellington must participate in the face-to-face labs to develop the critical practical lab knowledge and skills for the course.

Students taking this course remotely must have access to a computer with camera and microphone and a reliable high speed internet connection that will support real-time video plus audio connections and screen sharing. Students must be able to use Zoom; other communication applications may also be used. A mobile phone connection only is not considered sufficient. The computer must be adequate to support the programming required by the course: almost any modern windows, macintosh, or unix laptop or desktop computer will be sufficient, but an Android or IOS tablet will not.

If the assessment of the course includes tests, the tests will generally be run in-person on the Kelburn campus. There will be a remote option for students who cannot attend in-person and who have a strong justification (for example, being enrolled from overseas). The remote test option may use the ProctorU system for online supervision of the tests. ProctorU requires installation of monitoring software on your computer which also uses your camera and microphone, and monitors your test-taking in real-time. Students who will need to use the remote test option must contact the course coordinator in the first two weeks to get permission and make arrangements.

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Withdrawal from Course

Withdrawal dates and process:

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

Lecturers

Paul Teal (Coordinator)

paul.teal@vuw.ac.nz 04 4635966

420 Alan MacDiarmid Building, Kelburn

Christopher Hollitt

christopher.hollitt@vuw.ac.nz 04 4636965

223 Alan MacDiarmid Building, Kelburn

Ramesh Rayudu

ramesh.rayudu@vuw.ac.nz 04 4635233 ext 8068

421 Alan MacDiarmid Building, 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

Dates (trimester, teaching & break dates)

- Teaching: 22 February 2021 - 28 May 2021
- Break: 05 April 2021 - 18 April 2021
- Study period: 31 May 2021 - 03 June 2021
- Exam period: 04 June 2021 - 19 June 2021

Class Times and Room Numbers

22 February 2021 - 04 April 2021

- **Tuesday** 11:00 - 11:50 – 102, Alan MacDiarmid Building, Kelburn
- **Thursday** 11:00 - 11:50 – 102, Alan MacDiarmid Building, Kelburn
- **Friday** 11:00 - 11:50 – 120, Easterfield, Kelburn

19 April 2021 - 30 May 2021

- **Tuesday** 11:00 - 11:50 – 102, Alan MacDiarmid Building, Kelburn

- **Thursday** 11:00 - 11:50 – 102, Alan MacDiarmid Building, Kelburn
- **Friday** 11:00 - 11:50 – 120, Easterfield, Kelburn

Other Classes

There are 9 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.

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
Laboratory sessions (7 of 3-4 hours each, including write-up + 2 lab sessions which are not assessed)	TBC	CLO: 5,6,7	28%
4 Tests		CLO: 1,2,3,4,7	72%

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_2021T1. 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_2021T1/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_2021T1/

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/
- 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: 22 February 2021 - 20 June 2021

Starts: Trimester 1

Campus: Kelburn