



Course

Circuits and Signals

ELEC2134

6 Units of Credit

Overview

Circuit elements - energy storage and dynamics. Ohm's Law, Kirchhoff's Laws, simplifying networks of series/parallel circuit elements. Nodal analysis. Thivenin and Norton equivalents, superposition. Operational amplifiers. Transient response in first-order RLC circuits. Solutions via solving differential equations. Transient response in second-order RLC circuits. State equations, zero input response, zero state response. Using MATLAB to solve state equations. Sinusoidal signal: frequency, angular frequency, peak value, RMS value, and phase. DC vs AC, average vs RMS values. AC circuits with sinusoidal inputs in steady state. Use of phasor and complex impedance in AC circuit analysis. AC power (real, reactive, apparent), power factor, leading/lagging. Resonance. Transformers and coupled coils. Laplace transforms of signals and circuits. Network functions and frequency response. Periodic signals and Fourier series. Introduction to filter design. Introduction to nonlinear circuits and small signal analysis.

Faculty

Faculty of Engineering

School

School of Electrical Engineering & Telecommunications

Study Level

Undergraduate

Offering Terms

Term 1, Term 3

Campus

Kensington

Delivery Mode

Fully on-site

Indicative contact hours

7

Timetable

[Visit timetable website for details](#)

Conditions for Enrolment

Co-Requisite: ELEC1111 OR DPST1081 OR ELEC1112

Course Outline

To access course outline, please visit:

[ELEC2134 Course Outline](#)

Fees

Commonwealth Supported Students \$1191

Domestic Students \$5970

International Students \$5970

DISCLAIMER

Please note that the University reserves the right to vary student fees in line with relevant legislation. This fee information is provided as a guide and more specific information about fees, including fee policy, can be found on the [fee website](#).

For advice about fees for courses with a fee displayed as "Not Applicable", including some Work Experience and UNSW Canberra at ADFA courses, please contact the relevant Faculty.

Where a Commonwealth Supported Students fee is displayed, it does not guarantee such places are available.

Pre-2019 Handbook Editions

Access past handbook editions (2018 and prior)

[Pre-2019 Handbook Editions](#)

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Authorised by Deputy Vice-Chancellor (Academic)

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