



# University of Pretoria Yearbook 2024

## Analogue electronics 310 (ENE 310)

**Qualification** Undergraduate

**Faculty** [Faculty of Engineering, Built Environment and Information Technology](#)

**Module credits** 16.00

**NQF Level** 07

**Programmes** [BEng \(Computer Engineering\) 4-year programme](#)

[BEng \(Computer Engineering\) 5-year programme](#)

[BEng \(Electrical Engineering\) 4-year programme](#)

[BEng \(Electrical Engineering\) 5-year programme](#)

[BEng \(Electronic Engineering\) 4-year programme](#)

[BEng \(Electronic Engineering\) 5-year programme](#)

**Prerequisites** ELI 220 GS and admission into relevant programme.

**Contact time** 1 tutorial per week, 3 lectures per week, 9 hours practical per semester

**Language of tuition** Module is presented in English

**Department** Electrical, Electronic and Computer Engineering

**Period of presentation** Semester 1

### Module content

Operational amplifiers: non-idealities and limitations. Amplifier concepts: two-port modelling, gain, input and output impedance, cascaded amplifiers, signal-to-noise ratio, total harmonic distortion, power dissipation and power efficiency, frequency response and bandwidth. Feedback and stability in amplifiers. Linear operational circuits: transducers and amplifiers, instrumentation amplifiers, filters and impedance converter amplifiers. Non-linear operational circuits: oscillators, rectifiers, Schmitt triggers, peak detectors, track-and-hold amplifiers, amplifiers with non-linear transfer functions. Sampling electronics: signal quantisation, DA and AD converter circuits.

### General Academic Regulations and Student Rules

The [General Academic Regulations \(G Regulations\)](#) and [General Student Rules](#) apply to all faculties and registered students of the University, as well as all prospective students who have accepted an offer of a place at the University of Pretoria. On registering for a programme, the student bears the responsibility of ensuring that they familiarise themselves with the General Academic Regulations applicable to their registration, as well as the relevant faculty-specific and programme-specific regulations and information as stipulated in the relevant yearbook. Ignorance concerning these regulations will not be accepted as an excuse for any transgression, or



basis for an exception to any of the aforementioned regulations. The G Regulations are updated annually and may be amended after the publication of this information.

#### **Regulations, degree requirements and information**

The faculty regulations, information on and requirements for the degrees published here are subject to change and may be amended after the publication of this information.

#### **University of Pretoria Programme Qualification Mix (PQM) verification project**

The higher education sector has undergone an extensive alignment to the Higher Education Qualification Sub-Framework (HEQSF) across all institutions in South Africa. In order to comply with the HEQSF, all institutions are legally required to participate in a national initiative led by regulatory bodies such as the Department of Higher Education and Training (DHET), the Council on Higher Education (CHE), and the South African Qualifications Authority (SAQA). The University of Pretoria is presently engaged in an ongoing effort to align its qualifications and programmes with the HEQSF criteria. Current and prospective students should take note that changes to UP qualification and programme names, may occur as a result of the HEQSF initiative. Students are advised to contact their faculties if they have any questions.