



# University of Pretoria Yearbook 2020

## Linear systems 220 (ELI 220)

**Qualification** Undergraduate

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

**Module credits** 16.00

**Programmes** [BEng Computer Engineering](#)

[BEng Computer Engineering ENGAGE](#)

[BEng Electrical Engineering](#)

[BEng Electrical Engineering ENGAGE](#)

[BEng Electronic Engineering](#)

[BEng Electronic Engineering ENGAGE](#)

**Prerequisites** EIR 211/221 GS

**Contact time** 1 practical per week, 1 tutorial per week, 3 lectures per week

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

**Department** Electrical, Electronic and Computer Engineering

**Period of presentation** Semester 2

### Module content

Frequency domain analysis of linear time-invariant systems. Laplace, Fourier and Z-transforms applied to periodic, aperiodic and sampled signals; exponential and trigonometric Fourier series. Nyquist sampling theorem, transfer functions, poles and zeros, bandwidth and rise time, frequency response, impulse response, Bode diagrams, natural frequency, natural and forced response. Instability and oscillations. Computer simulation.

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