

# University of Pretoria Yearbook 2021

## Power system analysis 410 (EKK 410)

**Qualification** Undergraduate

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

**Module credits** 16.00

**NQF Level** 08

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

[BEng Electrical Engineering ENGAGE](#)

**Prerequisites** EKK 320 GS

**Contact time** 1 practical per week, 1 tutorial per week, 4 lectures per week

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

**Department** Electrical, Electronic and Computer Engineering

**Period of presentation** Semester 1

### Module content

Power flow: bus admittance matrix, bus impedance matrix, Gauss Seidal and Newton Raphson methods. Fault analysis: balanced fault analysis, symmetrical components, unbalanced fault analysis. Power system protection: definite time, inverse-definite-minimum-time (IDMT), introduction to over-current and earth fault protection, distribution system protection, transmission system protection, reticulation system protection. Sizing of protection devices. High voltage control: over-voltages, transients.

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