



# University of Pretoria Yearbook 2017

## Electricity and electronics 122 (EBN 122)

<b>Qualification</b>	Undergraduate
<b>Faculty</b>	<a href="#">Faculty of Engineering, Built Environment and Information Technology</a>
<b>Module credits</b>	16.00
<b>Programmes</b>	<a href="#">BEng Chemical Engineering</a> <a href="#">BEng Civil Engineering</a> <a href="#">BEng Electrical Engineering</a> <a href="#">BEng Electronic Engineering</a> <a href="#">BEng Metallurgical Engineering</a> <a href="#">BEng Mining Engineering</a> <a href="#">BEng Mining Engineering</a>
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	3 lectures per week, 1 practical per week, 1 tutorial per week
<b>Language of tuition</b>	Separate classes for Afrikaans and English
<b>Academic organisation</b>	Electrical, Electronic and Com
<b>Period of presentation</b>	Semester 2

### Module content

Electrical quantities, units, definitions, conventions. Electrical symbols, ideal and practical current and voltage sources, controlled sources. Ohm's law in resistive circuits, Kirchoff's current and voltage laws, resistors in series and parallel circuits, voltage and current division, mesh current and node voltage methods. Circuit theorems: linearity, superposition, Thevenin and Norton equivalent circuits, sources transformation, power calculation, maximum power transfer. Energy storage elements: current, voltage, power and energy in inductors and capacitors, inductors and capacitors in series and parallel. Ideal operational amplifiers and applications: inverting and noninverting amplifiers, summing amplifiers, current sources, integrators.

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