



# University of Pretoria Yearbook 2016

## Electrical engineering 211 (EIR 211)

**Qualification** Undergraduate

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

**Module content**

Transient response phenomena in RC, RL and RLC circuits: Natural response and step response. Alternating current (AC) circuits: Phasors, impedances, and power in AC circuits. The application of Ohm's law, Kirchoff's circuit theorems, matrix methods and Thevenin and Norton equivalents to sinusoidal steady-state analysis. Three-phase circuits: Balanced three-phase circuits, star/delta configurations, and three-phase power transfer calculations. Magnetically coupled circuits: Mutual inductance, coupling factor, transformers, ideal transformers and autotransformers. Application of circuit theory to an induction machine: basic principles of induction machines, equivalent circuit and analysis thereof, calculation of power and torque through application of Thevenin's theorem. Synoptic introduction to other types of machines.

**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** EBN 111 or EBN 122 and WTW 161

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

**Language of tuition** Both Afr and Eng

**Academic organisation** Electrical, Electronic and Com

**Period of presentation** Semester 1

The information published here is subject to change and may be amended after the publication of this information. The [General Regulations \(G Regulations\)](#) apply to all faculties of the University of Pretoria. It is expected of each student to familiarise himself or herself well with these regulations as well as with the information contained in the [General Rules](#) section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.