



University of Pretoria Yearbook 2018

Electrical machines 311 (ELX 311)

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| Qualification | Undergraduate |
| Faculty | Faculty of Engineering, Built Environment and Information Technology |
| Module credits | 16.00 |
| Programmes | BEng Electrical Engineering BEng Electrical Engineering ENGAGE |
| Prerequisites | EIR 211/221 |
| 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 1 |

Module content

Magnetic circuits: flux, flux density, reluctance, hysteresis, MMF. Magnetic Energy, Conversion: Process, field energy, mechanical force in electromagnetic systems. Transformers: Types of transformers, per unit system, voltage regulation and efficiency, three phase circuit analysis. Principles of machines: Torque, speed, efficiency and heat loss, circuit models. Machines: Power transformers, DC motors, induction motors.

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