

University of Pretoria Yearbook 2018

Physics 176 (FSK 176)

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| Qualification | Undergraduate |
| Faculty | Faculty of Natural and Agricultural Sciences |
| Module credits | 16.00 |
| Programmes | BEng Chemical Engineering ENGAGE BEng Civil Engineering BEng Civil Engineering ENGAGE BEng Electrical Engineering BEng Electronic Engineering BEng Industrial Engineering ENGAGE BEng Metallurgical Engineering BEng Mining Engineering |
| Service modules | Faculty of Engineering, Built Environment and Information Technology |
| Prerequisites | No prerequisites. |
| Contact time | 1 discussion class per week, 1 practical per week, 4 lectures per week |
| Language of tuition | Separate classes for Afrikaans and English |
| Department | Physics |
| Period of presentation | Semester 2 |

Module content

Introductory mathematics: Symbols, exponents, logarithms, angles in degrees, radial measure, goniometry, differentiation, and integration. Motion along a straight line: position and displacement, acceleration. Vectors: adding vectors, components, multiplying vectors. Motion in two and three dimensions: projectile motion, circular motion. Force and motion: Newton's Law, force, friction. Kinetic energy and work: work, power. Potential energy: Centre of mass, linear momentum. Collisions: impulse and linear momentum, elastic collisions, inelastic collisions. Rotation: kinetic energy of rotation, torque. Oscillations and waves: Simple harmonic motion, types of waves, wavelength and frequency, interference of waves, standing waves, the Doppler effect. Temperature, heat and the first law of thermodynamics.

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