

# University of Pretoria Yearbook 2016

## Physics 176 (FSK 176)

**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** 4 lectures per week, 1 discussion class per week, 1 practical per week

**Language of tuition** Both Afr and Eng

**Academic organisation** 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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