

# University of Pretoria Yearbook 2017

## Physics 116 (FSK 116)

**Qualification** Undergraduate

**Faculty** Faculty of Natural and Agricultural Sciences

**Module credits** 16.00

**Programmes** BEng Chemical Engineering

BEng Computer Engineering

BEng Computer Engineering ENGAGE

BEng Electrical Engineering ENGAGE

BEng Electronic Engineering ENGAGE

BEng Industrial Engineering

BEng Mechanical Engineering

BEng Mechanical Engineering ENGAGE

BEng Metallurgical Engineering ENGAGE

BEng Mining Engineering ENGAGE

**Service modules** Faculty of Engineering, Built Environment and Information Technology

**Prerequisites** No prerequisites.

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

**Language of tuition** Separate classes for Afrikaans and English

**Academic organisation** Physics

**Period of presentation** Semester 1

### 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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