



# University of Pretoria Yearbook 2021

## Physics 176 (FSK 176)

**Qualification** Undergraduate

**Faculty** Faculty of Natural and Agricultural Sciences

**Module credits** 16.00

**NQF Level** 05

**Programmes** BEng Chemical Engineering ENGAGE

BEng Civil Engineering

BEng Civil Engineering ENGAGE

BEng Electrical Engineering

BEng Electrical Engineering ENGAGE

BEng Electronic Engineering

BEng Electronic Engineering ENGAGE

BEng Metallurgical Engineering

BEng Metallurgical Engineering ENGAGE

BEng Mining Engineering

BEng Mining Engineering ENGAGE

**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** Module is presented in 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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