



# University of Pretoria Yearbook 2019

## First course in physics 114 (PHY 114)

**Qualification** Undergraduate

**Faculty** Faculty of Natural and Agricultural Sciences

**Module credits** 16.00

**Programmes** BEd Senior Phase and Further Education and Training Teaching

BSc Computer Science

BSc Applied Mathematics

BSc Chemistry

BSc Engineering and Environmental Geology

BSc Geography

BSc Geology

BSc Mathematics

BSc Meteorology

BSc Physics

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

Faculty of Education

**Prerequisites** A candidate must have passed Mathematics and Physical Science with at least 60% in the Grade 12 examination

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

**Language of tuition** Module is presented in English

**Department** Physics

**Period of presentation** Semester 1

### Module content

SI-units. Significant figures. Waves: intensity, superposition, interference, standing waves, resonance, beats, Doppler. Geometrical optics: Reflection, refraction, mirrors, thin lenses, instruments. Physical optics: Young-interference, coherence, diffraction, polarisation. Hydrostatics and dynamics: density, pressure, Archimedes' principle, continuity, Bernoulli. Heat: temperature, specific heat, expansion, heat transfer. Vectors. Kinematics of a point: Relative, projectile, and circular motion. Dynamics: Newton's laws, friction. Work: point masses, gasses (ideal gas law), gravitation, spring, power. Kinetic energy: Conservative forces, gravitation, spring. Conservation of energy. Conservation of momentum. Impulse and collisions. System of particles: Centre of mass, Newton's laws. Rotation: torque, conservation of angular momentum, equilibrium, centre of gravity.



The information published here is subject to change and may be amended after the publication of this information. The [General Regulations \(G Regulations\)](#) apply to all faculties of the University of Pretoria. It is expected of students to familiarise themselves well with these regulations as well as with the information contained in the [General Rules](#) section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.