

# University of Pretoria Yearbook 2017

## First course in physics 114 (PHY 114)

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| <b>Qualification</b>          | Undergraduate  |
| <b>Faculty</b>                | Faculty of Natural and Agricultural Sciences   |
| <b>Module credits</b>         | 16.00  |
| <b>Programmes</b>             | BEd Senior Phase and Further Education and Training Teaching<br>BSc Computer Science<br>BSc Chemistry<br>BSc Engineering and Environmental Geology<br>BSc Geography<br>BSc Geology<br>BSc Meteorology<br>BSc Physics |
| <b>Service modules</b>        | Faculty of Engineering, Built Environment and Information Technology<br>Faculty of Education   |
| <b>Prerequisites</b>          | Refer to Regulation 1.2: A candidate must have passed Mathematics and Physical Science with at least 60% in the Grade 12 examination   |
| <b>Contact time</b>           | 4 lectures per week, 1 discussion class per week, 1 practical per week   |
| <b>Language of tuition</b>    | Separate classes for Afrikaans and English   |
| <b>Academic organisation</b>  | Physics  |
| <b>Period of presentation</b> | 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.