



# University of Pretoria Yearbook 2023

## First course in physics 114 (PHY 114)

<b>Qualification</b>	Undergraduate
<b>Faculty</b>	Faculty of Natural and Agricultural Sciences
<b>Module credits</b>	16.00
<b>NQF Level</b>	05
<b>Programmes</b>	BEd (Senior Phase and Further Education and Training Teaching) BSc (Computer Science) BSc (Applied Mathematics) BSc (Chemistry) BSc (Engineering and Environmental Geology) BSc (Geography) <i>Geography and Environmental Science</i> BSc (Geology) BSc (Mathematics) BSc (Meteorology) BSc (Physics)
<b>Service modules</b>	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
<b>Prerequisites</b>	A candidate must have passed Mathematics and Physical Science with at least 60% in the Grade 12 examination
<b>Contact time</b>	1 discussion class per week, 1 practical per week, 4 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</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.



### **Regulations and rules**

The regulations and rules for the degrees published here are subject to change and may be amended after the publication of this information.

The **General Academic Regulations (G Regulations)** and **General Student Rules** apply to all faculties and registered students of the University, as well as all prospective students who have accepted an offer of a place at the University of Pretoria. On registering for a programme, the student bears the responsibility of ensuring that they familiarise themselves with the General Academic Regulations applicable to their registration, as well as the relevant faculty-specific and programme-specific regulations and information as stipulated in the relevant yearbook. Ignorance concerning these regulations will not be accepted as an excuse for any transgression, or basis for an exception to any of the aforementioned regulations.

### **University of Pretoria Programme Qualification Mix (PQM) verification project**

The higher education sector has undergone an extensive alignment to the Higher Education Qualification Sub-Framework (HEQF) across all institutions in South Africa. In order to comply with the HEQSF, all institutions are legally required to participate in a national initiative led by regulatory bodies such as the Department of Higher Education and Training (DHET), the Council on Higher Education (CHE), and the South African Qualifications Authority (SAQA). The University of Pretoria is presently engaged in an ongoing effort to align its qualifications and programmes with the HEQSF criteria. Current and prospective students should take note that changes to UP qualification and programme names, may occur as a result of the HEQSF initiative. Students are advised to contact their faculties if they have any questions.