

University of Pretoria Yearbook 2021

First course in physics 114 (PHY 114)

Qualification Undergraduate

Faculty Faculty of Natural and Agricultural Sciences

Module credits 16.00

NQF Level 05

Programmes BEd Senior Phase and Further Education and Training Teaching

BSc Computer Science

BSc Applied Mathematics

BSc Chemistry

BSc Engineering and Environmental Geology

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, 1 practical per week, 4 lectures 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.



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