

University of Pretoria Yearbook 2017

General physics 163 (PHY 163)

Qualification	Undergraduate
Faculty	Faculty of Natural and Agricultural Sciences
Module credits	8.00
Prerequisites	PHY 153
Contact time	4 lectures per week, Foundation Course, 1 discussion class per week, 1 practical per week
Language of tuition	Module is presented in English
Academic organisation	Physics
Period of presentation	Semester 2

Module content

*This module corresponds to the second half of the PHY 171 module. The four modules PHY 133, PHY 143, PHY 153 and PHY 163 are equivalent to PHY 171. Simple harmonic motion and pendulums. Coulomb's law. Electric field : dipole, Gauss' law. Potential. Capacitance. Electric currents: resistance, resistivity, Ohm's law, energy, power, semiconductors, superconductors, emf, RC-circuits. Magnetism : Hall effect, Biot-Savart law. Faraday's and Lenz's laws. LR-circuits. Alternating current : RLC-circuits, power transformers. Modern physics: Theory of special relativity, wave/particle nature, photoelectric effect, matter waves, quantum theory, infinite potential well, hydrogen atom and spectra, nuclear physics, Rutherford model, nucleons.

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