

# University of Pretoria Yearbook 2017

## General physics 163 (PHY 163)

<b>Qualification</b>	Undergraduate
<b>Faculty</b>	<a href="#">Faculty of Natural and Agricultural Sciences</a>
<b>Module credits</b>	8.00
<b>Prerequisites</b>	PHY 153
<b>Contact time</b>	4 lectures per week, Foundation Course, 1 discussion class per week, 1 practical per week
<b>Language of tuition</b>	Module is presented in English
<b>Academic organisation</b>	Physics
<b>Period of presentation</b>	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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