

University of Pretoria Yearbook 2016

General physics 263 (PHY 263)

Qualification	Undergraduate
Faculty	Faculty of Natural and Agricultural Sciences
Module credits	24.00
Programmes	BEd Senior Phase and Further Education and Training Teaching BSc(Computer Science) Computer Science BSc Applied Mathematics BSc Environmental and Engineering Geology BSc Environmental Sciences BSc Geography BSc Geoinformatics BSc Geology BSc Meteorology BSc Physics
Service modules	Faculty of Education
Prerequisites	PHY 255 GS and WTW 218 GS and WTW 220# and WTW 248#
Contact time	1 practical per week, 4 lectures per week, 2 discussion classes per week
Language of tuition	English
Academic organisation	Physics
Period of presentation	Semester 2

Module content

Classical mechanics (28 lectures)

Fundamental concepts, energy and angular momentum, calculus of variations and Lagrangian mechanics, conservative central forces and two body problems, scattering, mechanics in rotating reference frames, many body systems.

Physical Optics (14 lectures)

Maxwell's equations, wave equation and plane wave solution, coherence, interference, diffraction, polarisation.

Physics of Materials (14 lectures)

Classification of materials. Atomic bonding. Crystallography. Defects. Material strength.

Phase diagram's, Ceramics. Polymers. Composites. Fracture. Electrical and magnetic properties. Semiconductors. Smart materials Nanotechnology.

Experiments (14 sessions)

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