

University of Pretoria Yearbook 2017

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](#)

[BSc Geology](#)

[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 Module is presented in 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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