

University of Pretoria Yearbook 2022

General physics 263 (PHY 263)

Qualification	Undergraduate
Faculty	Faculty of Natural and Agricultural Sciences
Module credits	24.00
NQF Level	06
Programmes	BEEd (Senior Phase and Further Education and Training Teaching)
	BSc (Computer Science)
	BSc (Meteorology)
	BSc (Applied Mathematics)
	BSc (Chemistry)
	BSc (Geology)
	BSc (Mathematics)
	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, 2 discussion classes per week, 4 lectures per week
Language of tuition	Module is presented in English
Department	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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