

# University of Pretoria Yearbook 2019

## 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 Applied Mathematics](#)

[BSc Geology](#)

[BSc Mathematics](#)

[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, 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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Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.