



University of Pretoria Yearbook 2023

Radiation physics 200 (RPH 200)

Qualification Undergraduate

Faculty [Faculty of Health Sciences](#)

Module credits 20.00

NQF Level 06

Programmes [Bachelor of Radiography in Diagnostics \[BRad in Diagnostics\]](#)

Prerequisites RPH 100, DIR 100, RSC 100, CDR 100

Contact time 3 lectures per week

Language of tuition Module is presented in English

Department Physics

Period of presentation Year

Module content

X-ray generation: atomic physics, thermodynamics, X-ray tubes, linear accelerators.

Image formation and recording: optics, image intensifiers, solid state physics, digital imaging display and storage systems, image quality and patient dose.

Radioactivity: nuclear nomenclature, half-life, activity, decay modes and nuclear processes, nuclide chart and decay.

Production of radioisotopes: Nuclear reactions, production facilities (cyclotrons, reactors, and accelerators).

Interactions of ionising radiation with matter: charged particles, neutrons, photons, attenuation coefficients, photo-electric Compton contribution.

Radiation Detection: detectors (Geiger, scintillation, TLD, semiconductor, ionisation chamber), counting (spectroscopy, efficiency, statistics), protection.

Dosimetry: units, exposure, dose, absorbed dose, equivalent dose, effective dose, dose limits.

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