

University of Pretoria Yearbook 2022

Radiation physics 200 (RPH 200)

Qualification	Undergraduate
Faculty	Faculty of Health Sciences
Module credits	20.00
NQF Level	06
Programmes	BRad in Diagnostics
Prerequisites	RPH 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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