

# University of Pretoria Yearbook 2020

## Radiation physics 200 (RPH 200)

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| Qualification          | Undergraduate                              |
| Faculty                | <a href="#">Faculty of Health Sciences</a> |
| Module credits         | 20.00                                      |
| Programmes             | <a href="#">BRad in Diagnostics</a>        |
| 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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