

University of Pretoria Yearbook 2025

Radiation physics and radiation protection 700 (SFR 700)

Qualification	Postgraduate
Faculty	Faculty of Health Sciences
Module credits	15.00
NQF Level	08
Programmes	BRadHons in Radiation Therapy
Prerequisites	No prerequisites.
Contact time	1 discussion class per week
Language of tuition	Module is presented in English
Department	Radiography
Period of presentation	Year

Module content

Basic radiation physics. Interactions of X-radiation and gamma rays with matter. Radiation beam attenuation. Treatment machines for external beam radiotherapy. External photon beam and dose quantities. Photon beam measurements and calibrations and treatment dose calculations. Photon beam modification for treatment dose optimisation. Electron interaction with matter and electron therapy. Radiotherapy quality assurance of external beam units and treatment planning systems. Radiation protection and shielding and personnel monitoring. Imaging in radiation oncology. Radiation physics principles of three dimensional conformal radiation therapy and intensity modulated radiation therapy. Procedures and processes involved in Stereotactic radiotherapy and stereotactic radiosurgery. Radiation physics principles of Brachytherapy. Principles of total body irradiation. Radiation interactions in proton and neutron therapy,

General Academic Regulations and Student Rules

The [General Academic Regulations \(G Regulations\)](#) and [General Student Rules](#) apply to all faculties and registered students of the University, as well as all prospective students who have accepted an offer of a place at the University of Pretoria. On registering for a programme, the student bears the responsibility of ensuring that they familiarise themselves with the General Academic Regulations applicable to their registration, as well as the relevant faculty-specific and programme-specific regulations and information as stipulated in the relevant yearbook. Ignorance concerning these regulations will not be accepted as an excuse for any transgression, or basis for an exception to any of the aforementioned regulations. The G Regulations are updated annually and may be amended after the publication of this information.

Regulations, degree requirements and information

The faculty regulations, information on and requirements for the degrees published here are subject to change and may be amended after the publication of this information.

University of Pretoria Programme Qualification Mix (PQM) verification project

The higher education sector has undergone an extensive alignment to the Higher Education Qualification Sub-Framework (HEQSF) across all institutions in South Africa. In order to comply with the HEQSF, all institutions are legally required to participate in a national initiative led by regulatory bodies such as the Department of Higher Education and Training (DHET), the Council on Higher Education (CHE), and the South African Qualifications Authority (SAQA). The University of Pretoria is presently engaged in an ongoing effort to align its qualifications and programmes with the HEQSF criteria. Current and prospective students should take note that changes to UP qualification and programme names, may occur as a result of the HEQSF initiative. Students are advised to contact their faculties if they have any questions.