



Medical Physics Honours Programme

(MH002RAY02)

Programme Convener: Dr Annemari Groenewald (Department of Radiation Medicine)

The Medical Physics Honours programme is structured to allow for the academic teaching of students wishing to enter into a Medical Physics Intern training programme. Internships are governed by HPCSA regulation, and require students to have an Honours or equivalent degree, with specific medical physics subjects as part of the course.

Admission criteria:

Entrance requirement is a BSc degree with a major in Physics. Normally the following criteria are used:

A pass of at least 60% third year Advanced Physics and a pass of at least 60% in second year Mathematics and Applied Mathematics, and in cases where the Head of Division of Medical Physics deems it necessary, favourable referee reports.

Where an applicant applies only for the Medical Physics courses as an occasional student (RAY4014W, RAY4015W, RAY4016W, RAY4017W, RAY4018W, RAY4019W), and has obtained the BSc Hons in Physics more than 5 years previously, an investigation in liaison with the UCT Physics Department will first be conducted into the course content of the completed courses in order to facilitate access to the programme. Where relevant, work experience may be assessed in addition to the course outlines.

Applicants who meet the minimum requirements will write an admissions test, with a pass rate of at least 60%.

[Note: Students who obtained both a BSc Physics and/or BSc(Hons) in Physics within 10 years prior to application: A limited number of student places are available, and selection is highly competitive.]

Programme structure and outline:

The qualification is designed to teach students the fundamentals and advanced knowledge of Medical Physics, as applied in Radiotherapy, Nuclear Medicine, Radiology and Radiation Protection, as well as prepare them for the scope of practice of a modern-day medical physicist. The qualification as a whole, or equivalently a BSc(Hons) Physics with the six Medical Physics courses as addenda, allows for registration as a Medical Physics intern with the HPCSA.

Curriculum outline:

Students who are already in possession of an appropriate BSc Honours degree in physics, may choose to only complete the courses required by the HPCSA for registration as Medical Physics Intern, by registering for the six Medical Physics courses, namely RAY4014W, RAY4015W, RAY4016W, RAY4017W, RAY4018W, RAY4019W (one year only).

The Medical Physics courses are offered through 20 lectures and 5 tutorials or practical assignments (or equivalent thereof) each.

Code	Course	NQF credits	HEQSF Level
RAY4025W	Modern Physics for Medical Physicists		
	Nuclear Physics	9	8
	Applied Quantum Mechanics	9	8
RAY4014W	The Physics of Diagnostic Radiology	9	8
RAY4015W	The Physics of Nuclear Medicine	9	8
RAY4016W	The Physics of Radiotherapy	9	8
RAY4017W	Radiation Protection and Dosimetry	9	8
RAY4018W	Radiotherapy Treatment Planning	9	8
RAY4019W	Radiobiology and Cancer Biology	9	8
RAY4026W	Clinical and Advanced Techniques	9	8
HUB4045F	Introduction to Medical Imaging and Image Processing	12	8
RAY4020W	Medical Physics Research Project	30	8
Total credits per year:		123	

DP requirements:

Only students who have received a duly performed certificate (DP) shall be allowed to write examinations. The DP criteria are:

COURSE CODE	DP requirement
RAY4014W	A minimum year mark of 45% for continuous coursework assessment, for each course. The year mark is calculated from a 30% contribution from tutorials/practical assignments and 70% from the test, except for RAY4018W (Radiotherapy Treatment Planning), where the year mark is calculated from a 40% contribution from practical assignments and 60% from the test.
RAY4015W	
RAY4016W	
RAY4017W	
RAY4018W	
RAY4019W	
RAY4026W	
HUB4045F	A class average of 40% shall be obtained for the course (As per Biomedical Engineering Dept rules).
RAY4020W	A class record average of all Research Project components completed prior to final presentation of the project shall be at least 40%.
RAY4025W	A class average of at least 40% obtained for each module.

Assessment and progression rules:

Students are required to pass all courses in order to qualify for graduation.

COURSE CODE	Assessment
RAY4014W	Continuous coursework and a final summative assessment of each of the courses take place throughout and at the conclusion of each course. The coursework assessment includes tests, assessment of tutorial participation, group-work, and practical assignments. The final summative assessment involves an integrated examination for each of the courses, moderated by an external examiner. The weighting of the final result is 50% coursework (year mark) and 50% examination. A minimum of 50% in the final mark is required for each of these courses, with a minimum of 45% in the exam. In the case where a student's year mark is between 40% and 45%, the student may gain access to a reassessment opportunity, to achieve a 45% year mark (DP), and thereby gain access to the examination in the course. Students who achieve at least 45% in the examination but who fail a course (final mark of less than 50%) may gain access to a reassessment before the final mark is submitted to the Faculty Examinations Committee for approval.
RAY4015W	
RAY4016W	
RAY4017W	
RAY4018W	
RAY4019W	
RAY4026W	

	<p>Students with a final mark of 50% or higher, but with an exam mark of between 40% and 45%, will need to complete a reassessment if access is gained.</p> <p>Students who achieve 50% or more for the reassessment will be allocated 50% as the final course mark.</p> <p>Students who achieve less than 50% for the reassessment, or whose final marks are less than 50%, will fail the course.</p> <p>Reassessments will only be granted at the discretion of the HOD, and limited to 1 reassessment per student per course, i.e. either for DP or exam.</p>
HUB4045F	The assessment is through assignments, written assessment and/or a final project. (As per Biomedical Engineering Dept rules).
RAY4020W	The research project mark comprises marks for the protocol, for the literature review, for the execution of the research, and for the write-up and presentation of the results.
RAY4025W	A minimum of 50% average is required for the course, with no individual module within the course receiving a mark below 30%.

Readmission criteria:

Readmission shall only be granted at the discretion of the Head of Department.