



# University of Pretoria Yearbook 2020

## Diagnostic radiographic science 100 (RSC 100)

<b>Qualification</b>	Undergraduate
<b>Faculty</b>	<a href="#">Faculty of Health Sciences</a>
<b>Module credits</b>	15.00
<b>Programmes</b>	<a href="#">BRad in Diagnostics</a>
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	1 discussion class per week, 1 tutorial per week, 2 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Radiography
<b>Period of presentation</b>	Year

### Module content

Introduction: Discovery of x-rays, processing principles, handling of x-ray equipment. x-ray beam: production of x-rays, attenuation.

Properties of X Rays: importance and influence of Bremsstrahlung and Characteristic radiation on Imaging and Dose, Electron Energy, Target Material, Influence of Filtration. X-Ray Projection Imaging Concepts: Geometry, Radiographic Contrast, Scatter and Scatter Reduction (Control of scatter radiation: production of scatter, effect of scattered radiation on the image, beam restriction devices, grids and grid efficiency), Artefacts and Image Degradation.

Radiographic Detectors: Intensifying Screen and Film (, cassettes, intensifying screens, efficiency of rare earth intensifying screens and x-ray film construction), Computed Radiography (CR), Direct Digital Radiography (DDR), Indirect Digital Radiography (IDR).

Principles of conventional and digital radiography image optimisation – Primary exposure factors: mAs, kVp and SID. AEC.(factor which influence the production and recording of images); Principles of technique charts  
Conventional Image processing: darkrooms Image Representations: Contrast, Spatial Resolution, Noise, Temporal Resolution, Sampling and Quantization

Introduction to quality assurance in radiographic imaging. Introduction to radiation protection for patient, personnel and public- radiation units, detection and measurement, radiation dose equipment and area survey. Regulations and operation of radiation equipment. Introduction to digital imaging system.

The information published here is subject to change and may be amended after the publication of this information. The [General Regulations \(G Regulations\)](#) apply to all faculties of the University of Pretoria. It is expected of students to familiarise themselves well with these regulations as well as with the information contained in the [General Rules](#) section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.