



University of Pretoria Yearbook 2020

Diagnostic radiographic science 100 (RSC 100)

Qualification	Undergraduate
Faculty	Faculty of Health Sciences
Module credits	15.00
Programmes	BRad in Diagnostics
Prerequisites	No prerequisites.
Contact time	1 discussion class per week, 1 tutorial per week, 2 lectures per week
Language of tuition	Module is presented in English
Department	Radiography
Period of presentation	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.

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