



# University of Pretoria Yearbook 2018

## Radiation physics 310 (RFI 310)

**Qualification** Undergraduate

**Faculty** [Faculty of Natural and Agricultural Sciences](#)

**Module content** Computed tomography: CT generations. Equipment: x-ray tube, collimators, detectors. Image reconstruction: fundamental equations, algorithms. Image properties: field size, image matrix, voxel, pixel, CT number, window width and height. Image quality: spatial resolution, contrast resolution, quantum mottle, spatial uniformity and frequency. Image processing: edge enhancement, pixel shifting and subtraction. Digital radiography: X-ray, equipment, analogue to digital conversion, linear and logarithmic subtraction, image noise. Ultrasound: theory, transducers, piezo-electric crystals, resonant frequency, interaction with matter, acoustic impedance, Doppler techniques. Magnetic resonance: medical applications.

**Module credits** 10.00

**Programmes** [BRad Diagnostics](#)

**Service modules** Faculty of Health Sciences

**Prerequisites** FSG 251, RFI 210, RAW 281, RBG 281, RAN 280, RAW 282, FSG 252, FSG 262, RAW 284 and RFI 211

**Contact time** 3 lectures per week

**Language of tuition** Module is presented in Afrikaans

**Department** Physics

**Period of presentation** Semester 1

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