RTS4000 PHYSICS AND INSTRUMENTATION 1

Leader: Dr Ray Budd
Credit points: 6
Prerequisites: Admission to the course
Co-requisites: RTS4010 and NMS4021

Synopsis:
This unit will instruct students in the areas of: introductory radiation protection, fundamentals of radiation physics and applied mathematics, radioactivity, radiation detection and spectroscopy, interaction of radiation with matter, radionuclide production, basic operation principles of the Gamma Camera and nuclear counting statistics.

Objectives:
On successful completion of this unit, students will be able to:

1. Discuss the principles of radiation protection applicable to the medical use of ionising radiation;
2. Explain the scientific concepts of atomic structure and radioactivity;
3. Describe the various types and sources of ionising radiation;
4. Recognise and explain the design features and operation principles of different types of radiation detectors;
5. Explain the physical processes involved in the interaction of radiation with matter; and
6. Comprehend and explain the principles of image formation with the Gamma Camera.

Assessment:
Two 1500 word assignments (30%) + one three hour written examination (70%).