Access to Higher Education Unit

This unit forms part of an Access to HE Diploma. If delivering the graded version of this unit, please refer to the Provider Handbook for details on grading descriptors and the application of these across units within your programme.

Unit Title: X-ray Spectra and Medical Uses of X-rays

Graded Unit Reference Number: GA33PHY02

Ungraded Unit Reference Number: UA33PHY02

Module: Physics; Science for Health

Level: Three (3)

Credit Value: Three (3)

Minimum Guided Learning Hours: 30

Learning Outcome (The Learner will):	Assessment Criterion (The Learner can):
1. Understand the production of X-rays and the operation of the X-ray tube	1.1 Describe two mechanisms for the production of X-rays and relate these to X-ray spectra (continuous and line spectra)
	1.2 Using a diagram describe the structure of an X-ray tube
	1.3 Describe the production of X-rays by a rotating anode tube
	1.4 Explain the importance of reducing exposure dose and time and describe mechanisms for achieving this
	1.5 Interpret graphs relating X-ray spectra to tube voltage, tube current and target material
2. Understand the mechanisms and significance of attenuation	2.1 Define attenuation and explain attenuation of X-rays by scatter, the photo-electric effect, Crompton scatter and pair production
	2.2 Describe how attenuation effects correlate with photon energy, transmission material and distance travelled
	2.3 Explain the significance of attenuation for conventional medical X-ray imaging

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3.	Understand developments in the medical applications of X-rays	3.1	Explain the principle of computer aided tomography and the advances that led to the development of the CAT scanner
		3.2	Explain the use of X-rays in radiotherapy

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