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MODULE DESCRIPTOR

Module Title

Radiation Science

Reference	HS1067	Version	6
Created	December 2018	SCQF Level	SCQF 7
Approved	July 2017	SCQF Points	15
Amended	June 2019	ECTS Points	7.5

Aims of Module

The aim of the module is to provide the student with a basic understanding of the physical principles which underpin radiographic imaging. The module will also enable the student to understand how x-rays interact with matter and the radiation safety implications of working with medical radiations.

Learning Outcomes for Module

On completion of this module, students are expected to be able to:

- 1 Describe the radiographic science and technology that underpins the production of plain radiographic images.
- 2 Describe radiation protection, radiation safety and health and safety within radiography utilising library searching mechanisms to acquire relevant evidence.

Indicative Module Content

The production of the X-ray beam, its interactions with matter and the factors which affect the quality and quantity of the X-ray beam. Energy and energy transfer. The electromagnetic spectrum. Structure of the atom. Basic radioactivity. Thermionic emission. X-ray production. Characteristic spectrum and line spectra. Quantity and quality of an x-ray beam. Beam collimation and geometry. The diagnostic x-ray tube. X-ray interactions with matter. The ALARP principle. Radiation safety and radiation protection. CR, DR, PACS and RIS systems.

Module Delivery

The module is delivered by blended learning and involves lectures, tutorials, student centred seminars and laboratory sessions with directed and private study.

Indicative Student Workload

	Full Time	Part Time
Contact Hours	N/A	40
Non-Contact Hours	N/A	110
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	N/A	150
<i>Actual Placement hours for professional, statutory or regulatory body</i>		

ASSESSMENT PLAN

If a major/minor model is used and box is ticked, % weightings below are indicative only.

Component 1

Type: Coursework Weighting: 100% Outcomes Assessed: 1, 2
 Description: The module will be assessed by coursework.

MODULE PERFORMANCE DESCRIPTOR**Explanatory Text**

One piece of coursework will be used to assess all module learning outcomes.

Module Grade	Minimum Requirements to achieve Module Grade:
A	A
B	B
C	C
D	D
E	E
F	Fails to meet the minimum requirements for an E
NS	Non-submission of work by published deadline or non-attendance for examination

Module Requirements

Prerequisites for Module	None, in addition to course entry requirements.
Corequisites for module	None.
Precluded Modules	None.

INDICATIVE BIBLIOGRAPHY

- 1 BALL, J. and MOORE, A. D., 2008. *Essential Physics for Radiographers*. 4th ed. Oxford: Blackwell Science.
- 2 GRAHAM, D. T. and Cloke, P., 2012. *Principles of Radiological Physics*. 6th ed. Edinburgh: Churchill Livingstone.
- 3 SHERER, M.A.S., VISCONTI, P.J., RITENOUR, E.R. & HAYNES, K., 2017. *Radiation protection in medical radiography*. 8th ed. St. Louis: Mosby.
- 4 DEPARTMENT OF HEALTH (DOH), 2017. Ionising radiation (medical exposure) regulations. Norwich:DOH. / REGULATION AND QUALITY IMPROVEMENT AUTHORITY (RQIA), 2018. Ionising radiation (medical exposure) regulations (Northern Ireland). Belfast: RQIA.
- 5 HEALTH AND SAFETY EXECUTIVE (HSE), 2017. Ionising radiation regulations. London: HSE. / HEALTH AND SAFETY EXECUTIVE NORTHERN IRELAND (HSENI), 2017. Ionising radiation regulations (Northern Ireland). Belfast: HSENI.