

Module Specification

Module Summary Information

1	Module Title	Physics for Radiography Practitioners
2	Module Credits	20
3	Module Level	4
4	Module Code	HSC4080

5	Module Overview
<p>Rationale</p> <p>This module is essential to enable your understanding of the theory and practical applications of physics in the context of radiography or radiotherapy. Radiation physics and the safe and legal use of ionising radiation is an essential aspect of the radiation disciplines. It involves the underlying principles of the nature of matter and associated principles and how that relates to radiation production and attenuation its application to imaging and therapeutic modalities. You will develop your understanding of the underpinning aspects of physics related to radiography and radiotherapy. That will form the basis for developing your understanding of the production and attenuation of ionising radiation and its effects. You will also gain a comprehensive body of knowledge of radiation protection as specified in current legislation which will help develop your understanding of the necessity for the safe use of ionising radiation technologies in health care practice.</p> <p>This module includes the basics of radiation physics applicable to radiography and radiotherapy. The content is essential to those undertaking clinical practice in these areas such that on successful completion of the module they will have demonstrated an understanding of the principles and application of radiological physics and the regulations pertaining to this practice.</p> <p>It is essential that this module content is covered at the beginning of the degree programme to ensure that the use of radiation, the regulation and safety aspects are covered before students undertake any substantive clinical practice.</p> <p>Alignment with Philosophy and Aims</p> <p>The Foundation Degree Health and Social Care programme is committed to developing workers who will be compassionate, caring, knowledgeable and productive members of inter-professional teams, with the ability to be adaptable and flexible in order to respond to the ever changing needs and priorities of the services we support.</p> <p>During this Module you will investigate role the knowledge and skills required to support your individual working roles and therefore benefit your service users. You will develop into an individual that can influence the quality of care delivered and disseminate good practice within your organisation.</p> <p>Learning and Teaching Strategy</p> <p>You will be taught through a variety of learning methods in this module. This includes lectures, tutorials and the provision of a range of resources via the module Moodle site. This will include, documents, resource links, articles, quizzes and exercises, audio files of the session content and example assessment questions. It is important that you attend each session as the complexity will build throughout the module, building upon the previous sessions. Tutorials are available as required. It is important that you ask for support (before the assessment) if you feel that you do not understand the material delivered.</p>	

Assessment Strategy

The assessment for this module will be via examination. The reason for this is that it is essential to assess your breadth of understanding and knowledge and your recall of the principles of physics associated with radiography and essential for safe clinical practice. The Statutory Instrument, IRMER 2000, Schedule 2, requires a breadth of material is covered and assessed; therefore an examination is the most appropriate for this content. It will cover learning outcomes 1 and 2.

6 Indicative Content

This section covers indicative subject matter only.

Atomic Structure.
 Electricity and Magnetism.
 Electromagnetic Radiation.
 X-Ray Production.
 X-Ray Spectrum.
 X-Ray Attenuation.
 X-Ray Interactions.
 Inverse Square Law.
 Radiation Units.
 Radiobiological effects.
 Radioactivity.
 Radioactive Emissions.
 CT, MRI and digital radiography.
 Radiation Protection.
 Radiation Regulations IRR 17 & IRMER 2018.
 Measurement of Radiation; chambers, diodes and TLDs.

7 Module Learning Outcomes

On successful completion of the module, students will be able to:

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| 1 | Explain your understanding of the underpinning physics concepts associated with radiography / radiotherapy. |
| 2 | Demonstrate knowledge and understanding of the applications of the effects of ionising radiation, methods of measurement and the current ionising radiation regulations essential to your safe practice and radiation protection. |

8 Module Assessment

Learning Outcome	Coursework	Exam	In-Person
1,2		x	

9 Breakdown Learning and Teaching Activities	
Learning Activities	Hours
Scheduled Learning (SL) includes lectures, practical classes and workshops, peer group learning, Graduate+, as specified in timetable	33
Directed Learning (DL) includes placements, work-based learning, external visits, on-line activity, Graduate+, peer learning, as directed on VLE	30
Private Study (PS) includes preparation for exams	137
Total Study Hours:	200