



Module Specification

Introduction to Radiation Physics and Safety

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Part 1: Information

Module title: Introduction to Radiation Physics and Safety

Module code: USSJRC-45-1

Level: Level 4

For implementation from: 2024-25

UWE credit rating: 45

ECTS credit rating: 22.5

College: College of Health, Science & Society

School: CHSS School of Applied Sciences

Partner institutions: None

Field: Applied Sciences

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: Yes

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: This introductory module aims to equip apprentices with a comprehensive understanding of the Physics, Biology and Mathematics relevant to the role of a Medical Physics Technologist.

Features: Not applicable

Educational aims: The overall aim of this introductory module is to provide apprentices with a broad knowledge and understanding of the underlying physics,

biology and mathematical principles relevant to the area of medical physics technology.

As an introductory module it will provide an overview and reinforcement of key concepts with respect to the production, use and measurement of radiation in medicine and how to work safely in a radiation environment.

Outline syllabus: This module is designed to provide apprentices with an introduction to the key scientific knowledge required to underpin their future practice, and to provide the foundations for study in medical physics technology. The syllabus will include an introduction to:

- sources of radiation.
- the properties of radiation.
- the interactions of radiation with matter.
- the biological effects of radiation.
- the measurement of radiation.
- radiation safety.

Part 3: Teaching and learning methods

Teaching and learning methods: This module will be delivered via a blended approach of on-campus practical and skills development activities held during block release weeks, and online lectures, seminars and tutorials, held throughout the academic year

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Identify and explain the sources and properties of radiation, including using appropriate mathematical techniques.

MO2 Describe and explain the interaction of radiation with matter, including the associated biological effects, and using appropriate mathematical techniques.

MO3 Describe and explain the measurement of different types of radiation.

MO4 Understand and communicate the principles of safe working in a radiation environment.

Hours to be allocated: 450

Contact hours:

Independent study/self-guided study = 150 hours

Face-to-face learning = 60 hours

Total = 210

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/ussjrc-45-1.html) via the following link <https://uwe.rl.talis.com/modules/ussjrc-45-1.html>

Part 4: Assessment

Assessment strategy:

The assessments within this module will allow the apprentices to demonstrate their knowledge of radiation physics principles and how these are applied in the hospital.

Assessment 1: Online Assignment

5 20 minutes tests where (best 4 marks will be counted, as an inclusive measure to support students with short term absence). The tests will be a mixture of online and in-class (block week). Short tests have been selected to encourage the apprentices to engage and to ensure they understand the material as it is built upon throughout the module. Apprentices will be supported to succeed in these tests via the provision of similar practice questions ahead of the tests. Formative feedback will be provided through the practice tests.

Assessment 2: Presentation

Apprentices will prepare and present instructional material for new apprentices, focusing on working safely in a radiation environment. There will be 10 minutes for the presentation and 5 minutes of subsequent questions. This will develop communication skills essential for a Medical Physics Technologist and deepen their

understanding of the core scientific principles. They will be supported in preparing for this through peer group presentations and formative quizzes throughout the module.

Assessment tasks:**Presentation (First Sit)**

Description: 10 minute presentation with 5 minutes Q+A.

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO4

Online Assignment (First Sit)

Description: A series of 20 minute tests.

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Presentation (Resit)

Description: 10 minute presentation with 5 minutes Q+A.

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO4

Online Assignment (Resit)

Description: A series of 20 minute tests.

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Healthcare Science (Nuclear Medicine) {Apprenticeship-UWE} [Frenchay] BSc
(Hons) 2024-25

Healthcare Science (Radiation Physics) {Apprenticeship-UWE} [Frenchay] BSc
(Hons) 2024-25

Healthcare Science (Radiotherapy Physics) {Apprenticeship-UWE} [Frenchay] BSc
(Hons) 2024-25