# 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:** 2026-27

**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:** This module is available as CPD.

**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

Staff-guided learning = 60 hours

**Reading list:** The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://uwe.rl.talis.com/index.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: In-class test.
Apprentices will undertake a 2-hour in-class test administered during an on-campus teaching block designed to assess their knowledge of sources of, biological interaction with, measurement of and safe working with radiation, which will be fundamental to their successful and safe practice at Level 5. Apprentices will be supported through formative quizzes using the same type and complexity of question and formative feedback will be provided through the practice quizzes.

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

**In-class test** (First Sit)
Description: In-class test (2 hours).
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

**In-class test** (Resit)
Description: In-class test (2 hours).
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 (Radiation Physics) {Apprenticeship-UWE} [Frenchay] BSc (Hons) 2026-27

Healthcare Science (Nuclear Medicine) {Apprenticeship-UWE} [Frenchay] BSc (Hons) 2026-27

Healthcare Science (Radiotherapy Physics) {Apprenticeship-UWE} [Frenchay] BSc (Hons) 2026-27