



Module Specification

Science and Instrumentation in Diagnostic Imaging

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Part 1: Information

Module title: Science and Instrumentation in Diagnostic Imaging

Module code: UZYS1N-15-2

Level: Level 5

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Health & Applied Sciences

Department: HAS School of Health and Social Wellbeing

Partner institutions: None

Field: Allied Health Professions

Module type: Module

Pre-requisites: None

Excluded combinations: Intermediate Diagnostic Imaging Studies 2023-24

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Not applicable

Features: Not applicable

Educational aims: See learning outcomes.

Outline syllabus: Practical radiation applications:

Sources of Radiation Industrial and medical uses of radiation

Radiation dosimetry, dosimeters, and detectors

Digital Imaging:

Computerised Radiography and Digital Radiography systems

Post-processing of digital images

Digital Imaging and Communication in Medicine (DICOM)

Patient Archiving and Communication Systems (PACS) and networking topologies

Teleradiography

Data security

Radiographic equipment:

A range of imaging equipment used for imaging patients for non-complex and specialist examinations e.g. accident and emergency; mammography; neuroradiography; interventional procedures; operating theatre and mobile radiography; patients with special needs (children, elderly, pregnancy, physically challenged)

Application of Radiographic Equipment:

Evaluate the technical performance and the "fitness for role" of radiographic equipment, and alternative imaging modality/ies (e.g. ultrasound, nuclear medicine and PET, CT, MRI, digital radiography)

Quality and safety issues:

quality assurance testing, safety devices, automatic exposure devices

Health and safety issues:

e.g. radiation protection, Infection control, manual handling

Part 3: Teaching and learning methods

Teaching and learning methods: Scheduled learning lectures, seminars, tutorials, practical classes

Independent learning includes hours engaged with essential reading, case study preparation, practical session preparation. These sessions constitute an average time per level as indicated in the table below.

36 contact hours will be achieved via blended learning.

There will be 36 hours of scheduled learning to include lectures, seminars and practical sessions

Students will also be required to engage with independent learning, including subject specific vodcasts with associated self-directed learning tasks, directed reading, reflective writing and engagement with online activities including Shaderware.

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

MO1 Demonstrate a critical understanding and application of the theoretical principles underpinning diagnostic imaging and image processing

MO2 Analyse the technical performance and fitness for role of diagnostic imaging equipment

MO3 Critically evaluate the comparative radiation dose in the utilisation of different imaging equipment

MO4 Discuss the role of the radiographer in the context of quality assurance and service provision

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Total = 150

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/uzys1n-15-2.html) via the following link <https://uwe.rl.talis.com/modules/uzys1n-15-2.html>

Part 4: Assessment

Assessment strategy: Online Examination (with 24 hour submission window)

The examination will allow the student to demonstrate a depth and breadth of knowledge and understanding around the fitness for the role of imaging equipment, quality assurance, and health and safety issues associated with diagnostic imaging.

Assessment tasks:

Examination (Online) (First Sit)

Description: Online Examination (24 hour submission window)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Examination (Online) (Resit)

Description: Online Examination (24 hour submission window)

Weighting: 100 %

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: