



Module Specification

Physical Sciences and Imaging Technology 2

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Part 1: Information

Module title: Physical Sciences and Imaging Technology 2

Module code: UZYKGV-30-2

Level: Level 5

For implementation from: 2022-23

UWE credit rating: 30

ECTS credit rating: 15

Faculty: Faculty of Health & Applied Sciences

Department: HAS Dept of Allied Health Professions

Partner institutions: None

Delivery locations: Glenside Campus

Field: Allied Health Professions

Module type: Standard

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: The purpose of this module is to provide the underpinning knowledge and critical understanding of the variety of specialised equipment used in the imaging of anatomical systems.

Features: Not applicable

Educational aims: The module content also encourages the critical comparison of equipment delivering ionising and non-ionising radiation for the purpose of producing diagnostic images. During this module there are practical sessions which enable students to undertake diagnostic imaging Quality Assurance tests for plain imaging and Computed Tomography (CT) equipment leading to the provision of a report.

Outline syllabus: Practical radiation applications:

Radiation dosimetry, dosimeters, and detectors

Digital Imaging:

Computed 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

Tele-radiography

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 purpose" of radiographic equipment, and alternative imaging modalities (e.g. ultrasound, nuclear medicine and Positron Emission Tomography (PET), CT, Magnetic Resonance Imaging (MRI), digital radiography)

Quality and safety issues:

Quality assurance testing, safety devices, automatic exposure devices

Health and safety issues (e.g. radiation protection)

Part 3: Teaching and learning methods

Teaching and learning methods: See Educational Aims

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 equipment.

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 Demonstrate the impact of the radiographer in the context of quality assurance and service provision.

Hours to be allocated: 300

Contact hours:

Independent study/self-guided study = 228 hours

Face-to-face learning = 72 hours

Total = 300

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link

<https://rl.talis.com/3/uwe/lists/6DE8E0D8-15ED-7B56-5765-61BF80DFFADB.html>

Part 4: Assessment

Assessment strategy: Component A: 1.5 hour exam

Rationale: 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 (under controlled conditions).

Component B: 2000 word report of Quality Assurance testing

Rationale: The process of carrying out a practical session of Quality Assurance (QA) testing on a piece of CT/Plain imaging equipment enables the application of theory to practice in the compliance of the Ionising Radiation Regulations (IRR) 2017. The completion of a written report of the QA testing enables students to demonstrate that they are able to undertake, analyse and propose actions on the results of imaging quality checks.

Formative Assessment

There will be QA worksheets and activities to prepare the data for the report. There will also be test questions and a mock exam paper available to enable practice to occur in preparation for the exam.

Assessment components:

Examination - Component A (First Sit)

Description: 1.5 hour exam

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO4

Report - Component B (First Sit)

Description: 2000 word Quality Assurance report

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO3

Examination - Component A (Resit)

Description: 1.5 hour exam

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO4

Report - Component B (Resit)

Description: 2000 word Quality Assurance report

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Diagnostic Radiography [Sep] [FT] [Glenside] [3yrs] BSc (Hons) 2021-22