Module Specification

Computed Tomography Technology

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Contents

Part 1: Information

Module title: Computed Tomography Technology

Module code: UZYRMW-15-M

Level: Level 7

For implementation from: 2024-25

UWE credit rating: 15

ECTS credit rating: 7.5

College: College of Health, Science & Society

School: CHSS School of Health and Social Wellbeing

Partner institutions: None

Field: Allied Health Professions

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: Yes

Professional, statutory or regulatory body requirements: Accredited by the College of Radiographers

Part 2: Description

Overview: This module has been developed to support professionals using CT technology. It aims to enhance practice by expanding knowledge of the physical principles, image quality, and safety considerations specific to CT.

Features: Module Entry Requirements: Radiography professional qualification or relevant clinical Computed Tomography (CT) experience with an estimate of at least 10 hours per week in clinical practice.

Educational aims: This distance learning module aims to enhance your practice by increasing your knowledge of the physical principles and safety issues of CT. This module covers the safety aspects and clinical governance of CT , so producing competent and proficient professionals This will enable you to apply this knowledge clinically in a safe and appropriate manner that offers a quality service to patients.

Outline syllabus: The syllabus will typically include:

The physical principles underlying x-ray generation in CT, attenuation and beam quality; detector systems, collimators and filtration; scan modes

Exposure parameters and their impact on image appearances

Image reconstruction and quality

Artefacts and artefact reduction

Hounsfield values and windowing

Post processing techniques.

Cross sectional anatomy

Quality Assurance and control tests in CT, reasoning behind tests, protocols and current legal and recommended requirements of such.

CT Contrast media

Safe working practice:

CT examination dosimetry

Radiation protection (patient and staff), current regulations and other relevant legislation, and guidelines

Dose modulation principles and application to clinical practice.

Part 3: Teaching and learning methods

Teaching and learning methods: The module will typically be delivered using a blended approach of online lectures and tutorials, online materials, to facilitate learning.

Lectures will introduce the students to the physical principles of CT technology and the clinical applications of CT.

Additional lectures by recognised experts will expose the students to current CT

technology and its applications in clinical practice and challenge the students thinking on existing practice.

Directed study based on critiquing up to date literature and practice will be used to further stimulate the students learning. The virtual learning environment (VLE) will be used to support the student's learning and to facilitate sharing and collaboration in problem solving.

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

MO1 Demonstrate a critical understanding of the physics, technology, and safety principles of computed tomography, including relevant legislation and clinical protocols.

MO2 Critically evaluate CT image quality, applying quality assurance principles to ensure clinical safety and effectiveness.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 134 hours

Face-to-face learning = 16 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/modules/uzyrmw-15-m.html

Part 4: Assessment

Assessment strategy: Assessment Task: 2300-word Radiation Dose and Quality Assurance (QA) Report and Critical Evaluation

Rationale:

This assessment aligns with the module's learning outcomes, integrating lecture content, vodcasts, and independent study. The QA Report requires students to document and critically evaluate CT radiation dose and Quality Assurance processes

within their clinical practice, focusing on the practical application of knowledge gained throughout the module.

Assessment Breakdown: The report will cover the following four key areas:

Parameter Selection and Justification

Quality Assurance and Image Quality Evaluation

CT Safety, Legislation, and Protocols Evaluation

Recommendations and Evidence-Based Improvements

Formative Opportunities:

Outline Submission Feedback: Students can submit an outline of their report for initial feedback from the module leader. This will help ensure they are on the right track and focused appropriately.

Discussion Forums: Engaging in forums will allow students to discuss report topics, share insights, and receive peer feedback to refine their ideas.

Students will be given the opportunity for formative feedback, for example, through the review of a proportion of their written submission or a plan.

These formative opportunities are designed to support students through the assessment process, providing valuable feedback and encouraging reflection to help improve their final work.

Assessment tasks:

Written Assignment (First Sit)

Description: Quality Assurance Programme Evaluation

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2

Written Assignment (Resit)

Description: Quality Assurance Programme Evaluation

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2

Part 5: Contributes towards

This module contributes towards the following programmes of study: