

Module Details	
Module Title	Computed Tomography
Module Code	RAD7007-C
Academic Year	2021/2
Credits	30
School	School of Allied Health Professions and Midwifery
FHEQ Level	FHEQ Level 7

Contact Hours	
Type	Hours
Lectures	30
Online Lecture (Synchronous)	13
Online Lecture (Asynchronous)	15
Interactive Learning Objects	30
Seminars	6
Online Tutorials (Synchronous)	2
Directed Study	100
Independent Study	103
Project Supervision	1

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Non-Standard Academic Year

Module Aims
To enable the student to gain a comprehensive understanding of the physical principles and technology that underpins the acquisition, production and presentation of computed tomographic (CT) images and to develop the students ability to critically analyze and evaluate a broad range of CT imaging applications and protocols.

Outline Syllabus

The syllabus will 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. To include 2D, 3D and virtual endoscopy; radiation dose and safety issues; anatomy, physiology and pathology; clinical CT imaging of the head, thorax, abdomen & pelvis and routine CT scanning protocols for all anatomical areas; the role of CT in oncology; the role of CT for imaging the respiratory, bowel, renal and vascular systems; the use of contrast agents in CT; the role of CT in the diagnostic pathway of the patient; guidelines from professional bodies and other organisations; image appearances; critical appraisal of published literature.

Learning Outcomes

Outcome Number	Description
01	Critically reflect on the relationship between the physical principles of computed Tomography (CT) and the design and applications of CT technology.
02	Critically appraise a broad range of CT applications and protocols.
03	Demonstrate independent thought in the critical analysis of CT images.
04	Critically evaluate published research and literature in CT imaging.
05	Critically evaluate CT protocols and reflect on their clinical suitability.
06	Communicate effectively with peers in writing in a professional manner.
07	Evaluate complex issues in a systematic and creative manner.
08	Critically reflect on own professional practice in order to recognise [their] own continuing professional development needs.

Learning, Teaching and Assessment Strategy

The module will use a variety of teaching methods including synchronous and asynchronous online lectures, seminars, on campus lectures and tutorials. These sessions will introduce the students to the principles of CT technology and clinical applications. External lecturers who are experts within their fields will also contribute to the module. The student's understanding will be further enhanced by problem solving and questioning during group seminars in the classroom or virtually. Directed study based on learning objectives interactions may include set reading, quizzes and different assessment for learning strategies. The virtual learning environment (VLE) will be used to support the student's learning and to facilitate sharing and collaboration in problem solving.

Achievement of the learning outcomes will be demonstrated through the completion of a closed book examination based on the physical principles (learning outcomes 1,2,3,6,7), a computer based OSIVE style exam to assess knowledge of image appearances and applications (learning outcomes 2,3,5) and a written case study (learning outcomes 1,4,6,7,8). OSIVE style assessment is a university based assessment, which will involve the students responding to questions based on case studies with accompanying medical images.

Mode of Assessment			
Type	Method	Description	Weighting
Summative	Computerised examination	Technology and principles of CT (1.45 Hrs)	40%
Summative	Computerised examination	Objective structured image viewing examination (OSIVE) with the use of a computer (1.45 Hrs)	40%
Summative	Coursework - Written	Assignment (1500 words)	20%

Reading List
To access the reading list for this module, please visit https://bradford.rl.talis.com/index.html

Please note:

This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.

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