

Module Details	
Module Title	Computed Tomography
Module Code	RAD7007-C
Academic Year	2020/1
Credits	30
School	School of Allied Health Professions and Midwifery
Subject Area	Radiography
FHEQ Level	FHEQ Level 7
Pre-requisites	N/A
Co-requisites	N/A

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

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Academic Year
BDA	University of Bradford / Non-Standard Academic Year
BDA	University of Bradford / Semester 2

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 be delivered using a blended approach of online lectures and tutorials, online materials, and on campus sessions to facilitate learning. Lectures (online and on campus) 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. The student's understanding will be further enhanced by problem solving and questioning during group tutorials in the classroom or virtually. 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. Achievement of the learning outcomes will be demonstrated through the completion of a written examination based on the physical principles (learning outcomes 1,2,3,6,7), an OSE style exam to assess knowledge of image appearances and applications (learning outcomes 2,3,5,), and a work-based project/case study (learning outcomes 1,4,6,7,8). OSE 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	Length	Weighting
Summative	Examination - Closed Book	Technology and principles of CT	1 hour 45 mins	40%
Summative	Computer-based assessment	Objective structured image viewing examination (OSIVE) with the use of a computer	1 hour 45 mins	40%
Summative	Coursework	Assignment (1500 words)	N/A	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.