

Computed Tomography

Module Code:	RAD7007-C
Academic Year:	2018-19
Credit Rating:	30
School:	School of Allied Health Professions and Midwifery
Subject Area:	Radiography
FHEQ Level:	FHEQ Level 7 (Masters)

Pre-requisites:

Co-requisites:

Contact Hours

Type	Hours
Lectures	70
Tutorials	26
Directed Study	204

Availability Periods

Occurrence	Location/Period
BDA	University of Bradford / Semester 1 (Sep - Jan)

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.

Module Learning Outcomes

On successful completion of this module, students will be able to...

- 1 Critically reflect on the relationship between the physical principles of computed Tomography (CT) and the design and applications of CT technology.
- 2 Critically appraise a broad range of CT applications and protocols.
- 3 Demonstrate independent thought in the critical analysis of CT images.
- 4 Critically evaluate published research and literature in CT imaging.
- 5 Critically evaluate CT protocols and reflect on their clinical suitability.
- 6 Communicate effectively with peers in writing in a professional manner.
- 7 Evaluate complex issues in a systematic and creative manner.
- 8 Critically reflect on own professional practice in order to recognise [their] own continuing professional development needs.

Learning, Teaching and Assessment Strategy

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. The student's understanding will be further enhanced by problem solving and questioning during group tutorials. Directed study based on critiquing up to date literature and practice will be used to further stimulate the students learning. The 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	Final Assess'
Summative	Examination - closed book	Technology and principles of CT	1.75 hours	40%	No
Summative	Coursework	1500 word assignment	0 hours	20%	No
Summative	Computer-based assessment	Objective structured image viewing examination (OSIVE) with the use of a computer	1.75 hours	40%	No

Legacy Code (if applicable)

HRP-701T

Reading List

To view Reading List, please go to [rebus:list](#).