

Magnetic Resonance Imaging

Module Code:	RAD7008-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

1) To enable the student to gain a comprehensive understanding of the physical principles and technology underpinning the acquisition, production and presentation of magnetic resonance (MRI) images and to develop the students ability to critically analyze and evaluate a broad range of magnetic resonance (MRI) imaging applications and protocols. 2) To develop the student's ability to comment on normal and variant anatomy seen in common MRI examinations.

Outline Syllabus

The syllabus will include: physical principles underlying MR image production; overview of contrast mechanisms and image weighting; pulse sequences routinely used in clinical

practice included variant of spin and gradient echo; contrast agents used in MRI; MRI safety in practice; instrumentation; factors that influence image quality; artefacts and their compensation including motion related artefacts; principles of magnetic resonance angiography (MRA); anatomy, physiology and pathology; the role of MR in the diagnostic pathway of the patient; guidelines from professional bodies and other organisations; routine MR scanning protocols for all anatomical areas; parameters and their impact on image appearances and quality; image appearances; introduction to optimisation of protocols to produce diagnostic images; 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 magnetic resonance imaging (MRI) to the design and applications of MRI technology.
- 2 Critically appraise a broad range of MRI applications and technology.
- 3 Demonstrate independent thought in the critical analysis of MR images.
- 4 Critically evaluate published research and literature in MR imaging.
- 5 Critically evaluate MR protocols and reflect on their clinical suitability.
- 6 Demonstrate professional effective communications skills.
- 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 MRI technology and the clinical applications of MRI, delivered by Faculty experts with support from the technical and clinical fields. Students will be exposed to current MRI technology and its applications in clinical practice, encouraging reflection on their existing practice. Tutorials will be used to facilitate peer learning and directed study based on critiquing up to date literature and practice will be used to further stimulate the students learning. Technology will be used to support and facilitate sharing and collaboration in problem solving. The teaching and assessment strategy will develop the student's level 7 research skills in preparation for the final stages of the MSc programme, and provide opportunities for formative feedback (peer, tutor and self).

Achievement of the learning outcomes will be demonstrated through the completion of a written examination based on the physical principles, (learning outcomes 1,6) an OSE style exam to assess knowledge of image appearances and applications (learning outcomes 2,3,5,6) 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 in writing to written questions based on case studies, with accompanying medical images.

Mode of Assessment

Type	Method	Description	Length	Weighting	Final Assess'
Summative	Written examination with use/sight of computer	Objective structured image viewing examination (OSIVE) with the use of a computer	1.75 hours	40%	No
Summative	Examination - closed book	Technology and Principles of MRI	1.75 hours	40%	No
Summative	Coursework	1500 word assignment	0 hours	20%	No

Legacy Code (if applicable)

HRP-702T

Reading List

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