UNIVERSITY of BRADFORD

Faculty of Health Studies

Programme Specification

Programme title: MSc Medical Imaging

Academic Year:	2022-23
Degree Awarding Body:	University of Bradford
Partner(s), delivery organisation or support provider (if appropriate):	
Final and interim award(s):	[Framework for Higher Education Qualifications (FHEQ) level 7] MSc in Medical Imaging Postgraduate Diploma Medical Imaging Postgraduate Certificate Medical Imaging Postgraduate Certificate Medical Imaging (Computed Tomography) Postgraduate Certificate Medical Imaging (Magnetic resonance Imaging)
Programme accredited by (if appropriate):	College of Radiographers
Programme duration:	Part-time: 3 years
QAA Subject benchmark statement(s):	Not applicable
Date last confirmed and/or minor modification approved by Faculty Board	April 2019

Please note: This programme specification 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 changes may occur given the interval between publishing and commencement of teaching. Any change which impacts the terms and conditions of an applicant's offer will be communicated to them. Upon commencement of the programme, students will receive further detail about their course and any minor changes will be discussed and/or communicated at this point.

Introduction

The MSc in Medical Imaging has been developed to offer advanced education in a range of clinical specialities within the Diagnostic radiography profession. These include but are not limited to Projection radiography, Mammography, Interventional Radiography (IR), Computed Tomography (CT) and Magnetic Resonance Imaging (MRI). The programme of study will enable you to apply up to date technical knowledge, research, scientific, and professional knowhow, in line with expectations of the College of Radiographers (CoR) *Education and Career Framework for the Radiography Profession*. Students will be able to build on the knowledge gained from their clinical and professional career, thereby allowing them to enhance their professional development to make a greater contribution to healthcare. The programme of study further enhances skills in leadership and management of people, service evaluation and change, thereby supporting career development. The postgraduate programme allows the student to implement research skills to carry out an independent project with real world value which will serve to contribute to the radiography knowledge base, improvement of practice or service delivery, and patient outcomes. This aligns to the CoR *Research strategy* which expects radiographers to have a strong background in practice-based research, and hence the programme outcomes are designed to produce an enhanced practitioner that can disseminate best practice and lead improvement and change. The MSc programme also facilitates multiprofessional collaborative learning which encourages the student to think more broadly and take a critical perspective of their own and departmental practices and service, through exposure to the different practices and experiences other students bring. Equally, the MSc programme aims to embed student centred learning, and teaching approaches which develop sustainability and encourage reflection, critical thinking, and promotion of lifelong learning. The MSc Medical Imaging programme outcomes consider the expectations of a developing practitioner in today's medical imaging service, and therefore provides the knowledge and skills required to be responsive to service delivery needs, and to evaluate and instigate change and improvement for better patient outcomes.

The programme of study is organised on a part-time basis and may include, dependent on the modules studied, one day per week basis or short blocks of two to four days. The duration of the programme is based on the need to complement the student's clinical, professional, and academic experience, with the appropriate individual study pathway. While applicants are encouraged to study for the full Masters programme (180 credits at Level 7), the awards of Postgraduate Diploma and Postgraduate Certificate are also available as target awards. Additionally, applicants can choose to undertake individual modules for continuing professional development (CPD) purposes. If a student chooses to study an individual module it may be possible to import that academic credit into a Postgraduate Certificate, Diploma or Masters programme at a later time.

The MSc in Medical Imaging programmes has three different postgraduate certificate awards;

- Postgraduate Certificate Medical Imaging (CT)
- Postgraduate Certificate Medical Imaging (MRI)
- Postgraduate Certificate in Medical Imaging.

The Postgraduate Certificates are determined by the modules selected for study. For example to be awarded a specific award in a clinical specialty such as MRI, the specific MRI modules must be successfully completed. Students registered the MSc as their target award will not be awarded a named Postgraduate Certificate unless they exit early from their programme of study. Students will engage in study planning sessions with the Programme Leader or their Personal Academic Tutor (PAT) where they will have the opportunity to discuss their job role and career pathway. During the study planning session the student can explore the opportunity of studying for non-radiography specific modules that align with their role and development needs, these modules can contribute to the award of Postgraduate Certificate or Diploma in Medical Imaging. For example, a radiographer working in any of the specialist areas (Interventional radiology, Mammography, Projection

radiography, CT, MRI) may choose to study two 30 credit modules such as the Independent study and the Leading Change and Service Improvement in Health and Social Care modules.

The MSc and the Postgraduate Diploma do not have a specialism identified in the award title. Students will be able to select at least two 30 credit modules from the range of radiography and non-radiography optional modules, to attain the Postgraduate Diploma in Medical Imaging.

To be awarded the MSc in Medical Imaging award, students must successfully complete the core module *Research methods and Data Analysis* (30 credits) at PG Diploma level, and the final stage *Dissertation* (60 credits) for the MSc award. The Research Methods and Data Analysis module is aimed at developing practical knowledge and critical understanding of the features of quantitative and qualitative research and data-analysis methods used in the area of health and social care. The module is a pre-requisite preparation for the final stage research-based dissertation. The dissertation module takes the form of either a primary research study, work-based study or a systematic review relevant to an area of clinical practice.

The programme leader and module leaders will guide and support individual students to make informed selections of modules that best suit their career and professional role and ambitions. A study plan will be developed to help students to manage and focus on their outputs and goals. Should a student wish to build upon enhanced knowledge in their area of practice, there is scope to move to the MSc Advanced Clinical Practitioner (Radiography) programme route, ensuring that the postgraduate radiography programmes permit flexibility, and appropriately support a variety of career progression routes. The course of study and the collection of modules students choose to study will contextualise their learning by addressing the Aims and Learning Outcomes for the programme which are outlined in the next section of this document. Students who opt to study any of the optional modules without an imaging focus (non-radiography specific modules) will be taught with other students from a range of different professions/employment areas, and it is the application of the aims and learning outcomes to the student's individual subject that maintains the focus on their area of interest within the MSc Medical Imaging.

Students will be able to obtain credits for short episodes of study, transfer credits from prior certificated or experiential learning, undertake a single module or combine studying a choice of modules over time; should they not wish to undertake the full MSc Medical Imaging programme.

Programme Aims

The programme is intended to:

1. Enhance professional practice and personal development of medical imaging professionals through critical thinking, analysis, reflection, and awareness of the depth and breadth of knowledge applicable to their own field of medical imaging practice.

2. Provide opportunities for collaborative learning and development of sustainability for medical imaging professionals who are innovative, and able to share experiences and knowledge, with other healthcare professionals relevant to current and future medical imaging clinical practice.

3. Develop medical imaging professional’s critical perspective and understanding of the theoretical constructs underpinning research, leadership, project management and change, and their application in clinical practice to influence imaging practice, service user outcomes and policy.

4. Stimulate medical imaging professionals to become autonomous self-directed learners who are motivated to sustain and advance their own continuous professional learning with a confidence to support the professional development of colleagues and the work of their organisations.

5. Provide a framework within which the curriculum, where required, meets the requirements for professional practice and regulatory bodies.

Programme Learning Outcomes

To be eligible for the award of Postgraduate Certificate at FHEQ level 7, students will be able to:

LO1 Develop a detailed knowledge and understanding through critical analysis and synthesise of the literature and research that informs and influences the development of policy and service delivery in their specialist field of imaging practice or area of employment.

LO2 Evaluate and critically apply theoretical concepts, and where appropriate, develop enhanced practical skills for the management of complex issues within their field of medical imaging practice.

LO3 Reflect upon and demonstrate knowledge of values, ethical thinking, equality awareness, inclusive practice and demonstrate proficiency within their specialist field or practice in medical imaging.

LO4 Develop and demonstrate the ability to articulate sound arguments using a variety of formats including written and oral communication.

LO5 Demonstrate management and leadership through effective communication, complex problem solving, and decision making.

LO6 Demonstrate the ability to become an autonomous learner through independent study and critical reflection on their own continuing development needs.

LO7 Demonstrate the ability to use IT skills to gather, synthesise and appropriately apply information.

Additionally, to be eligible for the award of Postgraduate Diploma at FHEQ level 7, students will be able to:

LO8 Demonstrate a critical awareness and understanding of theoretical constructs underpinning research

LO9 Demonstrate innovation, be responsive to service delivery needs, and promote evidence informed practice to improve service user outcomes.

Additionally, to be eligible for the award of Degree of Master at FHEQ level 7, students will be able to:

LO10 Design, undertake, and manage a Masters dissertation project that contributes to or extends the body of knowledge for their specialist field of practice or service delivery in medical imaging.

Curriculum Table KEY: * these modules have a co-requisite that must be studied alongside this module ** these modules have a pre-requisite that must be studied prior to studying this module C = core and o= optional								
Module code	**Module title**	**Credits**	**Semester(s)**	**PG certificate medical imaging (MRI)**	**PG certificate medical imaging (CT)**	**PG certificate medical imaging**	**PG Diploma Medical Imaging**	**Masters Medical Imaging**
RAD7007-C	Computed Tomography	30	SEM 2		C	O	O	O
RAD7010-C	Clinical Computed Tomography	30	NSYR (March to November)		*C		*O	O
RAD7017-C	Advanced CT Technique (mirror clinical)	30	NSYR (March to November)			O	O	O
RAD7008-C	Magnetic Resonance Imaging	30	SEM 1	C		O	O	O
RAD7011-C	Clinical Magnetic Resonance Imaging	30	ACYR (September to July)	*C			*O	O
RAD7018-C	Advanced MRI Technique	30	ACYR (September to July)			O	O	O
HES7004-C	Independent study	30	SEM 1 or 2			O	O	O
LEM7031-C	Health and Social Care Leadership	30	SEM 1			O	O	O
LEM7032-C	Managing People in Health and Social care	30	1 and 2			O	O	O
LEM7034-C	Leading Change and Service Improvement in Health and Social Care	30	2			O	O	O
RES7016-C	Research methods and Data Analysis	30	SEM 1			O	C	C
RES7018-E	Dissertation	60	1 and 2 (FLYR)					C**

Learning and Teaching Strategy

This programme of study offers students an inclusive learning culture and a transformative university experience through which students from diverse backgrounds are enabled to graduate successfully and empowered to make real differences to the world. The programme is underpinned by the principles of Universal Design for Learning through which an inclusive curriculum has been developed to make learning accessible to all students irrespective of individual circumstances or starting point. The quality of the learning journey on the programme is enhanced by flexibility to study whilst working full-time and is effectively supported by a pool of academic and clinical staff to encourage high rates of student retention, progression, and achievement. Academic and clinical experts who teach on the programme use their expertise to provide students with authentic learning experience and explore the contemporary research informed evidence base for practice. Moreover, MSc supervisors bring their research and publication expertise in supporting students to develop their own research, knowledge transfer and publication skills. Inherently, through this inclusive approach, a greater understanding of students' personal learning needs, and fulfilment can be accomplished across the entirety of the student journey, including transition into, through, and out of their chosen programme of study. Following enrolment, students will also be allocated a Personal academic tutor (PAT) who will provide holistic guidance encompassing academic and personal support throughout their course of study. The programme team works collaboratively with the university's professional services to support students to develop the necessary study skills.

The programme offers students the capacity to acknowledge and build upon the knowledge and skills they may have developed through previous learning experiences including those in the workplace. As students undertake their chosen pathway or undertake the modules of their choice, they will be given the opportunity to develop theoretical understanding and knowledge acquisition through lectures and webinars. Ultimately, these serve to advance knowledge and critical thinking, and to develop a range of skills and competencies appropriate for their professional/employment field, which will enable students to function more effectively in their workplace. Opportunities for students to engage in meaningful career focussed work-based learning that is subject specific will be facilitated through partnerships with and support of local and national employers. Therefore, students will have considerable amounts of time to develop clinical and employability skills.

Additional opportunities to discuss topics in more detail will be afforded using tutorials, seminars, group work and discussions, and/or drop-in sessions. These interactions will be facilitated using blended learning approaches involving either face- to- face or online interactions. These interactions will be conducted using physical spaces and online environments including the Virtual Learning environment (Canvas and PebblePad) and the brand-new Picture Archive Communication System (PACS) suite; to create an integrated learning experience whilst building students' confidence and skills in the digital age. The interactions can take the form of synchronous and asynchronous modes of teaching. Synchronous learning occurs in the presence of the teacher/lecturer via online learning or in a face-to-face environment thereby enabling students to ask questions in real time. Learning sessions may also be recorded to allow students to work through them at their own convenience and time. Communication with the teaching staff will be supported via student forums, discussion boards and email. This approach will foster collaboration between students, and between students and academic staff thereby creating a sense of inclusive community. Additionally, the delivery of modules supports collaborative learning e.g., group activities within workshops. Students share best practice at, and outside of, workshops. A learning community is created through use of social media groups which not only supports the social experience but the networking and academic support, through discussion of diversified departmental practices and protocols. Hence the formulation of professional networks with a diverse range of professional colleagues from different backgrounds is facilitated.

The programme team works collaboratively with the university's professional services to support students to develop the necessary study skills. The University of Bradford Academic Skills unit can support students in developing essential skills. The Disability Office can also provide support to students who have a disability. Dyslexia screening is also available in the first instance.

Assessment Strategy

The programme has been designed to enhance learning using inclusive principles that provide students with opportunities to engage with a diversity of assessments across the programme of study. There is a range of assessment methods designed and positioned to integrate learning from different modules and the wider programme, in ways that prepare students to apply their learning successfully. Whilst the mode of assessment is defined by the module, the programme utilises integrative approaches that afford the students' choice of topic(s) explored.

After a period of learning, students will be supported to demonstrate achievement of student learning through graded summative assessments (also known as assessment of learning). Throughout the period of study, students will be given timely, actionable, and understandable formative feedback on learning (also known as assessment for learning). This will be facilitated by way of frequent/regular assessment activities where they will have opportunities to get constructive feedback to support their learning. Informal assessment opportunities are built into the modules to allow peers and academic staff to feedback, making suggestions and supporting development of learning towards final assessment: this may take a variety of formats i.e., written/ verbal. The programme takes advantage of technology in the digital age and will utilise tools (e.g., Interactive Quizzes, and game-based learning platforms) to offer instant feedback. Importantly, students will have the opportunity to learn from each other through peer assessment using but not limited to, discussions boards for facilitating collaboration, and group presentations. They will also be able to reflect on their learning and self-assess to identify their needs and be supported to develop. As such, students will be implored to plan their assessment workload, to be open to fair and constructive criticism, and to act on feedback given in a timely manner. Equally students will also be able to give formative feedback to academic staff on teaching and supervision they receive thereby facilitating dialogue between themselves and academic staff. Feedback opportunities are integrated into modules and may include surveys and group meetings. Programme assessment reviews to communicate student issues, concerns and ideas will be encouraged to improve the programme.

For work-based assessments, a tripartite approach is facilitated which is inclusive of students (self and peers), mentors/supervisors, and academic staff. Students will be supported through reflective work (portfolios, e-portfolios, journals), to critically evaluate and self-regulate their performance and learning. Although underpinning theories are explored in specific modules, there are multiple opportunities for focussing assessments around the students' area of practice and workplace. This enables them to directly apply, critically evaluate or reflect on practices and services they are involved in and develop strategies for improvement and change. Thus, students can expand their knowledge which is pertinent to their role, and/or evaluate and instigate change and improvement for better service delivery and patient outcomes. Students are also enabled to demonstrate the range of learning outcomes whilst developing several diverse communication and academic skills.

Student learning will be assessed against the learning outcomes and programme aims using a range of different assessment techniques which may include one or more of the following approaches:

- Coursework
- Portfolio
- Poster(s)
- Clinical assessment
- Closed book examination
- Computer based examination
- Oral presentation
- Completion of a Dissertation

NB. Some of these teaching and assessment strategies may change over time and through the ongoing development of the courses. Students will be notified in advance of such change and this will be reflected in the programme specification.

The Faculty of Health uses assessment rubrics to outline expectations for students, and transparency and consistency in the marking process ensuring students are achieving FHEQ Level 7 (Masters level) outcomes

Assessment Regulations

This Programme conforms to the standard University Assessment Regulations which are available at the link below

University Regulations - University of Bradford

However, there are exceptions to these regulations as listed below:

• In order to pass the modules overall students must pass all components of the module assessment at 40%.

Admission Requirements

The University welcomes applications from all potential students. Consideration of applications will be based on a combination of formal academic qualifications and other relevant experience.

The standard entry requirements for the programme are as follows:

- Hold a BSc Hons Diagnostic Radiography (or equivalent) qualification.
- Registration as a radiographer with the Health and Care Professions Council (HCPC).
- Students for whom English is not their first language must have at least International English Language Testing System (IELTS) score of 7 with no element below 6.5. This is an HCPC registration requirement to demonstrate English language proficiency which is crucial to working as a health professional in the UK.

- Have managerial support for their studies, including a commitment that appropriate facilities, relevant clinical experience, and time (average 15 hours per week) will be made available to their studies.

Applications are welcome from students with non-standard qualifications or mature students (those over 21 years of age on entry) with significant relevant experience.

Recognition of Prior Learning

If applicants have prior certificated learning or professional experience which may be equivalent to parts of this programme, the University has procedures to evaluate and recognise this learning in order to provide applicants with exemptions from specified modules or parts of the programme.

Minor Modification Schedule

Version Number	Brief description of Modification	Date of Approval (Faculty Board)
1	Annual change to programme specification	July 2022