

## Programme Specification: Undergraduate

### For students starting in Academic Year 2018/2019

#### 1. Course Summary

<b>Names of programme(s) and award title(s)</b>	BSc (Hons) Radiography (Diagnostic Imaging)
<b>Award type</b>	Single Honours
<b>Mode of study</b>	Full time
<b>Framework of Higher Education Qualification (FHEQ) level of final award</b>	Level 6
<b>Duration</b>	3 years
<b>Location of study</b>	Keele University – main campus
<b>Accreditation (if applicable)</b>	This programme is accredited by the Society and College of Radiographers and approved by the Health and Care Professions Council (HCPC) - for further details see section 12
<b>Regulator</b>	Higher Education Funding Council for England (HEFCE)
<b>Tuition Fees</b>	<p><b>UK/EU students:</b> Fee for 2018/19 is £9,250*</p> <p><b>International students:</b> Fee for 2018/19 is £17,000**</p> <p>The fee for the international year abroad is calculated at 15% of the standard year fee</p>
<b>Additional Costs</b>	Refer to section 18

**How this information might change:** Please read the important information at <http://www.keele.ac.uk/student-agreement/>. This explains how and why we may need to make changes to the information provided in this document and to help you understand how we will communicate with you if this happens.

#### 2. What is a Single Honours programme?

The Single Honours programme described in this document allows you to focus more or less exclusively on Radiography (Diagnostic Imaging). However, the programme includes some multi-professional learning with other healthcare programmes.

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\* These fees are regulated by Government. We reserve the right to increase fees in subsequent years of study in response to changes in government policy and/or changes to the law. If permitted by such change in policy or law, we may increase your fees by an inflationary amount or such other measure as required by government policy or the law. Please refer to the accompanying Student Terms & Conditions. Further information on fees can be found at <http://www.keele.ac.uk/studentfunding/tuitionfees/>

\*\* We reserve the right to increase fees in subsequent years of study by an inflationary amount. Please refer to the accompanying Student Terms & Conditions for full details. Further information on fees can be found at <http://www.keele.ac.uk/studentfunding/tuitionfees/>

### 3. Overview of the Programme

As a student on the BSc (Hons) Radiography (Diagnostic Imaging) programme in the School of Health and Rehabilitation (SHAR), you will study undergraduate radiography alongside physiotherapy and rehabilitation science students. SHAR sits within the Faculty of Medicine and Health Sciences and other professional groups represented within faculty include medicine, nursing and midwifery, and pharmacy. This gives you a wide range of opportunities for inter-professional learning, which is a key feature of the programme, in line with government guidelines<sup>1</sup>.

Radiography (Diagnostic Imaging) has undergone, and continues to undergo, significant development due to the philosophical and political changes that have occurred in health and social care since the early 1990s. These developments have occurred against a backdrop of rapid and on-going changes in technology, changes in the Ionising Radiation Regulations<sup>2</sup>, fundamental changes in health care practices and extension of responsibility for diagnostic radiographers<sup>3</sup>.

The profession of Radiography, like many other health professions, should be evidence based, with an emphasis on patient care and service delivery, therefore the research element of the programme is consistent with the Society and College of Radiographers Research Strategy<sup>4</sup>

Radiographers, more than at any other time in the history of the profession, are key practitioners in the provision of diagnostic imaging services. In addition to ionising radiation based imaging, they are responsible for the operation of ultrasound, nuclear medicine and MRI facilities, providing health screening, diagnosing and monitoring disease processes and performing interventional procedures carried out under imaging control. The increased role of all allied health professionals in Public Health and Health Promotion means that for radiographers this will be a core part of their future role<sup>5</sup>.

The clinical sites used to place students from this programme are already encouraging and supporting increasing numbers of radiography practitioners to provide verbal or written advice and guidance to medical and other healthcare workers regarding the interpretation of the clinical images they produce. The Audit Commission (2002) also found that ‘many departments are using radiographers more flexibly to take on new roles and there is scope to extend this further’. The College of Radiographers stated, “as a vision for the profession, by 2010 clinical reporting (at least at initial image interpretation level) by radiographers, at the level of production of a written or verbal comment, should become a core competence”. Therefore, the programme has a significant emphasis on initial image interpretation with the intention that all students are able to offer a written comment at their point of qualification, as this is a crucial part of practice and development of the profession.

The BSc (Hons) Radiography (Diagnostic Imaging) programme is intended to develop practitioners who can respond to a diverse and challenging service context in which traditional health and social service and associated professional roles are changing rapidly in response to broader political, social, economic and demographic change. These changes have highlighted a need for locally focused, clinically driven, evidence based, health care services which may widen opportunities for radiographers to step into positions of leadership within service. To ensure competence there is an obvious need to support these changes through imaginative and innovative education, such as inter-professional learning.

The opportunity for career progression in healthcare has made it increasingly important to ensure that newly qualified radiographers, and other health and social care professionals, have appropriate supervisory, communication, research and management skills to not only support student radiographers, but also assistant practitioners<sup>6</sup>. Many of these issues are explored within the collaborative elements of the programme but BSc (Hons) Radiography (Diagnostic Imaging) specific modules will address these issues where appropriate. The BSc (Hons) Radiography (Diagnostic Imaging) programme has been developed with specific reference to several

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<sup>1</sup> Learning Together – Working Together (DoH, 2001)

<sup>2</sup> The Ionising Radiation (Medical Exposure) Regulations (DoH, 2000)

<sup>3</sup> Radiography Skills Mix: A report on the four-tier service delivery model (DoH 2004)

<sup>4</sup> 2016-2019 Society and College of Radiographers Research Strategy: Society and College of Radiographer 2015

<sup>5</sup> Healthy Lives, Health People (DoH 2010)

<sup>6</sup> Radiography Skills Mix: A report on the four-tier service delivery model (DoH 2004)

additional key external documents including the Health and Care Professions Council Standards for Proficiency for Radiographers (2009), and the QAA Subject Benchmarks Statement – Diagnostic Radiography (2002).

The programme design is consistent with outcomes for autonomous practice and the indicative curriculum for Practitioners set out in Society and College of Radiographers; Education and Career Framework for the Radiography Workforce (2013)<sup>7</sup>

The profession is founded on a strong, evolving evidence base and scope of practice, clinical leadership and patient-centred professionalism. The Keele BSc (Hons) Radiography (Diagnostic Imaging) programme is designed to ensure that its content is current, reflecting contemporary radiography practice in the UK, and sufficiently flexible to accommodate the changing demands of health and social care and the future requirements of the profession, both in the UK and globally. The programme is committed to the development and provision of high quality multi- and inter-professional learning. The School of Health and Rehabilitation utilises a range of high quality local clinical bases to deliver the clinical component of their programmes.

The regular monitoring and evaluation of practice placements is the collaborative responsibility of education providers and placement providers. Such systems are systematic and measurable as per SCoR guidelines. They should demonstrate a logical and contextual linkage to institutional ongoing quality monitoring and enhancement arrangements.

The BSc (Hons) Radiography (Diagnostic Imaging) programme at Keele will enable you, through an environment of reflection and research awareness, to develop into an autonomous professional who can initiate and respond to change in a wide variety of settings. You will embrace a vision of patient-centred care within contemporary health and social care environments. You will develop the attributes of a competent practitioner underpinned by knowledge enabling you to become, and remain, fit for purpose, delivering high quality, safe, integrated and effective care. During the programme, you will develop responsibility for your own continuing professional development and will be confident to function in partnership and leadership roles.

Key features of the BSc (Hons) Radiography (Diagnostic Imaging) programme are:

- Collaborative partnerships with a range of clinical bases which are well recognised;
- Expert teaching through a range of highly skilled, appropriately qualified and knowledgeable staff;
- Practical placements in a variety of healthcare environments supported by professionally registered clinical/practice educators with extensive knowledge and experience in a range of clinical specialities;
- Inter-professional education embedded within the programme allowing students to learn alongside other health and social care students. This is designed to contribute to professional understanding and respect as students of various professions learn with, from and about each other for the benefit of patient care;
- Comprehensive range of student support mechanisms (See the Student Handbook: Section 5).

#### **4. Aims of the Programme**

The broad aims of the programme are to enable you to:

- Gain the knowledge, skills, attitudes and values to underpin contemporary radiography (diagnostic imaging) practice and develop your competence in applying clinical skills to the practice of radiography (diagnostic imaging). You will develop your clinical reasoning and decision-making skills to enable you to undertake best radiography (diagnostic imaging) practice. The programme will facilitate your development of the competencies required for autonomous practice.
- Develop your research awareness and research application to radiographic practice and the wider health and social care context, and equip you with the skills to adapt and respond positively to change. In doing this, you will develop key transferable skills to prepare for graduate employment.

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<sup>7</sup> Education and Career Framework for the Radiography Workforce: Society and College of Radiographers 2013

- Enhance the development of your interpersonal skills along with effective team working and partnership skills. This promotes engagement in lifelong learning, a key feature of the development of an autonomous professional.
- Cultivate effective inter-professional working practices that will facilitate the development of leadership, management and entrepreneurial skills.
- Achieve the standards of education and training that is approved by the Health and Care Professions Council and the Society and College of Radiographers and prepare you for lifelong learning throughout your career.

## 5. What you will learn

### Subject knowledge and understanding

The programme design meets the Health and Care Professions Council's (HCPC) Standards of Education and Training (2014).

Successful students will be able to meet the:

- HCPC's Standards of Proficiency: Radiographer (2013)
- HCPC's Standards of Conduct, Performance and Ethics (2016)

### Subject specific skills

Successful students will be able to:

1. Demonstrate a critical understanding of the theories, models, principles and concepts underpinning radiography (diagnostic imaging) within the public policy and organisational context for health and social care practice and service delivery;
2. Practise safely, competently and confidently in radiography (diagnostic imaging) within the boundaries of legal, ethical and professional frameworks and be eligible to apply for entry to the professional register;
3. Adhere to and, where appropriate, challenge the boundaries, constraints and obligations inherent in professional practice employing skills of critical self-reflection and a commitment to lifelong learning;
4. Critically analyse, reflect upon and evaluate research findings, utilising these where appropriate, to underpin an evidence based approach to practice;
5. Communicate and work collaboratively with patients, carers and fellow professionals in an appropriate and context specific way;
6. Exhibit the appropriate professional values, attitudes and behaviours expected of an integrated member of the inter-professional healthcare team.
7. Demonstrate leadership skills.

These elements are taught, developed and assessed via individual modules, across the three years of the programme. Achievement of the outcomes for the BSc (Hons) Radiography (Diagnostic Imaging) demonstrates the HCPC Standards of Proficiency (radiographers). The programme has been mapped to the following regulatory body outcomes, subject benchmark statements and the professional body outcome (see Appendix 1-2):

- HCPC Standards of Proficiency for Radiographers
- HCPC Standards of Education and Training
- QAA subject benchmarks for radiography
- SCoR Outcomes for Autonomous Practice (Practitioners)

### Key or transferable skills (including employability skills)

Successful students will be able demonstrate:

- The ability to use information and communication technology effectively;
- The ability to engage with numerical data and calculations, and understand their significance;
- The ability to communicate effectively in writing, including the use of language that is appropriate for a variety of audiences;
- The ability to critically review their own work;
- The capability to communicate effectively orally and visually, including participation in group discussions, communicating ideas and presenting information to a variety of audiences;
- The competence to use mature interpersonal skills and awareness, including: a capacity to work in groups both as a team member and as a leader, to be sensitive to the views of others, to be able to negotiate, and to be aware of how one's actions are seen by others;
- The ability to solve problems, including the ability to generate a variety of strategies to address a problem and design, implement and evaluate a solution that addresses the problem;
- The ability to use information handling skills which enables the individual to locate, assess and evaluate information and synthesise and build upon existing information;
- The proficiency to identify and develop a research question/hypothesis within research skills and to be able to construct a range of strategies and methods for answering research questions or testing hypotheses;
- An aptitude to develop independent study skills, including the maturity and judgment to manage one's own personal development and a capacity for self-reflection, self- assessment and self-criticism;
- A readiness for lifelong learning and recognition of its necessity within the profession.

### **Keele Graduate attributes**

Engagement with this programme will enable you to develop your intellectual, personal and professional capabilities. At Keele, we call these our ten Graduate Attributes and they include independent thinking, synthesizing information, creative problem solving, communicating clearly, and appreciating the social, environmental and global implications of your studies and activities. Our educational programme and learning environment is designed to help you to become a well-rounded graduate who is capable of making a positive and valued contribution in a complex and rapidly changing world, whichever spheres of life you engage in after your studies are completed.

Further information about the Keele Graduate Attributes can be found here: <http://www.keele.ac.uk/journey/>

## **6. How is the Programme taught?**

Learning and teaching methods used on the programme vary according to the subject matter and level of the module (see list below). The programme is structured around six key study themes that are introduced, developed and enhanced via individual modules over the three-year programme. In addition, study will include clinical practice throughout the three years. Each module has a clinical component, this is designed to ensure university learning and teaching integrates with the teaching and learning in clinical practice. Clinical/Practice training and education occurs in a range of health care provider organisations, including a large teaching hospital, district general hospitals and small private hospital providers. Most practice placements are currently within a 50-mile radius of the University.

Radiographic practical skills are taught initially in small groups in the university using simulation and role play, as are some other areas of the programme. The number of students within these groups is variable depending upon subject matter. In the clinical setting students work with designated clinical/practice educators and are also supported by visiting tutors from the School. This ensures integration of academic learning and clinical practice.

The University based elements of the programme are taught using a variety of blended learning approaches including:

- **Traditional lectures** where the lecturer provides students with a framework and context for further reading and independent study; some lectures may feature invited external speakers who are clinicians,

active researchers, and academics in the field of radiography, radiation science and related health practice

- **Interactive lectures** to engage the students in their learning for example the use of Audience Response Systems
- **Practical work** allows students to observe the application of, or develop the acquisition of radiography (diagnostic imaging) practical skills under the supervision of academic staff
- **Simulation and role play**, to allow the students to practice in a realistic, safe environment
- **Learning in the clinical environment** (practice placements) where students develop their clinical and professional skills under the supervision of a designated practice educator(s)
- **Small group workshops** when students work together to, for example, critically appraise papers relating to some aspect of radiography (diagnostic imaging) practice
- **Group workshops** which require students to work together over an extended period to develop a piece of work
- **Individual and group presentations** where students research and present a topic with relevance to practice (for example specific approaches to communication or reasoning for particular approaches in radiography research) to the whole group with time allowed for interactive questions and discussion
- **Student and tutor-led tutorials** which encourage topics of interest and relevance to a theme to be discussed in depth within a small group; problem-solving scenarios and case studies may be used as a vehicle for such discussion
- **Web-based learning** using the Keele Virtual Learning Environment (KLE): this is used by all modules and provides a platform for students to share online discussions and to access a wide range of learning resources. In addition, applications such as Google Communities, web-based audience feedback systems are used to support and monitor learning.
- **Independent study** will be required in each module; some study will be guided by tutors where necessary, but will also be self-directed in relation to the various demands of each module and its assessment. This type of learning may be facilitated by use of various resources such as work packages and access to specific web based programmes. The development of a portfolio will also be used as a vehicle for learning. Independent study also forms an important part of the development of the final year research project, which is supported by a designated member of the academic staff
- Students will engage in **inter-professional learning** in groups made up of a range of other health and social care students

Apart from these formal activities, students are also provided with regular opportunities to talk through particular areas of difficulty, and any special learning needs they may have, with their Personal Tutors or module lecturers on a one-to-one basis.

These learning and teaching methods enable students to achieve the learning outcomes of the programme in a variety of ways. For example:

- Lectures and independent study enable students to broaden and deepen their existing professional knowledge and understanding of the core scientific principles and concepts of radiography (diagnostic imaging), and to transfer scientific knowledge from theory into practice.
- Practical work in both university and clinical environments enables students to develop, enhance and update their learning of new skills under the supervision of experts and to ensure safe and competent practice, and to integrate theoretical and practical knowledge.
- Focusing on identification of common pathologies demonstrated on the radiographic image, while demonstrating the transferability of these skills to identification of the existence of less common pathologies.
- Discussion on a one-to-one basis following clinical work (de-brief session) using for example, case studies, justification of exposure of the patient to ionising radiation, with evidence and reflection upon experiences to identify personal learning needs.
- Small group work, such as seminars, and workshops, provides opportunities for students to clarify and exchange ideas, and to question and challenge professional concepts.
- Guided independent study, tutorials and the use of portfolios will assist the student to explore in depth, and evaluate, aspects of professional practice.

- Seminars, tutorials and web-based activities encourage students to reflect upon their learning and to take responsibility for its development, and to collaborate with others to share, explore, and evaluate ideas in greater depth.
- Undertaking a research-based project, using the support of small group workshops (where relevant) and tutorial supervision, further develops the student's independent learning and research capability; it also enables them to plan, implement and document a piece of research with relevance to radiography (Diagnostic Imaging) in line with the aims of the 2016-2021 Society and College of Radiographers Research Strategy. This piece of work encourages competence with IT skills including use of software packages for data analysis.

## 7. Teaching Staff

The permanent academic staff contributing to the programme are drawn from the University's School of Health and Rehabilitation along with contributions from specialist experts when appropriate. The School Team includes: professors, senior lecturers, lecturers, teaching fellows and academic related staff giving a current staff student ratio for the programme of 1:15. All permanent academic staff are currently members of, or are working towards, membership of the Higher Education Academy. All permanent academic staff hold (or are working towards) academic qualifications to at least Masters Level. All staff who are recognised healthcare professionals, such as radiographers, physiotherapists or nurses are registered with the relevant body e.g. HCPC or NMC, and have had experience working in the NHS and other areas of healthcare. The academic staff group currently includes staff from different professions such as Radiographers, Physiotherapists, an Exercise Physiologist and a Biomedical Scientist. The staff group has extensive experience of teaching at undergraduate and postgraduate level and includes individuals with expertise in learning and teaching and research. The work of research active staff has been widely published and shared via conference presentations.

Several staff are active members of clinical specialist interest groups. The Medical School has honorary contracts in place with Consultant Radiologists and Medical Physicists.

The clinical component of the programme is delivered and assessed by a range of Practice Educators. These are suitably qualified clinicians and professionally registered working across a broad range of clinical environments who will undertake the SHAR Practice Educators training course (which includes regular updates). This will enable them to achieve the learning outcomes required to participate in the College of Radiographers Practice Educators Accreditation Scheme<sup>8</sup>. <https://www.sor.org/learning/document-library/practice-educator-accreditation-scheme-approval-accreditation-educational-programmes-professional>

The University will attempt to minimise changes to our core teaching teams, however, delivery of the programme depends on having a sufficient number of staff with the relevant expertise to ensure that the programme is taught to the appropriate academic standard.

Staff turnover, for example where key members of staff leave, fall ill or go on research leave, may result in changes to the programme's content. The University will endeavour to ensure that any impact on students is limited if such changes occur.

## 8. What is the Structure of the Programme?

The programme is studied full-time over three years and the teaching is delivered via individual modules relating to six themes across each year. Each year is arranged into two units called semesters (Autumn and Spring) which vary in length. In each academic year, blocks of time are spent in both the university and clinical settings - Table 1. (The structure of the academic year is available in the Student Handbook).

*N.B. Practice experience equates to a minimum of 1,200 hours over the course of the programme.*

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<sup>8</sup> Practice Educator Accreditation Scheme; The Approval and Accreditation of Educational Programmes and Professional Practice; Society and College of Radiographers 2006.

**Table 1.** Academic and Clinical Learning

	YEAR 1 / FHEQ LEVEL 4	YEAR 2 / FHEQ LEVEL 5	YEAR 3 / FHEQ LEVEL 6
Total weeks in education/ annum	31	31 + volunteer period	31
Total weeks in University/ annum	21	20	20
Academic teaching weeks / annum	14	13	13
Hours available for academic study / annum (6 hours x 4.5 days possible contact / week)	378	351	351
Percentage time for academic study	50.20%	45.90%	45.90%
Clinical teaching weeks/ annum	10	11	11
Hours available for clinical study / annum (7.5 hours x 5 days = 37.5 hours / week @ FTE)	375	413	413
Percentage time for clinical practice	49.80%	54.10%	54.10%

The course is structured around six themes which each have an academic and clinical component. Two relate to inter-professional learning (Collaborative Practice) to research (Professional Development); four relate to the key areas of Radiographic practice:

- Radiographic Practice
- Radiographic Science
- The Human Body
- Image Interpretation

Each of these themes are introduced, developed and enhanced via individual modules (worth 20 credits per module (please refer to Table 2) over the three-year programme, each year carries 120 credits. Adopting a spiral curriculum approach<sup>9</sup> allows each theme to be revisited in subsequent years adding depth and breadth of knowledge. The curriculum also facilitates the progression from novice to advanced beginner to competent practitioner<sup>10</sup>. Table 3 shows where the subject specific learning outcomes are introduced, developed and assessed.

<sup>9</sup> Harden and Stamper 1999, General Teaching Council for England 2006

<sup>10</sup> Benner 2001 and Benner 2009

**Table 2. Overview of Modules and Credit Value for BSc (Hons) Radiography (Diagnostic Imaging) Programme Academic Year 2018-19**

BSc Programme	Module	Key to Abbreviation	Credit Value
Year 1	Introduction to the Human Body 1	HB1	20
	Foundations of Radiographic Science	FRS	20
	Image Interpretation 1	II1	20
	Introduction to Radiographic Practice	IRP	20
	Professional Development 1: Principles of Measurement & Research	PD1	20
	Collaborative Practice 1: Professionalism & Effective Communication	CP1	20
	Total		
Year 2	The Human Body 2	HB2	20
	Exploring Radiation Protection	ERP	20
	Image Interpretation 2	II2	20
	Radiographic Practice 2	RP2	20
	Professional Development 2: Evidence Based Diagnostic Imaging	PD2	20
	Collaborative Practice 2: Inter-professional Learning	CP2	20
	Total		
Year 3	Human Body 3: Applying Knowledge	HB3	20
	Advanced Imaging Modalities	AIM	20
	Initial Image Commenting	IIC	20
	Radiographic Practice3	RP3	20
	Professional Development 3: Research Project	PD3	20
	Collaborative Practice 3: Professionalism, Collaboration & Leadership	CP3	20
	Total		

For further information on the content of modules currently offered, please visit:  
[www.keele.ac.uk/recordsandexams/az](http://www.keele.ac.uk/recordsandexams/az)

## Learning Outcomes

The following tables provide details of the learning outcomes relating to subject specific knowledge, understanding and skills in addition to key transferable skills, which modules they are delivered in and the principal forms of assessment.

**Table 3:** Programme Learning Outcomes

<b>Subject Knowledge and Understanding</b>		
<b>Learning Outcome</b> <i>Successful students will:</i>	<b>Module</b> in which this is delivered	<b>Principle forms of assessment</b> of the level outcome used
Demonstrate a critical understanding of the theories, models, principles and concepts underpinning Radiography (Diagnostic Imaging) within the public policy and organisational context for health and social care practice and service delivery	RP 3 AIM CP 3	2,500-word reflective analysis 2,500-word written assignment 1,000-word structured report & Practice experience portfolio Sections A-E
Adhere to and, where appropriate, challenge the boundaries, constraints and obligations inherent in professional practice employing skills of critical self-reflection and a commitment to lifelong learning	CP 3 RP 2 CP 2	1,000-word reflective analysis 2,500-word reflective analysis 2,000-word critical reflection & Practice experience portfolio Sections A-E
Analyse critically, reflect upon and evaluate research findings utilising these, where appropriate, to underpin an evidence based approach to practice	PD 1 PD 2 PD 3	Level 4: 1,500-word written report Level 5: 2000-word research proposal Level 6: 4,000 word research report

<b>Subject Specific Skills</b>		
<b>Learning Outcome</b> <i>Successful students will:</i>	<b>Module</b> in which this is delivered	<b>Principle forms of assessment</b> of the level outcome used
Practise safely, competently and confidently in Radiography (Diagnostic Imaging), within the boundaries of legal, ethical and professional frameworks and be eligible to apply for entry to the professional register	All with exception of PD3 (research project)	Practice experience portfolio Sections A-E throughout programme
Communicate and work collaboratively with patients, carers and fellow professionals in an appropriate and context specific way	All with exception of PD3 (research project)	Practice experience portfolio Sections A-E throughout programme
Exhibit the appropriate professional values, attitudes and behaviours expected of an integrated member of the inter-professional healthcare team	All with exception of PD3	Practice experience portfolio Sections A-E throughout programme

	(research project)	
Demonstrate leadership skills	All with exception of PD3 (research project)	Practice experience portfolio Sections A-E throughout programme

Key or Transferable Skills (graduate attributes)			
Learning Outcome  <i>Successful students will have the opportunity to develop:</i>	Module in which this is delivered		
	Year 1 (Level 4)	Year 2 (Level 5)	Year 3 (Level 6)
An open and questioning approach to ideas, demonstrating curiosity, independence of thought and the ability to appreciate a range of perspectives on the natural and social worlds	IRP PD1 CP1	RP2 PD2 CP2	RP3 PD3 CP3
An appreciation of the development and value of chosen subjects of study, awareness of their contexts, the links between them, and awareness of the provisional and dynamic nature of knowledge	HB1 FRS IRP II1	HB2 ERP RP2 II2	HB3 AIM RP3 IIC
Information literacy: the ability to locate, evaluate and synthesise large amounts of frequently conflicting information, ideas and data	IRP PD1 CP1	RP2 PD2 CP2	RP3 PD3 CP3
The creative ability to solve problems using a range of different approaches and techniques, and to determine which techniques are appropriate for the issue at hand	FRS IRP II1	ERP RP2 II2	AIM RP3 IIC
An appreciation of the social, environmental and global implications of the programme content and other activities, including recognition of any ethical implications	PD1 CP1	PD2 CP2	PD3 CP3
The ability to communicate clearly and effectively in written and verbal forms for different purposes and to a variety of audiences	HB1 FRS IRP II1 PD1 CP1	HB2 ERP RP2 II2 PD2 CP2	HB3 AIM RP3 IIC PD3 CP3
The knowledge, skills, self-confidence and self-awareness actively to pursue their future goals	PD1 CP1	PD2 CP2	CP3
The ability and motivation to participate responsibly and collaboratively as an active citizen in the communities in which they live and work	HB1 FRS IRP II1 PD1 CP1	HB2 ERP RP2 II2 PD2 CP2	HB3 AIM RP3 IIC CP3
A professional and reflective approach, including qualities of leadership, responsibility, personal integrity, empathy,	HB1 FRS	HB2 ERP	HB3 AIM

Key or Transferable Skills (graduate attributes)			
Learning Outcome	Module in which this is delivered		
	Year 1 (Level 4)	Year 2 (Level 5)	Year 3 (Level 6)
<i>Successful students will have the opportunity to develop:</i>			
care and respect for others, accountability and self-regulation	IRP II1 PD1 CP1	RP2 II2 PD2 CP2	RP3 IIC PD3 CP3
The flexibility to thrive in rapidly changing and uncertain external environments and to update skills and knowledge as circumstances require	HB1 FRS IRP II1 PD1 CP1	HB2 ERP RP2 II2 PD2 CP2	HB3 AIM RP3 IIC CP3

## 9. Final and intermediate awards

The programme is designed to educate Radiography (Diagnostic Imaging) practitioners. Consequently, the expectation is that students will complete the full programme of study obtaining 360 credits and so be awarded BSc (Hons) Radiography (Diagnostic Imaging). Students usually accumulate 120 credits per academic year. If a student leaves the programme before completing 360 credits they may be eligible for an alternative award. Radiographers must complete an approved programme of study (minimum 360 credits) in order to use the title 'radiographer'. Any alternative award will not contain the term 'radiography' or "radiographer".

Whilst it is expected that students will complete the full programme, including the all of the academic and clinical components, it is possible for students to leave the BSc (Hons) Radiography (Diagnostic Imaging) programme with one of four final awards:

<b>Honours Degree in Radiography (Diagnostic Imaging)</b>	360 credits	You will require at least 120 credits at levels 4, 5 and 6.  You must also have passed all clinical assessments. Graduates are eligible to apply for registration with the HCPC and on successful registration will be entitled to practice as a Diagnostic Radiographer in the UK.
<b>Honours Degree in Imaging Studies</b>	360 credits	You will require 120 credits at FHEQ Level 4 (Year 1) and 120 credits at FHEQ Level 5 (Year 2). If you are unable to achieve 120 credits within the BSc (Hons) Radiography (Diagnostic Imaging) programme but achieve a minimum of 100 credits (equivalent) at FHEQ Level 6 (Year 3), you will be offered an opportunity to study alternative elective module(s) to achieve the required minimum 120 credits at level 6, as advised by the relevant Programme Lead in the School. Upon successful completion in such circumstances and providing 360 credits have been achieved, the title of the award will be BSc (Hons) Imaging Studies. Graduates with this award will <b>not</b> be eligible for registration with the HCPC and will not be entitled to practice Radiography.
<b>Diploma in Higher Education</b>	240 credits	You will require at least 120 credits at level 4 or higher and at least 120 credits at level 5 or higher. This award does not confer eligibility to apply for registration with the HCPC or to

		practice as a radiographer.
<b>Certificate in Higher Education</b>	120 credits	You will require at least 120 credits at level 4 or higher. This award does not confer eligibility to apply for registration with the HCPC or to practice as a radiographer.

## 10. How is the Programme assessed?

The wide variety of assessment methods used within Radiography (Diagnostic Imaging) at Keele reflects the broad range of knowledge and skills that are developed as you progress through the degree programme. Teaching staff pay particular attention to specifying clear assessment criteria and providing timely, regular and constructive feedback that helps to clarify things you did not understand and helps you to improve your performance. The following list is representative of the variety of assessment methods used within Radiography (Diagnostic Imaging):

- **Written work/assignments** test the quality and application of subject knowledge. In addition, they allow students to demonstrate their ability to carry out basic literature searches, communicate their ideas effectively in writing and support their arguments with appropriate referencing. Written pieces vary in their length depending upon the module.
- **Written Examinations** in different formats test students' knowledge and (as appropriate), their ability to apply that knowledge appropriately to professional practice. Examinations may consist of essay, short answer and/or multiple-choice questions.
- **Reflective assignments** enable the student to develop their skills of reflective learning and practice; these are fundamental skills used by all healthcare professionals as part of their continuing professional development
- **Oral presentations** assess students' subject knowledge and understanding. They also test their ability to work effectively as members of a team, to communicate what they know orally and visually, and to reflect on these processes as part of their own personal development.
- **Practical Examinations** – these occur in modules that involve the teaching and learning of practical clinical skills. These examinations enable students to demonstrate the safe and effective application of practical clinical skills, and to justify their choice
- **Research project** is a student led piece of independent research. Nominated supervisors support the student throughout the process, which includes gaining ethical approval from the Student Project Ethics Committee (SPEC) within the School of Health and Rehabilitation or other appropriate ethics committee. This assessment develops the student's capacity as an independent learner and their ability to engage in the research process. It also develops the student's IT skills in use of various software for presentation and data analysis (e.g. Word, Excel, SPSS)
- **Clinical assessment** is undertaken during clinical practice using the Practice Education Portfolio (PEP). This is concluded with an oral assessment undertaken by the academic team to enable the students to demonstrate the safe and effective application of the academic learning in professional practice.

You will also be assessed formatively to enable you to monitor your own progress and to assist staff in identifying and addressing any specific learning needs. Feedback, including guidance on how you can improve the quality of your work, is also provided on all summative assessments within three working weeks of submission, unless there are compelling circumstances that make this impossible, and more informally in the course of tutorial and seminar discussions. Clinical competence is assessed as on pass/fail and is not credit bearing. All clinical assessments must be passed to enable successful completion of the programme. See Appendix 3.

## 11. Contact Time and Expected Workload

This contact time measure is intended to provide you with an indication of the type of activity you are likely to undertake during this programme. The data is compiled based on module choices and learning patterns of students on similar programmes in previous years. Every effort is made to ensure this data is a realistic

representation of what you are likely to experience, but changes to programmes, teaching methods and assessment methods mean this data is representative and not specific.

Undergraduate courses at Keele contain an element of module choice; therefore, individual students will experience a different mix of contact time and assessment types dependent upon their own individual choice of modules. The figures below are an example of activities that a student may expect on your chosen course by year/stage of study. Contact time includes scheduled activities such as: lecture, seminar, tutorial, project supervision, demonstration, practical classes and labs, supervised time in labs/workshop, fieldwork and external visits. The figures are based on 1,200 hours of student effort each year for full-time students.

Activity	Year 1 (Level 4)	Year 2 (Level 5)	Year 3 (Level 6)
Scheduled learning and teaching activities	30%	30%	30%
Guided independent Study	33%	28%	28%
Placements	37%	42%	42%

## 12. Accreditation

This programme is accredited by the Society and College of Radiographers and approved by the Health and Care Professions Council (HCPC).

Please note: Graduates of the programme are eligible to apply for registration with the Health and Care Professions Council (HCPC). In order to use the title 'radiographer' a practitioner must be registered with the HCPC. HCPC registration is a prerequisite for employment as a radiographer in the NHS. The programme meets the requirements of the HCPC Standards of Education and Training (2014) and HCPC Standards of Proficiency (Radiographers) and the Society and College of Radiographers (SCoR) Education and Career Framework for the Radiography Workforce (2013)

The programme design is consistent with outcomes for autonomous practice and guidance set out in the 'Indicative Curriculum for Practitioners' by the SCoR.

## 13. Regulations

The University Regulations form the framework for learning, teaching and assessment and other aspects of the student experience. Further information about the University Regulations can be found at: <http://www.keele.ac.uk/student-agreement/>

In addition, if your programme has professional accreditation there may be specific programme regulations that you will need to abide by – details of such specific regulations are provided in the Student Handbook. The University will endeavour to communicate any changes to these regulations to you in a timely manner, such changes may occur during your duration of study. The University will endeavour to ensure that any impact on students is limited if such changes occur.

## 14. What are the typical admission requirements for the programme?

Subject	A-level	Subjects not included	International Baccalaureate	BTEC	Access to Higher Education Diploma	GCSE requirements
BSc (Hons) Radiography (Diagnostic Imaging)	ABC/BBB  A Level Biology, Human Biology, Chemistry or Physics at grade B A Pass in Science Practical will be required if applicant is taking	General Studies and Critical Thinking	32 points to include Higher level Science subject at grade 6	DDM You must also have taken sufficient Science units, please contact us for	Obtain Access to Higher Education with 30 Level 3 credits at Distinction. You must also have taken sufficient Science credits, please contact us for advice.	6 GCSE's (or equivalent) in one sitting at Grade C (or 4) including Maths, English Language, Combined or Single Science subject.

	<p>A level Biology, Chemistry or Physics (England)**</p> <p>** Science practical only required from applicants taking reformed A level Biology, Chemistry or Physics in England.</p>			advice.		<p>Applicants should have obtained their GCSE qualifications before applying.</p>
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All offers are normally conditional upon the applicant having a satisfactory Occupational Health assessment, and an enhanced clearance by the Disclosure and Barring Service (DBS). It is a mandatory requirement that students become student members of the Society and College of Radiographers (SCoR). Student membership of the SCoR provides access to a range of useful resources and also provides insurance for clinical placements. Further information can be found at the SCoR website [www.sor.org](http://www.sor.org).

Applicants who are not currently undertaking any formal study or who have been out of formal education for more than 3 years and are not qualified to A-level or BTEC standard may be offered entry to the University's Foundation Year Programme.

Applicants for whom English is not a first language must provide evidence of a recognised qualification in English language. The minimum score for entry to the Programme is Academic IELTS 7.0 or equivalent (with no single subset below 6.5).

Please note: All non-native English speaking students are required to undertake a diagnostic English language assessment on arrival at Keele, to determine whether English language support may help them succeed with their studies. An English language module may be compulsory for some students during their first year at Keele.

Accreditation of Prior Learning (APL) is considered on a case-by-case basis and those interested should contact the Programme Director. The University's guidelines on this can be found here:

<http://www.keele.ac.uk/ga/accreditationofpriorlearning/>

## 15. How are students supported on the programme?

The School provides a comprehensive range of support for student learning on the Programme in addition to that provided by the University. Key to the success of this support are the following:

- Each student is allocated to a personal tutor who is responsible for reviewing and advising on students' academic and clinical progress. Personal tutors also offer pastoral support, acting as a first point of contact for students on non-academic issues which may affect their learning. Personal Tutors can refer students on to a range of specialist health, welfare and financial services coordinated by the University's Student Services.
- Module Leaders provide support for learning on the modules and the related assessments. They ensure that appropriate, tutorial support is available via the module team and that the team provides feedback in a timely manner. Module leaders also ensure that individual feedback on in-course assessments is available to all students.
- Disability Liaison Officer provides support for students with disabilities (including specific learning difficulties) and works closely with wider university student support staff.
- First year students are offered a student mentor.
- Practice Educators who provide supervision whilst students are on clinical placement.
- Visiting Tutors who liaise between the School and Clinical Bases and provide support to students during clinical placements.

Throughout the year members of academic staff operate an 'open door' policy during normal working hours. All members of academic staff are available to see students on an individual basis outside normal working hours via a flexible appointments system.

## **16. Learning Resources**

The programme is delivered mainly in modern teaching rooms in the School of Health and Rehabilitation, all of which are equipped with computers, internet access and projection equipment. Rooms are designed to be flexible and can be used for larger groups, also more informally for small groups working together. The learning resources available to students on the programme include:

- An extensive collection of materials relevant to undergraduate study held in both the main University Library on Keele campus, and in the Health Library on the campus of the University Hospital of North Midlands NHS Trust. A number of relevant journals are also accessible online to all registered students, and are accessible from anywhere in the world with a University username and password.
- The Keele Virtual Learning Environment (KLE) provides easy access to a wide range of learning resources including lecture notes, presentations and discussion boards enabling students and tutors to discuss topics, all information about the programme and all modules and other materials designed specifically for particular modules. It can also be used to develop reusable learning objects (RLOs) and integrate learning with assessment.
- The School of Health and Rehabilitation has a wide range of relevant teaching materials available including a large selection of anatomical models, video and DVD materials and ALS Patient Simulator. There is a commitment to provide a dedicated Radiography (Diagnostic Imaging) simulated environment within the University and a computer suite for simulated Radiography (Diagnostic Imaging) learning. Regular opportunities to attend the University's Anatomy Suite (situated in the Medical School) are embedded in teaching throughout the course of the programme.
- Computers for student use are situated in both the Main Library and in the Health Library. Specialised image evaluation is available in a dedicated Digital Hub.

## **17. Other learning opportunities**

Some students may have the opportunity to present their 3rd year project work via poster or presentation at conferences. A contribution from the School towards the costs incurred by the student in these ventures may be available and will be considered on an individual basis.

Students will be encouraged to submit their research work for publication in Synergy: Imaging and Therapy Practice, to gain experience in writing for publication.

Such opportunities occur outside the normal timetabled programme thus a commitment of time will be required from the student.

## **18. Additional costs**

During the programme there will be some additional mandatory costs incurred by all students:

- Student membership of the Society and College of Radiographers is free for the first year and currently costs £48 for subsequent years, this can be paid annually or monthly. Students at education institutions in the UK can pay an additional annual fee to receive paper copies of the magazine "Synergy News" and the journal "Synergy: Imaging & Therapy Practice" by post (£24 at 2015/16 rates).
- In the first-year students may borrow half skeletons in pairs to help anatomy learning. There is a charge of £40 per person paid in cash at the start of the first semester. A partial refund of £10 (providing the skeleton is returned in good condition) will take place at the start of the next academic year.
- Subscription to the Disclosure and Barring update service (DBS) is a requirement and currently costs £13 per year which the student pays online at the start of each academic year.

BSc (Hons) Radiography (Diagnostic Imaging) students will usually undertake a minimum of 1,200 hours of assessed practice placement before graduating. Typical hours will be around 37.5 hours per week while on

placement, with between 10 or 11 weeks spent in the practice environment per year. Placements are allocated based on availability and the student's clinical experience profile. Some students may be required to travel to complete their placements and may prefer therefore to source accommodation for that time. Currently most placements are within a 50-mile radius of the university.

### **Variable costs associated with Clinical Placements**

There are some costs associated with attending practice placements related to both travel expenses and accommodation.

- A non-refundable grant is available to help cover the cost of travel. Additional accommodation costs incurred during practice placement are refundable.
- Many students continue to fund their own university/private accommodation while accessing additional accommodation for placements outside of easily commutable distances.
- Should students choose to undertake an elective placement beyond the usual geographical placement area for the programme, this may incur travel, health and liability insurance costs to be paid by the student.
- Optional costs: Students are also encouraged to purchase their own anatomical side markers at the start of the programme in the first year.

These costs have been forecast by the University as accurately as possible but may be subject to change as a result of factors outside of our control (for example, increase in costs for external services). Forecast costs are reviewed on an annual basis to ensure they remain representative. Where additional costs are in direct control of the University we will ensure increases do not exceed 5%.

As to be expected there will be additional costs for inter-library loans and potential overdue library fines, print and graduation.

We do not anticipate any further costs for this undergraduate programme.

## **19. Quality management and enhancement**

The quality and standards of learning in BSc (Hons) Radiography (Diagnostic Imaging) Programme are subject to a continuous process of monitoring, review and enhancement.

- The Learning and Teaching Committee of the School of Health and Rehabilitation is responsible for reviewing and monitoring quality management and enhancement procedures and activities across the School.
- Individual modules and the BSc (Hons) Radiography (Diagnostic Imaging) Programme as a whole are reviewed and enhanced every year in the annual programme review which takes place at the end of the academic year and as part of the University's Curriculum Annual Review and Development (CARD) process.
- The programmes are run in accordance with the University's Quality Assurance procedures and are subject to periodic reviews under the Internal Quality Audit (IQA) process.

Student evaluation of, and feedback on, the quality of learning on every BSc (Hons) Radiography (Diagnostic Imaging) module takes place every year using a variety of different methods:

- The results of student evaluations of all modules are reported to module leaders and reviewed by the Programme Committee as part of the Curriculum Annual Review and Development (CARD) process.
- Findings from the annual National Student Survey (NSS) related to the BSc (Hons) Radiography (Diagnostic Imaging) Programme and from regular surveys of the student experience conducted by the University, are subjected to careful analysis and a planned response at programme and School level.
- Feedback received from representatives of students in all three years of the BSc (Hons) Radiography (Diagnostic Imaging) Programme is considered and acted on at regular meetings of the Programme's Student Staff Voice Committee.

The University appoints senior members of academic staff from other universities to act as external examiners on all programmes. The Programme assessment process for BSc (Hons) Radiography (Diagnostic Imaging) is monitored by an External Examiner who is appropriately registered with the HCPC and who is a trained radiographer. They are responsible for:

- Approving examination questions
- Confirming all marks which contribute to a student's degree
- Reviewing and giving advice on the structure and content of the programme and assessment procedures

Information about current external examiner(s) can be found here:

<http://www.keele.ac.uk/qa/externalexaminers/currentexternalexaminers/>

## 20. The principles of programme design

The BSc (Hons) Radiography (Diagnostic Imaging) Programme described in this document has been drawn up with reference to, and in accordance with the guidance set out in, the following documents:

- Benner P (2001) From novice to expert: Excellence and power in clinical nursing practice. Prentice Hall NJ
- Benner P (2009) Expertise in nursing practice: caring, clinical judgment and ethics. Springer Pub Co New York
- College of Radiographers; 2004; The Approval and Accreditation of Education Programmes and Professional Practice in Radiography:
- College of Radiographers 2013; Education and Career Framework for the Radiography Workforce; <https://www.sor.org/learning/document-library/education-and-career-framework-radiography-workforce>
- College of Radiographers, 2012; Quality Standards for Practice Placement;
- College of Radiographers, 2015; Research Strategy;
- College of Radiographers, 2013; Scope of Practice;
- College of Radiographers, 2013; Education and Career Framework for the Radiography Workforce;
- Department of Health 2008; High Quality Care for All: NHS Next Stage Review Final Report;
- Department of Health; Ionising Radiation (Medical Exposure) Regulations 2000; (last update January 2017)
- Department of Health 2008; Modernising Allied Health Professional (AHP) Careers; a competence-based career framework;
- Department of Health 2009; NHS 2010-2015: from good to great. Preventative, people-centred, productive;
- General Teaching Council for England (2006) Research for Teachers: Jerome Bruner's constructivist model and the spiral curriculum for teaching and learning. <http://www.ntrp.org.uk/sites/all/documents/Jerome%20Bruner's%20constructivist%20model%20and%20the.pdf> accessed on line 09.02.17
- Harden RM and Stamper N (1999) What is a spiral curriculum? Medical Teacher Vol 21 No 2
- Health and Care Professions Council 2007; A Disabled Persons Guide to becoming a Health Professional;
- Health and Care Professions Council 2016; Standards of Conduct, Performance and Ethics;
- Health and Care Professions Council 2014; Standards of Education and Training.
- Health and Care Professions Council 2013; Standards of Proficiency- Radiographers
- Health and Care Professions Council 2012; Guidance on Conduct and Ethics for Students;
- Keele University Regulations and Guidance for Students and Staff: <http://www.keele.ac.uk/regulations>
- Keele University Learning and Teaching Strategy to 2020: <https://www.keele.ac.uk/aboutus/strategicplan/learningandteachingstrategy/>
- Quality Assurance Agency for Higher Education, Subject Benchmark Statement: Radiography (2001) <http://www.qaa.ac.uk/en/Publications/Documents/Subject-benchmark-statement-Health-care-programmes---Radiography.pdf>

- Skills for Health 2010; Career Framework for Health Descriptors; <http://www.skillsforhealth.org.uk/career-framework/?sec=cf>
- UK Government Statutory Instrument; Ionising Radiation Regulations 1999; The Stationery Office Ltd
- UK Government; The Equality Act 2010; The Stationery Office Ltd
- UK Quality Code for Higher Education, Quality Assurance Agency for Higher Education: <http://www.qaa.ac.uk/assuring-standards-and-quality/the-quality-code>

## 21. Document Version History

Date of first approved version (v1.0): 5<sup>th</sup> October 2017

Revision history

Version number <sup>11</sup>	Author	Date	Summary of and rationale for changes

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<sup>11</sup> 1.1, 1.2 etc. are used for minor changes and 2.0, 3.0 etc. for major changes (as defined in the University's Guidance on processes supporting curriculum changes)

## Appendix 1

Modules mapped to QAA subject benchmarks (2002) HCPC Standards of Proficiency (2013) SoR Outcomes for Autonomous Practice (2013)

	QAA	HCPC SOPs	SCoR Outcomes
<b>Level 4</b>			
Professional Development 1	B3, C2	3.3, 4.4, 12.1,	3,4,5
Collaborative Practice 1	A1, A2, C2	1.1, 2.1, 2.2, 2.3, 5.2, 7.1, 8, 8.5, 8.7, 9.1, 9.2, 9.5, 10.2, 11.1, 11.21, 13.4	1, 8, 30
Introduction to The Human Body	A3, C1	13.5, 13.21, 13.22	
Foundations of Radiographic Science	A3, B1, B2, C1, C2	2.5, 2.6, 2.9, 13.6, 13.9, 13.10, 14.29, 15.1, 15.5	2
Image Interpretation 1	A3, B2, B3, C1, C2	12.3, 13.14, 14.8, 14.9	15, 19, 27
Introduction to Radiographic Practice	A1, A2, A3, A4, B1, B2, B3, C1, C2	1.1, 2.3, 2.4, 5.1, 5.3, 6, 8.4, 8.5, 8.7, 9.1, 9.2, 9.3, 9.4, 9.5, 10.1, 13.1, 13.7, 13.12, 14.1, 14.18, 14.19, 14.29, 15.3, 15.4, 15.5	2
PEP Year 1	A1, A2, A3, A4, B1, B2, B3, B4, C1, C2	1.1, 1.2, 2.1 to 2.9, 6, 7.2, 11.1, 14.3, 14.4, 14.5, 14.6, 14.7, 14.8, 14.9, 14.10, 14.18, 14.19, 14.21, 14.23, 14.24, 15, 15.2, 15.3, 15.4, 15.6, 15.7	1, 2, 6, 11, 13, 14, 16, 31
<b>Level 5</b>			
Professional Development 2	B3, C2	3.3, 4.3, 12.1, 13.8, 13.15, 14.17	4, 5
Collaborative Practice 2	A1, A2,	1.1, 2.1, 2.3, 2.4, 5.2, 8.4, 9.1, 9.2, 9.5, 9.6, 11.2, 13.4	28, 29,30,33
The Human Body 2	A1, A3, B3, C1	13.5, 13.16, 13.17, 13.21, 13.22	
Exploring Radiation Protection	A1, A3, A4, B1, B2, C1, C2	2.5, 2.6, 2.9, 9.3, 9.4, 10.1, 12.1, 12.3, 12.4, 12.6, 12.7, 13.6, 13.7, 13.9, 13.11, 13.18, 13.19, 14.1, 14.18, 14.20, 14.22, 14.26, 15.1, 15.2, 15.3	3, 11, 12, 14, 18
Image Interpretation 2	A1, A2, A3, B1, B3, C1,C2	2.5, 4.1, 4.4, 4.5, 7.3, 13.14, 14.8, 14.10, 14.35	2, 15, 19, 27

	<b>QAA</b>	<b>HCPC SOPs</b>	<b>SCoR Outcomes</b>
Radiographic Practice 2	A2, A3, A4, B2, B3, C1, C2	1.1, 1.2, 2.1, 2.3, 2.4, 4.1, 4.3, 4.6, 5.2, 5.3, 8.5, 8.7, 8.9, 9.1, 9.3, 9.4, 9.5, 9.6, 12.2, 13.1, 13.7, 13.13, 13.15, 14.1, 14.12, 14.18, 14.19, 14.49, 15.1, 15.3, 15.4, 15.5	1, 2, 10, 12, 20, 28, 29, 30
PEP Year 2	A1, A2, A3, A4, B1, B2, B3, B4, C1, C2	1.1, 2.1 to 2.9, 3.1, 3.3, 4.3, 4.5, 5.1, 5.2, 5.3, 6, 7.2, 8.3, 9.1 to 9.6, 10.1, 10.2, 11.1, 12.3, 12.5, 13.9, 14.1 to 14.35, 15.1 to 15.10,	1, 6, 8, 9, 11, 13, 27,31
<b>Level 6</b>			
Professional Development 3	B3, C2,	4.3, 11.2, 12.1, 12.4, 13.15, 14.8, 14.14, 14.15, 14.16, 14.17	4, 5
Collaborative Practice 3	A2, A4, B3	2.3, 2.4, 5.1, 8.3, 9.1, 9.2, 9.5, 10.2, 11.2, 13.2, 13.4	30, 33
The Human Body – applying knowledge	B1, B2, C1, C2	4.5, 8.8, 13.5, 13.21, 13.22	2, 23
Advanced Imaging Modalities	A3, A4, B2, C1, C2	2.5, 2.6, 2.9, 3.3, 8.8, 13.3, 13.7, 13.9, 13.13, 12.20, 14.2, 14.8, 14.13, 14.29, 15.3	3, 12, 22, 30
Initial Image Commenting	A1, A2, A3, B1, B3, C1,C2	4.1, 4.4, 4.5, 11.2, 12.1, 13.14, 14.8, 14.10, 14.35	15, 19, 27
Radiographic Practice 3	A1, A3, A4, B1, B3, C1, C2	1.1, 1.2, 2.1, 2.3, 2.4, 2.7, 2.9, 4.1, 4.3, 4.6, 5.1, 5.2, 5.3, 6, 7.3, 8.1, 8.3, 8.4, 8.5, 8.6, 8.7, 8.9, 9.1, 9.3, 9.4, 9.5, 9.6, 13.1, 13.7, 13.13, 13.15, 14.1, 14.12, 14.13, 14.18, 14.19, 14.29, 15.3, 15.5	2, 8, 12, 20, 28, 29, 30, 32
PEP Year 3	A1, A2, A3, A4, B1, B2, B3, B4, C1, C2	1.1, 2.1 to 2.9 3.1 to 3.3, 4.1 to 4.6, 5.1 to 5.3, 6, 7.1 to 7.3, 8.1 to 8.9, 9.1 to 9.6, 11.1, 11.2, 12.4, 12.5, 12.7, 13.1 to 13.22, 14.1 to 14.35, 15.1 to 15.10	2, 8, 9, 16, 22, 26, 27, 28, 29, 31, 32, 33

## Indicative Curriculum for Practitioners

Pre-registration students should have the opportunity to gain detailed knowledge, understanding and skills to enable them to achieve the practitioner outcomes for autonomous practice in the following areas:

Behavioural and Social Science	Keele University BSc Hons Radiography (Diagnostic Imaging) Evidence
Principles of psychology, sociology and social psychology	Module Outlines <ul style="list-style-type: none"> <li>• Introduction to Radiographic Practice               <ul style="list-style-type: none"> <li>– Section D LO 1</li> <li>– Section E Employability Skills 1</li> </ul> </li> <li>• Radiographic Practice 2               <ul style="list-style-type: none"> <li>– Section D LO 2</li> </ul> </li> <li>• Radiographic Practice 3               <ul style="list-style-type: none"> <li>– Section D LO 1 (see Indicative Content and Activity)</li> </ul> </li> <li>• Collaborative Practice 2               <ul style="list-style-type: none"> <li>– Section D LO 1, 5</li> </ul> </li> </ul>
Psychological and sociological dimensions of caring for patients undergoing imaging and /or radiotherapy	Module Outlines <ul style="list-style-type: none"> <li>• Introduction Radiographic Practice               <ul style="list-style-type: none"> <li>– Section D LO 1</li> </ul> </li> <li>• Radiographic Practice 2               <ul style="list-style-type: none"> <li>– Section D LO 2</li> </ul> </li> <li>• Radiographic Practice 3               <ul style="list-style-type: none"> <li>– Section D LO 1</li> </ul> </li> <li>• Collaborative Practice 2               <ul style="list-style-type: none"> <li>– Section D LO 6 (see Indicative Content and Activity)</li> </ul> </li> </ul>
The importance of self, self-awareness in developing and managing relationships	Module Outlines <ul style="list-style-type: none"> <li>• Collaborative Practice 2               <ul style="list-style-type: none"> <li>– Section D LO 1,2,3,</li> </ul> </li> <li>• Collaborative Practice 3               <ul style="list-style-type: none"> <li>– Section D LO 1,2,3,4 (see Indicative Content and Activity)</li> </ul> </li> </ul>
Emotional intelligence and resilience	Module Outlines <ul style="list-style-type: none"> <li>• Collaborative Practice 1               <ul style="list-style-type: none"> <li>– Section D LO 3</li> </ul> </li> </ul>

Behavioural and Social Science	Keele University BSc Hons Radiography (Diagnostic Imaging) Evidence
	<ul style="list-style-type: none"> <li>• Collaborative Practice 2               <ul style="list-style-type: none"> <li>– Section D LO 1,5,6</li> </ul> </li> </ul>
Patient centred practice, models of partnership working, enablers and barriers to working collaboratively	Module Outlines <ul style="list-style-type: none"> <li>• Collaborative Practice 1               <ul style="list-style-type: none"> <li>– Section D LO 1,2,3,5</li> </ul> </li> <li>• Collaborative Practice 2               <ul style="list-style-type: none"> <li>– Section D LO 1,2,3,</li> </ul> </li> <li>• Collaborative Practice 3               <ul style="list-style-type: none"> <li>– Section D LO 1,2,3,4 (see Indicative Content and Activity)</li> </ul> </li> </ul>
Communication in context; patients, carers, other Health and Social Care professionals	Module Outlines <ul style="list-style-type: none"> <li>• Collaborative Practice 1               <ul style="list-style-type: none"> <li>– Section D LO 1,2 3</li> </ul> </li> <li>• Collaborative Practice 2               <ul style="list-style-type: none"> <li>– Section D LO 1,2,3,4,6</li> </ul> </li> <li>• Collaborative Practice 3               <ul style="list-style-type: none"> <li>– Section D LO 1,2,3,4 (see Indicative Content and Activity)</li> </ul> </li> </ul> Practice Experience Portfolio Years 1,2 & 3 <ul style="list-style-type: none"> <li>• Portfolio B Radiographic Competency               <ul style="list-style-type: none"> <li>– Effective Radiographic Practice</li> </ul> </li> </ul>
Information and support for patients, carers and significant others	Module Outlines <ul style="list-style-type: none"> <li>• Radiographic Practice 2               <ul style="list-style-type: none"> <li>– Section D (see Indicative Content and Activity)</li> </ul> </li> </ul> Practice Experience Portfolio Years 1,2 & 3 <ul style="list-style-type: none"> <li>• Portfolio B Radiographic Competency               <ul style="list-style-type: none"> <li>– Effective Radiographic Practice</li> </ul> </li> </ul>
Theories and concepts of health and illness	Module Outlines <ul style="list-style-type: none"> <li>• Introduction to the Human Body               <ul style="list-style-type: none"> <li>– Section D LO 1,2,3,4,5</li> </ul> </li> <li>• The Human Body 2               <ul style="list-style-type: none"> <li>– Section D LO 1,2</li> </ul> </li> <li>• The Human Body 3               <ul style="list-style-type: none"> <li>– Section D LO 1,2,3,4</li> </ul> </li> </ul>

Behavioural and Social Science	Keele University BSc Hons Radiography (Diagnostic Imaging) Evidence
The organisation and management of Health and Social Care services within the UK	Module Outlines <ul style="list-style-type: none"> <li>• Collaborative Practice 1               <ul style="list-style-type: none"> <li>– Section D LO 5 (see Indicative Content and Activity)</li> </ul> </li> <li>• Collaborative Practice 2               <ul style="list-style-type: none"> <li>– Section D LO 6</li> </ul> </li> </ul>
Developments and trends in legislation and Health and Social Care policy	Module Outlines <ul style="list-style-type: none"> <li>• Collaborative Practice 3               <ul style="list-style-type: none"> <li>– Section D LO 4 (see Indicative Content and Activity)</li> </ul> </li> </ul>
Ethical and legal principles and models	Module Outlines <ul style="list-style-type: none"> <li>• Collaborative Practice 1               <ul style="list-style-type: none"> <li>– Section D (see Indicative Content and Activity)</li> </ul> </li> </ul>
Legislative, policy and ethical frameworks that underpin, inform and influence the practice of radiographers including children and vulnerable adults	Module outlines: <ul style="list-style-type: none"> <li>• Foundations of Radiographic Science               <ul style="list-style-type: none"> <li>– Section D LO 4</li> </ul> </li> <li>• Exploring Radiation Protection               <ul style="list-style-type: none"> <li>– Section D LO 1,2 &amp; 3 (see Indicative Content and Activity)</li> </ul> </li> <li>• Advanced Imaging Modalities               <ul style="list-style-type: none"> <li>– Section D LO 1</li> </ul> </li> <li>• Radiographic Practice 3               <ul style="list-style-type: none"> <li>– Section D LO All - see Indicative Content and Activities</li> </ul> </li> <li>• Image Interpretation 2               <ul style="list-style-type: none"> <li>– Section D LO 3</li> </ul> </li> </ul>
The role of the radiographer, professional values and attributes, the role of the professional body and the code of professional conduct	Module Outlines <ul style="list-style-type: none"> <li>• Introduction to Radiographic Practice               <ul style="list-style-type: none"> <li>– Section D (see Indicative Content and Activity)</li> </ul> </li> </ul> Practice Experience Portfolio Year 3 <ul style="list-style-type: none"> <li>• Portfolio Assessment A Professional Competency</li> </ul>
Development of professions in the UK, professional regulation and the role of the Health and Care Professions Council	Module Outlines <ul style="list-style-type: none"> <li>• Introduction to Radiographic Practice               <ul style="list-style-type: none"> <li>– Section D (see Indicative Content and Activity)</li> </ul> </li> </ul> Practice Experience Portfolio Year 3 <ul style="list-style-type: none"> <li>• Portfolio Assessment B</li> </ul>

Behavioural and Social Science	Keele University BSc Hons Radiography (Diagnostic Imaging) Evidence
	<ul style="list-style-type: none"> <li>– Professional and Ethical Practice</li> </ul>
Principles of management	Module Outlines <ul style="list-style-type: none"> <li>• Collaborative Practice 3               <ul style="list-style-type: none"> <li>– Section D LO 1,2,3,4 (see Indicative Content and Activity)</li> </ul> </li> </ul>
Theories of judgement and decision making in radiographic practice	Module Outlines <ul style="list-style-type: none"> <li>• Collaborative Practice 3               <ul style="list-style-type: none"> <li>– Section D LO 1,2,3,4 (see Indicative Content and Activity)</li> </ul> </li> <li>• Radiographic Practice 3               <ul style="list-style-type: none"> <li>– Section D LO 2,3</li> </ul> </li> </ul>
Accountability, responsibility and assessment of risk	Module Outlines <ul style="list-style-type: none"> <li>• Professional Development 1               <ul style="list-style-type: none"> <li>– Section D LO 1</li> </ul> </li> <li>• Image Interpretation 2               <ul style="list-style-type: none"> <li>– Section D LO 3</li> </ul> </li> <li>• Initial Image Commenting               <ul style="list-style-type: none"> <li>– Section D LO</li> </ul> </li> <li>• Radiographic Practice 3               <ul style="list-style-type: none"> <li>– Section D LO 2,3 (see Indicative Content and Activity)</li> </ul> </li> </ul> Practice Experience Portfolio Year 3 <ul style="list-style-type: none"> <li>• Portfolio Assessment A               <ul style="list-style-type: none"> <li>– 1-Professional behaviours</li> <li>– 6-Works in a safe manner</li> </ul> </li> </ul>
Definitions of knowledge; scientific and constructivist approaches.	Module Outlines <ul style="list-style-type: none"> <li>• Professional Development 3               <ul style="list-style-type: none"> <li>– Section D (see Indicative Content and Activity)</li> </ul> </li> <li>• Foundations of Radiographic Science               <ul style="list-style-type: none"> <li>– Section E Employability Skills</li> </ul> </li> </ul>
Hierarchies of evidence	Module Outlines <ul style="list-style-type: none"> <li>• Professional Development 1               <ul style="list-style-type: none"> <li>– Section D LO 1,2,3,4,5</li> </ul> </li> </ul>
Selection and interpretation of evidence for imaging and/or radiotherapy practice	<ul style="list-style-type: none"> <li>• Professional Development 1               <ul style="list-style-type: none"> <li>– Section D LO 1,2,3,4,5</li> </ul> </li> </ul>

<b>Behavioural and Social Science</b>	<b>Keele University BSc Hons Radiography (Diagnostic Imaging) Evidence</b>
Reflective practice, models of reflection, learning and clinical supervision	Module Outlines <ul style="list-style-type: none"> <li>• Collaborative Practice 1               <ul style="list-style-type: none"> <li>– Section D LO 4</li> </ul> </li> </ul> Practice Experience Portfolio Year 2 Assessment <ul style="list-style-type: none"> <li>• Portfolio B: Radiographic Competency               <ul style="list-style-type: none"> <li>– Developing the Radiographer</li> <li>– Achieving Quality Care Through Evaluation and Research</li> </ul> </li> </ul> Practice Experience Portfolio Year 1 Page 105 Practice Experience Portfolio Year 2 Page 103 Practice Experience Portfolio Year 3 Page 103
Research and audit methods in health and social care	Module Outlines <ul style="list-style-type: none"> <li>• Professional Development 1               <ul style="list-style-type: none"> <li>– Section D LO 1,2,3,4,5, (see Indicative Content and Activity)</li> </ul> </li> <li>• Professional Development 2               <ul style="list-style-type: none"> <li>– Section D LO 1,2,3,4,5 (see Indicative Content and Activity)</li> </ul> </li> <li>• Professional Development 3               <ul style="list-style-type: none"> <li>– Section D LO 1,2,3,4,5,6 (see Indicative Content and Activity)</li> </ul> </li> </ul>

<b>Physical Science and Technology</b>	<b>Keele University BSc Hons Radiography (Diagnostic Imaging) Evidence</b>
Physical principles of matter, atomic structure, radioactivity	Module Outlines <ul style="list-style-type: none"> <li>• Foundations of Radiographic Science               <ul style="list-style-type: none"> <li>– Section D LO 4</li> </ul> </li> </ul>
Electricity and magnetism	Module Outlines <ul style="list-style-type: none"> <li>• Foundations of Radiographic Science               <ul style="list-style-type: none"> <li>– Section D LO 1</li> </ul> </li> <li>• Advanced Imaging Modalities               <ul style="list-style-type: none"> <li>– Section D LO 1 (see Indicative Content and Activity)</li> </ul> </li> </ul>
The electromagnetic spectrum; heat, light, radio frequencies	Module Outlines <ul style="list-style-type: none"> <li>• Foundations of Radiographic Science               <ul style="list-style-type: none"> <li>– Section D LO 1</li> </ul> </li> </ul>
X-ray production and interactions of photons with matter, related to image quality and radiation dose	Module Outlines <ul style="list-style-type: none"> <li>• Foundations of Radiographic Science</li> </ul>

Physical Science and Technology	Keele University BSc Hons Radiography (Diagnostic Imaging) Evidence
	<ul style="list-style-type: none"> <li>– Section D LO 1,4</li> <li>• Exploring Radiation Protection</li> <li>– Section D LO 1</li> </ul>
Scatter properties related to image quality and radiation dose	Module Outlines <ul style="list-style-type: none"> <li>• Foundations of Radiographic Science               <ul style="list-style-type: none"> <li>– Section D LO 1 (see Indicative Content and Activity)</li> </ul> </li> </ul>
Image acquisition, storage, retrieval and manipulation	Module Outlines <ul style="list-style-type: none"> <li>• Foundations of Radiographic Science               <ul style="list-style-type: none"> <li>– Section D LO 1,2 (see Indicative Content and Activity)</li> </ul> </li> </ul>
Imaging exposure factors related to image quality and radiation dose	Module Outlines <ul style="list-style-type: none"> <li>• Foundations of Radiographic Science               <ul style="list-style-type: none"> <li>– Section D LO 1,2 (see Indicative Content and Activity)</li> </ul> </li> <li>• Image Interpretation 1               <ul style="list-style-type: none"> <li>– Section D LO 2,3 (see Indicative Content and Activity)</li> </ul> </li> </ul>
Sound; characteristics and properties	Module Outlines <ul style="list-style-type: none"> <li>• Advanced Imaging Modalities               <ul style="list-style-type: none"> <li>– Section D LO 1 (see Indicative Content and Activity)</li> </ul> </li> </ul>
Principles of ultrasound imaging	<ul style="list-style-type: none"> <li>• Advanced Imaging Modalities               <ul style="list-style-type: none"> <li>– Section D LO 1, 4, 5 (see Indicative Content and Activity)</li> </ul> </li> </ul> Practice Experience Portfolio Years 1,2 & 3 <ul style="list-style-type: none"> <li>• Placement Guidelines - Ultrasound Department</li> </ul>
Principles of magnetic resonance imaging	Module Outlines <ul style="list-style-type: none"> <li>• Advanced Imaging Modalities               <ul style="list-style-type: none"> <li>– Section D LO 1,4 5 (see Indicative Content and Activity)</li> </ul> </li> </ul> Practice Experience Portfolio Years 1,2 & 3 <ul style="list-style-type: none"> <li>• Placement Guidelines - MRI Department</li> </ul>
Principles of radionuclide imaging	Module Outlines <ul style="list-style-type: none"> <li>• Advanced Imaging Modalities               <ul style="list-style-type: none"> <li>– Section D LO 1,4, 5 (see Indicative Content and Activity)</li> </ul> </li> </ul> Practice Experience Portfolio Years 1,2 & 3 <ul style="list-style-type: none"> <li>• Placement Guidelines - Radionuclide Imaging/Nuclear Medicine Department</li> </ul>

Physical Science and Technology	Keele University BSc Hons Radiography (Diagnostic Imaging) Evidence
Principles of radiobiology; stochastic and non-stochastic, genetic and somatic effects of radiation	Module Outlines <ul style="list-style-type: none"> <li>• Foundations of Radiographic Science               <ul style="list-style-type: none"> <li>– Section D LO 1 (see Indicative Content and Activity)</li> </ul> </li> <li>• Exploring Radiation Protection               <ul style="list-style-type: none"> <li>– Section D LO 1,3 (see Indicative Content and Activity)</li> </ul> </li> </ul>
Principles and application of radiation protection and the measurement of radiation dose	Module Outlines <ul style="list-style-type: none"> <li>• Foundations of Radiographic Science               <ul style="list-style-type: none"> <li>– Section D LO 1,2,3,4</li> </ul> </li> <li>• Exploring Radiation Protection               <ul style="list-style-type: none"> <li>– Section D LO 1,2,3,4 (see Indicative Content and Activity)</li> </ul> </li> </ul>
Principles of radiation dose minimisation and the ALARP ideal	Module Outlines <ul style="list-style-type: none"> <li>• Foundations of Radiographic Science               <ul style="list-style-type: none"> <li>– Section D LO 2, 4 (see Indicative Content and Activity)</li> </ul> </li> <li>• Exploring Radiation Protection               <ul style="list-style-type: none"> <li>– Section D LO 1,2,3,4 (see Indicative Content and Activity)</li> </ul> </li> </ul>
Current European and UK legislation and regulations pertaining to the medical use of radiations	Module Outlines <ul style="list-style-type: none"> <li>• Exploring Radiation Protection               <ul style="list-style-type: none"> <li>– Section D (see Indicative Content and Activity)</li> </ul> </li> </ul>
The roles of operator, practitioner and referrer as identified in IR(ME)R 2000 and its subsequent amendments	Module Outlines <ul style="list-style-type: none"> <li>• Exploring Radiation Protection               <ul style="list-style-type: none"> <li>– Section D LO 3 (see Indicative Content and Activity)</li> </ul> </li> </ul>
Capability, applications and range of technological equipment used for imaging and/or radiotherapy	Module Outlines <ul style="list-style-type: none"> <li>• Advanced Imaging Modalities               <ul style="list-style-type: none"> <li>– Section D LO 1,2,4, 5 (see Indicative Content and Activity)</li> </ul> </li> </ul> Practice Experience Portfolio Years 1,2 & 3 <ul style="list-style-type: none"> <li>• Placement Guidelines - All Modalities</li> </ul>
Current developments and trends in technology and their applications	Module Outlines <ul style="list-style-type: none"> <li>• Advanced Imaging Modalities               <ul style="list-style-type: none"> <li>– Section D LO 1,2,4, 5 (see Indicative Content and Activity)</li> </ul> </li> <li>• Initial Image Commenting               <ul style="list-style-type: none"> <li>– Section D (see Indicative Content and Activity)</li> </ul> </li> <li>– Section E Employability Skills</li> </ul>

Physical Science and Technology	Keele University BSc Hons Radiography (Diagnostic Imaging) Evidence
	Practice Experience Portfolio Year 3 <ul style="list-style-type: none"> <li>• Placement Guidelines - All Modalities</li> </ul>
Principles of information and digital technologies	Module Outlines <ul style="list-style-type: none"> <li>• Image Interpretation 2               <ul style="list-style-type: none"> <li>– Section D LO 2</li> </ul> </li> <li>• Initial Image Commenting               <ul style="list-style-type: none"> <li>– Section E Employability Skills</li> </ul> </li> <li>• Collaborative Practice 1               <ul style="list-style-type: none"> <li>– Section D (see Indicative Content and Activity)</li> </ul> </li> </ul>
Quality assurance and control	Module outlines: <ul style="list-style-type: none"> <li>• Exploring Radiation Protection               <ul style="list-style-type: none"> <li>– Section D LO 2 &amp; 4</li> </ul> </li> <li>• Image Interpretation 1               <ul style="list-style-type: none"> <li>– Section D LO All</li> </ul> </li> </ul> Practice Experience Portfolio Year 2 Assessment <ul style="list-style-type: none"> <li>• Portfolio B: Radiographic Competency               <ul style="list-style-type: none"> <li>– Effective Radiographic Practice</li> <li>– Professional and Ethical Practice</li> </ul> </li> </ul>

Clinical Context and Applications (Imaging)	Keele University BSc Hons Radiography (Diagnostic Imaging) Evidence
Normal and abnormal anatomy and pathophysiology from foetal life to old age with a particular emphasis on its demonstration on diagnostic images	Module Outlines <ul style="list-style-type: none"> <li>• Introduction to the Human Body               <ul style="list-style-type: none"> <li>– Section D LO 2,3,4,5</li> </ul> </li> <li>• The Human Body 2               <ul style="list-style-type: none"> <li>– Section D LO 1,2</li> </ul> </li> <li>• The Human Body 3               <ul style="list-style-type: none"> <li>– Section D LO 2,3</li> </ul> </li> <li>• Image Interpretation 1               <ul style="list-style-type: none"> <li>– Section D LO 4</li> </ul> </li> <li>• Image Interpretation 2               <ul style="list-style-type: none"> <li>– Section D LO 2 (see Indicative Content and Activity)</li> </ul> </li> </ul>

Clinical Context and Applications (Imaging)	Keele University BSc Hons Radiography (Diagnostic Imaging) Evidence
	<ul style="list-style-type: none"> <li>• Initial Image Commenting               <ul style="list-style-type: none"> <li>– Section D LO 2,3</li> </ul> </li> </ul>
Surface anatomy, radiographic terminology	<ul style="list-style-type: none"> <li>• Introduction to the Human Body               <ul style="list-style-type: none"> <li>– Section D LO 1, 2 (see Indicative Content and Activity)</li> </ul> </li> </ul>
Fracture classification, healing of fractures, pathology of musculoskeletal system	Module Outlines <ul style="list-style-type: none"> <li>• Introduction to the Human Body               <ul style="list-style-type: none"> <li>– Section D LO 5 (see Indicative Content and Activity)</li> </ul> </li> <li>• Image Interpretation 2               <ul style="list-style-type: none"> <li>– Section D LO 2 (see Indicative Content and Activity)</li> </ul> </li> </ul>
Factors affecting the quality and acceptability of diagnostic images	Module Outlines <ul style="list-style-type: none"> <li>• Image Interpretation 1               <ul style="list-style-type: none"> <li>– Section D LO 1,2,3 (see Indicative Content and Activity)</li> </ul> </li> </ul>
Interpretation of diagnostic images	Module Outlines <ul style="list-style-type: none"> <li>• Image Interpretation 1               <ul style="list-style-type: none"> <li>– Section D LO 3,4</li> </ul> </li> <li>• Image Interpretation 2               <ul style="list-style-type: none"> <li>– Section D LO 2 (see Indicative Content and Activity)</li> </ul> </li> <li>• Initial Image Commenting               <ul style="list-style-type: none"> <li>– Section D LO</li> </ul> </li> </ul>
Structure and terminology in diagnostic image reports	Module Outlines <ul style="list-style-type: none"> <li>• Initial Image Interpretation               <ul style="list-style-type: none"> <li>– Section D LO 2, 4 (see Indicative Content and Activity)</li> </ul> </li> </ul>
The organisation and delivery of diagnostic imaging services in the UK; recent developments	Module Outlines <ul style="list-style-type: none"> <li>• Image Interpretation 2               <ul style="list-style-type: none"> <li>– Section D LO 3 (see Indicative Content and Activity)</li> </ul> </li> <li>• Collaborative Practice 3               <ul style="list-style-type: none"> <li>– Section D LO 4 (see Indicative Content and Activity)</li> </ul> </li> </ul>
Current trends and developments in applications and techniques applied in diagnostic imaging	Module Outlines <ul style="list-style-type: none"> <li>• Initial Image Commenting               <ul style="list-style-type: none"> <li>– Section D LO 4 (see Indicative Content and Activity)</li> </ul> </li> <li>• Advanced Imaging Modalities               <ul style="list-style-type: none"> <li>– Section D LO 1,2,4,5 (see Indicative Content and Activity)</li> </ul> </li> </ul>

Clinical Context and Applications (Imaging)	Keele University BSc Hons Radiography (Diagnostic Imaging) Evidence
Pharmacology of drugs commonly encountered within diagnostic imaging settings	Module Outlines <ul style="list-style-type: none"> <li>• The Human Body 2               <ul style="list-style-type: none"> <li>– Section D LO 3</li> </ul> </li> </ul>
The theory and practice of intra-venous administration	Module Outlines <ul style="list-style-type: none"> <li>• The Human Body 2               <ul style="list-style-type: none"> <li>– Section D (see Indicative Content and Activity)</li> </ul> </li> </ul>
Supply and administration of medicines	Module Outlines <ul style="list-style-type: none"> <li>• The Human Body 2               <ul style="list-style-type: none"> <li>– Section D (see Indicative Content and Activity)</li> </ul> </li> </ul>
Mandatory training	Practice Experience Portfolio Year 1,2 & 3 <ul style="list-style-type: none"> <li>• Induction/Orientation Checklist</li> </ul> Practice Experience Portfolio Year 3 <ul style="list-style-type: none"> <li>• Portfolio B: Radiographic Competency               <ul style="list-style-type: none"> <li>– Achieving Quality Care Through Evaluation and Research</li> </ul> </li> </ul>
Assessment, monitoring and care of the patient before, during and after examination	Practice Experience Portfolio Years 1,2 & 3 <ul style="list-style-type: none"> <li>• Portfolio C: Clinical Competency Assessment</li> </ul> Practice Experience Portfolio Year 3 <ul style="list-style-type: none"> <li>• Portfolio B: Radiographic Competency               <ul style="list-style-type: none"> <li>– Effective Radiographic Practice</li> </ul> </li> </ul>
Imaging of children and patients with specific needs	Module Outlines <ul style="list-style-type: none"> <li>• Radiographic Practice 3               <ul style="list-style-type: none"> <li>– Section D LO 1,3 (see Indicative Content and Activity)</li> </ul> </li> </ul> Practice Experience Portfolio Year 3 <ul style="list-style-type: none"> <li>• Special Placements</li> </ul>
Processing and related technology supporting imaging systems	Module outlines: <ul style="list-style-type: none"> <li>• Introduction to Radiographic Practice               <ul style="list-style-type: none"> <li>– Section D LO 2, 5</li> </ul> </li> <li>• Radiographic Practice 2               <ul style="list-style-type: none"> <li>– Section D LO 2,3,4</li> </ul> </li> <li>• Radiographic Practice 3               <ul style="list-style-type: none"> <li>– Section D LO 3</li> </ul> </li> <li>• Foundations of Radiographic Science</li> </ul>

Clinical Context and Applications (Imaging)	Keele University BSc Hons Radiography (Diagnostic Imaging) Evidence
	<ul style="list-style-type: none"> <li>– Section D LO 2 &amp; 4</li> <li>• Advanced Imaging Modalities <ul style="list-style-type: none"> <li>– Section D LO</li> </ul> </li> </ul> Practice Experience Portfolio Years 1,2 & 3 <ul style="list-style-type: none"> <li>• Portfolio C: Clinical Competency <ul style="list-style-type: none"> <li>– Section 4 - Radiographic Procedure</li> </ul> </li> </ul>
Manipulation of exposure and image recording parameters	Practice Experience Portfolio Years 1,2 & 3 <ul style="list-style-type: none"> <li>• Portfolio C: Clinical Competency <ul style="list-style-type: none"> <li>– All techniques</li> <li>– All sections</li> </ul> </li> <li>• Portfolio E: Oral Examination <ul style="list-style-type: none"> <li>– Pathology/Abnormality detection</li> <li>– Radiographic Anatomy</li> </ul> </li> </ul> Practice Experience Portfolio Years 1,2 & 3 <ul style="list-style-type: none"> <li>• Portfolio C: Clinical Competency</li> <li>• Portfolio E: Oral Examination</li> </ul>

Conventional radiography:	Keele University BSc Hons Radiography (Diagnostic Imaging) Evidence
Full range of plain radiographic examinations including trauma and non-standard imaging environments (e.g. theatre, ward based):	Practice Experience Portfolio Years 1,2 & 3 <ul style="list-style-type: none"> <li>• Portfolio C: Clinical Competency <ul style="list-style-type: none"> <li>– All techniques</li> <li>– All sections</li> </ul> </li> <li>• Portfolio E: Oral Examination <ul style="list-style-type: none"> <li>– Pathology/Abnormality detection</li> <li>– Radiographic Anatomy</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• appendicular and axial skeleton</li> </ul>	Practice Experience Portfolio Years 1,2 & 3 <ul style="list-style-type: none"> <li>• Portfolio C: Clinical Competency</li> <li>• Portfolio E: Oral Examination</li> </ul>
<ul style="list-style-type: none"> <li>• chest, abdomen and soft tissue structures (including mammography)</li> </ul>	Practice Experience Portfolio Years 1,2 & 3 <ul style="list-style-type: none"> <li>• Portfolio C: Clinical Competency</li> <li>• Portfolio E: Oral Examination</li> </ul>

<ul style="list-style-type: none"> <li>• standard contrast agent examinations</li> </ul>	Practice Experience Portfolio Years 1,2 & 3 <ul style="list-style-type: none"> <li>• Portfolio C: Clinical Competency</li> <li>• Portfolio E: Oral Examination</li> </ul>
<ul style="list-style-type: none"> <li>• mobile and fixed fluoroscopy including invasive or complex procedures that may include contrast agents</li> </ul>	Practice Experience Portfolio Years 1,2 & 3 <ul style="list-style-type: none"> <li>• Portfolio C: Clinical Competency</li> <li>• Portfolio E: Oral Examination</li> </ul>
<ul style="list-style-type: none"> <li>• dental imaging</li> </ul>	To be arranged locally as available see: Practice Experience Portfolio Year 3 <ul style="list-style-type: none"> <li>• Practice Experience Structure               <ul style="list-style-type: none"> <li>– Section 2 g</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• principles of forensic imaging</li> </ul>	To be arranged locally as available during Practice Experience

<b>Computed tomography:</b>	<b>Keele University BSc Hons Radiography (Diagnostic Imaging) Evidence</b>
Techniques for the range of mainstream CT procedures to include:	
<ul style="list-style-type: none"> <li>• standard head CT and examinations of the spine, chest and abdomen in acute trauma</li> </ul>	Practice Experience Portfolio Year 3 <ul style="list-style-type: none"> <li>• Portfolio C: Clinical Assessment               <ul style="list-style-type: none"> <li>– CT Head</li> </ul> </li> <li>• Modality Placement CT Department</li> </ul>
<ul style="list-style-type: none"> <li>• standard contrast agent examinations</li> </ul>	Practice Experience Portfolio Year 3 <ul style="list-style-type: none"> <li>• Portfolio C: Clinical Assessment               <ul style="list-style-type: none"> <li>– CT Head</li> </ul> </li> <li>• Modality Placement CT Department</li> </ul>

<b>Magnetic Resonance Imaging:</b>	
<ul style="list-style-type: none"> <li>• Techniques for standard magnetic resonance imaging procedures</li> </ul>	Module Outlines <ul style="list-style-type: none"> <li>• Advanced Imaging Modalities               <ul style="list-style-type: none"> <li>– Section D LO 4</li> </ul> </li> </ul> Practice Experience Portfolio Year 3 <ul style="list-style-type: none"> <li>• Modality Placement MRI Department</li> </ul>

<b>Principles and concepts underpinning:</b>	
<ul style="list-style-type: none"> <li>• specialised invasive and interventional procedures</li> </ul>	Module Outlines <ul style="list-style-type: none"> <li>• Advanced Imaging Modalities</li> </ul>

	<ul style="list-style-type: none"> <li>– Section D LO 1,4</li> </ul> <p>To be arranged locally as available in Practice Experience</p>
<ul style="list-style-type: none"> <li>• ultrasound imaging</li> </ul>	<p>Module Outlines</p> <ul style="list-style-type: none"> <li>• Advanced Imaging Modalities <ul style="list-style-type: none"> <li>– Section D LO 1,4</li> </ul> </li> </ul> <p>Practice Experience Portfolio Year 3</p> <ul style="list-style-type: none"> <li>• Modality Placement Ultrasound Department - page 76</li> </ul>
<ul style="list-style-type: none"> <li>• radio-nuclide imaging</li> </ul>	<p>Module Outlines</p> <ul style="list-style-type: none"> <li>• Advanced Imaging Modalities <ul style="list-style-type: none"> <li>– Section D LO 1,4</li> </ul> </li> </ul> <p>Practice Experience Portfolio Year 3</p> <ul style="list-style-type: none"> <li>• Modality Placement Nuclear Medicine Department</li> </ul>
<ul style="list-style-type: none"> <li>• positron emission tomography</li> </ul>	<p>Module Outlines</p> <ul style="list-style-type: none"> <li>• Advanced Imaging Modalities <ul style="list-style-type: none"> <li>– Section D LO 1,4</li> </ul> </li> </ul> <p>Practice Experience Portfolio Year 3</p> <ul style="list-style-type: none"> <li>• Modality Placement Nuclear Medicine Department</li> </ul>
<ul style="list-style-type: none"> <li>• lithotripsy</li> </ul>	<p>To be arranged locally as available in Practice Experience</p>
<ul style="list-style-type: none"> <li>• bone densitometry</li> </ul>	<p>Module Outlines</p> <ul style="list-style-type: none"> <li>• Advanced Imaging Modalities <ul style="list-style-type: none"> <li>– Section D LO 1,4</li> </ul> </li> </ul> <p>To be arranged locally as available in Practice Experience</p>
<ul style="list-style-type: none"> <li>• complex image guided procedures, e.g. biopsy, aspiration, line placement</li> </ul>	<p>Module Outlines</p> <ul style="list-style-type: none"> <li>• Advanced Imaging Modalities <ul style="list-style-type: none"> <li>– Section D LO 1,4</li> </ul> </li> </ul> <p>Practice Experience Portfolio Year 3</p> <ul style="list-style-type: none"> <li>• Modality Placement - Breast Imaging</li> </ul>

## Appendix 2

Radiography (Diagnostic Imaging) curriculum set up table

Module Code	Module Title (all are compulsory)	Year of study Full or Part time	Level	Credit value	Academic Assessment	Approx. %	Practice Experience Assessments	Approx. %
	Introduction to the Human Body	Year 1 Full Time	4	20	MCQ paper IPA	50	Portfolio section B/C/E	50
	Foundations of Radiographic Science	Year 1 Full Time	4	20	2-hour short answer exam	50	Portfolio section B/C/E	50
	Image Interpretation 1	Year 1 Full Time	4	20	2-hour image based exam	50	Portfolio section B/C/E	50
	Introduction to Radiographic Practice	Year 1 Full Time	4	20	2,500-word written assignment	50	Portfolio section A/B/C/E	50
	Professional Development 1	Year 1 Full Time	4	20	1,500-word written report	50	Portfolio section B/C/E	50
	Collaborative Practice 1	Year 1 Full Time	4	20	1,500-word reflective analysis Peer review	50	Portfolio section A/B/C/D/E	50
	The Human Body 2	Year 2 Full Time	5	20	2-hour exam 2 sections	50	Portfolio section B/C/E	50
	Exploring Radiation Protection	Year 2 Full Time	5	20	20 minute oral presentation	50	Portfolio section B/C/E	50
	Image Interpretation 2	Year 2 Full Time	5	20	2-hour image based exam 2 sections	50	Portfolio section B/C/E	50
	Radiographic Practice 2	Year 2 Full	5	20	2,500-word written	50	Portfolio section	50

Module Code	Module Title (all are compulsory)	Year of study Full or Part time	Level	Credit value	Academic Assessment	Approx. %	Practice Experience Assessments	Approx. %
		Time			reflection		A/B/C/E	
	Professional Development 2	Year 2 Full Time	5	20	2000-word research proposal	50	Portfolio section B/C/E	50
	Collaborative Practice 2	Year 2 Full Time	5	20	2,000-word critical reflection	80	Portfolio section A/B/C/D/E	50
	The Human Body 3	Year 3 Full Time	6	20	Poster presentation	50	Portfolio section B/C/E	50
	Advanced Imaging Modalities	Year 3 Full Time	6	20	2,500-word written assignment	50	Portfolio section B/C/E	50
	Initial Image Commenting	Year 3 Full Time	6	20	2-hour image based exam 8 cases	50	Portfolio section B/C/E	50
	Radiographic Practice 3	Year 3 Full Time	6	20	2,500-word reflective analysis	50	Portfolio section A/B/C/D/E	50
	Professional Development 3	Year 3 Full Time	6	20	4,000-word research report	100		nil
	Collaborative Practice 3	Year 3 Full Time	6	20	1,000-word structured report 1,000 word reflective analysis	50	Portfolio section A/B/C/D/E	50