

Parkway College of Nursing and Allied Health
School of Nursing and Allied Health
BSc (Hons) Diagnostic Radiography and Imaging
Module Synopsis

4FHH1157 Anatomy, Physiology and Pathology for Imaging 1

Educational Aims

To enable students to:

- Develop a broad understanding of anatomy, physiology, pathology and image appearances related to the systems specified.

Expected Learning Outcomes

On completion of this module, students will typically be able to:

- Understand basic anatomical, physiological and pathological principles and concepts.
- Describe the anatomy of the skeletal and respiratory systems.
- Demonstrate an understanding of the physiology and pathology of the skeletal system including image appearances.
- Identify anatomical structures on a range of diagrams and radiographic images.
- Recognise the radiographic appearances of anatomy and common pathology.

Syllabus

The module will develop knowledge and understanding of basic principles and concepts of anatomy, physiology and pathology. Anatomy of the skeletal and respiratory systems will be the focus. Physiology and common pathologies of the skeletal system will be explored.

Knowledge and understanding of normal and abnormal anatomy as demonstrated on a range of medical images will be included.

4FHH1158 Principles and Applications of Imaging Science 1

Educational Aims

To enable students to:

- Develop knowledge of the fundamental concepts and applications of X-ray imaging science, principles of radiation protection and the regulations governing the use of ionising radiations, so that they may produce high quality diagnostic X-ray images whilst following safe working practices within the healthcare environment.

Expected Learning Outcomes

On completion of this module, students will typically be able to:

- Describe the processes involved in the production of X-rays and their subsequent interactions with matter.
- Explain the principles of ionising radiation induced effects on tissues and potential biologic damage.
- Demonstrate knowledge and understanding of current ionising radiation regulations, protection principles and the minimisation of effects of radiation on humans.
- Describe the components and functions of equipment for conventional X-ray radiography.
- Describe the principles, components and operation of digital X-ray imaging systems.
- Apply their knowledge of X-ray imaging science principles in order to obtain high quality conventional diagnostic X-ray images in keeping with the principles of dose justification, optimisation and limitation.

Syllabus

This module will develop knowledge and skills related to the production of X-rays and their interaction with matter. It will include consideration of the fundamental principles underpinning X-radiography, including the nature of matter and radiations. It will explore the principles of radiation protection and the radiographer's responsibilities. The design, components and functions of imaging equipment will be considered. Units of measurement and basic mathematical conventions in addition to the principles of conventional X-radiography systems will be covered.

4FHH1159 Radiographic Practice and Image Evaluation 1

Educational Aims

To enable students to:

- Acquire and develop skills related to general radiography and image evaluation of the anatomical regions specified and to be introduced to safe and professional working practices within diagnostic imaging.

Expected Learning Outcomes

On completion of this module, students will typically be able to:

- Describe radiographic examination technique of the appendicular skeleton, chest, spine and pelvis.
- Describe the application of safe and professional working practices within diagnostic imaging including practical radiation protection.
- Evaluate images of routine projections of the appendicular skeleton, chest, spine and pelvis.
- Safely undertake routine general radiographic examinations of the appendicular skeleton, chest, spine and pelvis.
- Participate fully in patient preparation, communication and care.
- Accurately maintain a record of clinical experience.

Syllabus

The module provides the basis for students to undertake radiographic practice within the clinical environment. Throughout the module, students will work to develop their clinical skills and apply knowledge in areas of patient care, preparation for radiographic examinations and communication, general radiographic imaging techniques and image evaluation.

Emphasis will be made on safe and professional working practices within diagnostic imaging including practical radiation protection and communication, taking into account the radiographer's role in the multi-professional team.

4FHH1160 Preparation for Professional Practice 1

Educational Aims

To enable students to:

- Develop higher education study skills; and be introduced to professional and regulatory bodies to learn their role in maintaining standards, in order to prepare for clinical practice and lifelong learning as an evidence-based practitioner.

Expected Learning Outcomes

On completion of this module, students will typically be able to:

- Demonstrate understanding of academic standards required for undergraduate study.
- Identify the need for personal and professional development and lifelong learning.
- Recognise their role within the health care team and the importance of professional and regulatory body standards.
- Identify the key components of legislation and mandatory training in relation to their role as a radiographer.
- Demonstrate study skills required for academic study in higher education.
- Demonstrate skills in mandatory training required for professional clinical practice.

Syllabus

The aim of this module is to provide a foundation for academic study in a higher education institution. The importance of personal and professional development and lifelong learning and the need to maintain a record of learning will be a core component of the module.

The module content will introduce students to the hospital environment and mandatory training required for clinical practice. The concepts of client / customer care in relation to patient interactions will be explored.

Students will gain an understanding of the requirements and expected standards of the professional and regulatory bodies. Students will be expected to understand the importance of the provision of high standards of patient / client care.

4FHH1161 An Introduction to Inter-professional Education

Educational Aims

To enable students to:

- Gain an appreciation of the concepts and principles of inter-professional education.
- Explore how inter-professional education may enhance professional practices and patient / user experiences in health and social care provision.

Expected Learning Outcomes

On completion of this module, students will typically be able to:

- Identify and explain the benefits of inter-professional practice in health and social care delivery.
- Describe professional roles and professional principles in relation to health and social care provision.
- Outline how patient / user experiences may be enhanced by inter-professional working.
- Reflect on the skills required for collaborative learning and explain how they may be applied in practice.

Syllabus

The module is designed to give students the opportunity to explore multi-professional working in order to improve understanding of a range of professional roles and encourage co-operative learning and working. The rationale for and benefits of inter-professional working within health and social care are explored.

5FHH1169 Anatomy, Physiology and Pathology for Imaging 2

Educational Aims

To enable students to:

- Develop knowledge of anatomy, physiology, pathology and image appearances related to the systems specified.

Expected Learning Outcomes

On completion of this module, students will typically be able to:

- Have detailed knowledge and understanding of the anatomy of the circulatory, gastrointestinal and genitourinary systems.
- Demonstrate knowledge and understanding of the gross anatomy of the central nervous system.
- Be able to discuss the physiology and physiological effects of a range of pathologies of the respiratory, circulatory and gastrointestinal systems demonstrated by using a broad range of image appearances.
- Identify anatomical structures on a range of diagrams and radiographic images.
- Discuss common patient presentations and interpret related clinical tests.
- Evaluate the radiographic appearances of anatomy and common pathologies.

Syllabus

This module will develop detailed knowledge and understanding of the anatomy of the circulatory, gastrointestinal and genitourinary systems. The gross anatomy of the central nervous system will be introduced. Physiology and pathology of the respiratory, circulatory and gastrointestinal systems will be discussed and explored. Pathology of the various structures and systems specified (excluding genitourinary and central nervous systems) in this module will be explored. Assessment of normal and abnormal anatomy as demonstrated on a range of medical images will be included. An outline of the endocrine system, which underpins the function of many systems mentioned will be discussed.

5FHH1170 Principles and Applications of Imaging Science 2

Educational Aims

To enable students to:

- Further develop their knowledge of the scientific concepts and applications of imaging science, including specialist imaging methods and quality assurance processes for digital imaging systems, so that they may appreciate and follow safe working practices within the healthcare environment.

Expected Learning Outcomes

On completion of this module, students will typically be able to:

- Discuss the principles, components and operation of computed tomography, magnetic resonance imaging, ultrasound and radionuclide imaging.
- Analyse and evaluate the application of digital imaging, picture archiving and communication systems.
- Discuss the principles, components and operation of fluoroscopy, mobile and dental imaging equipment.
- Understand the need for quality assurance testing and maintenance.
- Apply their knowledge of specialist diagnostic imaging equipment in order to obtain high quality diagnostic images whilst minimising potential detriment to patients arising from ionising and non-ionising radiations.

Syllabus

This module will introduce knowledge and skills related to the use of computed tomography equipment, magnetic resonance imaging, ultrasound and radionuclide imaging. The application of PACS as well as problem solving approach to PACS and digital imaging systems will also be covered. The principles of fluoroscopy, angiography, mobile, mammography and dental radiography will be covered. Quality assurance testing of imaging equipment and maintenance will be explored.

5FHH1171 Radiographic Practice and Image Evaluation 2

Educational Aims

To enable students to:

- Develop knowledge and skills in the radiographic imaging, adaptation of technique and image evaluation of the anatomical regions specified.
- Be introduced to best working practices involving complex radiographic examinations.

Expected Learning Outcomes

On completion of this module, students will typically be able to:

- Describe in detail routine and complex radiographic examinations, supplementary projections and image evaluation associated with the skull and facial bones, gastrointestinal and genitourinary systems, mammography, mobiles and theatre and dental radiography.
- Safely perform routine and complex radiographic examinations and supplementary projections of the regions specified.
- Evaluate images associated with routine and complex radiographic examinations and supplementary projections using a range of imaging modalities.
- Participate fully in patient preparation, communication and care.
- Apply safe and professional working practices within diagnostic imaging including practical radiation protection to enable the development of the link between theory and practice.
- Accurately maintain a record of clinical experience.

Syllabus

The module develops the skills for students to undertake clinical practice in the clinical environment.

Throughout the module students will continue to develop their clinical skills in general radiography in routine and complex radiographic examinations, supplementary projections and image evaluation associated with the skull and facial bones, gastrointestinal (incl. biliary tract exams), genitourinary systems (incl. IVUs), mammography, mobiles and theatre and dental radiography.

In addition, a range of imaging modalities, e.g. CT, MRI, RNI and Ultrasound will be explored as relevant. CT imaging will include basic radiographic technique of the head, chest and abdomen. The module also introduces safe and best practice working practices when working with paediatric patients within diagnostic imaging including non-accidental injuries, practical radiation protection, communication and professionalism, taking into account the radiographer's role in the multi-professional team. Special considerations in patient care with regards to more complex imaging and fluoroscopy procedures will be explored.

5FHH1172 Preparation for Professional Practice 2

Educational Aims

To enable students to:

- To explore the radiographers scope of practice in order to enhance the development of employability skills and skills in dealing with a range of issues in the work environment.

Expected Learning Outcomes

On completion of this module, students will typically be able to:

- Describe and discuss the psychosocial aspects of patient/client care as applied to radiography.
- Demonstrate an understanding of the skills required for dealing with a range of issues in the work environment.
- Explore the medico legal aspects of the radiographers' scope of practice.
- Demonstrate competency and proficiency in mandatory training required for practice.
- Develop skills in CV writing to enhance employability.

Syllabus

In this module, the student will be introduced to a range of skills that will underpin their clinical practice.

The module provides an opportunity for students to develop skills in dealing with issues in the work environment including undertaking mandatory training.

Psychology and sociology theory will be applied to clinical practice to allow students to understand the relevance of this important topic area in providing high quality healthcare experiences that meet the needs and expectations of patients / clients and their families / carers.

The module also explores employability skills relevant to CV writing and interview techniques.

5FHH1173 Radiographic Research Methods

Educational Aims

To enable students to:

- Explore research methodologies and evaluate published research relevant to radiography in order to appreciate the need for research in diagnostic radiography and imaging.

Expected Learning Outcomes

On completion of this module, students will typically be able to:

- Recognise the role of research in creating an evidence base, promoting best practice and driving professional development in radiography.
- Appreciate the nature and applications of the available quantitative and qualitative research methodologies in radiography.
- Recognise factors which determine the quality, suitability and ethicality of radiographic research.
- Be aware of systematic processes for literature searching and evaluation.
- Identify suitable methodological approaches and tools for answering commonly encountered radiographic research questions.
- Evaluate the quality of published research, using appropriate frameworks.

Syllabus

This module will introduce students to the range of methodologies and approaches available for conducting primary and secondary radiographic research. The principles which determine methodological quality, suitability and best practice in research will be covered. Students will be able to apply the taught principles of literature evaluation to all of their degree studies and will be prepared for their final-year research exercise.

6FHH1131 Anatomy, Physiology and Pathology for Imaging 3

Educational Aims

To enable students to:

- Develop a systematic understanding of anatomy, physiology, pathology and image appearances related to the systems specified.

Expected Learning Outcomes

On completion of this module, students will typically be able to:

- Demonstrate in-depth knowledge and understanding of the anatomy of the cardiovascular and central nervous systems.
- Analyse the physiology and pathology of the genitourinary, cardiovascular and central nervous systems and have an appreciation for the inter-relationship between the systems specified.
- Identify and define anatomical structures on a range of diagrams and radiographic images.
- Interpret the radiographic appearances of anatomy and common pathologies relating to the systems specified.

Syllabus

This module will develop in-depth knowledge and understanding of the anatomy of the cardiovascular (including lymphatics) and central nervous systems (including the special senses). Physiology and pathology of the genitourinary, cardiovascular (including lymphatics) and central nervous systems (including the special senses) will be critically evaluated. The module will also develop understanding of the inter-relationships between the systems specified.

Pathology of the various structures and systems specified in this module will be evaluated and interpretation of normal and abnormal anatomy as demonstrated on a range of medical images will be included.

6FHH1132 Principles and Applications of Imaging Science 3

Educational Aims

To enable students to:

- Further develop knowledge of the scientific principles and applications of specialist and advanced diagnostic imaging methods.
- Discuss rationales for the choice of specialist and advanced imaging methods in clinical practice.

Expected Learning Outcomes

On completion of this module, students will typically be able to:

- Further discuss and evaluate the principles, components and operation of computed tomography, magnetic resonance imaging, ultrasound and radionuclide imaging.
- Discuss the principles of advanced diagnostic imaging methods.
- Critically discuss the application of current ionising and non-ionising radiation protection, and other related regulations and guidance.
- Justify the application of different modalities within a clinical setting.

Syllabus

This module will develop knowledge and skills related to the science of advanced and specialist imaging methods. In addition, ionising radiation regulations and non-ionising radiation guidance will be covered in relation to safety in clinical practice.

6FHH1133 Radiographic Practice and Image Interpretation 3

Educational Aims

To enable students to:

- Consolidate learning, thereby facilitating the transition from student to practitioner by demonstrating competence and proficiency in performing a wide range of radiographic imaging examinations and demonstrate skills in image evaluation and interpretation.

Expected Learning Outcomes

On completion of this module, students will typically be able to:

- Discuss and justify imaging techniques and image evaluation of trauma, general and complex radiographic procedures, CT head examinations; cardiovascular and interventional radiology; and medical and surgical emergencies.
- Demonstrate competence in imaging techniques and image evaluation of trauma, general and complex radiographic procedures, CT head examinations and medical and surgical emergencies.
- Demonstrate skills in appendicular, chest and CT head image interpretation and descriptive report writing.
- Participate fully in patient preparation, communication and care.
- Demonstrate responsibility and accountability for own working practices within the clinical environment.
- Accurately maintain a record of clinical experience.

Syllabus

This module reflects the developing skills of the student and enables them to undertake practice within the clinical environment. Throughout the module, students will develop their clinical skills and apply knowledge and understanding in areas of trauma, general radiography, and complex procedures including cardiovascular and interventional radiology (including stone removal, stenting, etc.), CT head examinations; medical and surgical emergencies and in situations of uncertainty, e.g. ATLS and major incidents, thus preparing them for graduate practice. A short course on the theory of intra-venous injection will be delivered as part of the module. This module builds on the students' previous knowledge in image evaluation and provides an introduction to the skills required to undertake appendicular, chest and CT head image interpretation and descriptive report writing. Special considerations in patient care and communication in respect to advanced imaging procedures will be explored.

6FHH1134 Preparation for Professional Practice 3

Educational Aims

To enable students to:

- Develop the skills required for meeting the employers' expectations of a newly qualified radiographer.

Expected Learning Outcomes

On completion of this module, students will typically be able to:

- Develop the skills necessary for leadership, mentoring, teaching and assessing others.
- Critically evaluate the role of health education and health promotion and its impact on partnership models of care.
- Critically discuss the theories of service improvement in healthcare and its role within radiology.
- Critically analyse the importance of the role of professional bodies in professional radiographic practice.
- Demonstrate proficiency in mandatory training required for practice.
- Develop employability skills in the job application and selection process.

Syllabus

The focus of the module is to prepare students for their first employment with regards to their professional roles and responsibilities to others and the professional bodies. Special considerations in patient / client care in respect to partnership models of care will be explored.

This module further develops employability skills and prepares students for their first radiography post.

6FHH1135 Preparation for Research in Radiography

Educational Aims

To enable students to:

- Recognise the value of research and audit in underpinning radiographic practice in order to prepare for post-qualification research and audit in diagnostic imaging.

Expected Learning Outcomes

On completion of this module, students will typically be able to:

- Be conversant with the ethical issues and practical processes involved in primary radiographic research.
- Appreciate the role played by research in advancing and disseminating best practice in radiography.
- Develop a toolkit of appropriate research methodologies and instruments for addressing commonly encountered radiographic research questions.
- Recognise the factors which affect the validity and rigour of radiographic research.
- Determine the quality of published radiographic research evidence.
- Analyse and synthesise quantitative and qualitative radiographic data using methodical approaches and present findings.

Syllabus

This module will enable students to apply the research methodologies and principles acquired in the Year 2 research methods module. It will prepare students for future participation in radiography research and audit, via realistic research exercises of relevance to radiographic practice. Students will be equipped to undertake systematic reviews of published literature and analyse primary research data.

6FHH1136 Enhancing Health and Social Care through Inter-professional Education

Educational Aims

To enable students to:

- Further develop skills for inter-professional and collaborative working so that they may contribute positively to the provision of patient / service-user-centred health and social care.

Expected Learning Outcomes

On completion of this module, students will typically be able to:

- Analyse inter-professional and collaborative working strategies that may be used to overcome boundaries between professions.
- Evaluate service delivery in relation to their professional role.
- Apply and evaluate the extent to which their specialist knowledge contributes to patient / service-user experience.
- Demonstrate the skills of autonomy and be able to interact effectively in inter-professional discussion.

Syllabus

This module is designed to give students further opportunities of exploring the importance of multi-professional groups in order to improve understanding across professional boundaries and encourage collaborative learning and working that will bring benefit to patient / service-users. The justification for inclusion of inter-professional working within health care is addressed.

The module requires students to bring specialist in-depth knowledge of their profession and professional codes of conduct to a group setting so that health and social care pathways are critically reviewed in the context of professional practice.