Module Specification

KEY FACTS

Module name	Clinical Applications of Computed Tomography
Module code	RDM019
School	Division of Applied Biological, Diagnostic and Therapeutic Sciences
Department or equivalent	Department of Radiography
UK credits	30
ECTS	15
Level	7

MODULE SUMMARY

Module outline and aims

This module will explore the academic theory behind the various Computed Tomography (CT) techniques and provide you with the knowledge and ability to make informed decisions and judgements about your clinical role.

In order to become a competent and professional member of the team you must understand all aspects of the role and appreciate the factors which can affect the final diagnoses. You must be able to critically analyse this information and apply it to the clinical setting.

It is essential that you be in a position which will enable you to keep up to date with current trends within the speciality of CT. Through the use of student discussions throughout the duration of the module you will be exposed to a range of current working protocols in use in a range of differing clinical settings. This information will enable you to make informed decisions concerning best practice in CT.

In order to undertake the assessments and for this module you must spend a minimum of six weeks in a clinical CT department while the module is running.

This module will provide you with an understanding of the principles and techniques available for use within CT and to allow you to apply your knowledge and skills to the clinical situation and become a confident and reflective practitioner.

Content outline

- Clinical management of the CT service
- Legislation
- Contrast agent use in CT
- Recent and future developments in CT
- For the following areas the general and specific imaging protocols will be discussed together with normal and abnormal pathology for each area:

    1. Head
    2. Spine/Neck
    3. Thorax
    4. Abdomen and Pelvis

5. Musculoskeletal
6. Paediatrics
7. Interventional CT
8. Specialised procedures (3D imaging, CT angiography, Cardiac CT, Radiotherapy planning)

WHAT WILL I BE EXPECTED TO ACHIEVE?
On successful completion of this module, you will be expected to be able to:

Knowledge and understanding:

- Recognise and discuss the appropriate techniques for a range of patient referrals
- Describe and differentiate between normal and abnormal appearances on
- CT images
- Identify a range of image artefacts and explain how to minimise them

Skills:

- Critically evaluate the CT image for a range of different normal and abnormal pathologies
- Evaluate current working practices in the clinical setting
- Demonstrate enhanced problem solving skills
- Justify the need for audit of processes in the clinical setting
- Justify the use of CT for a range of clinical conditions
- Demonstrate enhanced communication skills
- Discuss the requirements for the planning and setting up of a clinical CT
- department
- Evaluate the safety and accuracy of the service provided
- Undertake critical evaluation of relevant literature and research
- Demonstrate enhanced clinical management skills within the CT setting
- Discuss the implications of new techniques and technology within the clinical setting
- Demonstrate enhanced presentation skills
- Critically evaluate relevant literature and research

Values and attitudes:

- Demonstrate empathy and respect towards clients in the clinical setting
- Demonstrate an awareness of cultural differences and how this may affect the behaviour of the client in the clinical setting

HOW WILL I LEARN?

You will be taught by lectures, seminars and student discussions

Teaching pattern:

Teaching component	Teaching type	Contact hours (scheduled)	Self-directed study hours (independent)	Placement hours	Total student learning hours
Clinical management issues	Lecture	10	50	0	60
Legislation and safety	Lecture	5	25	0	30
General and specific imaging protocols	Lecture	10	50	0	60
Image Quality and artefacts	Lecture	5	25	0	30
Clinical aspects	Placement	0	120	0	120
Totals		30	270	0	300

WHAT TYPES OF ASSESSMENT AND FEEDBACK CAN I EXPECT?

Assessments

You will be expected to submit a written case study of 2000 words and an oral presentation of a different case study. The topics of these two pieces of work must cover different body areas and organs. The cases must address abnormal pathology and include critical evaluation of the imaging techniques used.

Assessment pattern:

Assessment component	Assessment type	Weighting	Minimum qualifying mark	Pass/Fail?
Case study	Written assignment including essay	50%	50%	N/A

Oral Presentation	Practical skills	50%	50%	N/A

Assessment criteria

Assessment Criteria are descriptions of the skills, knowledge or attributes you need to demonstrate in order to complete an assessment successfully and Grade-Related Criteria are descriptions of the skills, knowledge or attributes you need to demonstrate to achieve a certain grade or mark in an assessment. Assessment Criteria and Grade-Related Criteria for module assessments will be made available to students prior to an assessment taking place. More information will be available from the module leader.

Feedback on assessment

Following an assessment, you will be given your marks and feedback in line with the Assessment Regulations and Policy. More information on the timing and type of feedback that will be provided for each assessment will be available from the module leader.

Assessment Regulations

The Pass mark for the module is 50%. Any minimum qualifying marks for specific assessments are listed in the table above. The weighting of the different components can also be found above. The Programme Specification contains information on what happens if you fail an assessment component or the module.

INDICATIVE READING LIST

Hansell DM, Armstrong P, Lynch DA, Page McAdams H (2005) Imaging of Diseases of the Chest 4th Edition. Elsevier Mosby

Richard Webb, William E. Brant, Nancy M. Major Fundamentals of body CT / W. (3rd edn, 2006)

Richard Webb W et al (2000) High Resolution CT of the Lung Lippincott Williams and Wilkins

Siegal M J (Editor) (2000) Pediatric Body CT Lippincott Williams and Wilkins

Terrier F (Editor), et al (2001) Spiral CT of the Abdomen (Medical Radiology) Springer-Verlag Berlin and Heidelberg GmbH & Co. KG

E-Book available at City University -

Brain Imaging with MRI and CT [electronic resource] : An Image Pattern Approach / Edited by Zoran Rumboldt, Mauricio Castillo, Benjamin Huang, Andrea Rossi (2012)

Cardiac CT, PET, and MR [electronic resource] / edited by Vasken Dilsizian and Gerry Pohost (2nd edn, 2010)

CT and MR angiography: comprehensive vascular assessment / edited by Geoffrey D. Rubin, Neil M. Rofsky (2009)

CT colonography: principles and practice of virtual colonoscopy / Perry J. Pickhardt, David H. Kim (2011) CT of the airways / edited by Phillip M. Boiselle and David A. Lynch (2008)

Revisiting cardiac anatomy [electronic resource] : a computed-tomography-based atlas and reference / edited by Farhood Saremi ... [et al.] (2011)

Students must also have access to a range of professional journals including:

- British Journal of Radiology
- British Medical Journal
- Clinical Radiology
- Imaging
- Journal of Computed Assisted Tomography
- Radiography
- Manufacturers literature

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Appendix: *see http://www.hesa.ac.uk/content/view/1805/296/ for the full list of JACS codes and descriptions*

CODES

HESA Code	Description	Price Group
4	Anatomy and Physiology	B

JACS Code	Description	Percentage (%)
B821	The study of the principles and techniques in the use of radiation to provide medical diagnostic information	100