

Module Specification

Module Summary Information

1	Module Title	Fundamentals of Ultrasound
2	Module Credits	20
3	Module Level	7
4	Module Code	LBR7545

5	Module Overview
Rationale The Postgraduate Medical Ultrasound programme aims to advance your current professional role to that of a sonographer, where you should be continually seeking to improve your own diagnostic expertise and the patient experience. Your ability to understand and operate sophisticated ultrasound equipment is a major factor contributing to your diagnostic expertise and a sound grasp of patient care, professional and management issues is essential for improving the patient's experience. In order to facilitate these aims the module introduces the principles of ultrasound physics and imaging technology so that you are able to operate ultrasound equipment safely and effectively. An understanding of ultrasound physics is essential so that you understand how the image is produced and how to recognise different body tissues by their ultrasound appearance. Knowledge of ultrasound equipment and machine controls is essential not only to obtain diagnostic images but to improve the quality of those images by applying this knowledge in the clinical setting. This module also enables qualified health care professionals to develop a critical understanding of the patient care, management, medico- legal and ethical issues which contribute to the patient experience in the delivery of a safe and effective ultrasound service. Alignment with Programme Philosophy and Aims This module prepares you for the role of a sonographer by providing you with the learning opportunities to develop your knowledge of ultrasound physics and technology; such that you have a sound understanding of how the ultrasound image is produced. In addition you will learn how to manipulate and optimise the image without compromising patient safety. You will also learn to critically appraise the professional and patient care issues associated with providing an ultrasound imaging service, which is an essential quality of a sonographer and advanced practitioner. Learning and Teaching Strategy In this module you will be attending lectures, workshops and demonstrations of ultrasound equipment. You will also participate in classroom and small group discussions. Each of these activities is supported by post-session, directed self-study such as Moodle questions and quizzes or reading.	

This module is informed by research from two perspectives; through the use of the current evidence base for ultrasound practice as well as through the use of the current evidence base for learning and teaching. This impacts on how the module is presented to you, as well as the content you are encouraged to engage with. The academic staff are involved in developing their learning and teaching expertise as well as working in clinical practice. Expert clinical practitioners will also be invited to deliver sessions within this module.

Moodle is the University virtual learning environment and contains the module learning resources; it is also the main tool for communication between students and module lecturers. Moodle will be used to support the module.

This module prepares you for safe clinical practice by allowing you to apply the material learnt in the classroom to the placement setting.

Assessment Strategy

The module is assessed by two 60 minute examinations at the end of semester one. You will have the opportunity to take formative examinations one for Ultrasound Physics and Technology and one for Professional Issues in Medical Ultrasound.

6	Indicative Content
	Introduction to module & assessment. Principles of ultrasound imaging waves, beam shapes and transducers. Ultrasound interactions and artefacts. Equipment controls. Doppler ultrasound and ultrasound safety. Resource management, equipment and products/Clinical Governance. Medico-legal issues and occupational standards. Ergonomics/Management of Personnel. Medico-legal Issues, Occupational Standards, Quality Management & Clinical Audit. Safeguarding Principles, Confidentiality, Caldicott Principles & Duty of Candour.

7	Module Learning Outcomes
	On successful completion of the module, students will be able to:
	1 Demonstrate a sound knowledge and understanding of ultrasound physics and imaging technology, including issues and recommendations concerning the safe use of ultrasound, as applied to the clinical setting.
	2 Evaluate the appropriateness of equipment and equipment control settings used in the acquisition and recording of ultrasound images.
	3 Apply an understanding of patient care, professional and management issues to the production of protocols, audit and department policy.
	4 Critically evaluate the professional and management issues involved in providing an ultrasound service.

8	Module Assessment		
Learning Outcome			
	Coursework	Exam	In-Person
1-4		x	

9 Breakdown Learning and Teaching Activities	
Learning Activities	Hours
Scheduled Learning (SL) includes lectures, practical classes and workshops, peer group learning, Graduate+, as specified in timetable	30
Directed Learning (DL) includes placements, work-based learning, external visits, on-line activity, Graduate+, peer learning, as directed on VLE	10
Private Study (PS) includes preparation for exams	160
Total Study Hours:	200