Module Specification

Contemporary Advances in Ultrasound Technology

Version: 2023-24, v2.0, 21 Jul 2023

Contents

Part 1: Information

Module title: Contemporary Advances in Ultrasound Technology

Module code: UZYY8Q-15-M

Level: Level 7

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Health & Applied Sciences

Department: HAS School of Health and Social Wellbeing

Partner institutions: None

Field: Allied Health Professions

Module type: Module

Pre-requisites: Fundamentals of Ultrasound Technology 2023-24

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Not applicable

Features: Not applicable

Educational aims: See Learning Outcomes

Outline syllabus: Typically, this module will cover:

Contemporary Advancements

Developments in digital signal processing and imaging- spatial and frequency compound imaging
Non-linear propagation of ultrasound – principles and tissue harmonic imaging
Developments in transducer technology and array designs – 3D and 4D ultrasound
Contrast Enhanced Ultrasound (CEUS) - principles and micro bubble contrast agents
Elastography
High intensity focused ultrasound (HIFU)
Microbubble assisted delivery of drugs and genes
Advances in Doppler techniques - clinical applications
Quality Control and Performance Checks - acceptance testing and phantoms.

Part 3: Teaching and learning methods

Teaching and learning methods: The module will consist of a mixture of lectures and practical workshops and will explore and address issues relating to new technology and quality assurance. The student will be expected to contribute to discussions based on your own knowledge and experiences, recognise gaps in your knowledge and understanding and investigate these areas by asking questions and reading around the subject, particularly current published studies.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Demonstrate in depth and critical knowledge and understanding of contemporary advances in ultrasound technology

MO2 Critically evaluate relevant knowledge to enable optimum use of the ultrasound equipment within the current, internationally recognised recommendations for safe practice

MO3 Design and critically evaluate a relevant investigation.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Total = 150

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://uwe.rl.talis.com

Part 4: Assessment

Assessment strategy: 3000 word written assignment.

Rationale:
This assessment for this module is designed for the student to apply the principles of ultrasound technology to clinical practice. The written assignment will assess the application of basic physical principles in the design of an investigation, in addition to literature searching and essay writing skills. The assignment will assess the students' understanding of the application of technology to current and future practice, and critically reflect on the process. This will require the student to demonstrate an awareness of issues within the field, by keeping abreast of current developments through reading and evaluating.

This form of assessment will enhance the student's perception of the importance and relevance of contemporary advances of diagnostic ultrasound and relate this to clinical practice and will also facilitate the demonstration of higher order cognitive skills such as synthesis and critical analysis in their report.

Formative Assessment:
Students will have the opportunity to engage in an assessment workshop and discuss their planned areas of investigation with peers and academic staff.

Assessment tasks:

Written Assignment (First Sit)
Description: 3000 word written assignment
Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3

Written Assignment (Resit)

Description: 3000 word written assignment

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Medical Ultrasound [Glenside] MSc 2022-23