Module Specification

Smart Sensing

Version: 2024-25, v2.0, 24 May 2024

Contents

Part 1: Information

Module title: Smart Sensing

Module code: USSJLH-15-M

Level: Level 7

For implementation from: 2024-25

UWE credit rating: 15

ECTS credit rating: 7.5

College: College of Health, Science & Society

School: CHSS School of Applied Sciences

Partner institutions: None

Field: Applied Sciences

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: Yes

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: This module will build on the compulsory module, “Innovation for healthcare”, which will allow advanced understanding of these devices. A key topic series in this module will be the introduction of innovative technologies such as implantable and wearable sensors. The module will be delivered through a series of lecture, tutorial and practical classes. By the end of the module the students will be able to design (bio)sensor systems for given healthcare applications. The students

will also be introduced to innovative technology, potentially providing the platform for their independent development of a new biosensor.

Features: Not applicable

Educational aims: The aim of this module is to provide a detailed overview of current sensors and biosensors important to the Healthcare sector.

Outline syllabus: Introduction to Biosensors and biomarkers.

Biomolecular recognition themes.

Sample collection and preparation.

Conventional and nanotechnology-based transduction schemes.

Physical and physiological sensors.

Data analysis and performance factors.

Part 3: Teaching and learning methods

Teaching and learning methods: Lectures: This module will be delivered in integrated lectures, that detail innovative technologies such as implantable and wearable sensors.

Tutorials: Tutorial classes will support each relevant lecture or practical class.

Practical classes: Several classes will be included that are linked to the lecture series offering the students an applied understanding of each topic section.

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

MO1 Critically evaluate sensor systems and how innovative technologies such as implantable and wearable sensors can make an impact on future healthcare.

MO2 Critically review the different types of sensor technologies and their applications, and to apply this knowledge to the practical design and characterisation of a (bio)sensor for a given diagnostic application.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

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/modules/ussjlh-15-m.html

Part 4: Assessment

Assessment strategy: Assessment:
The module assessment is a presentation (10 minutes with 5 minutes Q+A). Students will present on the application of smart sensing in a modern healthcare setting. This assessment will support the diverse student academic backgrounds on this module, by allowing choice of both sensors and setting/s.

Formative feedback opportunities are available through interactive coursework support sessions within lectures.

Assessment tasks:

Presentation (First Sit)
Description: Presentation (15 minutes).
Weighting: 100 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2

Presentation (Resit)

Description: Presentation (15 minutes).

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Health Technology [Frenchay] MSc 2023-24

Health Technology [Frenchay] MSc 2024-25