



Module Specification

Medical Technology and Enterprise

Version: 2024-25, v4.0, 22 May 2024

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Part 1: Information

Module title: Medical Technology and Enterprise

Module code: USSJYX-15-3

Level: Level 6

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: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: This Level 6 optional module is designed as a comprehensive taught coverage of the burgeoning field of medical technology. This includes the biological, materials, and engineering/electronic elements that are combined in innovative ways to form an advanced and continually adapting series of technologies designed to provide solutions for a wide range of medical and healthcare issues and problems in disease diagnosis and prevention, treatment and therapy, including surgical technological developments.

Features: Not applicable

Educational aims: This module aims to provide students with learning about the science and engineering knowledge that is harnessed and combined to create medical devices and technologies. Students will be introduced, through tutorial and case study discussions and exercises, to the innovative and enterprise culture that underpins the ideas and drive that lead to creation and marketing of new technologies. This includes an appreciation of intellectual property and new markets for commercial exploitation of novel technologies, as well as associated ethical issues that may arise when developing and applying novel biomedical-based technologies for diagnosis and treatment of disease, and healthcare quality, to an expanding global and potentially vulnerable population.

Outline syllabus: Diagnosis: Heart monitors, blood pressure monitors, biosensors, MRI scanners, hospitals and point-of-care.

Biomedical engineering: robotics and prosthetics; surgical implants, medicine/vaccine application devices, AI enhancement of medical technologies.

Wearable devices, sensors, airborne threat detection.

Disability and rehabilitation; Assisting the elderly and infirm.

Medical technology and bioethics. Ethical issues associated with medical technology devices, their application and the exploitation of medical technology for commercial gain in a global market; Identifying and protecting intellectual property.

Part 3: Teaching and learning methods

Teaching and learning methods: Theoretical material within the module will be delivered in the form of interactive lectures.

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

MO1 Critically appraise the scope and potential of medical technology in the bio(medical) science sector in diagnostics, disease prevention, treatment and therapy, surgical technology, prosthetics and robotics.

MO2 Appreciate the importance of enterprise in identifying opportunities to develop new medical technologies and applications and the key steps involved in the development of novel medical devices and technologies for the commercial market.

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](https://uwe.rl.talis.com/modules/ussjyx-15-3.html) via the following link <https://uwe.rl.talis.com/modules/ussjyx-15-3.html>

Part 4: Assessment

Assessment strategy: The assessment for this module is a case study (1500 words)

Students research and write upon the steps required to bring a medical technology product to market. Students will demonstrate their understanding of enterprise, through detailing the journey of the product from an initial idea, to laboratory research, through development and translation to market. Students may choose the product or device from a list provided by academic staff. As well as being inclusive this strategy helps to reduce collusion.

Students will be supported to succeed in this assessment through an assessment support session in which a section of the work will be reviewed and verbal feedback will be given by peers and academic staff in class.

Assessment tasks:

Case Study (First Sit)

Description: Case study report (1500 words)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2

Case Study (Resit)

Description: Case study report (1500 words)

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:

Biomedical Science [Sep][PT][Frenchay][6yrs] BSc (Hons) 2019-20

Biomedical Science [Sep][PT][Frenchay][8yrs] MSci 2019-20

Biomedical Science {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2020-21

Biomedical Science [Sep][PT][Frenchay][6yrs] BSc (Hons) 2020-21

Biomedical Science {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2021-22

Biomedical Science [Sep][SW][Frenchay][4yrs] BSc (Hons) 2021-22

Biomedical Science [Sep][SW][Frenchay][5yrs] MSci 2021-22

Biomedical Science [Sep][PT][Frenchay][8yrs] MSci 2020-21

Biomedical Science {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2020-21

Biomedical Science {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2021-22

Biomedical Science [Frenchay] BSc (Hons) 2022-23

Biomedical Science [Frenchay] MSci 2022-23

