

Module Details	
Module Title	Telemedicine and E-Health
Module Code	MHT7015-B
Academic Year	2023/4
Credits	20
School	Department of Biomedical and Electronics Engineering
FHEQ Level	FHEQ Level 7

Contact Hours	
Type	Hours
Lectures	24
Tutorials	8
Laboratories	12
Directed Study	156

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Semester 1
BDB	University of Bradford / Semester 1

Module Aims
<ol style="list-style-type: none"> <li>1. To critically understand telemedicine and E-Health.</li> <li>2. To provide students with good working knowledge on current and emerging technologies on RFID and sensing devices, telecommunications technologies, Internet of Things (IoT) and critically evaluate their roles in telemedicine and E-Health provision.</li> <li>3. To provide students with an in-depth understanding of Electronic Health Records and the different standards.</li> </ol>

## Outline Syllabus

1. Telemedicine and E-health including their historical development, requirements and essential elements/technologies for their provisions.
2. Commonly used health sensing devices and their applications to telemedicine and E-Health provisions.
3. Telecommunications (both wired and wireless) and IoT technologies including 5G communications systems, Low Power Wide Area Networking (LPWAN), Bluetooth, WIFI, Zigbee, Ethernet.
4. Electronic Health Records (EHR) including issues on patient privacy and interoperability as well as different EHR standards such as HL7, CEN EN13606, etc.
5. Supporting telemedicine, telehealth, and telecare through the creation of an app that better the lives of patients while reducing the strain on healthcare systems.

## Learning Outcomes

Outcome Number	Description
01	Demonstrate a comprehensive knowledge and understanding of the principles and technologies necessary to underpin the critical awareness of current problems associated with telemedicine for digital health.
02	Ability to apply and integrate engineering and electronics information concepts relevant to telemedicine and E-Health and to evaluate them critically..
03	Knowledge and comprehensive understanding of the design process and methodologies and the ability to apply them to health care to solve complex engineering problems.
04	Awareness of the ethical conduct in telemedicine and E-Health provision such as patient information confidentiality and privacy
05	Ability to generate and come up with innovative ideas for goods, systems, components, or procedures in order to satisfy newly arising demands.

## Learning, Teaching and Assessment Strategy

Concepts are introduced using formal lectures, tutorials, seminars and laboratories. Deeper/better understanding is developed by solving practical problems in tutorials and software labs. Oral feedback is given during tutorial and laboratory sessions.

The following summative assessments are included:

- Report portfolio of experimental work (50%) to assess LO1, LO2, LO3, LO4 and LO5.
- Report portfolio of experimental work (50%) to assess LO1, LO2, LO3 and LO4.

LO1: SM1fl, SM2fl, SM3fl

LO2: SM3fl, EA1fl, SM3fl, EP4fl

LO3: D1fl, EA3fl

LO4: ET1fl, ET2fl, ET3fl, ET6fl, EP3fl

LO5: D3fl

It is a requirement of the Institution of Engineering and Technology (IET) that students MUST achieve a mark of at least 30% in assessment components weighted above 30% IN ADDITION to achieving a mark of at least 40% in the module overall. This requirement applies ONLY to students on IET accredited programmes, which is the BDA occurrence/version of the module.

The following summative assessments are included:

- Report portfolio of experimental work (50%) to assess LO1, LO2, LO3 LO4 and LO5
- Report portfolio of experimental work (50%) to assess LO1, LO2, LO3 and LO4.

LO1: SM1fl, SM2fl, SM3fl

LO2: SM3fl, EA1fl, SM3fl, EP4fl

LO3: D1fl, EA3fl

LO4: ET1fl, ET2fl, ET3fl, ET6fl, EP3fl

LO5: D3fl

## Mode of Assessment

Type	Method	Description	Weighting
Summative	Laboratory Report	Report Portfolio of one Telemedicine application (3000 words)	50%
Summative	Laboratory Report	Report Portfolio of Experimental Work	50%

## Reading List

To access the reading list for this module, please visit <https://bradford.rl.talis.com/index.html>

*Please note:*

*This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.*