

## University of the West of Scotland

### Module Descriptor

**Session: 2019/20**

Last modified: 29/03/2019 10:27:27

**Title of Module: eHealth and Healthcare Systems**

<b>Code: COMP11070</b>	<b>SCQF Level: 11</b> (Scottish Credit and Qualifications Framework)	<b>Credit Points: 20</b>	<b>ECTS: 10</b> (European Credit Transfer Scheme)
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#### Summary of Module

The domain of eHealth emerges with the advancement in information and telecommunication technologies along with the need of improved healthcare services. Worldwide the market size of eHealth is growing at an astonishing rate; it is estimated that by 2022 it will reach £213 billion globally. eHealth is mainly driven by continuous need of patient monitoring and accessibility of healthcare record at various locations. The adoption of smart devices i.e., smartphone, wearable sensors and other sensing devices around us, has significantly supported eHealth.

This module is specifically designed to cover fundamental concepts in eHealth and their utilization in healthcare services and systems. This module will cover:

- Introduction to modern system healthcare services and systems
- Advancements in eHealth,
- Literacy and education in eHealth
- Data processing for eHealth
- The development process of eHealth systems
- Recent and advanced Healthcare systems
- End-to-end chain of eHealth systems
- The approach taken includes hands-on practical work to illustrate, explore and evaluate aspects of dynamic web development and students are expected to become proficient and creative users of these ubiquitous technologies.
- This module will work to develop a number of the key 'I am UWS' Graduate Attributes to make those who complete this module: Universal • Critical Thinker • Ethically-minded • Research-minded Work Ready • Problem-Solver • Effective Communicator • Ambitious Successful • Autonomous • Resilient • Driven

#### Module Delivery Method

Face-To-Face	Blended	Fully Online
	✓	

##### Face-To-Face

Term used to describe the traditional classroom environment where the students and the lecturer meet synchronously in the same room for the whole provision.

##### Fully Online

Instruction that is solely delivered by web-based or internet-based technologies. This term is used to describe the previously used terms distance learning and e learning.

##### Blended

A mode of delivery of a module or a programme that involves online and face-to-face delivery of learning, teaching and assessment activities, student support and feedback. A programme may be considered "blended" if it includes a combination of face-to-face, online and blended modules. If an online programme has any compulsory face-to-face and campus elements it must be described as blended with clearly articulated delivery information to manage student expectations

#### Campus(es) for Module Delivery

The module will **normally** be offered on the following campuses / or by Distance/Online Learning: (Provided viable student numbers permit)

Paisley:	Ayr:	Dumfries:	Lanarkshire:	London:	Distance/Online Learning:	Other:
✓						

**Term(s) for Module Delivery**

(Provided viable student numbers permit).

Term 1		Term 2	✓	Term 3	
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**Learning Outcomes: (maximum of 5 statements)**

On successful completion of this module the student will be able to:

- L1. Understand eHealth as the next generation of healthcare services and systems
- L2. Demonstrate a comprehensive understanding of technological advancements supporting eHealth services and systems and their compliance with ethics, policies and regulations
- L3. Apply a wide range of data gathering and processing models to support entities within and across eHealth domain
- L4. Make use of various data modalities to design eHealth services and systems
- L5. Develop steps of effective eHealth system

<b>Pre-requisites:</b>	Before undertaking this module the student should have undertaken the following:	
	<b>Module Code:</b>	<b>Module Title:</b>
	<b>Other:</b>	
<b>Co-requisites</b>	<b>Module Code:</b>	<b>Module Title:</b>

\* Indicates that module descriptor is not published.

**Learning and Teaching**

The teaching and learning activities of this module will include lectures, lab work and run seminar/workshops. These activities will be designed to teach fundamentals of eHealth, and practice technological advancements in data sensing, processing and intelligent decision making methodologies/techniques. Ethics, policy and governance related issues will be covered to ensure practice of eHealth is in compliance to current best practices and recommendations.

Lectures will be designed to cover theoretical concepts by developing a comprehensive understanding of eHealth domain. Lab work and tutorial session will help students in understanding and practicing realization of theoretical concepts to eHealth services and systems.

The indicative topics covered in this modules are:

- Introduction to eHealth
- IT infrastructure and governance
- Interface between
  - o individual user (denoted as patient, carer, clinician, organisation)
  - o the technology
  - o the environment (home, hospital, unscheduled care)
- Decision support
- Health literacy
- Users Journey – how data is generated, accessed, processed and governed in health service; types of technology used to support users, carers, and clinicians

- Development process of eHealth system
- Advanced and recent Healthcare systems

<b>Learning Activities</b> During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	<b>Student Learning Hours</b> (Normally totalling 200 hours): (Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture/Core Content Delivery	10
Tutorial/Synchronous Support Activity	8
Laboratory/Practical Demonstration/Workshop	8
Independent Study	172
Asynchronous Class Activity	2
	200 Hours Total

### **\*\*Indicative Resources: (eg. Core text, journals, internet access)**

The following materials form essential underpinning for the module content and ultimately for the learning outcomes:

eHealth: Legal, Ethical and Governance Challenges by Carlisle George

Ehealth - A Global Perspective Paperback by Alan R. Shark D. P. a. (Author), Sylviane Topporkoff (Author), Sylviane Toporkoff (Author)

eHealth Applications: Promising Strategies for Behavior Change (Routledge Communication Series) by Seth M. Noar (Editor), Nancy Grant Harrington (Editor)

Telehealth and Mobile Health (E-Medicine, E-Health, M-Health, Telemedicine, and Telehealth Handbook) by Halit Eren (Editor), John G. Webster (Editor)

Module resources – lectures, lab/tutorial sessions and further reading

Research articles

(\*\*N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk\*) to wait until the start of session for confirmation of the most up-to-date material)

### **Attendance Requirements**

In line with the Academic Engagement and Attendance Procedure, Students are defined as academically engaged if they are regularly engaged with timetabled teaching sessions, course-related learning resources including those in the Library and on Moodle, and complete assessments and submit these on time. Please refer to the Academic Engagement and Attendance Procedure at the following link: [Academic engagement and attendance procedure](#)

### **Supplemental Information**

<b>Programme Board</b>	Computing
<b>Assessment Results (Pass/Fail)</b>	Yes
<b>Subject Panel</b>	Business & Applied Computing
<b>Moderator</b>	Zeeshan Pervez
<b>External Examiner</b>	R Ranson
<b>Accreditation Details</b>	
<b>Version Number</b>	1.04

**Assessment: (also refer to Assessment Outcomes Grids below)**

A formal written report weighted 40% will be required from each student. This report will assess successful attainment of LO1, LO2, and LO3 – ensuring students have to write technical reports to review the latest technologies in the field, and demonstrate learnt skills of algorithms development and implementation and ability to evaluate the current state of the art.

Individual/group project weighted 60%. Provide hands-on experience on tools, technologies, and methodologies realising to develop eHealth services and system for modern healthcare ecosystem with attainment of LO3, LO4, and LO5.

(N.B. (i) **Assessment Outcomes Grids** for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed.

(ii) An **indicative schedule** listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Handbook.)

**Assessment Outcome Grids (Footnote A.)****Component 1**

Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Learning Outcome (4)	Learning Outcome (5)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Review/ Article/ Critique/ Paper	✓	✓				40	0

**Component 2**

Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Learning Outcome (4)	Learning Outcome (5)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Portfolio of practical work			✓	✓	✓	60	0
<b>Combined Total For All Components</b>						100%	0 hours

## Footnotes

A. Referred to within Assessment Section above

B. Identified in the Learning Outcome Section above

## Note(s):

1. More than one assessment method can be used to assess individual learning outcomes.
2. Schools are responsible for determining student contact hours. Please refer to University Policy on contact hours (extract contained within section 10 of the Module Descriptor guidance note).  
This will normally be variable across Schools, dependent on Programmes &/or Professional requirements.