

Module Code:	COM708
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Module Title:	Internet and Mobile App Development
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Level:	7	Credit Value:	20
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Cost Centre(s):	GACP	JACS3 code:	I320
		HECoS code:	100956

Faculty:	Arts, Science and Technology	Module Leader:	Jason Matthews
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Scheduled learning and teaching hours	21 hrs
Guided independent study	179 hrs
Placement	0 hrs
Module duration (total hours)	200 hrs

Programme(s) in which to be offered (not including exit awards)	Core	Option
MSc Computer Science	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Pre-requisites
None

Office use only

Initial approval: 28/11/2018

Version no:1

With effect from: 01/09/2019

Date and details of revision:

Version no:

Module Aims

This module will focus on the design and implementation of mobile applications that integrate with distributed data. This will enable the student to develop an understanding of the current technical issues that enable mobile and web services, including hardware and software considerations, development and implementation of dynamic content and web harvesting.

Students will be encouraged to consider the design and development of an effective presence on mobile devices. The balance between security, the user interface, performance and accessibility will be examined and the problems associated with updateable data explored.

Intended Learning Outcomes

Key skills for employability

- KS1 Written, oral and media communication skills
- KS2 Leadership, team working and networking skills
- KS3 Opportunity, creativity and problem solving skills
- KS4 Information technology skills and digital literacy
- KS5 Information management skills
- KS6 Research skills
- KS7 Intercultural and sustainability skills
- KS8 Career management skills
- KS9 Learning to learn (managing personal and professional development, self-management)
- KS10 Numeracy

At the end of this module, students will be able to

Key Skills

At the end of this module, students will be able to		Key Skills	
1	Critically evaluate the properties and capabilities of modern mobile devices and the specific issues related to software development.	KS1	KS3
		KS6	
2	Use a current development environment to design, develop, deploy and debug an appropriate application interface on a mobile device that interacts with a subset of data, where the data is held on an online or offline DBMS.	KS1	KS4
		KS5	KS6
3	Develop dynamic content using appropriate technologies.	KS1	KS3
		KS5	
4	Demonstrate an in-depth understanding of accessibility issues within the development of mobile and web-service oriented apps.	KS1	KS3

Transferable skills and other attributes

Derogations

None

Assessment:

Indicative Assessment Tasks:

The module is assessed through the development of an application that implements some of the current mobile technologies and web services, together with supporting documentation in the form of a research and design-based report. Initially, there will be an element of analysis and design of an appropriate data-driven mobile app. From this analysis and design, students will be expected to develop a mobile app.

Students will apply the software development lifecycle to the design and development of their application. At regular meetings the students will have an opportunity to review and reflect on their progress. Marks for the work will be derived from: the software deliverable; the application of appropriate theories, technologies and good practice; and documentation reflecting on the work done and the processes involved.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)	Duration (if exam)	Word count (or equivalent if appropriate)
1	1, 2, 3, 4	Coursework	100		

Learning and Teaching Strategies:

Lectures, supported by tutorials and practical sessions where students get the opportunity to put theory into practice.

The lectures will focus on presenting key topics and concepts, whereas the practical/tutorial-based learning will provide exposure to hardware and software platforms, and the use of toolkits for designing and developing mobile apps.

These sessions will also support the study of underlying subject-based concepts and principles including HCI, object-orientation, client/server and mobile development. Formative, self-directed exercises will be used to support transfer of knowledge and understanding.

Students will have access to lecture materials, and ancillary resources, via the University's VLE platform.

Syllabus outline:

Mobile Devices: an introduction to mobile device technologies; hardware, software, characteristics; visions of pervasive and ubiquitous computing.

Mobile devices and distributed computing: features and limitations; Web services; device databases, remote databases and data access; position determination and location aware apps.

Mobile Device Development: the Visual Studio mobile development tools; device emulation;

creating, debugging and deploying mobile apps.

Distributed computing technologies, approaches to device programming, the distributed object model and remote method invocation, message queuing; databases and distributed apps; data access technologies; current and future standards.

Design: mobile application HCI and design guidelines; features and limitations; concurrency in clients and servers; asynchronous vs. synchronous operation; Ethical, Legal, Privacy and Security Issues.

The development of dynamic content for various platforms, including mobile delivery and voice services.

General Data Protection Regulation (GDPR); in regards privacy, when developing mobile apps.

Indicative Bibliography:

Essential reading

There are no essential texts; the module will use relevant online reference material.

Other indicative reading

Android Developer Guides

<https://developer.android.com/guide/index.html>

Apple Developer Documentation

<https://developer.apple.com/documentation/>