

## MODULE DESCRIPTOR

### Module Title

Hybrid Apps

Reference	CM3138	Version	1
Created	September 2023	SCQF Level	SCQF 9
Approved	May 2020	SCQF Points	15
Amended		ECTS Points	7.5

### Aims of Module

To develop the student's proficiency in utilising hybrid mobile app development tools to create apps capable of running on multiple mobile platforms.

### Learning Outcomes for Module

On completion of this module, students are expected to be able to:

- 1 Demonstrate practical knowledge of the major components of a hybrid app and how they function together.
- 2 Draw on the facilities of a hybrid app development framework and supporting tools to implement interactive hybrid apps capable of performing common app functionalities.
- 3 Make judgements on the use of appropriate design, testing and documentation processes for hybrid mobile applications.
- 4 Assess security implications in the development of hybrid mobile applications.

### Indicative Module Content

Overview of hybrid app development frameworks and IDEs (e.g. Ionic, React Native, Flutter). Use of APIs within the available frameworks. Creating custom classes and inheritance. Controls and target-action within the IDE and GUI. Design implications inherent in touch-based applications e.g. memory management, battery life, screen display, navigation controls. Creation of applications that exploit the features of the modern mobile devices e.g. accelerometer, audio, video, touch and multi-touch on multiple devices. Security analysis of hybrid apps.

### Module Delivery

Key concepts and ideas are introduced in lectures. In the lab sessions, the students will develop and implement practical aspects of mobile applications. The labs will involve the use of existing IDE and GUI tools for the development, deployment and testing of GUI applications.

**Indicative Student Workload**

	Full Time	Part Time
Contact Hours	30	N/A
Non-Contact Hours	120	N/A
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	N/A
<i>Actual Placement hours for professional, statutory or regulatory body</i>		

**ASSESSMENT PLAN**

If a major/minor model is used and box is ticked, % weightings below are indicative only.

**Component 1**

Type:	Coursework	Weighting:	100%	Outcomes Assessed:	1, 2, 3, 4
Description:	The coursework will be an extended software design and development exercise.				

**MODULE PERFORMANCE DESCRIPTOR****Explanatory Text**

The calculation of the overall grade for this module is based on 100% weighting of C1. An overall minimum grade of D is required to pass the module.

Module Grade	Minimum Requirements to achieve Module Grade:
<b>A</b>	The student needs to achieve an A in C1.
<b>B</b>	The student needs to achieve a B in C1.
<b>C</b>	The student needs to achieve a C in C1.
<b>D</b>	The student needs to achieve a D in C1.
<b>E</b>	The student needs to obtain an E in C1.
<b>F</b>	The student needs to obtain an F in C1.
<b>NS</b>	Non-submission of work by published deadline or non-attendance for examination

**Module Requirements**

Prerequisites for Module	The student should have previous experience of programming and/or experience with developing with web technologies.
Corequisites for module	None.
Precluded Modules	None.

**INDICATIVE BIBLIOGRAPHY**

- 1 Dormann, A. Ionic 6: Create awesome apps for iOS, Android, Desktop and Web. D&D Verlag Bonn
- 2 Dakic, M. Mobile app development for businesses : create a product roadmap and digitize your operations. Springer, 2023.
- 3 NOUVELLE, B. Simulations in Swift 5, Apress, 2019
- 4 Fu, Z. Build mobile apps with Ionic 4 and Firebase : hybrid mobile app development. Spring. 2018