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Module Descriptor

Mobile App Development (Computing and Mathematics)

Mobile App Development (A14082)

Short Title: Mobile App Development
Department: Computing and Mathematics
Credits: 10 **Level:** Postgraduate

Description of Module / Aims

The aim of this module is to enable the understanding and critical evaluation of mobile app (application) development using native platform technologies, their software frameworks, design patterns and programming tools. The module will draw parallels between competing platforms while also highlighting where they differ.

Programmes

		stage/semester/status
COMP-0486	MSc in Computer Science (Enterprise Software Systems) (WD_KCESS_R)	1 / 0 / E

Indicative Content

- Platforms: Operating systems, capabilities, screen size, non-traditional elements (e.g. GPS (Global Positioning Systems)), battery issues
- Programming: Software frameworks, APIs (Application Programming Interfaces), design patterns
- Human Interface: Designing User Interfaces in accordance with guidelines for touch-screen mobile devices. Also, pulling information from implied sources (e.g. GPS, accelerometers)
- Deployment: Running software on a device in developer mode and pushing a completed app to the relevant app stores

Learning Outcomes

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

1. Generalise competency in mobile application development across a number of different platforms.
2. Assess the benefits and drawbacks of native app development from both a technical and organisatonal viewpoint.
3. Design effective front-end development in accordance with human interface guidelines.
4. Create mobile apps from conception throught to completion.
5. Deploy a native app to its targeted platform.

Learning and Teaching Methods

- Lectures will introduce the general context of the curriculum, and explore specific topics in depth. Guided and scripted practicals will lead the student through the construction of an application designed to illustrate key concepts covered in the lectures. The focus is on learning by doing in a studio environment. Each practical will propose a set of exercises – to be solved in a subsequent practical.
- The Project will invite the student to analyse, design and implement a new application on two competing platforms and subsequently critically analyse both applications in a report.

Learning Modes

Learning Type	F/T Hours	P/T Hours
Lecture	24	24
Practical	24	24
Independent Learning	222	222

Assessment Methods

	Weighting	Outcomes Assessed
Continuous Assessment	100%	
Project	100%	1,2,3,4,5

Assessment Criteria

<40%: Unable to implement a relatively basic application. Cannot grasp fundamentals of the application lifecycle or operate an appropriate IDE (Integrated Development Environment).

40%–59%: Understand the basics of the application lifecycle. Ability to model and implement an application of moderate complexity on two separate platforms – including $>$ 5 views + a simple persistence mechanism. Be able to use multiple IDEs competently and debug applications.

60%–69%: Be able to implement a sophisticated application with multiple view / navigation mechanisms on two separate platforms. The applications will have local persistent storage and be able to interact with a remote service at a basic level.

70%–100%: All of the above to an excellent level. In addition the applications should demonstrate a more sophisticated interaction with external services, and may leverage on device sensors and subsystems.

Essential Material(s)

- "Android Developer site." http://developer.android.com
- "Apache Cordova site." https://cordova.apache.org
- "iOS Developer site." http://developer.apple.com/ios

Supplementary Material(s)

- Camden, R. *Apache Cordova in Action*. New York: Manning, 2015.
- Neuburg, M. *iOS 9 Programming Fundamentals with Swift: Swift, Xcode, and Cocoa Basics*. New York: O'Rielly, 2015.
- Phillips et al, B. *Android Programming: The Big Nerd Ranch Guide*. New York: Pearson, 2015.

Requested Resources

- Computer Lab: BYOD Lab