2024 / 25

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South East Technological University

Module Descriptor

Mobile App Development 1 (Computing and Mathematics)

Mobile App Development 1 (A13663)

Short Title: Mobile App Development 1
Department: Computing and Mathematics
Credits: 5 **Level:** Advanced

Description of Module / Aims

Design, build and deploy a multi-screen mobile application incorporating an intuitive and efficient navigation mechanism. Structure the implementation using accepted best-practice with respect to patterns, frameworks and tools. Incorporate localised persistence models + simple access to remote services. Introduce context services such as location/camera and/or other sensor access.

Programmes

		stage/semester/status
COMP-0630	BSc (Hons) in Applied Computing (International) (WD_KACCM_BI)	4 / 7 / M
COMP-0630	BSc (Hons) in Applied Computing (WD_KACCM_B)	4 / 7 / M
COMP-0630	BSc (Hons) in Applied Computing (WD_KCOMP_B)	4 / 7 / M
COMP-0630	BSc (Hons) in Computer Forensics and Security (WD_KCOFO_B)	4 / 7 / M
COMP-0630	BSc (Hons) in Computer Science (WD_KCMSC_B)	4 / 7 / M
COMP-0630	BSc (Hons) in Creative Computing (WD_KCRCO_B)	4 / 8 / M
COMP-0630	BSc (Hons) in Multimedia Applications Development (WD_KMULM_B)	4 / 1 / M
COMP-0630	BSc (Hons) in Software Engineering (WD_KDEVP_BI)	3 / 6 / M
COMP-0630	BSc (Hons) in Software Systems Development (WD_KDEVP_B)	3 / 6 / M
COMP-0630	BSc (Hons) in the Internet of Things (International) (WD_KINTT_BI)	3 / 6 / M
COMP-0630	BSc in Applied Computing (WD_KCOMP_D)	3 / 6 / M
COMP-0468	BSc in Information Technology (WD_KINFT_D)	2 / 4 / M
COMP-0630	BSc in Software Systems Development (WD_KCOMC_D)	3 / 6 / M

Indicative Content

- Application Structure: Components; Resources; Security; General Assets
- User Experience: UX Principles, Navigation, Imagery, Fonts
- Simple User Interaction Patterns
- Essential Application Structure Patterns: Appropriate Variations on Model/View/Controller (MVVM, MVP etc. . .)
- Resource access and management; Clean separation of concerns
- Application Life-cycle: Startup/shutdown; Foreground/background
- UI State Preservation and Restoration; Concurrency

Learning Outcomes

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

1. Decompose an application into its constituent parts, including but not limited to: core application components, user experience resources, packaging.
2. Design a coherent User Experience - using appropriate tools, practices and guidelines - for a moderately sized application.
3. Produce medium sized application, based on a limited set of design patterns.
4. Manage the application lifecycle.
5. Structure persistent storage on a device and reliably save and restore application state.

Learning and Teaching Methods

- Lectures will introduce the general context of the curriculum, and explore specific topics in depth.
- Supervised, 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.
- Assignment One will focus ensuring the student can construct a new application equivalent in style and structure to the guided practical.
- Assessment Two will invite the student to analyse, design and implement a new application.

Learning Modes

Learning Type	F/T Hours	P/T Hours
Lecture	24	12
Practical	24	12
Independent Learning	87	111

Assessment Methods

	Weighting	Outcomes Assessed
Continuous Assessment	100%	
Assignment	50%	1,2,5
Assignment	50%	3,4,5

Assessment Criteria

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

40%–49%: Be able to implement at simple application, with 2-3 separate views/activities.

50%–59%: Understand the basic of the application lifecycle and operate an IDE at a basic level. Ability to model and implement an application of moderate complexity – including $>$ 3 views $+$ a simple persistence mechanism.

60%–69%: Be able to use an IDE competently and degug applications. Be able to implement a reasonably sophisticated application with multiple view / navigation mechanisms. The application will have local persistent storage and be able to interact with a remote service as a basic level (read only say).

70%–100%: All the above to an excellent level. Be able to build an application that can access on device sensors / subsystems (e.g. location or camera).

Essential Material(s)

- "Android Developer Resouces." http://developer.android.com
- "Apple Developer Resources." http://developer.apple.com/ios
- "Cordova Developer Resources." https://cordova.apache.org

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, B. *Android Programming: The Big Nerd Ranch Guide.* New York: Pearson, 2015.

Requested Resources

- Computer Lab: BYOD Lab