



Title:	Programming Mobile Devices APPROVED
Long Title:	Programming Mobile Devices
Module Code:	SOFT7035
Duration:	1 Semester
Credits:	5
NFQ Level:	Intermediate
Field of Study:	Computer Software
Valid From:	Semester 1 - 2017/18 (September 2017)
Module Delivered in	4 programme(s)
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Module Description:	This module covers the concepts, design strategies, tools and APIs needed to create, test and deploy applications for mobile devices that may include wearable, smartphones, tablets, TV & embedded devices. The student will also learn how to programmatically access mobile devices sensor capabilities such as GPS, accelerometer, magnetometer etc.
Learning Outcomes	
<i>On successful completion of this module the learner will be able to:</i>	
LO1	Design and implement the structure of a smartphone application using the operating systems life-cycle model.
LO2	Create user interfaces for mobile devices, such as a smartphone, that include various user interface components, graphics and multimedia.
LO3	Programmatically access a mobile device's hardware sensors for example location, orientation, accelerometer, camera etc.
LO4	Utilise background services in a mobile device.
LO5	Design and implement applications for devices such as wearables, tablets, TV and Internet of Things (IoT).
Pre-requisite learning	
Module Recommendations	
<i>This is prior learning (or a practical skill) that is strongly recommended before enrolment in this module. You may enrol in this module if you have not acquired the recommended learning but you will have considerable difficulty in passing (i.e. achieving the learning outcomes of) the module. While the prior learning is expressed as named CIT module(s) it also allows for learning (in another module or modules) which is equivalent to the learning specified in the named module(s).</i>	
Incompatible Modules	
<i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module. You may not earn additional credit for the same learning and therefore you may not enrol in this module if you have successfully completed any modules in the incompatible list.</i>	
No incompatible modules listed	
Co-requisite Modules	
No Co-requisite modules listed	
Requirements	
<i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed. You may not enrol on this module if you have not acquired the learning specified in this section.</i>	
Successful completion of a module such as Object Programming COMP7013.	

Module Content & Assessment

Indicative Content

User Interface and Lifecycle

Standard smartphone user interface components, event model and application life cycle. Customising components. accessing multimedia, 2D drawing and drawing primitives, 3D drawing and animation.

Sensors

Accessing mobile sensors for example accelerometer, temperature, light, camera, location and audio.

Background services

Utilise background services including notification to the user from a such a service for example receivers, broadcasters, alarms.

Alternative Devices

API for wearables, tablet, TV, IoT etc. Wearable user interface, life cycle and synchronisation with host device. Communications between mobile devices using for example Bluetooth, NFC. Communication with 'Internet of Things' devices.

Assessment Breakdown

	%
Course Work	100.00%

Course Work

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Project	Assignment to develop a mobile application with advanced UI components, customised components.	1,2	40.0	Week 8
Project	Assignment to develop a smartphone and/or wearable application that can intercommunicate, use background services and access sensors.	1,2,3,4,5	60.0	Sem End

No End of Module Formal Examination

Reassessment Requirement

Coursework Only

This module is reassessed solely on the basis of re-submitted coursework. There is no repeat written examination.

The institute reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time				
<i>Workload Type</i>	<i>Workload Description</i>	<i>Hours</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	Lecture delivery content underpinning learning outcomes.	2.0	Every Week	2.00
Lab	Developing: examples & assignments.	2.0	Every Week	2.00
Independent Learning	Independent Study.	3.0	Every Week	3.00
Total Hours				7.00
Total Weekly Learner Workload				7.00
Total Weekly Contact Hours				4.00

Workload: Part Time				
<i>Workload Type</i>	<i>Workload Description</i>	<i>Hours</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	Lecture delivery content underpinning learning outcomes.	2.0	Every Week	2.00
Lab	Developing: examples & assignments.	2.0	Every Week	2.00
Independent Learning	Independent Study.	3.0	Every Week	3.00
Total Hours				7.00
Total Weekly Learner Workload				7.00
Total Weekly Contact Hours				4.00

Module Resources

Recommended Book Resources

- Mark L. Murphy 2017, *The Busy Coder's Guide to Android Development*, CommonsWare <https://commonsware.com/Android/> [ISBN: 9780981678009]

Supplementary Book Resources

- Paul Deitel, Harvey Deitel, Alexander Wald 2015, *Android 6 for Programmers: An App-Driven Approach*, 3 Ed., Prentice Hall [ISBN: 9780134289366]
- Paul Deitel, Harvey Deitel 2015, *Swift for Programmers*, 1 Ed., Prentice Hall [ISBN: 9780134021362]
- Jason Kneen, *Appcelerator Titanium Smartphone App Development Cookbook*, 2 Ed., Packt Publishing [ISBN: 9781849697705]
- Bonnie Eisenman 2015, *Learning React Native: Building Native Mobile Apps with JavaScript*, 1 Ed., O'Reilly Media [ISBN: 9781491929001]

This module does not have any article/paper resources

Other Resources

- Website: Adroid Community *Adroid platform developer resource*
<http://developer.android.com/>
- Website: *The Appcelerator Platform*, web
<http://www.appcelerator.com/>
- Website: Apple Inc 2016, *Apple Developer Website*, online
<https://developer.apple.com/>

Module Delivered in

Programme Code	Programme	Semester	Delivery
CR_KSDEV_8	<u>Bachelor of Science (Honours) in Software Development</u>	5	Mandatory
CR_KDNET_8	<u>Bachelor of Science (Honours) in Computer Systems</u>	5	Elective
CR_KCOMP_7	<u>Bachelor of Science in Software Development</u>	5	Elective
CR_KCMSD_8	<u>Higher Diploma in Science in Cloud & Mobile Software Development</u>	2	Mandatory