Zarqa University
Faculty: Information Technology
Department: Internet Technology
Course title: Mobile Programming (1504385)

Instructor: Dr. Khaled Alqawasmi
Dr. Gassan Samarah
Lecture's time: 9 – 10, 9:30 -11
Semester: Second: 2017/2018
Office Hours: 11-12, 12-1

Course description:

This course is targeted for students who want to start writing mobile applications on Android platforms. Android became a formidable mobile operating system, and this course will provide a solid foundation for developing Android apps through hands-on learning. We will get started with the basics of Android programming by covering the most recent version of Android and understanding its development framework. We will learn both the fundamentals and the nuts and bolts of Android and have an exciting opportunity to write feature-rich Android applications that may be published in the Android market

Aims of the course:

The main goal of this course is that students obtain the Knowledge and Understanding to:

1) introduce students to a contemporary object-oriented programming language and integrated development environment
2) introduce advanced concepts in a broad range of Android features and technologies
3) introduce Android business/marketing issues

Intended Learning Outcomes: (ILOs)

Upon completion of the course students should be able to:

A. Introduction to the internals of the Android OS
B. Design android applications using XML layouts as well as Java programmed Views.
C. Create user interfaces for mobile devices using layouts, event handlers, and widgets, views, and menus.
D. Analyze documentation and debug Android applications using tools provided in Android Studio.
E. Use the file system and relational databases for local storage on a mobile device
F. Implement Android applications that are deployed across emulated and real devices.

Course structures:

Week	Credit Hours	ILOs	Topics	Teaching Procedure	Assessment methods
1	3	A	**Introduction and review** • Android Overview • Mobile OS • Android OS • Java review (OOP)	Presentation methods and techniques, Sources of information and Instructional Aids	Diagnostic tests to identify the students level and areas of weakness Formal (stage) evaluation a) Class Participation b) Ist Exam c) 2nd Exam d) Activity file
2	3	A,B	**Android Studio 3.0.1** • Installing Java, • Android Studio, and the Android SDK	Presentation methods and techniques, Sources of information and Instructional	Diagnostic tests to identify the students level and areas of weakness Formal (stage) evaluation a) Class Participation

			• Overview of Android Application Development • Android Development Environment • MVC, SDK , API Level , Emulators and Physical devices • Publishing Apps • Resources	Aids	b) Ist Exam c) 2nd Exam d) Activity file
3	3	B,C	**User Interface I** Layouts Activities XML Views View Groups (Containers) Widgets Res Mipmap Values Language and version Support	Presentation methods and techniques, Sources of information and Instructional Aids	Diagnostic tests to identify the students level and areas of weakness Formal (stage) evaluation a) Class Participation b) Ist Exam c) 2nd Exam d) Activity file
4	3	B,C	**User Interface II** • Views and widgets • Styles • Attributes • events • Android Views (Buttons TextView,CheckBox and Radiobutton. • Responding to User Input	Presentation methods and techniques, Sources of information and Instructional Aids	Diagnostic tests to identify the students level and areas of weakness Formal (stage) evaluation a) Class Participation b) Ist Exam c) 2nd Exam d) Activity file
5	3	B,C,F	**User Interface III** • Responding to User Input • Seek bar • Imageview • Toast • Alertdialog • Time and date • Manifest File • Colors and Material Design	Presentation methods and techniques, Sources of information and Instructional Aids	Diagnostic tests to identify the students level and areas of weakness Formal (stage) evaluation a) Class Participation b) Ist Exam c) 2nd Exam d) Activity file
6,7	6	C,D	**Anatomy of an App**	Presentation	Diagnostic tests to

			• App Lifecycle • **Intents** • Implicit • Explicit • Permissions. Dealing with Dangerous and Runtime Permissions • Send values • Onactivityresult • Saving Activity State • Image capture	methods and techniques, Sources of information and Instructional Aids	identify the students level and areas of weakness Formal (stage) evaluation a) Class Participation b) Ist Exam c) 2nd Exam d) Activity file
8	3	B,C,F	**Menu** • Option menu • Contextmenu • Actionbar **Multimedia** • Play audio • Play Video	Presentation methods and techniques, Sources of information and Instructional Aids	Diagnostic tests to identify the students level and areas of weakness Formal (stage) evaluation a) Class Participation b) Ist Exam c) 2nd Exam d) Activity file
9	3	C,D	**Fragments** • Concepts • Static fragment • Dynamic fragment • Fragment communication • Fragment Lifecycle • displayMetric	Presentation methods and techniques, Sources of information and Instructional Aids	Diagnostic tests to identify the students level and areas of weakness Formal (stage) evaluation a) Class Participation b) Ist Exam c) 2nd Exam d) Activity file
10	3	B,C,D	**ListView** • Arraylist • Arrayadapter • Adapter Views • Creating and Using a ListView • Project Overview • Tabbed Views	Presentation methods and techniques, Sources of information and Instructional Aids	Diagnostic tests to identify the students level and areas of weakness Formal (stage) evaluation a) Class Participation b) Ist Exam c) 2nd Exam

			• Pagers • Drawers		d) Activity file
11	3	D,F	**Shared Preferences** • Overview • Creating file • Writing values • Reading values • Clearing values	Presentation methods and techniques, Sources of information and Instructional Aids	Diagnostic tests to identify the students level and areas of weakness Formal (stage) evaluation a) Class Participation b) Ist Exam c) 2nd Exam d) Activity file
12,13	6	E	**Sqlite** • Database concept • Sql Statements • SqlLiteOpenhelper • Sqllitedatabase	Presentation methods and techniques, Sources of information and Instructional Aids	Diagnostic tests to identify the students level and areas of weakness Formal (stage) evaluation a) Class Participation b) Ist Exam c) 2nd Exam d) Activity file
14,15	6	B,C,DE,F	**Selected Advance topics** • Location, GPS • Maps, Google Maps • Android 2D Graphics • Broadcast Receivers • Gestures • Network and Web Services • Android Sensor	Presentation methods and techniques, Sources of information and Instructional Aids	Diagnostic tests to identify the students level and areas of weakness Formal (stage) evaluation a) Class Participation b) Ist Exam c) 2nd Exam d) Activity file
16	3	B,C,DE,F	**Project presentation and Discussions**	Poster Presentation Demo	Project rubric
17	2		**Final Exam**		

References:

1) **Main Textbook:** Since the Android ecosystem is a moving target, we will use the Android online documentation and other free online resources. Depending on your learning style, however, I recommend the following additional reading:

A. **Beginning Android Programming with Android Studio**, 4th Edition, Jerome DiMarzio, Wrox Press (2017).

B. **Android Programming: The Big Nerd Ranch Guide** (3rd Edition) (2017), by Bill Phillips, Chris Stewart, Kristin Marsicano. https://www.amazon.com/Android-Programming-Ranch-Guide-Guides/dp/0134706056/

C. **Android How to Program**, Third Edition, Deitel, Deitel and Deitel, Prentice Hall, (2017).

D. **The Busy Coder's Guide to Android Development**, https://commonsware.com/Android/, 2017

CommonsWare, Version 8.6.

2) Online Resources

- http://elearning.zu.edu.jo/elc/
- Android Developer Website, http://developer.android.com
- Android Core Tutorials, http://www.javacodegeeks.com/tutorials/android-tutorials/android-core-tutorials/
- Android Cookbook, Ian F. Darwin (Editor), http://androidcookbook.com/
- Support your workflow with lightweight tools and features https://github.com/features

Assessment Methods:

Methods	Grade	Date
First Exam	15%	
Second Exam	15%	
Med Practical Exam	10%	
Assignments (Reports /Quizzes/ Seminar / Assignments/ Homework's ….)	10%	
Final Project	20%	
Final Examination	30%	
Total	100%	