



Philadelphia University
Faculty of Information Technology
Department of Software Engineering
Semester 2, 2015/2016

<u>Course Syllabus</u>	
Course Title: Special Topics in Software Engineering (Android Application Development)	Course code: 721439
Course Level: 4	Course prerequisite (s) and/or corequisite (s): 721322
Lecture Time: 10:10-11:00	Credit hours: 3

Academic Staff Specifics

Name	Rank	Office	Office Hours	E-mail Address
Dr. Ali Fouad	Assistant Professor	IT306	11:00-12:30 Mon & Wed , 11:10-13:00 Sun, Tues, Thru	aalezway@philadelphia.edu.jo

Course module description:

This course introduces mobile application development for the Android platform. Android is a software stack for mobile devices that includes an operating system, middleware and key applications. The Android SDK provides the tools and APIs necessary to begin developing applications on the Android platform using the Java programming language. Students will learn skills for creating and deploying Android applications, with particular emphasis on software engineering topics including software architecture, software process, usability, and deployment.

Course module objectives:

By completing the course a student should be able to:

- Build and deploy his/ her Android application.
- Students understand the operation of the application, application lifecycle, configuration files, intents, and activities.
- The candidates get a better understanding of the UI - components, layouts, event handling, and screen orientation.
- Students also develop a working knowledge of the custom UI elements and positioning.
- The candidates may also have an in-depth understanding of broadcast receivers and services.
- The networking capabilities such as JAVA Sockets, JAVA XML and JSON are taught.

- The trainee may develop a basic application that acts as a working example of all the topics covered in the class

Course/ module components

- Books (title , author (s), publisher, year of publication)

Meier, Reto (Author)

New Delhi: Wiley-India, 2012

ISBN : 978-81-265-3608-5

Professional Android 4 application development

Duration: 15 weeks, 45 hours in total

Laboratories: 45 hours, 3 per week

Learning outcomes:

- **Knowledge and understanding**
 1. Have a good working knowledge of the development framework and be able to use its various features, including UI, resources, storage, security, multimedia, location, etc.
 2. Have a good working knowledge of Eclipse IDE with ADT, including debugging in emulator and real hardware.
 3. be able to sign and publish developed applications
- **Cognitive skills (thinking and analysis).**
 4. Acquire a full Object Oriented Thinking
 5. Be able to design Mobile Apps which meet requirements.
 6. Be able to develop Mobile Apps in Java programming and XML languages.
- **Practical skills - able to**
 7. Use best design practices for mobile development, designing applications for performance and responsiveness.
 8. Fix bugs and ensure performance to develop robust Apps. (C5)
 9. Use API libraries for Android (C4)
 10. Use gained technical skills to improve mobile application.
- **Transferable skills - able to**
 11. Solve problems that have origins in a variety of paradigms including object-oriented, imperative, and functional programming. (D2)
 12. Work as part of a team (D6)
 13. Transfer practical and subject specific skills (Transferable Skills).

Assessment instruments

- presentations, and Short Mobile App projects
- Final examination: 50 marks

<u>Allocation of Marks</u>	
Assessment Instruments	Mark
First examination (MCQ)	20
Second examination (MCQ)	20
Final examination: 40 marks Develop Mobile App and Short presentation	40
Continuous Assessment: Labs/Exercises	20
Total	100

Documentation and academic honesty

- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.

Course/module academic calendar

week	Basic and support material to be covered	Homework/reports and their due dates
(1)	Introduction to Android What is Android? Setting up development environment Dalvik Virtual Machine & .apk file extension Fundamentals: (Basic Building blocks - Activities,Services, Broadcast Receivers & Content providers b. UI Components - Views & notifications,. Components for communication -Intents & Intent Filters, Android API level)	
(2)	Application Structure AndroidManifest.xml, uses-permission & uses-sdk, Resources & R.java, Assets o Layouts & Drawable Resources, Activities, First sample Application	
(3)	UI Architecture Application context Intents Activity life cycle Supporting multiple screen sizes	
(4)	Basic User Interface Text controls Button controls Toggle buttons Text Fields Layouts	
(5)	Intents Explicit Intents Implicit intents Preferences SharedPreferences Preferences from xml	
(6) First examination	UI design Time and Date Images and media Composite AlertDialogs & Toast Popup	
(7)	Adapters and Widgtes Adapters:, ArrayAdapter, BaseAdapters , ListView and ListActivity, Custom listview, GridView using adapters, Gallery using adapters	
(8)	Services Service lifecycle Foreground service	
(9)	Working with data storage Shared preferences Preferences activity Files access	

(10)	Content providers SQLite database SQLite Programming , SQLiteOpenHelper, SQLiteDatabase, Cursor o Reading and updating Contacts, Reading bookmarks	
(11) Second examination	Custom components Custom Tabs Custom animated popup panels Other components	
(12)	Notification Broadcast Receivers, Services and notifications, Toast, Alarms	
(13)	Threads , Threads running on UI thread (runOnUiThread), Worker thread o Handlers & Runnable, AsyncTask	
(14)	Network Communication Web Services HTTP Client XML and JSON	
(15) Specimen examination (Optional)	Publishing Your App Preparing for publishing Signing and preparing the graphics Publishing to the Android Market	
(16)	Final Examination	

Module references

Books

Students will be expected to give the same attention to these references as given to the Module textbook(s)

1. Brian Hardy, "Android Programming: The Big Nerd Ranch Guide (Big Nerd Ranch Guides)", Big Nerd Ranch Guides; 1 edition (April 7, 2013), ISBN-10: 0321804333
2. Wallace Jackson, "Android Apps for Absolute Beginners", Apress; 2 edition (December 3, 2012), ISBN-10: 143024788
3. PawPrints Learning Technologies, Beginning Android Development: Create Your Own Android Apps Today, CreateSpace Independent Publishing Platform (September 25, 2014), ISBN-10: 1502395223
4. Neil Smyth, Android Studio Development Essentials, CreateSpace Independent Publishing Platform; 2 edition (July 22, 2014), ISBN-10: 150061386X
5. Deitel, P., Deitel, H., Deitle, A., and Morgano, M., , "Android for Programmers – An App-Driven Approach", Prentice Hall, Upper Saddle River, NY, 2012, ISBN: 212136-0.

Websites

For android programming visit <http://developer.android.com/training/basics/firstapp/index.html>

For queries and solutions to specific problems you can visit
www.stackoverflow.com

You really want to learn Java before learning it's Android branch. I'd recommend this course
<https://www.udemy.com/java-tutorial#/>