MOBILE APPLICATIONS DEVELOPMENT

– CS4153

Syllabus

1. GENERAL INFORMATION:

Instructor name: Email:

Credit: 3 (3 lecture).

Prerequisites: CS 2133

2. COURSE INFORMATION:

- *Course objectives*:

- This course provides the foundational knowledge for the development of applications on mobile devices. In addition, students will be equipped with the knowledge of mobile pervasive computing to develop applications on smartphones.
- In terms of skills, students will be equipped with knowledge of programming on Android operating system so that students can build their software in a creatively way.
- In addition, students are also introduced a cross platform (PhoneGap) to develop applications on multiple operating systems, different mobile: such as Android and iOS.

- *Course description*:

  - Introduction to Mobile Pervasive Computing
  - Introduction to Android Programming
  - Graphic User Interface Design for Mobile Devices Using Statecharts
  - Multithreading on Android.
  - Networking & Web Services, and SQL Lite
  - Working with Sensors: GPS, Camera.
  - The PhoneGap CrossPlatform

3. BOOK AND MATERIALS:

- Required textbook:

[1] Professional Android 2 Application Development (2nd Ed.) by Reto Meier, *Wrox Press Ltd.*, 2010.

- Other materials:

[2] Context-Aware Pervasive Systems: Architectures for a New Breed of Applications by Loke, S. W., Auerbach Publications, 2006, 240
[3] Ubiquitous Computing: Smart Devices, Environments and Interactions by Poslad, S., Wiley, 2009
[4] Constructing the User Interface With Statecharts by Horrocks, I., Addison-Wesley, 1999
[5] Mitchell, L., PHP Web Services: APIs for the Modern Web, O'Reilly Media, Incorporated, 2013
[6] PhoneGap, **http://docs.phonegap.com/en/3.0.0/index.html**
[7] Google Play Store Publishing, **http://developer.android.com/distribute/googleplay/publish/index.html**

- Software:
  - Google Android SDK, http://www.android.com
  - PhoneGap SDK, http://phonegap.com
  - Open Office or Microsoft Office
  - Mindmap tools: Freemind, http://freemind.sourceforge.net/

4. GRADING PROCEDURES:

Assignments, Projects, Class attendance/participation: 50%
Final Examination: 50%

5. COURSE OUTLINE:

Week	Topic	Activities
1	Chapter 1. Introduction to Mobile Pervasive Computing 1.1 Mobile Pervasive Computing 1.2 What is context ? 1.3 How to use context? 1.4 Smartphones for the 21th Century	Reading [2]. Chap. 1-3 [3]. Chap. 1-3
2	Chapter 2: Introduction to Android Operaitng System 2.1 Android Architecture 2.2 Android SDK 2.3 The "**Hello World**" program 2.4 Debuging with Logcat	Reading [1]. Chap. 1-3
3	Chapter 3. GUI programming on Android 3.1 The Phylosophy of Designing GUI for Mobile	Reading [4]. Chapter 2-8

	Devices 3.2 Constructing GUI using statecharts 3.3 Android Activities	
4	Chapter 4. Restful Web Sevice 4.1 What is Restful Web Service 4.2 Using web service with http Component 4.3 Case study 1: Cool Mobile Ordering.	Reading [5]. Chap 5,8
5	Chapter 5: JSON and SQLite 5.1 Introduction to JSON 5.2 Using JSON in Web Service. 5.3 Introduction to SQLite. 5.4 SQLite queries 5.5 Case study 2: Advanced Mobile Ordering.	Reading [1]. Chap. 7
6	Chapter 6. Multi-thread and multi-activity 6.1 Introduction to Multithread on Android 6.2 Multi-activity on Android 6.3 Intent and Broadcast Reciever	Reading [1]. Chap. 3,5
7	Assignment	
8	Chapter 7: Sensors and Context-aware applications 7.1 Mobile phone's sensors: GPS, Accelerometer, Digital Compass. 7.2 Utilizing sensors on Android 7.3 Constructing context-aware application.	Reading [1]. Chap. 8,11,14
9	Chapter 8: Advanced Android Programming 8.1 Jelly Beans Camera API 8.2 OpenCV on Android 8.3 Augmented Reality on Android	Reading [1]. Chap. 8,11,14
10	Mid term examination	
11, 12	Chapter 9: Cross platform programming with Phonegap. 9.1 Introduction to PhoneGap 9.2 Introduction to HTML5, CSS, Javascript	Reading [6]

	9.3 “Hello World” program using PhoneGap	
13	Chapter 10. Publishing applications 1.1 Introduction to Google Play Store. 10.2 Preparing icons. 10.3 Publishing to Google Play Store regulations.	Reading [7]
14	Assignment Presentation	
15	Final Exam	

6. COURSE REQUIREMENTS:

Each individual assignment is to be done independently.

Students are encouraged to join in the class discussion and present their thoughts and ideas on the all distributed system problems.

Students are expected to attend all class sessions. Excused absences will be granted only in cases of illness, death, or other extreme family emergency. There is a grade penalty for excessive absences. Any request for an excused absence must be made in person and in writing.

7. ACADEMIC INTEGRITY POLICIES:

- Student may not use Vietnamese languague in class, or will be reduced 2% final marks
- Be punctual to come and leave the class.
- Maximum cancellation time per semester is 6 hours per class.

Instructor’s Signature