

Summer 2012 – eLearning class
CEN 4214 – Software-Hardware CoDesign with Android

Course Syllabus: Top-down design methodology for mobile based application development using Android Mobile Platform, Java, and XML.

Text: Burnette, E., Hello Android: Introducing Google's Mobile Development Platform, 3rd edition, The Pragmatic Bookshelf, Raleigh, NC, 2010, ISBN: 1934356565

References: 1. Android on-line reference site: d.android.com. 2. Our own website, android.fau.edu, with 10+ fully documented Apps, tutorials, and videos.

Pre-requisite: Programming

Instructor: Ravi Shankar, Professor and Director, CSI, CEECS
Contact Info: (561) 297-3470, shankar@fau.edu
Office Hours: 9 AM to 3 PM Friday

Course Time and Place: eLearning class during the summer semester, 5/24/12 to 8/7/12. There will be on-campus project meetings on four Fridays during the semester, on 6/1/12, 6/22/12, 7/13/12, and 8/3/12, in 207 EE, Boca campus, or 945 Askew Tower, Broward Campus, from 10 AM to 11.20 AM. We expect to replace these campus meetings with On-line synchronous meetings; We will know about the latter by 5/1/12. Students in groups of 3 (2 from engineering and 1 from graphics, or vice-versa) will work together and present on their project progress. Two courses, one each from engineering and Graphics are being offered this summer, with the intent to team up students with two complementary strengths to develop interesting, functional, and aesthetic game Apps.

Course Description: The course is designed to help students develop and prototype Android-based mobile applications. XML, Java, and the Google Phone are used in design and prototyping. Some of the projects may be continued as ED1/2 (engineering design) projects.

Main Topics: Sudoku is the application used as an integrated example. We will also provide details on other game oriented applications. The students (in teams of three engineering and graphics students) will develop and prototype a game application of their own. Topics 1 to 6 comprise of basic concepts. We will use the Sudoku example to discuss these. The Midterm exam will test understanding of these concepts. The project will be started by the middle of the semester and will have 5 assignments that will take the students through the various stages of App development (storyboarding, Technical mockups, pseudocode and top-down design, coding and testing, and system integration and demo). During the second half of the semester, several advanced topics will also be covered.

1. Android Introduction: High level Android overview; Installing Motodev and using the SDK and Eclipse Plug-in; and General Design Considerations.
2. Story-telling and UML: Mindmapping, Use Case, Class, and Activity Diagrams.
3. Intro to Java: Basic Java concepts such as classes, objects, methods, variables, strings, arrays, I/O, inheritance.
4. Intro to XML: Basic XML concepts on tree, syntax, elements, attributes
5. Application Components and Lifecycle: Components of an application (i.e. Activities, Intents); and Application and Activity Lifecycle.
6. User Interface Design: Views, Layouts, Widgets, and Menus.
7. Mid Term Exam (by Week 6) and Project Start
8. Project Stages: See above

9. Advanced Topics: Location Based Services, Maps, Sensors, Multimedia, Animation, and Data Storage

Tools and Languages used: XML, Java, Android Application Development Kit and Phone, Eclipse, Balsamiq, and Visio.

Course Evaluation:	10 Quizzes (Drop 2 lowest)	20%
	1 Mid-Term Exam	20%
	5 Project Assignments	40%
	Project Demo and Report	20%
	Bonus: Help other students	10%