**EGN 1214 - Mobile Applications for Android**

**Course Syllabus:**  The course will help students develop applications for the smart phone. They will use a software emulator to develop, and a real phone, to demonstrate the application. The focus is on computer science and engineering aspects to develop, debug, and test, and obtain performance metrics to compare and contrast implementations.

**Text books:** Android Studio Development Essentials by Neil Smith, 2014, CreateSpace Independent Publishing Platform; 2 edition, 978-1500613860.

**Pre-requisite:** Permission of instructor

**Special Note:** Course is intended for high school students 11th grade or higher (in fall ’15) with a GPA of 3.0 or above (as per Dual Enrollment requirement). Programming with any computer language (Java, C++, C, or Python) is preferred.

**Instructor:** Ravi Shankar, Professor CEECS; (561) 297-3470, [shankar@fau.edu](mailto:shankar@fau.edu); Office Hours: TBA

**Course Time and Place:** 207 EE, MWF 9.30 AM to 4.30 PM (1 hour lunch break), 3 Weeks

**Course Description:** Android is the first major open source development environment for development of mobile applications. It has a number of powerful features, such as the web browser, Google Map, GPS, accelerometer, and Bluetooth built in and available to be easily embedded in your application. You will be able to take advantage of a wide variety of resources in building your application more rapidly and to be more sophisticated. We (and the Android user community) have built up many good design examples and tools that should help you imagine and implement many new applications. You will be exposed to relevant tools and resources in the class so you can implement a reasonable variation of the chosen application in the class.

This course is designed to help high school students to learn user interface design with XML and combine with functional programming with Java. The student will need to gain familiarity with one of them. There will be focus on the Math and Physics principles behind Android sensors. Incorporation of computer science and engineering concepts behind connectivity, data bases, and animation will help develop interesting sensor-based applications. You will work in groups of 3 (random assignment). Each team will need one or more laptops. Others need access to a desktop at home or elsewhere. The Phones / Tablets (one per student) may be checked out for the course duration. They are due back in fully functional form on the last day of classes; otherwise your final grade will not be posted until you return or replace the same.

**Grading:** Four Project Assignments: 15%; Wiki assignment on team work: 20%; Quizzes: 30%; One mid-term exam: 10%; Final demo, video and presentation: 15%; Project (report and demo video): 10%; and Android community service (**bonus**): 10%

**Disability policy statement:** In compliance with the Americans with Disabilities Act (ADA), students who require special accommodations due to a disability to properly execute coursework must register with the Office for Students with Disabilities (OSD) located in Boca Raton campus, SU 133 (561) 297-3880 and follow all OSD procedures.

**Code of Academic Integrity:** Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and place high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. See University Regulation 4.001 at [www.fau.edu/regulations/chapter4/4.001\_Code\_of\_Academic\_Integrity.pdf](http://www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf)

**Topics to cover:**

1. Programming for sensors, graphics, and networking.
2. Development tools: Android SDK , Android Studio, Nexus 7, Github, Vimeo, and Parse.com
3. Data collection, storage, and analysis. Use of Math and Physics principles.
4. Installation of Android SDK (on Android Studio), Java with Android, Android APIs. Simple Apps from Google’s Android site.
5. User Interface and Graphics tools (Open GL ES, Maya, and Photoshop)
6. Visit to Community Partner’s site. App ideas – presentations by professionals
7. Advanced Android concepts: Google Map, Fragments, SQlite, web access, and cloud computing.
8. App Development. Project Demo, Presentation, & Video