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| **1. Course title/number, number of credit hours** | | | |
| Mobile Applications for Google’s Android,  EGN 1935 | | 3 credit hours | |
| **2. Course prerequisites, co requisites, and where the course fits in the program of study** | | | |
| Prerequisites: Students 11th grade or higher (in fall ’15) with a GPA of 3.0 or above. Programming in Java/C++/C#/Python/C, and/or graphics tools are useful. | | | |
| **3. Course logistics** | | | |
| *Term*: summer 2015  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. That means that 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/ modifications to existing apps. You will be exposed to many relevant tools and resources in the class so you can implement a reasonable variation of the chosen application in the class.  The course will be held during for 3 weeks, MWF, 9.30 AM to 4.30 PM, in 207 and 212 EE, during summer ‘15. Android tablets 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. The museum will also make several tablets available for your use. You will be using LinkedIn for communication and Github for all team submissions. Blackboard will be used for posting assignments, material, and grades. | | | |
| **4. Instructor contact information** | | | |
| *Instructors’ names*  *Office address*  *Office Hours*  *Contact telephone number*  *Email addresses* | Dr. R. Shankar, Professor and Prof. McAfee, Arts & Letters  Engineering East (EG-96) Bldg., Room 513  MWF 12 to 1 PM,  561-297-3470  [shankar@fau.edu](mailto:shankar@fau.edu), [mcafee@fau.edu](mailto:mcafee@fau.edu) | | |
| **5. TA contact information** | | | |
| Santiago Aguerrevere Demetrius Dukes  Guillerme Damasceno Couto | [saguerre@fau.edu](mailto:saguerre@fau.edu), Engineering  [ddukes3@my.fau.edu](mailto:ddukes3@my.fau.edu), Multimedia  [gdamascenocouto@fau.edu](mailto:gdamascenocouto@fau.edu) , Engineering | | |
| **6. Course description** | | | |
| The course will help students develop applications for Google’s Android mobile phone based on the project they have already started at MODS. Students in groups of two to six will use Java and XML languages to develop their application. Some students in each group may also primarily focus on graphics/aesthetics tools. The students will use a software emulator in a limited manner and a real phone to improve and demonstrate the improved application (‘project’). The focus is on computer science and engineering aspects to design, develop, debug, and test. But we do recognize that a good app needs both functionality and aesthetics. So, both aspects are encouraged and expected within each group. Students will work in teams. Thus,it is alright if you do not have to background in both aspects. All the material covered in the concurrent sessions will be needed for team assignments and the project. | | | |
| **7. Course objectives/student learning outcomes/program outcomes** | | | | |
| *Course objectives* | This course is designed to combine programming with graphics and animation to build exhibit Apps. Incorporation of computer science and engineering concepts behind connectivity, data bases, and animation will help develop interesting game or citizen science extensions to applications. | | | |
| *Student learning outcomes*  *& relationship to ABET a-k objectives:*  *We believe that our course addresses all of the ABET sub-criteria a-k, but for the following: h and j. .* | (a) an ability to apply knowledge of mathematics, science, and engineering  (b) an ability to design and conduct experiments, as well as to analyze and interpret data  (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability  (d) an ability to function on multidisciplinary teams  (e) an ability to identify, formulate, and solve engineering problems  (f) an understanding of professional and ethical responsibility  (g) an ability to communicate effectively  (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context  (i) a recognition of the need for, and an ability to engage in life-long learning  (j) a knowledge of contemporary issues  (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice. | | | |
| **8. Course evaluation method** | | | | |
| Class Team Assignments (7)– 70 %; Team Project Assignments (3) – 30% (5,10, and 15); and Android community service (bonus): 10% . Note: Final demo, video and presentation (which is Project Assignment #3) is worth 15%; All team members will get to grade each other at the end of the course – significant deviations from the average may impact individual student’s grade  All assignments are geared to ensure that you are successful in your project and understanding of Android. Project and team Assignments are to be submitted on behalf of the team. There will be no individual quizzes or exams. You will work in groups. The project assignments will help you document progress in your App and convey that to the museum and FAU advisors. An updated and cumulative report is due three days after the course is over, posted at the Github site. You will use Blackboard, LinkedIn, and GitHub for interaction and documentation. We expect to divide the class into two groups on all days (after the first day) so we can cover both Java and Graphics material at the same time. More in the class.    Individual team member’s grades may differ dependent on input from other teammates. | | | *Note*: The minimum grade required to pass the course is C. | |
| **9. Course grading scale** | | | | |
| Grading Scale: It will not be based on a curve. Expected distribution is given below:  90 and above: “A”, 85-89: “A-“, 80-84: “B+”, 75-79: “B”, 70-74 : “B-“, 65-69: “C+”, 60-64: “C”, 55-59: “C-“, 50-54: “D+”, 45-49: “D”, 40-44: “D-“, 39 and below: “F.” | | | | |
| **10. Policy on makeup tests, late work, and incompletes** | | | | |
| *There are no exams during the term in this course.*  *A grace period of 1 day is allowed for submission of assignments. Students are expected to be in attendance during all the class hours.*  *Incomplete grades* are against the policy of the department. Unless there is solid evidence of medical or otherwise serious emergency situation incomplete grades will not be given. | | | | |
| **11. Special course requirements** | | | | |
| Students are expected to use their own laptops. Thin clients used in our labs are not powerful enough for our smart phone App development. . | | | | |
| **12. Classroom etiquette policy** | | | | |
| Students have to use laptops in the class to conduct tool installation, training, programming, etc . Also, classes will be more problem solving oriented – you will be asked to read and try out tutorials ahead of time. There will be significant interaction among the students and the professor/ teaching assistants, during the class room, on a basis to solve problems and gain deeper insight. Have your laptop ready and be prepared to use it during the lectures. Here is a site with Net Etiquette rules: <http://www.albion.com/netiquette/corerules.html> - please familiarize yourself with it. | | | | |
| **13. 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. | | | | |
| **14. Honor code policy** | | | | |
| 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)  We will use mostly open source tools. Much code, tutorial, java docs, etc., are freely available at many sites on line, including our own, android.fau.edu, d.android.com, App inventor sites, and others. . The students will use open source tools and standard languages such as Java, Processing, and XML, in developing their project. Graphics tools also have scripting languages that are easy to learn (they will be similar to the Processing language). All of the open source community believes in free sharing of their intellectual contributions. We encourage the same of all our students. Document your project fully at Github and find ways to help each other. Acknowledge any help you received from your colleagues and on-line resources. | | | | |
| **15. Required texts/reading**  Android Studio Development Essentials, by Neil Smyth, 2015. The Kindle  edition is $9.99 at Amazon. However, you can get a pdf version here: [http://www.ebookfrenzy.com/ebookpages/android\_studio\_ebook.html](https://exchange.fau.edu/owa/redir.aspx?C=pCjRlQic7UGCguOXHdE1xRWoDoJNidII1nDi8yFMPVt2UIHLkpjwJdrJvpTbiYt7ZykTGRz30wY.&URL=http%3a%2f%2fwww.ebookfrenzy.com%2febookpages%2fandroid_studio_ebook.html) - same price. | | | | |
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| **16. Supplementary/recommended readings** | | | | |
| android.fau.edu, processing.org , d.android.com , linkedin.com, github.com | | | | |
| **17. Course topical outline, including dates for exams/quizzes, papers, completion of reading** | | | | |
| We will run two parallel sessions during most of the sessions, with the intent to cover all the material so teams are prepared for developing Apps:   1. Development tools: Android SDK , Android Studio, Nexus 7, Github, Vimeo, and Parse.com 2. Installation of Android SDK (on Eclipse), Java with Android, Android APIs. Simple Apps from Google’s Android site. 3. Discussion of up to 4 existing FAU Apps - Your team will be selecting one of them for modification and improvement in one of the 3 or 4 pre-selected ways. 4. Programming with Java on Android; Text book and FAU App examples. 5. 2D image tools, vector graphics with Inkscape or Adobe Illustrator, raster graphics with GIMP or Photoshop. Image and Audio Formats and Compression, png, jpg, mp4, wav, mp 6. Unity-3D Pro for Assets to App migration 7. Layout, Backgrounds, Buttons, interactive widgets, screen resolutions.(App Inventor For intro) 8. User Experience, Ease of Use, Intuitive Interfaces 9. Basic Video Editing ( iMovie, MS MovieMaker, OpenShot are free and open source) 10. Intro to Autodesk’s Maya and Unity3D ( Unity3D Pro needed to publish to Android). 11. Advanced Android conceptsL Google Map, Fragments, SQlite, Google/Parse.com analytics, and cloud computing, as appropriate. 12. App Development. Project Demo, Presentation, & Video | | | | |
| **18.** Technical Resolution Policy - You will be using Blackboard tools for some of the submissions. On the Welcome page, once you log in, you have the option to Submit a Ticket (see on the left hand side) to the Online Support Center. They may also be reached at 561-297-3999. However, they will not be able to help you with the installation and use of the tool suite used in the class. We have excellent tutorials at android.fau.edu and many on-line sites. First try these things and if you still have difficulties, feel free to contact Dr. Shankar. | | | | |
| **19. Test Policy - (1)** There are no individual exams or assignments. **(3)** Project and Team assignments will help you develop your app in stages. Sufficient examples from previous semesters will be made available. These are group oriented assignments. The project presentation will last 10-20 minutes per team. **(4)**  Documentation is expected for all the work accomplished (slides, assets, code, test suites, marketing video, demo, etc.,) so we have all the material to improve upon it. These are due on the Monday after the three week course ends. **(5)** Demo, Presentation, and Marketing Video – These are expected to be complete on the final Friday – your group will make a 20 minute presentation on campus. All of these will be uploaded to Github on that day (only link for the video). The final paper of the documentation and any other missing info must be uploaded to the Github site by the following Monday. | | | | |
| **20. Other Important Information -** This is a course with strong emphasis on projects. You will be developing a state-of-the-art smart phone App. We have much experience in this area, having taught 600+ students during the past 4+ years.  By the start of Day 2, you should have signed three forms (photo and video release form and IP release form; and a form on responsible use of Nexus 7 phone). Details will be provided in the Day 1 folder. | | | | |
| **21. Technology Requirements:**  Each team should have a laptop for their use. Each team will be given a Nexus 7 smart phone/tablet for use during the course. Some teams may need two of them - we will make them available as needed. You should have Java 1.6+ installed. You will be using Eclipse IDE, along with Android SDK Download. Instructions will be provided on Day 1. Bring your laptop to the class.  Supported Operating Systems   * Windows XP (32-bit) or Vista (32- or 64-bit) or Windows 7 and 8 * Mac OS X 10.4.8 or later (x86 only) * Linux (tested on Linux Ubuntu Hardy Heron)   + 64-bit distributions must be capable of running 32-bit applications. For information about how to add support for 32-bit applications, see the [Ubuntu Linux installation notes](http://developer.android.com/sdk/installing.html#troublehooting). | | | | |
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