CPSC365A Software Engineering and Project Design Spring 2017

Instructor: Mr. Scotty Smith **Office**
Hours: M-Th 2-3 pm
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Course Objectives

This course is intended as part of the Applied course track in Computer Science. This course provides an introduction to the science of designing and implementing large software systems. Topics include software engineering ethics, design methodology, software process models, testing and quality assurance, and characteristics and metrics.

Intended Learning Outcomes: At the end of the course the successful student will be able to

1. Design and implement large software projects using a suitable software process model.
2. Analyze the complexity of a software design using various metrics
3. Create appropriate and adequate test cases for a software implementation.
4. Use and understand the Android Studio Integrated Design Environment(IDE).
5. Implement a software system using the Java Programming language for the Android operating system.

Course Content

Text:

- *Software Engineering (http://www.ece.rutgers.edu/~marsic/books/SE/book-SE_marsic.pdf)*, by Ivan Marsic, 2012. **(optional)***The Busy Coders Guide to Android Development (http://www.commonsware.com/)*, by Mark Murphy, 2012.
- **Work Load**: Students should expect to spend 12 hours combined on in-class and out of class assignments and activities.

Assignments: There will be one, cumulative assignment that will persist throughout the semester. There will also be smaller deliverables throughout the semester, which will be related to the main project. More details on this assignment will be provided during the first week of the semester.

SCRUM Reports:In addition to regular reading and the final project, there will be weekly in-class meeting called a SCRUM. Each week, every team member must bring with them a short description of what they accomplished for the course, as well as the final project. They must also bring a set of goals they wish to accomplish for the next week. These will be (briefly) presented, and the short write-ups will be collected and evaluated at the end of the semester for consistency.

Note: Early in the semester, the work load will be lighter as we slowly ramp up towards the final project. As such, early week SCRUM reports may be augmented with homework assignments.

Tests, and Exams: Two tests and a tentative final exam will be given.

Test Dates:	Test #1	Monday, February 20
	Test #2	Monday, April 3
	CPSC365A Final Exam	Thursday, April 27 (2:00PM-5:00PM)

MCSP Conversations: The Department of Mathematics, Computer Science, and Physics (MCSP) is offering a series of discussions that appeal to a broad range of interests related to these fields of study. These co-curricular sessions will engage the community to think about ongoing research, novel applications, and other issues that face our disciplines. You are invited to attend all of these events but **participation in at least 3 is mandatory**. Within one week of attending an event you must submit a one page paper reflecting on (not just summarizing!) the discussion. If you do not turn the paper in within the one week time frame you may not count that event as one you attended. The MCSP discussions are generally scheduled for Wednesdays at 5:30 or Tuesday or Thursday at 7:00. A schedule will be provided soon and will be posted on the course web page. Please discuss scheduling conflicts with the instructor ASAP.

Grading: Course grades are assigned based on the following weights and scale:

Grade Weights: SCRUM Reports.....12% tests.....20% final exam.....15% final project.....40%
presentations....10% co-curricular.....3%

Grade Scale:	93-100	A	83-86	B	73-76	C	63-66	D
	90-92	A-	80-82	B-	70-72	C-	60-62	D-
	87-89	B+	77-79	C+	67-69	D+	below 60	F

Course Policies

Academic Integrity: It is accepted that you have read and understood the standards for academic integrity at Roanoke College. All tests, quizzes, assignments and exams are to be the work of the individual student. You are encouraged to get help from the instructor if you need help with any aspect of the course including programs and assignments. Student assistants, tutors, and classmates may help you understand course concepts but may not show you how to do any particular aspect of an assignment. Students may discuss lab work (including the pre-lab assignments) and help each other out but in all cases the work you turn in must be your own. Copying someone else's work or turning in someone else's work is NEVER allowed. Using someone else's work or ideas as your own is plagiarism and an academic integrity offense. Examples of academic integrity violations include copying a program or part of a program (even one line) from someone else, writing code for someone else, telling someone else how to solve a problem or having someone tell you how to solve a problem. **This includes using code attained from Google searches and StackOverflow**. Discussion among students about programming projects should be limited to general concepts, not specific aspects of how to complete the work.

Computer Use Policies: All students must abide by the Computer Use policies of Roanoke College. Failure to do so will result in involuntary withdrawal from the course.

Attendance Policy: Class attendance is vital to your success in this course; **material covered during missed sessions is the responsibility of the student.** Conversations held in class illuminate the published class materials and are subject to evaluation on subsequent tests and quizzes. Moreover, quizzes and in-class assignments are not available for make-up.

Late Assignments: Unless otherwise specified, assignments are to be turned in before the start of class on the due date. If you anticipate being unable to meet a deadline, talk to me at least 24 hours before the deadline. In extenuating circumstances we may be able to make special arrangements. Please note that this must be discussed -just sending an email does not automatically grant you extra time. **If you have not been granted extra time ten percent per calendar day (24 hours) will be deducted for late work (including weekends and holidays); work more than 2 days late will receive no credit.** Electronic "glitches" do not waive your responsibility to submit your work in a timely manner.

Make-up Policy: Everyone is expected to take tests, quizzes, and the exam at the scheduled time. Make-ups will be given only for legitimate, documented absences that the instructor has been notified of ahead of time. Make-up tests, if given, may be oral. There will be no make-up quizzes.

Electronic Devices: All cell phones must be muted prior to entering the classroom or lab. The use of any unauthorized electronic device during a test or quiz is prohibited. This includes cell phone, MP3 Players, and any other non-educational devices. Any use of such a device during a test or quiz will be considered a breach of academic integrity.

Special Services: If you are on record with the College's Special Services as having special academic or physical needs requiring accommodations, please meet with me during my regular office hours or schedule an appointment as soon as possible.. We need to discuss your accommodations before they can be implemented. Also, please note that arrangements for extended time on exams and testing in a semi-private setting must be made at least one week before every test or exam. If you believe you are eligible for accommodations but have not yet formally contacted Special Services, please call 375-2248 or drop by the Center for Learning and Teaching in Fintel Library.

Tentative Schedule:

Week 1 Project Introduction, Version Control Introduction, and Software Engineering Code of Ethics
Week 2 Java and Android
Week 3 Software Design Methodologies And Requirements Engineering
Week 4 Software Architectures and Modeling
Week 5 Modeling continuted and System Specification
Week 6 Mid-term design presentations
Week 7 Unit Testing
Week 8 Design Patterns
Week 9 Design Patterns Continued
Week 10Quality Assurance
Week 11Design Characteristics and Metrics
Week 12Project Finalization
Week 13Final Presentations