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1 Basic Course Information

1.1 Objectives:

Software development in research projects is, of necessity, different from development in the corporate world. Research software development rarely has an opportunity for a separate, organized requirements analysis phase. It is more instead more exploratory, more evolutionary.

But that does not mean that all development discipline should be abandoned. Individual developers need to make efficient use of their time and effort. Projects need to plan for the future moment when that code base may need to be published or when the responsibility of further development must be passed to a new group of student researchers.

This course will explore lessons and tools offered by the major successful open-source software efforts. The focus will be on techniques that work well with projects of 1-5 developers.

This first offering in Spring 2013 is intended to supplement an ongoing redesign of the CS350 Software Engineering course. This course will explore topics at a more advanced level, and may be used as a vehicle to develop course modules that can support future offerings of CS350.

1.2 Required Text:

- Zeller, Essential Open Source Toolset, Wiley, 2005, 0-470-84445-0

2 Topics:

Possible topics will include:

- Revision management: local, centralized, & distributed approaches
- Configuration Management: project configuration, managing external libraries
- Documentation tools
- Build Management
- Test-driven development
- Unit & Integration Testing: coverage, self-checking, mocking, designing for testability
- Debugging: local & remote, monitors, reverse debugging
- Regression Testing
3 Course Pre-requisites

- Graduate standing in CS or a related discipline.
- Programming skills commensurate with that standing.

Communications

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5 Course Policies

5.1 Due Dates and Late Submissions:

Late assignments and make-up exams will not normally be permitted.

Exceptions will be made only in situations of unusual and unforeseeable circumstances beyond the student's control, and such arrangements must be made prior to the due date in any situations where the conflict is foreseeable.

“I’ve fallen behind and can’t catch up”, “I’m having a busier semester than I expected”, or “I registered for too many classes this semester” are not grounds for an extension.

5.2 Academic Honesty:

Everything turned in for grading in this course must be your own work.

Students are expected to conform to academic standards in avoiding plagiarism.

5.3 Attendance:

Attendance at lectures is not generally required, but students are responsible for all material covered and announcements made in class.

The closing weeks of class will be devoted to student presentations. Attendance is required for these.
5.4 Grading:

- Assignments: 50%
- Semester project: 50%

The semester project may take one of several forms:

- A term paper providing a critical comparison of a selection of tools or techniques for accomplishing a common task
- An experience report, in which a student affiliated with a research project in the Dept demonstrates the application of one or more of the tools and techniques covered in this course to the software maintained by that project and evaluates the impact of this new approach.
- A course module (slides plus labs and/or assignments) suitable for use in a CS350 level course for a tool or technique not currently employed there.

All term projects must be pre-approved by the instructor as to suitability of the subject matter and scope of the project. An oral presentation of the project to the CS795/895 class will be required.