Syllabus

COMP 4710 – SWEN/WIRS Senior Design
Spring 2016
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Class meets in Shelby 1124 first day only, after that Shelby 2133.

Class Objectives

Over the course of this class, you will demonstrate your ability to participate in large software projects using disciplined, software engineering techniques. In particular, this will manifest in your ability to:

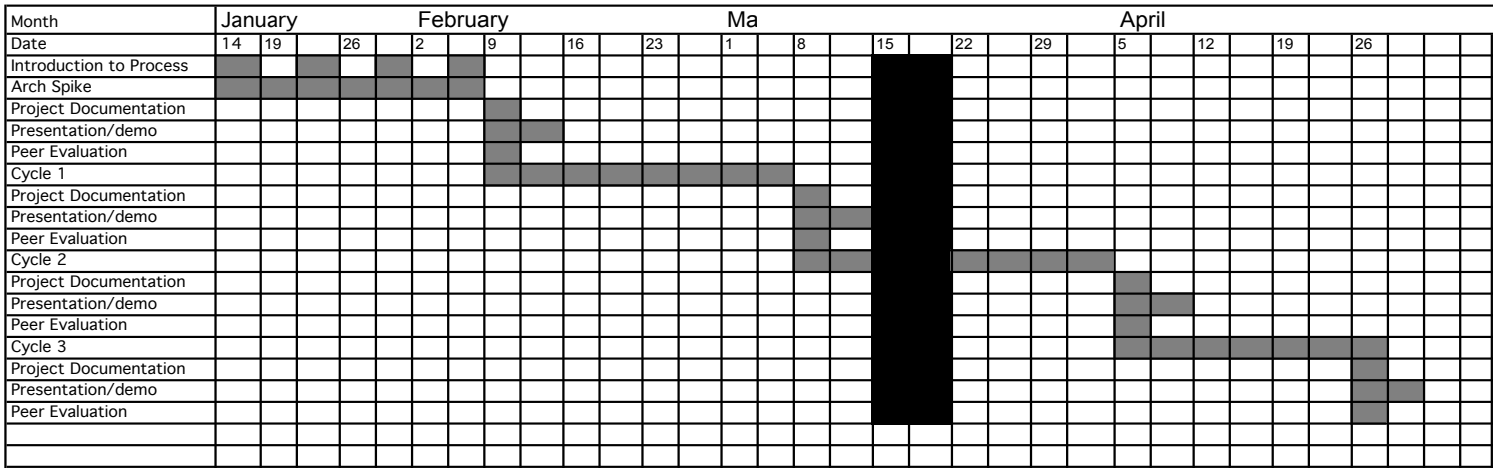
1. Design, implement, and test nontrivial, ***commercial quality*** software.
2. Work effectively as members of a software development team.
3. Communicate technical information in oral and written form.

Class Organization

In this class, you will work in teams of between three and five people. All team members are expected to participate equally in all aspects of the class objectives, product demonstrations, etc. Each student will be accountable for an average of nine hours per week on course related activities. We will be using a derivative of the eXtreme Programming (XP) process this semester; the process will be described to you in the first several class sessions. There is no textbook for this course. Some course material will be made available to you through the class web page; however, you are also expected to locate resources and materials pertinent to your project on an independent basis. Do not rely on material from previous COMP4710 offerings.

The class will initially meet in the scheduled classroom at the scheduled time, but additional meetings outside of the scheduled class time are a required component of the class.

Calendar



Introduction to Software Design Process

You will be instructed in the software process and procedures of Senior Design. You will be shown a variety of template forms your team will use to produce standardized status reports, test logs, code reviews, etc. The time allowed for these discussions is short and will be insufficient for you to fully comprehend the details of the course. You are not, however, excused from learning these details, so discussions must remain open and scheduled regularly by each team.

Architectural Spike

In parallel with the "Introduction", each team must develop an initial implementation of its assigned project… in its entirety. We call this phase the *architectural spike.* The primary stipulations are:

1. The team should accomplish as much as possible.
2. All work can be mapped to the vision of the customer (you only do what the customer asks you to).
3. Each element of the customer vision can be mapped to some work (you do all that the customer asks you to).
4. ***All*** work must have some deliverable form (e.g., it cannot be stated that "serial interface programming was learned"; rather, data demonstrating those concepts learned must be presented (e.g. a program that successfully sends a character to serial port is demo'ed).

The intent of the architectural spike is to allow each team to immerse itself in the project without regard to formal documentation and to provide opportunity to focus on what project risks face them. This will afford insights that might otherwise be undiscovered until later in the semester. Each team will additionally discuss how the team's application concept can be "ported" to the target device/platform. The design will be summarized in a written report outlining the teams design decisions and describing their product's function, feature, structure, and any other relevant features.

This phase will account for 15% of your total grade, broken down as follows:

- 5% team – All aspects of the project were addressed (2 and 3 above)
- 4 % team – Demo of working system
- 4% individual – Written report
- 2% individual – Peer evaluation

Development Cycles

Following the architectural spike phase, you will participate in three iterative Cycles. Each cycle will count for 20% of the overall grade. During the cycles, the team is expected to meet each class period with the course instructors to report on project status, present implementation or design concepts, seek feedback, etc. Additionally, teams are expected to meet with the instructors/customers regularly for detailed discussion, demonstrations, etc. to ensure the product and plans will actually meet the Cycle Intent. The sponsor must sign off on the results of each cycle's work, and give feedback.

Each team must post a formal electronic copy of a team status report to the course Blackboard page (or email, as instructed) no later than 5pm each Monday. At the end of each cycle, the team will deliver the product of that cycle, written documentation (as outlined in class discussions), an oral presentation, and one peer evaluation from each team member. End of cycle products must be "build"-able, device installable, and have an up to date user manual.

The grade for each cycle will be broken down as follows:

- 5% team –Software process: adherence to course, process, and team standards (quality of user stories, status reports, testing, logs, other process elements)
- 5% team – Demonstration of working product consistent with Cycle Intent and customer vision
- 5% individual – Written report for cycle
- 3% individual – Oral presentation
- 2% individual – Peer evaluation

With three cycles at 20% each, this accounts for 60% of the overall course grade.

Installation/Build

At the end of the third cycle, the final product will be delivered to the customer to install and use. The team MAY NOT assist the customer in installation and deployment. The customer assesses how well the project meets her needs. This portion of the course accounts for 10% of the course grade, broken down as follows:

- 3% team – Success of the build and installation
- 3% team – Quality of the documentation for user
- 4% team – Customer assessment

Engineering Discipline

An additional 15% of the grade will be allocated based on the engineering quality of each individual's work. This will be determined on:

- How well the individual planned for and reacted to risks and obstacles.
- Quality of communication with instructors and customers.
- How well the individual adhered to the process.
- Confidence the instructors and customer have in the final product.

Team Grades

Many of the grade components listed above are graded at the team level. This means that each team member will receive the same grade for each such element. However, if a student does not perform at the team level for a given element, that student should NOT expect the same grade as the other team members. This includes both students who choose not to participate to an appropriate degree and those who choose to be "team hero".

Attendance

Class attendance is mandatory. Failure to attend class regularly may sacrifice a substantial portion of a student's individual and team grades.

Intellectual Property

Ownership of intellectual property generated by students in COMP4710 is retained by the customer sponsoring the project.