CSCI 334: System Design and Implementation
Syllabus – Spring 2014

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Course Description

A project-oriented study of the ideas and techniques required to design and implement a computer-based system. Topics include project organization, design, documentation, and verification.

Course Goals

Upon completion of this course, a successful student will be able to:

- Design large software projects using patterns and other standard techniques.
- Communicate both orally and in writing with clients, colleagues, and supervisors.
- Document specifications and code using standard tools.
- Work in a team to design and develop software projects.
- Independently identify and learn new technologies for a software project.

Required Texts

In addition to the following required texts, supplementary readings will be given during the semester.

- *Head First Software Development* by Dan Pilone and Russ Miles
- *The Pragmatic Programmer* by Andrew Hunt and David Thomas

You should expect to spend one to two hours before each class session working through the readings. This means reading the text for detail, doing exercises within the text, and working to learn vocabulary – not just skimming through the material before class.

Graded Material

Below is a brief description of each of the assignments for the course. In class I will hand out detailed descriptions of the requirements and grading guidelines, as appropriate.

- **Journal and Homework Assignments** – Informal journals will be used to explore ideas from the texts - roughly one for each of the chapter that we cover. Traditional homework assignments will be used to practice the techniques developed in the course.
- **Online Discussion** – Each week a new discussion topic will be posted to the Software Engineering Discussion Google Group (shared with CSCI 234). The topic will include two or more readings and a set of questions for the two classes to discuss.
- **Online Moderation** – Working in pairs or trios, you will develop and then moderate one discussion topic during the semester.
- **Software Engineering Philosophy Readings** – Beyond the required text books listed above, you will read portions of other books that discuss a wide variety of approaches to software development. For each book you will write a two-to-three page response to a prompt for the book.
- **Merck, OpenMRS, and SunGard** – Throughout the semester, we will work with employees at Merck to make contributions to the open-source project, Open-MRS. In addition, you will observe the software process as it is applied at SunGard, a local software development company. Your grade will be based on your level of contribution to OpenMRS and a collection of written responses to your visits to SunGard. These projects will be completed along side students from CSCI 234.
- **Reading** – The two books for this course are incredibly easy to read and contain a number of high-quality exercises within the text. For each reading assignment, you will self-assess how well you prepared using the following scale:

  3 – You did the reading and all the exercises within the text.

  2 – You completed the reading, but didn't do all the exercises.

  1 – You did most of the reading, but not all of it.

  0 – You either didn't to the reading, or only did a little.

  At the end of the semester, your average score for all reading assignments will be translated into a letter grade using the following scale:

≥ 2.5	A
≥ 2	B
≥ 1.5	C
≥ 1	D
< 1	F

- **Participation** – Half of your participation grade is determined solely on your attendance in class (irregardless of whether an absence is excused). The other half is based on active participation. I believe that we learn better when we are *actively* engaged in the material. Therefore, I expect you to participate in the activities in class and contribute on a regular basis.

- **Final Analysis Paper** – Instead of a final exam, you will write a final paper due to me by 4:30 p.m. on Monday, April 28. In this paper, you will critique the Merck/OpenMRS project and discuss how the content of the course was utilized in the project. Further details will be distributed near the end of the semester.

Grade Determination

- (10%) – Journal and Homework
- (10%) – Online Discussions
- (10%) – Online Moderation
- (20%) – Software Engineering Philosophy Readings
- (25%) – Merck, OpenMRS, and Sungard
- (5%) – Reading
- (5%) – Participation
- (15%) – Final Analysis Paper

All grades will be computed on the standard scale using plusses and minuses

Course Policies

- **Late Policy** – I understand that life sometimes gets in the way of getting work done. Consequently, late assignments will be accepted without penalty in the class after the assignment is due. However, this policy should not be used as a crutch, and if you frequently use it I will deduct from your grade. After the next class session, late work will not be accepted unless there are exceptional circumstances.
- **Extensions** – In a similar vein, I am generous with extensions on work if you approach me *before* the day the assignment is due.
- **Absences** – Your attendance is expected at each class meeting, but I understand that students occasionally get sick, have obligations outside Moravian, and even over sleep. If you do miss class, please send me an email explaining your absence – preferably before the class session. Regardless of your reason for missing class, you are responsible for the contents of reading assignments, handouts, class activities, and class email.
- **Academic Honesty** – Except on tests, you are *encouraged* to discuss the material and work with other students in the course. This policy does not allow you to copy another student's work verbatim – you must produce your own code or write-up of the material. Work together to learn the concepts, but keep in mind that you are ultimately responsible for the material on the tests.
- **Disabilities** – Students who wish to request accommodations in this class for a disability should contact the assistant director of learning services for academic and disability support at 1307 Main Street, or by calling 610-861-1510. Accommodations cannot be provided until authorization is received from the Academic Support Center.

The details of this syllabus and schedule are subject to change based on our progress through the material.