CMSI 641 SOFTWARE ENGINEERING
Fall 2010 – 3.0 units
Tuesday 6:30 – 9:30 p.m. – Doolan 222
Dr. Stephanie E. August -- saugust@lmu.edu
Course Description

Objectives
The primary objective of this course is to study design and development issues involved in the development of large-scale software systems that are reliable and easily maintained. Topics include tradeoffs between Agile and traditional approaches, impact of legacy systems, architectural representation issues, testing, project risk management, issues related to the hardware/software interface, and emerging trends in software engineering such as model-driven engineering and aspect-oriented software development. The secondary objective of the course is to learn how to research and review advances in the field, and to apply software engineering practices to real-world problems.

Prerequisites
Prior programming experience in a higher level programming language, such as Java, Lisp, C++, or Prolog or prior experience with the development of large-scale software systems.

Expected Work
This will be an interactive class, and students are expected to participate in class discussions and activities and to make both formal and informal oral presentations.

Course materials include weekly readings from the text. In addition, supplemental readings will be assigned and written reviews of each of these will be due at the beginning of class on the due date. All readings should be completed prior to lecture.

Students will complete a course project as a team. The project will cover each step of the development process from the initial needs analysis and requirement specification through design and implementation. Assignments will include both group and individual reports related to the project. The team will make their final project presentation at the last class meeting during finals week.

Students are responsible for all the material in the assigned readings, whether or not it is covered in class, and for all material presented in class, whether or not it is in the assigned readings.

Exams
Four quizzes, 30 minutes each, open book and open note including that day's class. The best three of the four quizzes will be used in calculating the final grade.

Text and Required Materials
Software Engineering. Ian Sommerville. 8th edition. Addison-Wesley, 2007.
Additional readings will be assigned during the semester.

Additional References
Design Patterns: Elements of Reusable Software. Erich Gamma, Richard Helm, Ralph Johnson, and John Vlissides. Addison-Wesley, 1994. Standard book on design patterns.

The Mythical Man-Month. Frederick P. Brooks, Jr. 2nd edition. Reading, MA: Addison-Wesley, 1995. Classical text on software engineering.

Object-Oriented Analysis and Design with Applications. Grady Booch, Robert A. Maksimchuk, Michael W. Engel, and Bobbi J. Young. 3rd edition, Addison-Wesley Professional, 2007.

Object-Oriented Software Engineering Using UML, Patterns and Java. Bernd Bruegge and Allen H. Dutoit. 2nd edition. Prentice Hall, 2004.

Software Architecture: Perspectives on an Emerging Discipline. Mary Shaw and David Garlan. Prentice Hall, 1996.

"A Software Design Manifesto." Mitchel Kapor. *Dr. Dobbs Journal*, 1991. http://hci.stanford.edu/bds/1-kapor.html. Views on software usability.

Software Engineering: A Practitioner's Approach. Roger S. Pressman. 6th edition. McGraw-Hill, 2005.

Software Engineering Theory and Practice. Shari Lawrence Pfleeger. 2nd edition. Prentice-Hall 2001.

The Unified Modeling Language User Guide. Grady Booch, James Rumbaugh, Ivar Jacobson. Addison Wesley, 1991. Covers object-oriented design.

Using UML: Software Engineering with Objects and Components. Perdita Stevens. 2nd edition. Addison-Wesley 2006

Grading

The core component of this course is four major project assignments, three of which include presentations. The assignments will include both group work and individual work. In addition, there will be several quizzes that test material in the lectures. The final grade will be weighted as follows:

Individual Project Assignments	25%
Group Project Assignments	45%
Quizzes	30%

Much of the work in this course is collaborative but some parts require individual work. To understand when collaboration is appropriate, read the handout on academic integrity. A student's preparation for class, the content of their contribution to discussions and activities, and their ability to meet course deadlines are considered part of their individual project assignment grade.

Assignments, projects, and papers are due at the beginning of class. Late work will only be accepted by prior arrangement or at the instructor's discretion.

Separate project grades will be given to the team as a whole and to the individuals for their contributions.

Refer to the *Teaching Philosophy and Course Policies* handout for additional information.

Office Hours/Contact Points

Office Hours: Tuesday, 8 a.m. - noon, Tuesday and Wednesday, 5:20 - 6:20 p.m.
and *by appointment*.
Office: Doolan 108
Phone: (310) 338-5973
Internet: saugust@lmu.edu Put ****** SE 641 Class ****** in the subject line!!!