ACS 560 Software Engineering

CRN 12942: T 6-8:45pm, KT250

Syllabus – Fall 2013

Professor

Zesheng Chen, PhD
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Course web site: http://engr.ipfw.edu/~zchen/course/ACS560_13F.htm

Course Description

This course surveys the engineering aspects of software system design. It concentrates on such matters as Agile software development, software specification, software design and implementation, software validation, and software evolution. It also emphasizes the practical software development technologies such as software version control, unified modeling language, design patterns, refactoring, and code review. The course forms part of the required core for the ACS master's degree.

Overview

CS 56000 gives an introduction to software engineering using an object-oriented approach. Topics include the software development process; iterative and incremental development; requirement engineering; system modeling; architectural design; design and implementation; software testing; software evolution; software control version; representation of software models using UML; design patterns; refactoring; code review; software programming principle; and software tools for analysis and design. Ethics and professionalism will also be covered.

Required textbooks

- Ian Sommerville, "*Software Engineering*," Addison-Wesley (9th Edition) 2011, ISBN 978-0-13-703515-1 (Pearson). Textbook Website: http://www.softwareengineering-9.com/ .
- Andrew Hunt and David Thomas, "*The Pragmatic Programmer*," Addison-Wesley 1999, ISBN 0-201-61622-X.

Reference books

- Steve McConnell, "*Code Complete 2*," Microsoft Press 2004, ISBN 978-0735619678.
- Martin Fowler, Kent Beck, John Brant, William Opdyke, and Don Roberts, "*Refactoring*," Addison Wesley 1999, ISBN978-0201485677.
- Eric Freeman, Elisabeth Freeman, Kathy Sierra, and Bert Bates, "*Head First Design Pattern*," O'Reilly Media 2004, ISBN 978-0596007126.

Grading Policy

Homework	30% (usually once every week)
Take-home midterm exam	30%
Group course project	30%
Class participation and quizzes	10%

The final letter grade will be assigned according to the following standards:

		A	93 - 100	A -	90 - 92
B +	87 - 89	B	83 - 86	B -	80 - 82
C +	77 - 79	C	73 - 76	C -	70 - 72
D	60 - 69	F	0 - 59		

Policies

1. Homework must be done individually.
2. No homework will be accepted after the due date.
3. The following is not allowed (also refer to the Academy Integrity Code in IPFW student manual):
   - Cheating

   Copying, with or without modification, someone else's work when this work is not meant to be publicly accessible (e.g., a classmate's program or solution)
   - Plagiarism

   The act of imitating, or presenting as new and original, an idea derived from an existing source. All pertinent material must be recognizably cited as the work of another author. Examples of plagiarism include submitting a paper you had used in another course, purchasing a paper and representing it as your own, developing someone else's ideas and presenting it as your own.
4. Students are expected to attend all classes. In the event that a student misses a class, he/she is responsible for all material covered in the class, including all assignments and announcements.
5. Late arrival to the classroom disturbs everyone. Please do not be late, but if you are unavoidably delayed, join the class quietly and with minimal disturbance.

Tentative Schedule

Week	Date	Topic
01	Aug. 27	Introduction to the course
02	Sept. 3	Introduction to software engineering, learningability, and DRY
03	Sept. 10	Software processes and version control (GIT)
04	Sept. 17	Requirement engineering
05	Sept. 24	System modeling and UML
06	Oct. 1	Architectural design and implementation
07	Oct. 8	Agile software development and socket programming
08	Oct. 15	Fall break
09	Oct. 22	Design patterns
10	Oct. 29	Design patterns
11	Nov. 5	Software testing
12	Nov. 12	Refactoring
13	Nov. 19	Bugs, debugging, and code review
14	Nov. 26	Software evolution and course review
15	Dec. 3	Take-home mid-term exam
16	Dec. 10	Course Project presentation

Course Evaluation Surveys

(Student Evaluation of Instruction and Course Learning Outcomes Assessment surveys)

Course evaluation is an important component of the Computer Science Department's assessment plan. Data gathered from assessment surveys helps us to evaluate and improve course content and delivery. To ensure that these data reflect the experiences of all students, your participation is required in both the Student Evaluation of Instruction and the Course Learning Outcomes Assessment surveys. These surveys are distributed online via the Purdue Qualtrics system and each takes 2-5 minutes to complete. Approximately two weeks prior to the end of the semester you will receive a link to each survey via your IPFW email account. These surveys are anonymous and no results will be released to the instructor until after the end of the semester. The CS Department expects that you complete both surveys before the final exam date. If you have any difficulties accessing a survey, you should immediately notify the instructor or the CS Department Secretary (davepol@ipfw.edu, 260-481-6803).

Special Needs

If you have a disability and need assistance, special arrangements can be made to accommodate most needs. Contact the Director of Services for Students with Disabilities (Walb Union, Room 113, telephone number 481-6658) as soon as possible to work out the details. Once the Director has provided you with a letter attesting to your needs for modification, bring the letter to me. For more information, please visit the web site for SSD at http://www.ipfw.edu/ssd/.