BSU Computer Science

CS 573 Advanced Software Engineering

Spring 2015 Syllabus

Instructor
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Meetings
MoWe 3:00PM - 4:15PM, Micron Engineering Center, Room 201
Office hours: MoWe 1:30PM - 3:30PM, 4:15-5:30pm or by appointment, MEC 302A

Credits: 3

Course Catalog
A study of selected aspects of contemporary software development methodology. Topics are taken from recent research articles. These topics include: definition of user requirements, formal specification of solutions, design and implementation techniques, validation and testing, verification, maintenance, and reuse.

Prerequisites
CS 471 or regular admission to the program.

Course Objectives
Students are introduced to advanced topics of software engineering, including:
- Design principles and patterns: class design, design by contracts, defensive programming, inheritance, agile design principles, design patterns
- Testing: mutation testing, test automation and oracles, specification-based testing, syntax testing, model-based testing
- Formal modeling and verification
- Debugging
- Code tuning

Evaluation Procedures and Criteria
Grading Components:

Assignments	40%
Presentation	15%
Midterm	20%

Final Exam   25%

Final grades will be assigned by the following rule: A for 90% or above of the total points, B for 80 to 89%, C for 70 to 79%, D for 60 to 69%, and F for less than 60%.

All assignments will be announced in class and posted on blackboard. If you miss class for any reason, it is *your* responsibility to find out what assignments you missed. *No late assignments* will be accepted and there are *no make-up exams*. Discuss unusual circumstances *in advance* with the instructor.

All assignments must be completed in a manner consistent with BSU code of academic conduct (e.g., described in the BSU Student Handbook). Cheating on an exam or plagiarizing others' work will result in a grade of zero, and possibly further disciplinary action.

Textbook
- No required textbook

Materials
- Steve McConnell. Code Complete: A Practical Handbook of Software Construction. 2nd Edition. Microsoft Press, 2004.
- Robert C. Martin, Agile Software Development: Principles, Patterns, and Practices, Pearson Education, Inc, 2003.
- Bertrand Meyer. Object-Oriented Software Construction, 2nd Edition, Prentice-Hall PTR, 1997.
- Other texts and publications to be announced in class.
- Recent 5 years of the following journals and conference proceedings:
  - IEEE Transactions on Software Engineering
  - ACM Transactions on Software Engineering Methodologies
  - Proceedings of IEEE/ACM International Conference on Software Engineering (ICSE)
  - Proceedings of ACM SIGSOFT Symposium on the Foundations of Software Engineering (FSE)
  - Proceedings of IEEE/ACM International Conference on Automated Software Engineering (ASE)

Special Needs
Students with disabilities needing accommodations to fully participate in this class should contact the Disability Resource Center (DRC). All accommodations MUST be approved through the DRC. Please stop by Administration 114 or call 208-426-1583 to make an appointment with a disability specialist. To learn more about the accommodation process, visit our website at http://drc.boisestate.edu.