Southern Illinois University Carbondale

CS435: Introduction to Software Engineering

Spring 2015

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Office Hours: TR 2:30pm - 4:30pm
Email Address: toseattle@siu.edu

Texts:

- (required) *Software Engineering* by Ian Sommerville 9th edition, Addison-Wesley, 2011

Course Objectives:

Software process models, software engineering methods, and software tools have been adopted successfully across a broad spectrum of industry segments. This course is designed for upper-level undergraduate student and first year graduate student to help them understand principles, concepts, methods, and techniques of the software engineering approach to producing quality software.

Prerequisite:
CS330 with a grade of C or better or equivalent course
**Tentative Topics**

1. **Introduction**
   - The nature of software
   - Software engineering
   - Software myths

2. **The software Process**: It presents a variety of different views of software process, considering all important process models and addressing the debate between prescriptive and agile process philosophies.
   - Prescriptive Process Models
   - Agile Development

3. **Modeling and Design**: It presents analysis and design methods with an emphasis on object-oriented techniques and UML modeling. Pattern-based design and design for web applications are also considered.
   - Principles that Guide Practice
   - Understanding Requirements
   - Requirements Modeling: Scenarios, Information, and Analysis Classes
   - Requirements Modeling: Flow, Behavior, Patterns, and WebApps
   - Design Concepts
   - Architectural Design
   - Component-Level Design
   - User Interface Design

4. **Quality Management**: It presents the concepts, procedures, techniques and methods that enable a software team to assess software quality, review software engineering work products, and apply an effective testing strategy and tactics.
   - Quality Concepts
   - Software Testing Strategies

**Written and Programming Assignments:**

There will be many written assignments and a few programming assignments. Your written assignments and programs should be prepared in electronic documents submitted through SIU online system (https://online.siu.edu). Upon receiving a graded assignment, if you have a dispute about the grading, please communicate with T.A. within a week. If you still have questions, you can talk to me in person about the disputes during my office hours.

**Team Project:**

A team with 3-4 students is allowed for this collaborative work. The ultimate goal is to deliver
reliable and trustworthy systems economically and quickly. The software must meet all requirements before releasing it to the customer. Your team will investigate a particular real-life sophisticated problem that is of interest to you. I will also provide several candidate final projects for you to choose from. Design and implement the system that integrates several software engineering principles and practices you learnt in the class. Project proposal should be submitted to get instructor’s approval. You will write reports and give presentations with live demo to the class during the last week of the semester. Java is the preferred programming language for the project.

Exams:
There will be a Midterm exam and a Final exam. There will be no makeup exams. If you cannot take an exam during scheduled time, you should consult the instructor in advance.

Late Policy:
Homework and lab assignments must be submitted to blackboard by the due time unless you have prior approval of the instructor. The late policy for all assignments is as follows: 10% points off, if submitted within 24 hours after the due date; 25% off, if submitted 24-48 hours after the due date; no credit if submitted two days or more days after the due date unless prior arrangements are made with the instructor with acceptable reasons. Partially finished assignments will receive partial credit.

Attendance Policy:
Students are expected to attend classes regularly. Students are responsible for all announcements made in class and/or posted to D2L.

Academic Integrity:
Plagiarism behavior in any form is unethical and will be punished. All work submitted by a student (home works, projects, programming assignments, and exams etc. except final project) has to be a student's own work. Students are allowed and encouraged to discuss with other students and look up resources in the literature for their assignments, but appropriate references must be included for the materials consulted, and appropriate citations should be made when the material is taken verbatim.

Grades:
The course grade will be distributed as follows:

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<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Attendance</td>
<td>5%</td>
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<tr>
<td>Written and programming assignments</td>
<td>20%</td>
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<tr>
<td>Projects</td>
<td>25%</td>
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<tr>
<td>Midterm Exam</td>
<td>20%</td>
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<tr>
<td>Final Exam</td>
<td>30%</td>
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