CSE 360
Introduction to Software Engineering

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1. Description

Software lifecycle models; software specifications and standards; team-based software development and project management; testing and quality assurance; legal and ethical issues.

2. Course Objectives:

(I) Students will develop an understanding of software engineering topics including basic software engineering approaches supporting requirements, design, coding, testing, maintenance and quality assurance. (II) Students will become aware of national and international standards. Students employ a disciplined process for acquiring requirements, develop software design, reasoning about the correctness of software programs while adhering to a code of ethics. (III) Students will learn to work in a team setting where project planning and tracking is used as a basis to support systematic software development, software inspection, software product documentation and oral presentation.

3. Topics

This class is an overview of Software Engineering techniques and processes. Content includes:

a) Software lifecycle models
b) Software development methods and tools
c) UML notation
d) Software project management
e) Testing and quality assurance

4. Course Outcomes

1. To develop an understanding of software engineering topics.
   1.1. student will understand basic software engineering approaches for requirements, design, coding, testing, maintenance, and quality assurance.
   1.2. student will develop an awareness of national and international standards.

2. To develop software following a disciplined development process.
   2.1. student will be able to elicit and document problem requirements.
   2.2. student will be able to create an architecture to solve a problem.
   2.3. student will be able to reason about program correctness.
   2.4. student will be able to follow a code of ethics.

3. To work effectively on a software development team.
   3.1. student will plan and track a software development effort.
   3.2. student will be able to conduct a software inspection.
   3.3. student will be able to present software product and process results in oral and written form.

5. Curriculum

Students will work **individually** and in **groups** to learn software engineering concepts, theories, and practices.

Software life cycle models
- Commonly used process models
- Strengths/weaknesses of process models
- Awareness of international software development standards

Project management
- Approaches for increasing software quality and productivity
- Plan and track a small software development effort
- Apply software risk management techniques

Team development environments and methodologies
- Software requirements management and use-case generation
- Using Rational Rose for creating UML based models
- Integrate software that conforms to interface specifications in a team environment

Software architectures
- Practice OO software design from user requirements

Quality assurance, standards, legal, ethical issues
- Process measures (for quality and productivity)

- Participation in software inspections
- Software testing
- Software engineering code of ethics

6. Credits and contact hours

3 credits, lecture/lab

7. Prerequisites or co-requisites

CSE 240 (Introduction to Programming Languages) or CSE 220 (Programming for Computer Engineering).

8. Course resources

- Textbook: Ian Sommerville. 2010. *Software Engineering* (10th edition). Addison-Wesley.
- The required IDE is NetBeans (http://netbeans.org)
- The required programming language is **Java**
- *UML Standard*, http://www.uml.org/

6. Course organization

Lecture:

- You are expected to attend all scheduled lectures and you are responsible for all content in the lectures.
- Attendance is not taken in lecture.

Recitations/Team Project:

- You will be placed on a team for a semester project.
- All team members must be scheduled for and attend the same recitation. No exceptions.
- Recitation sessions are used for project definition and evaluation.
- You are expected to attend all recitations and participate in all team activities.
- Attendance is taken in recitations

Check Blackboard regularly for updates and information.

7. Evaluation

Midterm Exam	25%
Final Exam	25%
Team Project	20%
Assignments	15%
Recitation Labs	15%

- There are two exams given during the semester (midterm and final exam). Exam dates are posted on Blackboard. Exams are closed book/notes. Phones, calculators and other electronic devices are not allowed during exams. Content from the exams is cumulative and includes lectures, reading, homework and the team project activities (including coding).

- Team Projects are team programming assignments in Java. Programming assignments will be described in your scheduled recitation. You will be graded based on your contribution level for the project. **No late submissions are allowed.**

- Assignments include: reading, writing, drawing diagrams, coding, and individual online quizzes, among others. There is a deadline for each assignment. **No late submissions are allowed.**

- Recitation Labs are timed team-work activities done during the recitation sessions. **There is no makeup for recitation labs.**

8. Grading

The following is the grading scale that will be used in the course (I reserve the right to modify the scale or grading system). Any adjustments to grading must be presented within two days of receipt of your graded materials – no grade changes will be made afterwards.

- A+ >=   97%
- A >=   93%
- A- >=   89%
- B+ >=   85%
- B >=   81%
- B- >=   77%
- C+ >=   73%
- C >=   69%
- D >=   65%
- E <   65%

The grade of "I" (incomplete) can be given ONLY when a student, who is doing otherwise acceptable work (passing grade), is unable to complete a part of work (e.g., the final exam) because of documented illness or other conditions beyond the student's control. In the latter case, the student must discuss with the instructor and complete an application form from the department

before the part of work is due or as soon as the circumstances are known. Please see ASU grading policies at: https://students.asu.edu/grades

Grading Appeals: Any discrepancy or disagreement in grading must be presented to the instructor **within a week of your receipt of your graded materials**; otherwise no grade change will be made.

Note: I reserve the right to change this grading system as the course progresses and various circumstances develop.

9. Classroom Behavior

Cell phones and pagers (must be/or state alternative rule) turned off during class to avoid causing distractions. **The use of recording devices is not permitted during class**. Any violent or threatening conduct by an ASU student in this class will be reported to the ASU Police Department and the Office of the Dean of Students

10. Disability Accommodations

Suitable accommodations will be made for students having disabilities and students should notify the instructor as early as possible if they will require same. Such students must be registered with the Disability Resource Center and provide documentation to that effect.

11. Academic Integrity and Honor Code

You are encouraged to cooperate in study group on learning the course materials. However, you may not cooperate on preparing the individual assignments. Anything that you turn in must be your own work: You must write up your own solution with your own understanding. If you use an idea that is found in a book or from other sources, or that was developed by someone else or jointly with some group, make sure you acknowledge the source and/or the names of the persons in the write-up for each problem. When you help your peers, you should never show your work to them. All assignment questions must be asked in the course discussion board. Asking assignment questions or making your assignment available in the public websites before the assignment due will be considered cheating. All individual tests must be done independently. Working together during tests is not permitted.

The instructor and the TA will CAREFULLY check any possible proliferation or plagiarism by comparing among the student submissions, previous student submissions, and the publications in the public Web sites. We will use the document/program comparison tools like MOSS (Measure of Software Similarity: http://moss.stanford.edu/) to check all assignments and tests that you submitted for grading.
The Ira A. Fulton Schools of Engineering expect all students to adhere to ASU's policy on Academic Dishonesty. These policies can be found in the Code of Student Conduct:

ALL cases of cheating or plagiarism will be handed to the Dean's office. Penalties include a failing grade in the class, a note on your official transcript that shows you were punished for cheating, suspension, expulsion and revocation of already awarded degrees.
Fulton Schools of Engineering Honor Code

1. Seek out, acquaint myself with, and obey the instructor's rules concerning the materials I am allowed to use and the types of collaboration in which I am permitted to engage in each of my courses.
2. Help my fellow engineering students to succeed both academically and professionally, while both following the instructor's guidelines on collaboration and encouraging my classmates to behave ethically.
3. Ensure that all of my individual work products reflect my own abilities and not those of someone else. I will never copy the work of others or give others the opportunity to copy mine.
4. Contribute a fair share of work to all teamwork in which I participate and acknowledge the contributions of others. I will accept responsibility for the integrity of all work submitted by my team.
5. Use only aids authorized by the instructor during all examinations, quizzes, projects, assignments and other evaluations.
6. Provide aid to, or receive aid from other students only as permitted by the instructor.
7. Give full credit to others for their words and ideas, whether directly quoted or paraphrased, using proper citation practices in all of my work, including text, figures and computer code, and all materials obtained from the Internet.
8. Never act dishonestly including lying, cheating, stealing, or attempting to corrupt the academic enterprise in any way.
9. Ensure that all data I record, or report are objective, true, accurate and properly documented.
10. Treat all students, faculty and staff with respect, courtesy and dignity, the way I would like to be treated myself.
11. Recognize that it is how I act when no one else is watching that defines my true character.
12. Act at all times with integrity, as the true professional that I am to become.

12. Sexual Discrimination

Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at

https://sexualviolenceprevention.asu.edu/faqs

As a mandated reporter, I am obligated to report any information I become aware of regarding alleged acts of sexual discrimination, including sexual violence and dating violence. ASU Counseling Services, https://eoss.asu.edu/counseling, is available if you wish discuss any concerns confidentially and privately.

IMPORTANT

- Any information in this syllabus (other than grading and absence policies) may be subject to change with reasonable advance notice.

- All contents of these lectures, including written materials distributed to the class, are under copyright protection. Notes based on these materials may not be sold or commercialized without the express permission of the instructor. [ACD 304-06].