CSCI 4200: Software Engineering I (WI)
Fall 2015

Instructor	Dr. Mark Hills
Class Meeting	Tuesday, Thursday: 9:30am - 10:45am, Bate 1018 (Section 1) 12:30pm - 1:45pm, Austin 307 (Section 2)
Office	Science & Technology Building, Room C-110
Office hours	Tuesday and Thursday: 2:00pm – 4:30pm (except for second Thursday of the month, then it is Wednesday from 1:00pm - 3:30pm); every weekday by appointment.
Phone	252-328-9692
Email	hillsma@ecu.edu (responses within 24 hours during the week, possibly longer on weekends, over holidays, or during breaks)
Course web page	Blackboard: https://blackboard.ecu.edu
Required textbooks	***Software Engineering (10th Edition),*** by Ian Sommerville, Addison Wesley, 2015, ISBN-10: 0-13-394303-8
Prerequisites	CSCI major, completion of CSCI 3200 or CSCI 3310

Course Description and Learning Objectives

This course provides practical and theoretical knowledge in relation to software development using software engineering principles. Students will learn the processes, methodologies and tools regarding the complete life cycle of software development so that they are able to begin using state-of-the art software development techniques that will aid the success of their software development projects. Students are required to complete a team project and other assignments during one semester. This is an approved Writing Intensive (WI) course.

Upon completion of this course each student will be able to:

- Understand the nature, objectives, and methods of software engineering practice
- Evaluate and chose process models for the development of software systems
- Use appropriate project scheduling and management techniques to create project management plans and documents
- Establish and document software requirements
- Use appropriate requirements analysis and modeling techniques
- Design software systems using the object-oriented method and visual modeling tools
- Use appropriate software testing techniques to create test cases
- Perform tests and create test documentation

The following applications may be used in this course:

- IBM/Rational Software (Rational Rose)
- Microsoft Visual Studio (C# and .NET), or Eclipse (Java and J2EE)
- Microsoft Project
- Google Sites
- JUnit, or NUnit

Topics

Topics covered in this course include:

- The nature of software and software engineering practice
- Software process models
- Software requirements management
- Software requirements documentation
- Traditional software design concept
- Object-oriented software design concept
- Modeling with Unified Modeling language (UML)
- Software testing strategies
- Software testing documentation
- Project management concept

Tentative Schedule

The following is the tentative schedule with the covered topics. This may be adjusted according to progress.

Chapter 1. Introduction
- 1.1. Professional software development
- 1.2. Software engineering ethics
- 1.3. Case studies

Chapter 2. Software processes
- 2.1. Software process models
- 2.2. Process activities
- 2.3. Coping with change
- 2.4. Process improvement

Chapter 3. Agile software development
- 3.1. Agile methods
- 3.2. Agile development techniques
- 3.3. Agile project management
- 3.4. Scaling agile methods

Chapter 22. Project management
- 22.1. Risk management
- 22.2. Managing people
- 22.3. Teamwork

Chapter 23. Project planning
- 23.1. Software pricing
- 23.2. Plan-driven development
- 23.3. Project scheduling
- 23.4. Agile planning
- 23.5. Estimation techniques

Chapter 4. Requirements engineering
- 4.1. Functional and non-functional requirements
- 4.2. Requirements engineering processes
- 4.3. Requirements elicitation
- 4.4. Requirements specification
- 4.5. Requirements validation
- 4.6. Requirements change

Chapter 5. System modeling
- 5.1. Context models
- 5.2. Interaction models
- 5.3. Structural models

18.2. RESTful services
18.3. Service engineering
18.4. Service composition

Grading

Students will be evaluated based on the combination of class activities. The final grade will be assessed with the following criteria:

Assessment		Grading
Quizzes	15%	A: ≥ 94; A-: ≥ 90 B+: ≥ 87; B: ≥ 83; B-: ≥ 80 C+: ≥ 77; C: ≥ 73; C-: ≥ 70 D+: ≥ 67; D: ≥ 63; D-: ≥ 60 F: < 60
Midterm exam (20%) and final exam (40%)	60%	
Individual Assignments/Projects	10%	
Group Project (Project and process management, Requirements, Design, Implementation, Test, Documentation and Presentation)	15%	
Total	100%	

Quizzes and exams are closed book and closed notes. The midterm exam is scheduled during the class meeting time on October 8th, the last class before Fall break. The final exam is scheduled on the class meeting time on December 3rd, the last class before reading day (which is December 8th). Both the midterm and final exams are 75 minutes long. The final project presentations will be held during the university-scheduled final exam periods for each class. For the first section that meets at 9:30am this will be on December 9th from 8:00am until 10:30am, and for the second section that meets at 12:30pm this will be on December 9th from 11:00am until 1:30pm.

Assignments

Group Project (each group may consist of 8 to 9 students, see the assignment description in Blackboard)
The project tasks include:

1. Select and follow a software process model to develop the project.
2. Develop a project schedule and project management plan, monitor project progress. (2 points)
3. Define system requirements including functional requirements and non-functional requirements. (2 points)
4. Define system design models using UML. (3 points)
5. Implement the system using C# .NET or Java (or potentially other frameworks and/or languages, but you need to discuss this with me first). (3 points)
6. Develop test suites for unit test and system test, and document test results. (3 points)
7. Document and present the project. (2 points)

Individual Assignments/Projects (See the assignment section in Blackboard)

Attendance Policy

You are expected to attend class. You are responsible for announcements and assignments given in class. If you miss a class, it is up to you to obtain notes and any other information that was provided in the class. Excuses that you did not know about something because you did not come to class and did not obtain the information will not be accepted. If you are having trouble understanding the lectures, come to office hours or ask for help. Get help as early as possible.

Starfish

This course uses the Starfish system to provide you with information on your performance within the course. For more information, please see **http://www.ecu.edu/cs-acad/advising/upload/Starfish-Student-Getting-Started.pdf**.

Student Conduct

Smoking is not permitted in classrooms. Please turn off mobile phones while in class. Laptops and tablets can be used for taking notes, but should not be used for other work (or recreational browsing, playing games, etc).

Students are expected to abide by the university's Student Honor Code. The homework that you do is a critical part of your education. Each student is expected to do his or her own work. That does not mean you are not allowed to discuss your ideas with other students. Working in groups can be beneficial, and I encourage you to talk through ideas with other students. But outright copying is plagiarism, and is unacceptable. Students who copy other students' work, or who allow their work to be copied, or who copy their work from other sources, such as the Internet, will receive no credit.

Other potential academic integrity violations are cheating, falsification, multiple submissions of the same work in different classes, and attempts at any of these violations. Please see **http://www.ecu.edu/cs-studentlife/policyhub/academic_integrity.cfm** for more details.

Academic integrity violations can result in a grade penalty up to and including an F for the course.

Incompletes

No incompletes will be issued in this course except for extraordinary circumstances, and even then only if you are nearly done already, and have done work of acceptable quality, so that it is realistic that you can pass the course.

Retention Requirements

Academic requirements for retention have changed. Please be aware of the following new GPA requirements. Please discuss the retention requirements, entrance to major requirements, and your goals with your academic advisor.

GPA Hours at ECU (identified in Transcript in Banner Self Service) plus transferred credit hours	"Old" Retention Requirement All courses taken at ECU	New Retention Requirements Effective with Fall 2011 grades All courses taken at ECU
1-29 semester hours	1.6 GPA	1.8
30-59 semester hours	1.8 GPA	1.9
60-74 semester hours	1.9 GPA	2.0
75 or more semester hours	2.0 GPA	2.0

Weather Emergencies

In the event of a weather emergency, information about ECU can be obtained through the following sources:

ECU emergency notices	http://www.ecu.edu/alert
ECU emergency information hotline	252-328-0062

Students with Disabilities

East Carolina University seeks to comply fully with the Americans with Disabilities Act (ADA). Students requesting accommodations based on a disability must be registered with the Department for Disability Support Services located in Slay 138 ((252) 737-1016 (Voice/TTY)).

For more information, please see http://www.ecu.edu/cs-studentlife/dss/.

Writing Intensive (WI)

CSCI 4200 is a writing intensive course in the Writing Across the Curriculum Program at East Carolina University. This course will focus on the development of writing skills. Upon completion of the course students will:

1. Use writing to investigate complex, relevant topics and address significant questions through engagement with and effective use of credible sources.

2. Produce writing that reflects an awareness of context, purpose, and audience, particularly within the written genres (Including genres that integrate writing with visuals, audio or other multimodal components) of their major disciplines and/or career fields.

3. Demonstrate that they understand writing as a process that can be made more effective though drafting revision.

4. Proofread and edit their own writing, avoiding grammatical and mechanical errors.

5. Assess and explain the major choices that they make in their writing.

This course contributes to the twelve-hour WI requirement for students at ECU. Additional information is available at the following site: http://www.ecu.edu/writing/wac/.