

WEST VIRGINIA UNIVERSITY
 College of Engineering & Mineral Resources
 Lane Department of Computer Science & Electrical Engineering
CS 230 Introduction to Software Engineering
 Section 7, Lab sections 1, 8 & 9

Semester: Spring 2006

Course format and Credit hours: 3 hr lecture, 2 hr laboratory, 4 hr credit

Prerequisites: CS 111

Instructor: Katerina Goseva - Popstojanova

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Office Hours: Tuesday & Thursday 10:00 – 11:00 am or by appointment

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Schedule: Tuesday & Thursday: 12:30 – 1:45 pm

Location: 113 MRB

Required Text: Roger Pressman, *Software Engineering: A Practitioner's Approach*, McGraw-Hill, 2005, Sixth Edition, ISBN 0-07-285318-2.

Catalog Description: Techniques and methodologies of software engineering; specification, modeling, requirement analysis and definition, design, quality assurance, testing, reuse, development tools and environments.

Course Objectives: The objectives of this course are to present techniques and methodologies of software engineering: requirements elicitation, writing requirements specifications, structured and object requirements analysis, structured and object oriented design concepts, quality assurance and testing throughout the software lifecycle. The semester project will provide students with the opportunity to work in teams to gather and analyze requirements, write specifications, and develop a prototype of a realistic software project.

Expected Learning Outcomes:

1. Acquire knowledge of software process, life cycle models, and process improvement techniques and standards
2. Be able to apply various requirement elicitation techniques
3. Be able to write and validate requirements specifications
4. Develop skills to communicate and work effectively as a team
5. Be able to perform structured and object oriented analysis
6. Acquire knowledge of structured and object oriented design
7. Learn various techniques of execution and non-execution based testing, and be able to apply non-execution based testing techniques to the verification and validation of requirements

Tentative Lecture Schedule:

Weeks	TOPIC	READING
1	History and overview of software engineering.	Chapter 1
1	Software development process, goals, & principles. Process improvement. Software process models.	Chapter 2, 3 & 4
0.5	Project management concepts. Teams.	Chapter 21
1.5	Requirements engineering: elicitation techniques, documentation techniques, and requirements analysis.	Chapters 7
2	Structured analysis: concepts, techniques of performing structured analysis including entity relationship diagrams, data flow diagrams, state transition diagrams.	Chapter 8
2	Object oriented analysis: object oriented concepts, UML, use case, sequence, activity and class diagrams.	Chapters 8
2	Design concepts and principles. Architectural design. Object oriented design.	Chapters 9, 10 & 11
2	Software quality assurance. Software testing strategies and techniques. Non-execution and execution based testing. Object oriented testing.	Chapters 13 & 14
0.5	Software maintenance.	
1.5	Project management, estimation, and scheduling.	Chapters 21, 22, 23 & 24

Tentative Lab Schedule:

Week	TOPIC
1	Discussion of policies. Overview of tools.
2	Configuration management lecture.
3	Lab assignment on configuration management.
4	Overview of the project. Discussion of format for requirements definition and specification documents.
5	Group brainstorming session for project.
6	Structured analysis modeling techniques.
7	Structured analysis modeling techniques.
8	Structured analysis modeling techniques.
9	Midterm exam – structured analysis modeling.
10	Object oriented analysis & design.
11	Object oriented analysis & design.
12	Object oriented analysis & design.
13	Review of requirements.
14	Final exam – object oriented analysis modeling.
15	Final project deliverable.

Rules of Operation:

Attendance: Students are expected to regularly attend lectures. Students are responsible for all material covered in the course, keeping track of assignments and examination dates. Lab attendance is required. Three unapproved absences will result in a 5% reduction of the total lab average.

Homework and Lab Assignments: Lab assignments will be assigned weekly. Lab assignments are due on the scheduled date, at the beginning of the class. Late assignments will be penalized 10% for each day late.

Group Project: During the course students will work in groups of 4 – 5 students from the same Lab section to elicit and document the requirements for a software project. The project will be accomplished in a series of 3 deliverables consisting of a final set of 3 documents. The final deliverable and the prototype will be due in the dead week. All students are required to participate equally in the group project. Groups will have the opportunity to evaluate individual members and individual grades may be affected by these evaluations.

Exams: A midterm exam will be administered during the seventh or eighth week of the semester. The final exam will be comprehensive, that is, it will cover all material taught throughout the semester. Make-up exams will be given only by prior arrangement and only under truly extraordinary circumstances. Consistent with WVU guidelines, students absent from regularly scheduled examinations because of authorized University activities will have the opportunity to take them at an alternate time.

Grading:

Midterm exam: 25%
Final exam: 25%
Group project: 30%
Lab assignments: 20%

Exam dates:

March 2 (tentative date)
Tuesday, May 2, 3:00-5:00 pm

Grades will generally be A = 90 – 100%, B = 80 - 89%, C = 70 - 79%, D = 60 - 69%, and F = 0 – 59%.

‘+’ and ‘-’ grade may be reported if the score is near boundary.

Academic Honesty: All work, except for the group project, is to be done on an individual basis. Evidence to the contrary will be regarded as academic dishonesty and will be dealt with accordance with the Lane Department of CSEE academic dishonesty policy.

Other Policies: *West Virginia University is committed to social justice. The instructor of this course concurs with WVU’s commitment and expects to maintain a positive learning environment based upon open communication, mutual respect, and nondiscrimination. Our University does not discriminate on the basis of race, sex, age, disability, veteran status, religion, sexual orientation, color or national origin. Any suggestions as to how to further such a positive and open environment in this class will be appreciated and given serious consideration.*

If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class please advice us and make appropriate arrangement with Disability Services (293-6700). The first week of the semester is the best time to inform your instructor of any disability.