CS425/625 Software Engineering Fall 2001
TR: 1:00 - 2:15
SEM 326

Instructor: Dr. Sushil J. Louis
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Catalog description

425, 625 SOFTWARE ENGINEERING (3+0) 3 credits: Requirements specifications, structured analysis, modeling, top down design, testability, maintainability, portability, verification and validation, modification, configuration, management, reliability, efficiency, complexity, compatibility, modularity, interfacing, hardware and language issues. Prerequisite: senior standing and junior-level course work in computing. (Major capstone course.)

Texts

- **Required:** Ian Sommerville, *Software Engineering,* 6^{th} *Edition. Software Engineering,* 6^{th} *Edition*
- **Recommended:** *Design Patterns: Elements of Reusable Object-Oriented Software.* I plan to require this book for CS426 and it is a must have reference for software engineers.

Office Hours

- **Sushil:** (SEM 233)
  - ⇝ 2:30 – 3:30 TR
  - ⇝ And by appointment (send email to sushil@cs.unr.edu to make an appointment)

Preliminary Topics

1. Software Process
2. Requirements
3. Design
4. Testing
5. Estimation
6. Risks

A more detailed syllabus and class notes are available from http://www.cs.unr.edu/~sushil and attached at the end of this handout.

I expect most projects and assignments to be done in teams. Teams will change over the semester and depending on the project/assignment you may be able to choose your own team.

Computer Usage

You will use your College of Engineering and CS Department accounts to do assignments. If you do not have an account, contact me immediately.

The class web page is at http://www.cs.unr.edu/∼sushil. Use workstations in the College of Engineering lab or elsewhere to access these notes and for email.

Student Participation

Students are expected to attend all classes and read all of the assigned sections of the texts and supplementary material (I may go through the text in a different order). Often material will not be covered in both lectures and reading assignments. Therefore, both are required for a full understanding of the course content. Finally, completing homework is essential.

I encourage any student needing to request accommodations for a specific disability to please meet with me at your earliest convenience to ensure timely and appropriate accommodations.

Students are encouraged to study together and to help each other understand the course material. However, each student is expected to prepare their own assignments. When you hand–in work with your name on it you are stating that it is your own work and not the work of another person. As a reminder of UNR academic standards, page 61 of the current University Catalog includes the following: *Plagiarism is defined as submitting the language, ideas, thoughts or work of another as one's work; or assisting in the act of plagiarism by allowing one's work to be used in this fashion."* This means that if another student asks to borrow your work — **Say NO** — or you are participating in plagiarism. Academic dishonesty will not be tolerated in this class. Please read the section on **Academic Standards** on page 61 of the UNR 1999-2000 catalog or ask me for a copy.

Homework and Exams

You will be evaluated on the basis of a number of assignments and projects. These assignments and projects will result in documents, presentations, in-class analysis, and code. Assignments and projects determine 70% of your grade. The remaining 30% will be split between three exams, 10% for each exam. I hope to adhere to the following schedule, but please keep in mind that all dates are subject to change.

	When (tentative)	percentage of grade
Tests	Sep 13, Oct 11, and Dec 13, 10% each	(30% total)
Assignments/Projects		70%

No late assignments will be accepted. *All* assignments must be turned in on the due date **at the beginning of class**. I will be using the *plus-minus* grading system. In other words, grades may include a + or − suffix (example: A, A−, B+, C−, C, etc.).

Communications

Whenever I need to communicate with the class as a whole I will update the class web page and/or send email. You are expected to check your email and read the class web page at least once a day.

Detailed Course Content

Course web page: http://www.cs.unr.edu/∼sushil/class/425.

Our software engineering course is a practical, hands-on course focussed on the development of software. We will embark on significant development efforts. Theoretical concepts, terminology, and techniques are introduced when they are necessary for successful software development.

Expect to be treated and evaluated as software engineers in industry. If you go on to complete CS426, you will have gone through the entire software development process for a significant application intended for real-world deployment. There is a starter list of possible projects on our class web page.

- Software Process Models
  - Waterfall
  - Evolutionary
  - Formal Systems
  - Reuse-oriented
  - Hybrid Models
    - Incremental
    - Spiral
- Project Management
- Risk estimation and management
- Requirements
  - Functional and non-functional requirements
  - User Requirements
  - System Requirements
  - The requirements document
- Design
  - Specification
  - Prototyping
  - Architecture
  - Object Oriented Design
  - UML
  - Architecture and Design documents
- Testing
  - Unit testing
  - Integration testing
- Cost Estimation
  - Productivity
  - Estimation techniques
  - Cost modeling

We will investigate these topics in the order they are usually encountered in a software development project and not in the order listed above.