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**CS 319-31 - Fundamentals of Software Engineering**  
**Spring 2006 - Northeastern Illinois University**

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**Meeting:** W 7:05-9:45 PM - FA 108

**Office hrs:** MWF 2:00-3:00 PM  
MW 5:00-5:30, and M 7:00-8:00 PM

**Description:** This course serves as an introduction to the life cycle of the software development process. Topics covered include each of the phases of the cycle, and techniques and paradigms that will help on the successful realization of each stage. Students will be expected to understand and apply these concepts while working on the generation of a group class sample application.

**Objectives:** A student that attends the course and passes it with a satisfactory grade (C or more) should be able to:

- understand each stage of the software engineering process
- perform analysis of system requirements
- design software developing strategies
- implement, test, and maintain applications

**Course Prerequisites:** CS 304

**Text:** Sommerville, Ian. Software Engineering, 7th Edition. Addison Wesley, 2004.  
Ullman, Larry. PHP and MySQL for dynamic websites, 2nd Edition. Peachpit Press, 2005.

**Course Outline:**

1. Overview (Weeks 1-2)

- Introduction to Software Engineering
- Socio-technical systems
- Critical systems
- Software processes
- Project management

2. Requirements (Weeks 3-7)

- Software Requirements
- Requirements engineering processes
- System models
- Critical systems specification
- Formal specification

3. Design (Weeks 7-11)

- Architectural design
- Distributed systems architectures
- Application architectures
- Object-oriented design
- Real-Time Software design
- User interface design

4. Verification and Validation (Weeks 12-13)

- Verification and validation
- Software testing
- Critical systems validation

5. Additional topics (Weeks 14-15)

- Rapid software development
- Software reuse
- Component-Based Software Engineering
- Critical systems development
- Software evolution
- Managing people
- Software cost estimation
- Quality management
- Process improvement

**Assignments:**

- **Class Project:** Semester long, group project. Project reports will be required periodically, with a final presentation at the end of the semester.
- **Exams:** Midterm and Final Exam (tentative dates: 3/8 and 5/4) .

There will be no makeup for missed projects, presentations, or exams

**Grading Policies:**

1. Grading will be distributed in the following way:

class project	50%
exam (each)	25%
in class participation	extra credit

2. Group projects assume collaboration. With the submission of a project students will be required to assess participation in an anonymous way. To preserve the integrity of the process, participation assessment will be applied to the projects score at the end of the semester and will affect directly the project portion of a student final grade.
3. Regular attendance is expected. Any student who misses more than three class meetings will have her/his final course grade reduced by a letter
4. No grade changes will be made on returned assignments, aside from miscalculation of total scores. A student that wishes a re-grading of an assignment will have the choice of an external review for the entire set of assignments at the end of the semester.
5. Cheating on exams, presentations or projects will guarantee the student an F grade, and a report according to school's guidelines. A student that is looking at another student or another paper during a quiz/exam will be requested to leave the course.
6. No Ws, Is will be granted after the school's withdrawal deadline (Fri, March 17<sup>th</sup>).
7. Your final grade will be based on the following scale:
  - **A** - 90% or above
  - **B** - 80 – 90 %
  - **C** - 65 – 80 %
  - **D** - 50 – 65 %
  - **F** - below 50%

*Cell phones/pagers:* No electronic-communication devices will be allowed during class time. A student who's phone/pager 'rings' during a class will be asked to leave the class for the day regardless the type of class (lecture, quiz, exam).

*If you have a physical, psychological, medical or learning disability that may impact on your ability to carry out assigned course work, I would urge that you contact the staff in the Accessibility Center office, Room A-118 in the A-Wing, exts. 5495, 5496, and 5497. The Accessibility Center will review your concerns and determine with you what accommodations are necessary and appropriate. All information and documentation of disability are confidential.*