

Instructor Dr. Lixin Tao, ltao@pace.edu, <http://csis.pace.edu/~lixin>
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Lectures PLV Goldstein 315, Tuesdays and Thursdays, 5:35PM-7:25PM

Office Hours Tuesdays and Thursdays, 3PM–5:30PM at PLV G320

Description

Software engineering as an engineering discipline. Role and ethics of an engineer. Software processes. Project management. Domain analysis. Problem specification. Object-oriented analysis. Object-oriented design. Testing and quality control. Software maintenance. Software framework and reuse. Component-based software engineering. Software design patterns and architectures. Engineering ethics and software copyright.

Learning Objectives

- Understanding the software processes, the major stages of these processes, and the major roles in them;
- Effectively conducting software modeling with the universal modeling language *UML*;
- Effectively conducting object-oriented analysis, design, implementation, and testing;
- Familiar with software frameworks, components, reusable patterns, and major software architectures;
- Being able to work in a team, communicating with each other effectively both verbally and in technical writing;
- Effectively conducting project management: project scheduling, role assignment, peer review, project coordination, version control, quality control;
- Mastering the major computer-aided-software-engineering (CASE) tools including Rational Rose, Borland JBuilder, and Microsoft Visual Studio .NET.
- Understanding the importance of engineering ethics and software copyright.

Textbook

- *Object-Oriented Software Engineering: Practical Software Development Using UML and Java*, by Timothy C. Lethbridge and Robert Laganriere. McGraw-Hill, Inc. 2002. ISBN 0072834951. (<http://www.site.uottawa.ca/school/research/lloseng/>)

References

- *UML Distilled, 2nd Edition*, by Martin Fowler with Kendall Scott. Addison-Wesley, 2000. ISBN 0-201-65783-X

- Class notes and course material posted on Pace Blackboard (<http://blackboard.pace.edu/>)

Major Teaching Tools

- **Rational Rose Enterprise**
- **JBuilder**
- **Visual Studio .NET Professional 2003**
- **Microsoft Project**

Quizzes

There will be two quizzes on fundamental concepts, both administered through Pace Blackboard 6 (<http://blackboard.pace.edu/>). The quizzes will be on March 24 and May 3 respectively.

Project

Students will be organized into teams of 5-6 students each. Each team will propose and complete a major course project based on the *Object Client-Server Framework (OCSF)* that can provide practice for the students in all stages of a software process. Example projects include network-based communication utilities and distributed games.

Students in each team will be assigned various roles of a typical software engineering process, and responsible for the project management, project specification, object-oriented analysis, object-oriented design, implementation, and testing. Each team will submit a joint project report, including the project objectives, approaches, role and task assignment as well as workload percentage of each team member in the project's total effort (default is the equal distribution of workload), major software process documentations, installation manual, user manual, and known problems. Each team will formally present its project at least twice, and each student must be involved in such oral presentations. The final project presentation and demonstration should be no later than April 28. Some technical subjects relevant to the project design and implementation, including *OCSF*, will also be assigned to teams to study and present and such presentations are considered part of the project effort. The evaluation of the course project is based on the quality of project report, quality of project design and implementation, quality of oral presentations, and quality of the final project demo.

Weekly Assignment

Each week, some course activities, including discussion participation and project work, will be assigned on the Blackboard Discussion Board for the week. The deadline for each weekly assignment is the following Sunday evening. All deliverables for the weekly assignment must be posted on the Blackboard Discussion Board for the week by the deadline.

Weekly Participation Grade (PG)

Each week a student will get a Participation Grade based on (1) whether the student attends the lectures of the week (up to 2 points); (2) whether the student complete the weekly assignment for the week (up to 2 points); and (3) whether the student actively participates in classroom and Blackboard Discussion Board discussion (up to 2 points).

Grading Scheme

Quizzes	20%	(10% each)
Weekly Participation	20%	
Project	60%	
Quality of design and implementation	30%	
Project oral presentations	15%	
Project written reports	15%	

More Information: For more up-to-date information on this course, please visit Discussion Board of course Blackboard at

<http://blackboard.pace.edu>

regularly.