

## CSC 513 Software Engineering

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Office Hours: Please set an appointment by letting me know in class/by e-mail  
Course Time: TTh 9:30-10:45am (1/14 – 4/24)  
Location: MM-202

Textbook: *Object-Oriented Software Engineering: Using UML, Patterns and Java*  
Bernd Bruegge, Adjunct, Carnegie Mellon University  
Allen H. Dutoit, Technical University of Munich (**THIS IS FOR REFERENCE**)

Grading: Course Assignments 20%, Participation 10% (Based on In-class projects)  
In-Class Exams 30%, Final Project 40%

### Description:

The purpose of this course is to teach the student how to design and develop large software systems. A term project is assigned that implements the techniques described in the course on a real world problem with corporate partners. Students work on this project in teams each week through the course they learn different aspects of software engineering. Topics covered include: software reliability and its implications; the software development lifecycle; object and software modeling using the Unified Modeling Language (UML); cost-benefit analysis; and rapid prototype development. The class will consider the impact of innovations such as, event-based programming, distributed programming, and Internet technologies. Additional topics that may be covered are software estimation, design patterns, aspect-oriented design, and model-driven architecture. Prerequisites: Familiarity with a higher-level programming language is the only pre-requisite.

Jan 14	<i>Class Overview - Introduction to the Class</i>
Jan 16	<i>Overview of Software Engineering, Objects, Software Lifecycles</i>
Jan 21	<i>Problems Statements</i> <b>Assignment 1 – Problem Statement Exercise</b>
Jan 23	<i>Requirements Engineering – Requirements Elicitation – Scenarios</i> <b>Assignment 2 – Scenarios Exercise</b>
Jan 28	<i>Corporate Presentations</i> <i>Requirements Engineering – Requirements Elicitation – Use Cases</i> <b>Assignment 1 - DUE</b>
Jan 30	<i>Corporate Presentations</i> <b>Assignment 2 – DUE</b>
Feb 4	<i>Configuration Management</i>

Feb 6            *Configuration Management – Setting Up Google SVN*  
**Assignment 3 – Groups need to set-up CM environments**

Feb 11            *Use Cases and Rational Rose Demonstration*  
**Assignment 3 DUE**  
**Assignment 4 – Use Case Exercise**

Feb 13            *UML Modeling: Class Diagrams*

Feb 18            UML Modeling: Class Diagrams (Exercises)  
**Assignment 4 DUE**

Feb 20            UML Modeling: Class Diagrams (Exercises)  
**Assignment 5 DUE – First Project Deliverable (Problem Statement – Scenarios – Use Cases)**

Feb 25            *UML Modeling: Interaction Diagrams*

Feb 27            *UML Modeling: Interaction Diagrams*

Mar 4             Test Review (Game-Show Format)

Mar 6             Test

Mar 8-16         **SPRING BREAK**

Mar 18            *Prepare Initial Class Diagrams & Interaction Diagrams for Project (Independent Work)*

Mar 20            *UML Modeling: State and Activity Diagrams*  
**Assignment 6 DUE – (First Class Diagram and 3 Sequence Diagrams for Final Projects)**

Mar 25            Mapping Models to Code

Mar 27            Design Patterns

Apr 1             Interim Project Presentations in Class (Q&A)

Apr 3             Interim Project Presentations in Class (Q&A)

Apr 8             *Agile Software Development*  
**Assignment 7 DUE – Updated Final Project Report**

Apr 10            *Software Estimation*

Apr 15            *Service-Oriented Architecture*

Apr 17            *Group Presentations*

Apr 22            *Group Presentations*

Apr 24            *Group Presentations*

May 7             **Final Project Reports Due**