

Software Design

Homepage:

The home page for this course is hosted at:

<http://www.eecs.wsu.edu/~arslanay/CptS323/>

Please check this website frequently for course announcements.

The lecture notes and homework/exam solutions will be posted at the ANGEL portal.

Class Meeting Time and Location:

M W F 10:10 am - 11:00 am, Sloan 150 (Jan 07—Apr26)

Instructor:

Name: Sakire Arslan Ay

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Office Hours: TBA, make an appointment via phone or email.

Teaching Assistant:

Name: Bolong Zeng

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Office Hours: TBA

Text Book and Reading Materials:

Required Textbooks

[**OOSE**] Bernd Bruegge and Allen H. Dutoit , Object-Oriented Software Engineering: using UML, Patterns, and Java. 3th edition, Prentice Hall. 2010. ISBN-10: 0136061257. ISBN-13: 9780136061250

[**DP**] Erich Gamma, Richard Helm, Ralph Johnson, and John M. Vlissides, Design Patterns: Elements of Reusable Object-Oriented Software. Addison-Wesley Professional. 1994. ISBN-10: 0201633612

Recommended Reading:

[**UML**] SPARX Systems. UML 2 Tutorial. http://www.sparxsystems.com/resources/uml2_tutorial/

[**JPC++**] Scott Stricker. [Java programming for C/C++ developers](#). IBM.

[**IEEE**] IEEE Standards for Software Engineering

Course Overview:

The purpose of this course is to expose students to contemporary software design methodologies, and to equip them with knowledge and skills necessary to conquer complexity in design of large-scale software and to improve the quality of end products. This course introduces design techniques and methodologies for improving the productivity of software development and the quality of software. The course introduces fundamental design concepts and notations with emphasis on Unified Modeling Languages (UML) and design patterns. The course also discusses the role and impact of software design on other elements of software development processes.

Students will participate in a semester long project to give them hands-on experience with software design principles. In the project students will practice principles and techniques introduced in the class in a team environment.

Prerequisites: "Cpts 223 Advanced Data Structures", "Cpts 322 Software Engineering Principles I"

Outline:

Topics	Reading	# of Lectures
Introduction to Software Design	OOSE-Ch1	2
Object-Oriented Design and Java Intro	JPC++	4
Design in Software Process	OOSE-Ch15	3
Tools and Infrastructure		1
Unified Modeling Language	OOSE-Ch2, UML	5
Requirement Elicitation	OOSE-Ch4	1
Functional Modeling – Use cases	OOSE-Ch4	2
Object Modeling	OOSE-Ch5	2
System Design: Decomposing System	OOSE-Ch6	2
System Design: Addressing Design Goals	OOSE-Ch7	2
Design Patterns	OOSE-Ch8, DP	14
Project Presentations		4

Project:

Term project is an important component in a software design class. You will complete the project in a team environment (each team will have max 3, min 2 students). The project is to provide a platform on which you can excise software design and development methodologies in Software Engineering. Your project will be to design, document, build, and release a standalone, desktop RSS client that visualizes location-enabled RSS feeds on map interface (see Figure-2). Your team will design the client and also implement the design. The outcomes of project will be demonstrated not just by the quality of your design and the final product, but also by the quality of software process and the design documents developed during the course of the project.

Please refer to the project description for more details:

<http://www.eecs.wsu.edu/~arslanay/CptS323/CptS323.arslanay.spring.2013.ProjectDesc.pdf>

Project Teams:

Teams will consist of 3 students (teams of 2 can be constructed with instructor's permission). One member in your team would serve as a liaison for the team, and will be responsible for the communications of your team with the instructor and the TA.

Project deliverables will be turned in as a team (i.e., one submission per team). Unless posted, project documents shall be edited and submitted electronically.

The progress of semester-long project will be measured by milestones. The objectives, requirements, and deadline of each milestone will be posted in the project section. At each milestone, you may be required to submit a written report, code, or test cases to demonstrate your progress.

Late penalty is 10% point deduction per day. Late project deliverables may be turned up to one week after the original due date. Exceptions/extensions can be given to teams with valid excuse. Teams need to provide evidence for their excuse and must notify the instructor beforehand for the late submission.

The grading rubrics that will be used to evaluate your project deliverables will be available on the course website.

Homework Assignments:

There will be 3 to 4 homework assignments throughout the semester. Homework assignments usually require 1-2 weeks to complete. You are encouraged to take advantage of office hours if you have questions for homework assignments.

Each student will turn in homework assignments individually.

- Acceptable file formats include: PDF, Postscript, and for graphics or scanned documents, GIF or JPEG.
- The homework assignments and their deadlines will be posted on the course website.
- Homework submission deadline is the midnight of its posted due date.
- Homework assignments shall be submitted electronically via the ANGEL system.
- Late penalty is 10% point deduction per day. Late assignments may be turned up to one week after the original due date.

Exams:

There will be one midterm and one final. Midterm will cover all material covered until the midterm date. The tentative midterm date is March 6th 2013 (see the schedule).

Grading Scale:

Overall Grading:

- 1. Midterm..... 20% (individual grade)
- 2. Final..... 25% (individual grade)
- 3. Project..... 50% (team grade + individual grade)
- 4. Homework assignments.....5% (individual grade)
- 100 %

Project Grading:

The weights of the project deliverables are as follows:

- 1. System Requirements Specification Document..... 15% (team grade)
- 2. Software Design Document
 - a. Phase I 10% (team grade)
 - b. Phase II 15% (team grade)
- 3. Design Patterns Specification..... 5% (team grade)
- 4. Project Code..... 20% (team grade)
- 5. Project Demonstration..... 30% (team+individual grade)
- 6. Peer Review..... 5% (individual grade)
- TOTAL.....100%

All grades will be given based on a 100 point grade scale. You also need to submit a “report on version control and issue tracking” at the end of the semester which will count towards your homework grade.

Letter Grades:

Letter grades will be assigned based on the scale shown below:

Total Score	Letter Grade
93% - 100%	A
90% - 92.99%	A-
86% - 89.99%	B+

83% - 85.99%	B
80% - 82.99%	B-
76% - 79.99%	C+
73% - 75.99%	C
70% - 72.99%	C-
66% - 69.99%	D+
60% - 65.99%	D
0% - 59%	F

A rubric will be used in CptS323 for grading project deliverables. Students should use the rubric to guide their project work through the course's design algorithm. The rubric will be available at the course website.

Team vs. Individual Performance: Each team member is expected to carry their own weight. If they do, all team members will get the same grade. However, I will be looking "into" the teams to see if some students are underperforming; if so, they will get lower scores than their teammates. Similarly, excellent work can be rewarded by providing higher grades. For the project deliverable documents and products, you will be asked which parts of the document/code were done by each team member.

Student Work Load for CptS 323:

CptS 323 is a 3-credit course. The 3-credit designation normally implies that on average the student is expected to spend 3hrs ("lectures") + 6hrs ("homework") = 9 hours per week working on this course.

Protecting Intellectual Property (IP):

Teams have an obligation to protect IP they develop and IP that the mentor and sponsor share with them. WSU employees, including faculty, staff and graduate students are legally bound to protect intellectual property. Do not post IP at non-password-protected websites. Questions about IP should be directed to your mentor or directed to WSU attorneys trained in IP issues. Similar comments apply to information that government and military entities label as "sensitive" or "classified". Ask the instructor if you need contact information for WSU professionals working with these issues.

Academic Integrity:

WSU definitions and procedures for cases of academic dishonesty are given at the URL: <https://deanofstudents.wsu.edu/default.asp?PageID=4295> . Please read the material at all links at this URL. These procedures will be followed rigorously. Academic dishonesty in CptS 421 results in a grade of "F" for the course. All work submitted for grading is to be original. Material submitted that is not original must be cited as described in technical writing text books.

Students with Disabilities: Students with Disabilities: Reasonable accommodations are available for students with documented disability. If you have a disability and may need accommodations to fully participate in this class, please visit the Access Center (Washington Building 217) to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center. Additional information can be viewed at the URL <http://drc.wsu.edu>

Campus Safety: The Campus Safety Plan, which can be found at <http://safetyplan.wsu.edu>, contains a comprehensive listing of university policies, procedures, statistics, and information relating to campus safety, emergency management, and the health and welfare of the campus community. The left side bar at this safety plan homepage contains many important links to safety information.