Course Syllabus

✎ Edit

CS 652 - Object Oriented Design - Spring 2019

Syllabus and Course Summary

Instructor: Dr. Harry S. Delugach
Email: delugach@uah.edu
WWW: http://www.cs.uah.edu/~delugach (http://www.cs.uah.edu/%7Edelugach)
Phone: (256) 824-6614
Class Meets: MW 4:20 - 5:40 PM in OKT N-308
Office Hours: 2:30 - 4:15 MW in OKT N-351

Texts: (Gomaa) *Software Modeling and Design: UML, Use Cases, Patterns and Software Architectures,* by Hassan Gomaa, Cambridge Univ. Press, 2011

(G4) *Design Patterns: Elements of Reusable Object-Oriented Software,* by E. Gamma, R. Helm, R. Johnson and J. Vlissides, Addision-Wesley, 1995.

(P) *Software Engineering: A Practitioner's Approach,* by Roger S. Pressman & Bruce R. Maxim, McGraw-Hill, 2014 (8th edition). ISBN 978-0-07-802212-8

Grading

If you feel there is an error in the grading of your work, you must bring it to the instructor's attention within one week after the assignment was returned to you.

Midterm Exam	15 %
Final Exam	25 %
Project	25 %
Homework	20 %
Participation	15 %

The following grading scale will be used (final averages are rounded to the nearest whole number):

A+ 96; A 92; A- 90; B+ 88; B 82; B- 80; C+ 78; C 72; C- 70; D 65

Course Objectives

- To understand the importance of design in the disciplines of software engineering.

- To learn formal techniques and methodologies of design, and be able to compare their advantages and disadvantages.
- To apply object-oriented concepts and approaches to software architecture and detailed design using UML.
- To learn how to participate as part of a team in a software development project, including formal reviews.

Prerequisites: CS 650 or equivalent and either CS 307 or CS 321 or equivalent, or approval of instructor based on applicable industrial software development experience.

General Information

Please read the **general guidelines and policies (http://www.cs.uah.edu/~delugach/Courses/Syllabus-General.html)** that apply to this course, They are a part of this syllabus. Other course materials, announcements, email, discussions, etc. will be distributed using Canvas (canvas.uah.edu). To access it, go to **http://canvas.uah.edu (http://canvas.uah.edu)** . You'll find instructions there about id/password and access information. You can get help from the TAG help desk at **http://its.uah.edu/about/gethelp.php (http://its.uah.edu/about/gethelp.php)** or at (256) 824-3333.

Homework

There will be four homework assignments, to be done individually. You may discuss the problems with your classmates, but all work turned in must be your own. Assigments will be submitted and graded using Canvas, and your graded assignments (with instructor feedback) will be returned to you through Canvas.

NO hand drawn models or hand written answers are ever allowed except on hand-written in-class exams.

Discussion Forums

Canvas provides discussion forums for students to post their ideas and responses. These will form an integral part of the course. Questions will be posed by the instructor or by other students, to which all are invited to respond. Part of your participation grade will be based on these forums. You are required to create at least one new reasonable discussion, and you are required to respond reasonably to at least three such discussions of others. "Reasonable" here means contributing substantively to the content and goals of the course.

Team Project

You will participate as a member of a small team starting the third week of the course. In general, all members of the team will receive the same grade on each deliverable. Deliverables and communication must be handled through *Canvas,* using Collaborations, Conferences and or emails as appropriate.

Participation

You'll be evaluated on the basis of your participation, both in the class and in your team. This includes communication through Canvas and other electronic media.

Canvas provides discussion forums for students to post their ideas and responses. These will form an integral part of the course. Questions will be posed by the instructor or by other students, to which all are invited to respond. Part of your participation grade will be based on these forums. You are required to create at least one new reasonable discussion, and you are required to respond reasonably to at least three such discussions of others. "Reasonable" here means contributing to the content and goals of the course.

Special Note For Online Students

If you are enrolled in an online section of this course, you're expected to view all of the video recorded lectures, just as though you were attending in person. You are expected to be prepared before viewing, take notes as appropriate, participate in on-line discussions, and submit all assignments as they are due. This is **NOT a self-paced course**; you must keep up with the schedule in this syllabus. If there are in-class exams, you will benefit by taking them in class at the scheduled time; however, you are entitled to take the exam at 9am on the first Friday after the in-class exam; to exercise this option, you must inform the instructor at least one week prior to the in-class exam. If you cannot take the exam in Huntsville, you must let the get in touch with Testing Services at **https://www.uah.edu/testing/online-learning-exams (https://www.uah.edu/testing/online-learning-exams)** to arrange for a proctor at least one week in advance.

Course Schedule

NOTE: Readings are to be done <u>before</u> the class at which they will be discussed.

DATE	TOPIC	TEXT READINGS	ASSIGNMENTS
Mon Jan 07	Introduction, Review of Software Engineering, Object-Oriented Thinking	(P) Ch 14, 15, 16 (Gomaa) Ch 20	
Wed Jan 09	General design criteria, OO design criteria		
Mon Jan 14	Software measurement, metrics	(P) 23, 25, 26, 27, 29	
Wed Jan 16	Software estimation and project management		
Mon Jan 21	*Martin Luther King, Jr. Holiday (No class)*		
Wed Jan 23	Software architecture	(P) 9, (Gomaa) 12, 13, 14	
Mon Jan 28	Software architecture		
Wed Jan 30	Software architecture tradeoffs	(Gomaa) 15, 16, 17, 19	Homework 1

Mon Feb 04	Thinking in object oriented terms.	(P) 7, 8, 9, 10, 11	
Wed Feb 06	Design quality criteria. Interface design		
Mon Feb 11	OO Components		
Wed Feb 13	Structural design	(Gomaa) 18	Team Roles Homework 2
Mon Feb 18	Clean architecture		
Wed Feb 20	Architecture patterns and Design Patterns		
Mon Feb 25	Architecture patterns and Design Patterns	(Gomaa) Appendix A (G4) Ch. 1, 2, 3, 4	Homework 3
Wed Feb 27	Architecture patterns and Design Patterns		Team First Deliverable
Mon Mar 04	Architecture patterns and Design Patterns		
Wed Mar 06	*Midterm Exam*		
Mon Mar 11	Effective and efficient architecture and design		
Wed Mar 13	Effective and efficient architecture and design		Homework 4
Mon Mar 18	*SPRING BREAK (NO CLASS)*		
Wed Mar 20	*SPRING BREAK (NO CLASS)*		
Mon Mar 25	Effective and efficient architecture and design		
	Effective and efficient architecture and design		
Mon Apr 01	Effective and efficient architecture and design		Team Second Deliverable
Wed Apr 03	Putting it all together		
Mon Apr 08	Putting it all together	(Gomaa) 21, 23, 24	
Wed Apr 10	Putting it all together		
Mon Apr 15	Team Presentations		
Wed Apr 17	Team Presentations		
Mon Apr 22	Course Review		Team Final Deliverable
Wed May 01	*Final Examination 6:30pm - 9:00pm*		

Course Summary:

Date	Details	
Wed Jan 30, 2019	📝 **Homework 1** (https://uah.instructure.com/courses/34284/assignments/264599)	due by 11:59pm
Wed Feb 13, 2019	📝 **Homework 2** (https://uah.instructure.com/courses/34284/assignments/274590)	due by 11:59pm
	📝 **Team List and Roles** (https://uah.instructure.com/courses/34284/assignments/264607)	due by 11:59pm
Mon Feb 25, 2019	📝 **Homework 3** (https://uah.instructure.com/courses/34284/assignments/264600)	due by 11:59pm
Wed Feb 27, 2019	📝 **First Deliverable** (https://uah.instructure.com/courses/34284/assignments/264598)	due by 11:59pm
Wed Mar 6, 2019	📝 **Midterm Exam** (https://uah.instructure.com/courses/34284/assignments/264603)	due by 4:20pm
Wed Mar 13, 2019	📝 **Homework 4** (https://uah.instructure.com/courses/34284/assignments/264601)	due by 11:59pm
Mon Apr 1, 2019	📝 **Second Deliverable** (https://uah.instructure.com/courses/34284/assignments/264605)	due by 11:59pm
Sun Apr 21, 2019	📝 **Discussion participation** (https://uah.instructure.com/courses/34284/assignments/264596)	due by 11:59pm
Wed Apr 24, 2019	📝 **Project Participation** (https://uah.instructure.com/courses/34284/assignments/264604)	due by 11:59pm
Thu Apr 25, 2019	📝 **Final Deliverable** (https://uah.instructure.com/courses/34284/assignments/264597)	due by 11:59pm
Wed May 1, 2019	📝 **Final Exam** (https://uah.instructure.com/courses/34284/assignments/274674)	due by 6:30pm