Kennesaw State University  
College of Computing and Software Engineering  
SWE 3633 – Software Architecture and Design  
Course Syllabus – Spring 2018

Instructor: Prof. Rachel Foster

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Office: J-379

Office Hours: Mondays and Wednesdays 10:30 AM-12:00 PM, Tuesdays 4:00-6:00 PM (by appointment only)

Class Schedule: 5:00-6:15 PM, MW, Room J-264 (Atrium Bldg.)

Textbook: Introduction to Software Engineering Design: Processes, Principles, and Patterns with UML2 by Christopher Fox

COURSE DESCRIPTION:

This course covers the fundamental design principles and strategy for software architecture and design. Architectural styles, quality-attributes, notations and documents, reference architecture, domain specific architecture in architecture process and pattern-oriented design, component-oriented design, and interface design in detailed design process are discussed.

COURSE OBJECTIVES:

The objective of this course is to first cover the general topics related to software architecture and design. The topics covered are:

• What is software design
• What are software design processes
• What is architectural design
• What are architectural patterns/styles

COURSE OUTCOMES:

Upon completion of this course:

• Students will be able to apply principles of SWE practices especially of architectural design and detail design in design phase of SDLC.
• Students will demonstrate the ability to analyze the software requirements, foundational specifications for the system to determine the strategies, techniques, and patterns before it is implemented.

• Students will be able to use software design tools to effectively design the software system architecture and its sub-elements.

• Students will be able to identify new architecture and design patterns, apply new design styles and design patterns in software architecture and design, and will be capable of lifetime learning

COURSE CALENDAR:

<table>
<thead>
<tr>
<th>WEEK</th>
<th>DATES</th>
<th>TOPICS / CHAPTERS</th>
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| Week 1 | Jan 8-14  | Introduction to the course and Software Design  
Chapter 1 |
| Week 2 | Jan 15-21 | Introduction to Software Architecture  
UML Activity Diagrams  
Software Design Processes and Management  
Chapter 2, Assignment 1 |
| Week 3 | Jan 22-28 | Software Product Design  
Chapters 3, 4, 5 |
| Week 4 | Jan 29-Feb 4 | Designing with Use Cases  
Chapter 6, |
| Week 5 | Feb 5-11  | Assignment 2  
Review |
| Week 6 | Feb 12-18 | Mid-Term Exam  
Software Engineering Design  
Chapter 7, 8 |
| Week 7 | Feb 19-25 | Specifying Software Architecture  
Chapter 9 |
| Week 8 | Feb 26-Mar 4 | Developing, Evaluating and Finalizing Software  
Architectures  
Chapter 10 |
| Week 9 | Mar 5-11  | Detailed Design: Mid-Level  
Chapter 11 |
| Week 10 | Mar 12-18 | Interaction Design & UML Sequence Diagram  
Chapter 12 |
| Week 11 | Mar 19-25 | State Transition Diagrams  
Chapter 13 |
| Week 12 | Mar 26-30 | Detailed Design: Low-Level  
Chapter 14 |
| Week 13 | Apr 8-15  | Patterns/styles in software design  
Chapter 15 |
| Week 14 | Apr 16-22 | Final Exam |

SWE 3633
**Grading:**

1. Take-Home Mid-Term Exam  35%
2. Take-Home Final Exam  35%
3. Homework Assignments  30%

**Total  100%**


**Exams:**

There will be two take-home exams. The first exam (midterm) will be given on Wednesday, February 21. The second exam (final) will be given on Wednesday, May 2.

To qualify for a make-up for an exam, you MUST notify me PRIOR to the exam and have a documented valid reason, such as a medical emergency.

**Homework Assignments:**

Homework assignments play a significant role in this course and will count 30% toward your final grade in the course. There will be five homework assignments. Carefully follow the guidelines for each assignment and submit it by the due date. All assignments are to be submitted via D2L Dropbox class by the due date. **Please do NOT email me your assignments.** Late work will be heavily penalized (25% of the grade,) and after I have graded and given back an assignment, I will not accept that assignment.

**Format for Assignments**

*Style Guideline:* Your work should be prepared in a form that can be opened with Microsoft Word. Use a font no smaller than twelve and leave at least a one-inch margin on all four sides of the page.

If the work you are turning in has more than one part, **include all parts in a single file; do not turn in two or more files.** Please name your file:

“YourLastName_AssnNameorNumber.xxx”. Although it may surprise you since you're turning in your work in "your" assignment dropbox, it is sometimes difficult for instructors to identify papers unless you also put some identifying information on your work. This is because all students' work for a particular assignment gets downloaded in one ZIP file. Then the instructor has to sort it out! (Which is very difficult if all the files are named: Assn 1), so, **in addition to including your name in the file name,** also do the following:

In the upper right corner of the first page of each assignment, put the following information in the order shown:
Your name
The date the item is turned in
Identification of the item (Homework #1, etc.)
Here is an example:

The first line of your homework answer goes here.

Put this information as close to the top right corner as you can. Do not use a cover page.

ONCE AGAIN, please put your NAME in the name of the file AND on the document you’re submitting. **Points (5%) will be deducted** from any assignment that does not have a name in both places. All assignments will be due at 11:59 PM on the due date. Please don’t email me an assignment!!!! You must upload all work via the D2L Assignment tool.

**GENERAL INFORMATION**

In addition to the classroom discussions, we will use D2L to organize the materials, to submit assignments and to interact with each other. Make sure to familiarize yourself with D2L.

This course is organized in modules, with basically one module per week. To minimize confusion, the deadline for all assignments will be 11:59 pm on Sunday. The modules will be posted on D2L by Monday of each week.

For most modules, there will be some written notes, PowerPoint slides, one or more discussion questions (called “You Do It”), and sometimes an assignment (assignments are submitted electronically, through D2L).

**How to Succeed in this Class:** Here are three things you can do that will greatly improve your chances of making a satisfactory grade in this class:

1) **Read the syllabus.** You should read every word in the syllabus during the first week of classes.
2) **Read weekly materials (PowerPoint slides, notes, etc.) and corresponding Chapters/Sections of the textbook.** You will get a lot more out of this class, and so be able to give back more on the assignments, assessments, and examination, if you carefully read these materials. In my experience, students who don't complete the reading before it is discussed either never complete it or try to cram it all in just before the exam. That doesn't work.
3) **Allow enough time.** More unsatisfactory grades are due to procrastination than any other cause. Do not assume that you can complete the assigned work in the
thirty minutes before the due date and time; you cannot. In an online class, there is no physical human reminding you to do your work. Online classes require that you take much more responsibility for your own learning.

**COURSE COMMUNICATION AND PROFESSOR RESPONSE TIME:**

Please email me via the D2L email tool. I will try to respond to email questions within 24 hours during the workweek (Monday – Friday). I will not be checking email over the weekends. *Always include “SWE 3633/01” in the subject of your email.*

Please ask questions related to information about the course in the appropriate discussion topic so all your classmates will be able to “hear” your question and my answer. This will typically be in the “Weekly Discussion” area. If you prefer to email me your questions, it is OK too.

**Electronic Communications.** The University provides all KSU students with an “official” email account with the address “students.kennesaw.edu.” As a result of federal laws protecting educational information and other data, this is the *sole* email account you should use to communicate with your instructor or other University officials.

**ACADEMIC HONESTY STATEMENT**

Every KSU student is responsible for upholding the provisions of the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. Section II of the Student Code of Conduct addresses the University's policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to University materials, misrepresentation/falsification of University records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the University Judiciary Program, which includes either an "informal" resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct's minimum one semester suspension requirement.

Students are encouraged to study together and to work together on lab assignments as per the instructor’s specifications for each assignment; however, the provisions of the STUDENT CONDUCT REGULATIONS, II. Academic Honesty, KSC Undergraduate Catalog will be strictly enforced in this class.

Students are required to work INDEPENDENTLY on homework assignments.

**STUDENTS WITH DISABILITIES:**

Students with disabilities who believe that they may need accommodations in this class are encouraged to contact the counselor working with disabilities as soon as possible the better to ensure that such accommodations are implemented in a timely fashion.