SE 311 Software Architecture II

Winter 2022-2023

1. General Information

Instructor: Yuanfang Cai
E-mail: yuanfang.cai@drexel.edu

Office Hours: Before and after class 1178 + by appointment. Email me.
TA: Hongzhou Fang
TA Email: hf92@drexel.edu
TA Office Hours: Tuesday and Thursday 12pm to 2pm

TA: Katarina Galic
TA Email: kg896@drexel.edu
TA Office Hours: Online, Monday 2-4pm and Wednesday 4-6pm

2. Student Learning Information

2.1 Course Description

The goal of this class is to introduce software architecture concepts and to show those concepts in action, through examples, case studies and hands-on work with different architectures and supporting technology.

This class introduces representative architectural styles in practice, software architecture modeling and documentation, and provides an opportunity for hands-on Software Architecture work.

Prerequisites

- **Official prerequisite: satisfactory completion of SE310 (SW Architecture I).**
- Programming proficiency requirement: we will have homework assignments that require proficiency with Java. Students should be able to write, compile, and debug Java programs.
- General understanding of SW design, including techniques and tools for the representation of design, such as the UML OO modeling language.

Objectives

- Understand design concepts and how different domains are abstracted into architecture and design.
- Understand design of existing software systems from an architectural perspective.
- Be able to design new systems in principled ways using well-understood architectural paradigms and styles.
- Be able to describe and document designs using existing architectural description models.
- Be able to implement new systems according to their architectural descriptions.

- Be able to evaluate and compare design architectures from quality-related perspectives.

3. Course Materials

Recommended Textbook
- *"Software Architecture in Practice"* (3rd Edition) by Lan Bass, Paul Clements, and Rick Kazman
- *"Software Architecture: Foundations, Theory and Practice"*, by Richard N. Taylor, Nenad Medvidovic, and Eric M. Dashofy
- *"On the Criteria To Be Use in Decomposing Systems into Modules"*, by D.L. Parnas.

4. Homework assignments

We will have 4 homework assignments for students to practice the concepts learned in class. These assignments are all individual assignments, including coding, modeling, and analyzing software architectures.

5. Examinations

We will have one in-class individual final exam in week 11. This exam is intended to verify the level of knowledge and skills developed through lectures, readings and assignments. They will focus on in-depth testing of the students' understanding of the major concepts and abstractions discussed in the course, and treated in depth by the official textbook.

6. Grading

6.1 Grading Components
- Homework assignments: 75%
- Final exam: 20%
- Class participation: 5%

6.2 Grading Scale
The following scale will be used to convert points to letter grades:

Points	Grade	Points	Grade	Points	Grade
97-100	A+	82-86.99	B	70-71.99	C-
92-96.99	A	80-81.99	B-	67-69.99	D+
90-91.99	A-	77-79.99	C+	60-66.99	D
87-89.99	B+	72-76.99	C	0-59.99	F

Note that the instructor may revise this conversion if/when necessary.

7. Course Schedule

[This schedule is tentative and may change during the course.]

Week	Topic	Assignment
1	Course introduction Software design/architecture overview	
2	The concept of software architecture	HW 1

3	Modeling software architecture	
4	Architecture style I	HW 2
5	Architecture style II	
6	Connectors	HW 3
7	Distributed Architecture I	
8	Distributed Architecture II	HW 4
9	Quality Attributes	
10	Final Review/Guest Lecture	
11		Final Exam

8. Class Policy

- **Do's and Dont's**
  - o Be punctual
  - o Switch off cell phones
  - o No laptops in class for personal use (automatic deduction of participation credit)
- **Adhere to standard academic honesty rules**.
  - o See: http://www.drexel.edu/provost/policies/academic_dishonesty.asp
  - o See: http://drexel.edu/cs/academics/undergrad/policies/academic-integrity/
- **Late policy**

Each student gets 2 individual "late days" to expend with 10% penalty each day. Notice: Any portion of a day past any assignment deadline counts as a full late day.

Further lateness exceeding the two allotted late days will be penalized as follows:
- 3rd day: 25% penalty
- 4th day and more: assignment will not be graded

Force majeure exceptions for documented illness will be considered. Please try to give advance notice to the instructor if at all possible.
- **No grade negotiation after final grades are posted**

If you are concerned about your progress, please communicate with me early in the term.