

SE480 Software Architecture I

College of Computing and Digital Media
DePaul University

Autumn 2017-2018

Classroom section: Thursday 5:45PM – 9:00PM, 14EAS 00801 at Loop Campus

Course Home Page: <https://d2l.depaul.edu/d2l/home/583529>

Drop date (no penalty): September 19, 2017

Instructor: Steven Engelhardt

Office Hours: Thursday 4:00 – 5:30PM, 14 E. Jackson Room 200B

Phone #: 312-362-1306 (only during office hours)

Email: sengelha@depaul.edu

Description

The Software Architecture process is concerned with describing, evaluating, and designing systems at the architectural level. This course will discuss the role of architecture and the architect in the software development cycle. It will introduce architectural patterns and tactics, architecture assessment techniques, architecture driven design, and techniques for documenting architectures. The course will involve design, development, and assessment activities.

Prerequisite(s)

SE450

Contacting the Instructor

The best way to contact me is via email at sengelha@depaul.edu. Emails will be returned within 24 hours. If you need to meet with me please either come to regular office hours or email me to set up an alternate meeting time. I do **not** have access to voice mail on my office phone.

References



Required: Bass, Clements, and Kazman. *Software Architecture in Practice, Third Edition*. Upper Saddle River, N.J. : Addison-Wesley, 2013. ISBN: 978-0-321-81573-6

Note: This book is also freely available in eBook format with a concurrent license limit via the DePaul University Library.

Lecture notes and supplementary materials will be provided by the instructor.

Learning Objectives

Following this course all students should be able to:

- Understand the role of the Software Architect
- Argue the importance and role of software architecture in large-scale software systems

- Identify architecturally significant requirements
- Map a functional architecture onto a technical architecture
- Understand principles of good architectural design
- Select and implement appropriate architectural styles (patterns) and tactics/strategies
- Design preliminary software architectures which take into consideration quality goals such as reliability, performance, and scalability
- Communicate and describe software architectures both verbally and in writing
- Evaluate the coming attractions in software architecture research and practice

NOT covered in this course:

- **Detailed** coverage of specific reference architectures and frameworks (e.g. that covered by SE457 – Service Oriented Architecture)

Course Outline

Please note that I will post detailed requirements for each week, including readings, activities, assignments, etc. on a weekly basis in separate documents. **The below course outline is tentative and may be subject to change (however it does represent the content of the course).**

Wk	Date	Topics Covered	Reading(s)	Notes
1	Sept 7	Introduction and overview of Software Architecture	SAIP Ch. 1-3	
2	Sept 14	Availability scenarios and tactics	SAIP Ch. 4-5	Assignment #1 (5% due Sept 24 11:59PM)
3	Sept 21	Interoperability and modifiability scenarios and tactics	SAIP Ch. 6-7	Assignment #2 (10% due Oct 1 11:59PM)
4	Sept 28	Performance and scalability scenarios and tactics	SAIP Ch. 8, supplemental	Assignment #3 (15% due Oct 15 11:59PM)
5	Oct 5	Security, testability, and observability scenarios and tactics	SAIP Ch. 9-10	
6	Oct 12	Architectural patterns (part 1) Case study 1	SAIP Ch. 13, supplemental	Assignment #4 (20% due Oct 29 11:59PM)
7	Oct 19	Architectural patterns (part 2) Case study 2	SAIP Ch. 13, supplemental	
8	Oct 26	Architecture in the life cycle (part 1)	SAIP Ch. 15-18	Assignment #5 (20% due Nov 12 11:59PM)
9	Nov 2	Architecture in the life cycle (part 2)	SAIP Ch. 19-22	<u>Lecture will be online only</u>
10	Nov 9	Advanced topics Case study 3	Supplemental	
11	Nov 16	Final Exam		

Grading

This course will include writing, programming, experimentation, and architectural design reflected across the required assignments. Depending on your programming skills coming into the class you can expect to spend from 10-20 hours on each of the programming assignments.

- Attendance and participation: 10%
- Assignments (5 in total): 70%
- Final exam: 20%

Course Policies

Changes to Syllabus

This syllabus is subject to change as necessary during the quarter. If a change occurs, it will be thoroughly addressed during class, posted under Announcements in D2L and sent via email.

Online Course Evaluations

Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. They are a requirement of the course and are key to continue to provide you with the highest quality of teaching. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student's identity. Since 100% participation is our goal, students are sent periodic reminders over three weeks. Students do not receive reminders once they complete the evaluation. Students complete the evaluation online in [CampusConnect](#).

Academic Integrity and Plagiarism

This course will be subject to the university's academic integrity policy. More information can be found at <http://academicintegrity.depaul.edu/>. If you have any questions be sure to consult with your professor.

Academic Policies

All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the University Academic Calendar. Information on enrollment, withdrawal, grading and incompletes can be found at:

<http://www.cdm.depaul.edu/Current%20Students/Pages/PoliciesandProcedures.aspx>

Students with Disabilities

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential. To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities (CSD) at:

Email: csd@depaul.edu

Lewis Center 1420

25 East Jackson Blvd.
Phone number: (312)362-8002
Fax: (312)362-6544
TTY: (773)325.7296

Last revised: September 5, 2017