

UNIVERSITY OF TEXAS AT DALLAS SYLLABUS
SE 4352 – Software Architecture and Design

Course Information

<i>Course Number/Section</i>	SE 4352.001
<i>Course Title</i>	Software Architecture and Design
<i>Term</i>	Fall 2018
<i>Days & Times</i>	TR 1.00pm – 2.15pm
<i>Location</i>	ECSS 2.203

Instructor Contact Information

<i>Instructor</i>	Dr. Pushpa Kumar
<i>Email Address</i>	pkumar@utdallas.edu
<i>Office Hours</i>	ECSS 4.407 Wed 11am – 1pm or by appointment

TA Contact Information

TBA

Course Pre-requisites, Co-requisites, and/or Other Restrictions

Prerequisite: SE 3306, CE/CS/SE 3354 or equivalent course.

Course Description

Introduction to software design with emphasis on architectural design. Models of software architecture. Architecture styles and patterns, including explicit, event-driven, client-server, and middleware architectures. Decomposition and composition of architectural components and interactions. Use of non-functional requirements for tradeoff analysis. Component based software development, deployment and management.

Student Learning Objectives/Outcomes

- Understand the need for software architecture and relationship to low-level design
 - Develop architectural approaches from requirements and manage traceability between architecture and requirements
 - Analyze tradeoffs among multiple architectural alternatives
 - Utilize quality attributes when designing software architectures
 - Recognize architectural patterns and apply them appropriately
 - Describe and document a software architecture
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Required Text

Software Architecture in Practice 3rd Edition by Len Bass, Paul Clements, & Rick Kazman ISBN 978-0-321-81573-6

Grading Distribution:

Grades will be determined by assignments, group project, and two exams. A student must perform satisfactorily in the assignments, project, and the examinations in order to pass the course. Their weightings are as follows:

Homeworks	25% (4.17% each)
Project Phase I	5%
Project Phase II	20%
Exam 1	25%
Exam 2	25%

Letter Grade Scale

98–100=A+, 92-97=A, 90-91 A-,
88-89=B+, 82-87=B, 80-81=B-,
78-79=C+, 72-77=C, 70-71=C-,
68-69=D+, 62-67=D, 60-61=D-, 0-59=F

Assignments and Academic Calendar

Chapters 1, 2, 3, 4, 9, 10, 13, 14, 16, 18, 20, 21, 25 will be covered from the textbook. Lectures will be posted on eLearning. Reading assignments should be completed before the class lecture. Pop Quizzes may be given. Tentative schedule is as follows:

Important Dates (subject to change)

Assignment	Deadline
HWK1	Tue, Sep 4
HWK2	Thu, Sep 13
Project Part 1 Due	Thu, Sep 20
EXAM 1	Thu, Sep 27
HWK 3	Thu, Oct 4
HWK 4	Tue, Oct 16
HWK 5	Thu, Oct 25
HWK 6	Tue, Nov 6
EXAM 2	Thu, Nov 15
Fall Break	Nov 19 - 23
Project Part 2 Due	Tue, Nov 27
Project Presentations	Thu, Nov 29
Project Presentations	Tue, Dec 4
Project Presentations	Thu, Dec 6

Course Schedule

Dates	Topic	
08/21/18, 08/23/18	Introduction, Software Architecture	Ch 1
08/28/18, 08/30/18	Software Design, Structures and Views	Ch 1, 2
09/04/18, 09/06/18	System Stakeholders, ASRs	Ch 3, 16
09/11/18, 09/13/18	Quality Design Decisions	Ch 2, 4
09/18/18, 09/20/18	Architectural Styles, Project proposals due	Ch 13
09/25/18, 09/27/18	Exam 1 Review, Exam 1	
10/02/18, 10/04/18	Artifacts, Architecture Analysis	Ch 18, 21
10/09/18, 10/11/18	Design Principles, Quality Attribute Analysis	Ch 14
10/16/18, 10/18/18	Architecture Reconstruction	Ch 20
10/23/18, 10/25/18	Software Security	Ch 9
10/30/18, 11/01/18	Software Product Lines	Ch 25
11/06/18, 11/08/18	Fish Bone Diagrams	
11/13/18, 11/15/18	Exam 2 Review, Exam 2	
11/20/18, 11/22/18	Thanksgiving Break, No class	
11/27/2018	Project Report Due	
11/29/18, 12/04/18, 12/06/18	Term Project Presentations	

Course and Instructor Policies

Good classroom citizenship is expected. Disruptive behavior in the class room will not be tolerated. Please silence your cell phones during class.

Students are expected to attend all class lectures, there will be a sign-in sheet. If absent, students are responsible for any material covered in class.

By CS Department policy at: <http://cs.utdallas.edu/education/undergraduate/attendance-policy/>, missing three consecutive classes results in a letter grade drop and missing four consecutive classes is an automatic failure for the class.

There is a 25% reduction in grade per day for any late submissions; no late submissions accepted more than four days after original due date. All exams are closed book, closed notes.

Students have one week after the results of an assignment or test is returned to request a review/correction of their grade. Please include course name and number "SE 4352" in the subject line for any email communication.

Extra credit: Random pop quizzes can be used to increase test scores.

Exceptional cases, such as illness and accidents, will be handled on an individual basis (Instructor must be notified prior to the exam and proof presented – otherwise a score of zero will be given).

The details of this Syllabus are subject to change at any time during the course, it is the responsibility of the student to check for updates.

In case of eLearning difficulties, please contact 24/7 eLearning help desk at URL: <http://www.utdallas.edu/elearning/eLearningHelpdesk.html> or Phone: 1 866 588 3192

Field Trip Policies / Off-Campus Instruction and Course Activities

N/A

Student Conduct & Discipline

The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD publication, *A to Z Guide*, which is provided to all registered students each academic year.

The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the *Rules and Regulations, Board of Regents, The University of Texas System, Part 1, Chapter VI, Section 3*, and in Title V, Rules on Student Services and Activities of the university's *Handbook of Operating Procedures*. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391).

A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.

Academic Integrity

The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.

Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one's own work or material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings.

Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.

Email Use

The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.

Withdrawal from Class

The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.

Student Grievance Procedures

Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's *Handbook of Operating Procedures*.

In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor,

administrator, or committee with whom the grievance originates (hereafter called “the respondent”). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent’s School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean’s decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the dean will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties.

Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations.

Incomplete Grade Policy

As per university policy, incomplete grades will be granted only for work unavoidably missed at the semester’s end and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of F.

Disability Services

The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m.

The contact information for the Office of Disability Services is:
800 W. Campbell Rd., SSB32
Richardson, Texas 75083-0688
(972) 883-2098 (voice or TTY)

Essentially, the law requires that colleges and universities make those reasonable adjustments necessary to eliminate discrimination on the basis of disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind. Occasionally an assignment requirement may be substituted (for example, a research paper versus an oral presentation for a student who is hearing impaired). Classes enrolled students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance.

It is the student's responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. Individuals requiring special accommodation should contact the professor after class or during office hours.

Religious Holy Days

The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated.

The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.

If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.

Off-Campus Instruction and Course Activities

Off-campus, out-of-state, and foreign instruction and activities are subject to state law and University policies and procedures regarding travel and risk-related activities. Information regarding these rules and regulations may be found at the website address given below. Additional information is available from the office of the school dean. (http://www.utdallas.edu/BusinessAffairs/Travel_Risk_Activities.htm)

Campus Carry

The University's concealed handgun policy is posted on the campus carry website: <https://www.utdallas.edu/campuscarry/>

Sharing Confidential Information pursuant to Title IX

Students considering sharing personal information in email, in person, or within assignments or exams should be aware that faculty members and teaching/research assistants are required by UT Dallas policy to report information about sexual misconduct to the UT Dallas Title IX Coordinator. Per university policy, faculty have been informed that they must identify the student to the UT Dallas Title IX Coordinator. Students who wish to have confidential discussions of incidents related to sexual harassment or sexual misconduct should contact the Student Counseling Center (972-883-2527 or after hours 972-UTD-TALK or 972-883-8255), the Women's Center (972-883-8255), a health care provider in the Student Health Center (972-883-2747), the clergy person (or other legally recognized religious advisor) of their choice, or an off-campus resource (i.e., rape crisis center, doctor, psychologist). Students who are sexually assaulted, harassed, or victims of sexual misconduct, domestic violence, or stalking, are encouraged to directly report these incidents to the UT Dallas Police Department at 972-883-2222 or to the Title IX Coordinator at 972-883-2218.

Additional information and resources may be found at
<http://www.utdallas.edu/oiec/title-ix/resources>

These descriptions and timelines are subject to change at the discretion of the Professor.