

SOFTWARE ENGINEERING I (CS 3100)

- **Basic Information**

Instructor: Dr. Haoyi Xiong

Lecture Location: TBD

Lecture Time: TBD

Blackboard: canvas

Office: 310, Computer Science Building

Office Hours: TBD

Teaching Assistant: TBD

- **Registration Prerequisite**

A "C" or better grade in Comp Sci 2500 and at least Junior standing.

- **Books and Readings**

(1) "Software Engineering" 9th or 10th edition, Ian Sommerville

(3) "Beginning Java EE", by Antônio Gonçalves

(2) Lecture notes

- **Course Structure**

1. Software Design
 - Architecture Design
 - Framework Design
 - Design Patterns
2. Software Implementation
 - Object-Oriented Programming
 - OR Mapping and Data Persistence
 - System Integration and Deployment
3. Software Testing
 - Unit Test
 - Integration Test
 - Reverse Engineering and Verification

- **Background Needed**

- (1) basic programming languages (required);
- (2) database (not required but desirable and willing to learn after class);
- (3) web/cloud programming languages such as Javascript, PHP, Python (not required but desirable and willing to learn after class)

- **Tentative Schedule**

Week	Event
Week 1	Introduction (Lecture)
Week 2	Overview of System Analysis and Design (Lecture) Analyzing Business Case (Lecture) Managing System Projects (Lecture) Project Team due
Week 3	Requirements Modeling (Lecture) Homework #1 due at the weekend
Week 4	Model, View, and Controller (Lecture)
Week 5	Data and Processing Modeling (Lecture)
Week 6	Data and Processing Modeling Cont. (Lecture) Assignment #1 due at the weekend
Week 7	Object Modeling (Lecture) Homework #2 due at the weekend
Week 8	Development Strategies (Lecture) Homework #3 due at the weekend
Week 9	User Interface Design (Lecture) Data Design (Lecture) Assignment #2 due at the weekend
Week 10	Data Design (Lecture) Review for the mid-term exam
Week 11	Mid-term exam Assignment #3 due at the weekend
Week 12	System Architecture (Lecture) Assignment #4 Presentation of System Design

Week 13	Assignment #4 Presentation of System Design
Week 14	Thanksgiving Vacation
Week 15	
Week 16	Demo of System Implementation
Week 17	Final Exam begins on Dec. 12 and ends on Dec. 16

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- **Tentative Grading**

The distribution of the grade is as follows:

0. Homework: 15%
1. Project Analysis and Design Assignments (Group): 30%
2. Project Implementation and Demo (Team): 25%
3. Final Exam: 30%
4. Participation Bonus: 2% for every pop-up quiz subject to a computation method. The original and ultimate purpose of course quizzes is to check learning progress and provide pre-preparation for exams. If we do many quizzes, we will use a computation method to consider part of these quizzes.

The evaluation aspects of the presentation are as follows:

5. Slides content was clearly visible and self-explainable
6. Important messages of the project were properly highlighted
7. Organization and logic of the presentation were easy to follow
8. Explained approaches/methods clearly
9. Responded to audience's questions well. I have learned something from this presentation and would like to go deeper in future

The final grades will be based on the overall score. Generally:

10. 90% guarantees an A
11. 80% guarantees a B
12. 70% guarantees a C
13. 60% guarantees a D

These grade cutoffs will never be raised; but they may be lowered.

Late assignments will be penalized 5% off the total possible points if turned in within the first 24-hour period after the specified due date and time, and 10% per 24-hour period after that time, up to 3 days after the due date. Late assignments will be accepted with penalty up to 3 days after the due date.

- **Course Project**

The project aims to address a real life situation and develop a web (preferred) or desktop or mobile based system using any languages. Sample application scenarios are:

0. chat room
1. student/employee information management system
2. airline information management system
3. car rental information management system.

You can select other application scenarios and collect the corresponding data.

Basic Requirements:

4. collect or generate related data (e.g., the information of students)
5. data layer (model): design data tables to store information in MySQL
6. interface layer (view): show data tables in the interface, provide select, add, sort and update operations, and support advanced information management;
7. procedure layer (controller): provides basic operations: select, add, update and sort on data tables in database;

Example Advanced Functions:

8. user login
9. user data access control
10. advanced visualization techniques, e.g., Google map visualization for geo-data, stock price trend visualization, etc.
11. combine select, delete, add, and update for advanced applications

General Steps:

12. Pick a topic
13. Form a team
14. Survey related work
15. Write a project analysis and design
16. Work on the project
17. Present the project
18. Write a report

- **Course Policies**

Attendance Policy:

You are expected to attend class regularly. No absences or any nature will be construed as relieving you

from the responsibility for the completion of all work assigned by the instructor. Absences are discouraged because interaction with the instructor and classmates is an integral part of learning. Unexcused absences from exams and quizzes will result in a score of 0 for that test. If you need to leave class early please let the instructor know before the class begins. Attending WebEx live meetings is expected for students enrolled in the distance session and, yet, not required considering that most distance students have a full-time job. Distance students who are not able to attend live lectures should study recorded lectures by themselves. Please turn off all audible alerts before class. Disruptive behavior (e.g., chatting with other students in class, coming late to class, looking irrelevant material on the internet, etc.) is not tolerated in this class.

Student Responsibility:

It is your responsibility to enroll the Piazza and obtain course related material. If an emergency prevents you from attending class, it is your responsibility to obtain notes from a classmate and study them for understanding. If the notes and the text do not provide sufficient explanation, please see the instructor during office hours. The responsibility for obtaining and completing all missed work rests solely upon the student.

Student Honor Code and Academic Integrity:

The Honor Code developed and endorsed by the Missouri S&T Student Council can be found at this link: <http://stuco.mst.edu/about/honor.shtml>. Students are encouraged to read it. Students in this course are expected to avoid engaging in any of the activities that fall under the heading of ACADEMIC DISHONESTY. Page 29 of the Student Academic Regulations handbook describes the student standard of conduct relative to the System's Collected Rules and Regulations section 200.010, and offers descriptions of academic dishonesty including cheating, plagiarism or sabotage. Additional information is available on-line at <http://registrar.mst.edu/academicregs/index.html> Students who violate the Academic Regulations will be reported to the department and may be dropped from the course.

Email Policy:

This document sets forth guidelines for email communication in this course. Excessive emails are problematic for our fellow students, and the instructor. Please be sure you have a legitimate need to send an email.

A. The instructor will answer email covering the following:

0. Questions that arise from difficulty in understanding course material or content
1. Request for feedback on graded work
2. Private issues related to your participation and progress in the course

B. The instructor will NOT answer emails for the following:

3. Questions already answered in the course information and contents on Piazza. Please look in the Piazza first
4. Lack of clear purpose of why the email was sent
5. Question unrelated to the course or of an inappropriate nature
6. No signature that indicates who send the email

C. The instructor will respond to emails sent on a given day no later than close of work on the NEXT WORKDAY.

D. If the subject of the question would be of general interest, the instructor will copy all other members of the class.

Title IX Statement:

Missouri University of Science and Technology is committed to the safety and well-being of all members of its community. US Federal Law Title IX states that no member of the university community shall, on the basis of sex, be excluded from participation in, or be denied benefits of, or be subjected to discrimination under any education program or activity. Furthermore, in accordance with Title IX guidelines from the US Office of Civil Rights, MST requires that all faculty and staff members report, to the MST Title IX Coordinator, any notice of sexual harassment, abuse, and/or violence (including personal relational abuse, relational/domestic violence, and stalking) disclosed through communication including but not limited to direct conversation, email, social media, classroom papers and homework exercises. MST's Title IX Coordinator is Vice Chancellor Shenethia Manuel. Contact her directly (manuels@mst.edu; (573) 341-4920; 113 Centennial Hall) to report Title IX violations. To learn more about Title IX resources and reporting options (confidential and non-confidential) available to MST students, staff, and faculty, please visit <http://titleix.mst.edu>.

Classroom Conduct:

You are expected to be punctual, alert, and prepared for the class. You will be considerate of other students, which includes being quiet for the duration of the class period except when you have something to contribute to the class. Please ask questions in class. If you are confused, more than likely several classmates are too. If you need extra help, please schedule an appointment in advance so the instructors can schedule their time efficiently.

- **Other Information**

Classroom Egress Maps:

Please familiarize yourself with the classroom egress map below, which is also posted on-line at: <http://designconstruction.mst.edu/floorplan/>

Disability Support Services:

If a student has a documented disability and anticipates needing accommodations in this course, she/he is strongly encouraged to meet with the instructor early in the semester. The student will need to request that the Disability Services staff send a letter to the instructor verifying her/his disability and specifying the accommodation needed before the instructor can arrange the accommodation. If the student has a disability that might require academic accommodations, please visit Disability Support Services (204 Northwood Hall, (573) 341-4211, dss@mst.edu) early in the semester. <http://dss.mst.edu>.

LEAD Learning Assistance:

The Learning Enhancement Across Disciplines Program (LEAD) sponsors free learning assistance in a wide range of courses for students who wish to increase their understanding, improve their skills, and validate their mastery of concepts and content in order to achieve their full potential. LEAD assistance starts no

later than the third week of classes. Check out the online schedule at <http://lead.mst.edu/assist>, using zoom buttons to enlarge the view. Look to see what courses you are taking have collaborative LEAD learning centers (bottom half of schedule) and/or Individualized LEAD tutoring (top half of the schedule). For more information, contact the LEAD office at 341-7276 or email lead@mst.edu.

The Burns & McDonnell Student Success Center:

The Learning Enhancement Across Disciplines Program (LEAD) sponsors free learning assistance in a wide range of courses for students who wish to increase their understanding, improve their skills, and validate their mastery of concepts and content in order to achieve their full potential. LEAD assistance starts no later than the third week of classes. Check out the online schedule at <http://lead.mst.edu/assist>, using zoom buttons to enlarge the view. Look to see what courses you are taking have collaborative LEAD learning centers (bottom half of schedule) and/or Individualized LEAD tutoring (top half of the schedule). For more information, contact the LEAD office at 341-7276 or email lead@mst.edu.