**CS 482 SENIOR CAPSTONE I (4 Cr.)**
**WINTER 2021**

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**COURSE CATALOG DESCRIPTION**
This course is the second in a sequence of three senior level capstone courses. This course focuses on detailed design, test plan and implementation of the project. The course includes lectures, reading assignments and guest speakers on development process, test plan, ethics, legal issues, and emerging trends in computer science.

**COURSE CONTENT OUTLINE**
Design and Implementation. Detail Design Document. Test Plan and Test Case Document. Presenting Project. Team Work. Project Management. Software Engineering. Ethical and Legal Issues. Emerging Trends in Computer Science.

**LEARNING OUTCOMES**
After completing this class, students should be able to:
• Follow a formal software development process to complete the project.
• Write a detailed design description document describing how the project is to be implemented according to the requirements specifications.
• Prepare a test plan and test case document describing relevant testing methods to validate and verify the product.
• Implement the requirements based on detailed design specification using appropriate techniques and tools.
• Make oral presentation.
• Identify ethical and legal issues that might arise in the design and use of the product.
• Perform independent learning of new technologies and concepts.
• Work productively in a team environment communicating appropriately with all team members.

**Course Policy:**

- The teams of students have one year (three quarters) to develop their projects.
- Throughout the quarters, the teams report on their work through documents (deliverable) submitted to their instructors, end-of-sprints discussions of tasks completed (see Participation bullet point below), and project presentations delivered during regular classes.
- The course instructors are not team members or lecturers. The role of the instructor is to provide guidance and evaluate reports generated by the teams.
- Deliverables:
    - Keep the documents you started in CS-481 up-to-date (Requirements Specification Document (RSD) and Design Document (DD)). As you progress with your projects, you will add new features, may decide to make changes to designs you initially decided on, or might decide to slightly modify the requirements. Make sure that SRS and SDD are up to date and reflect all changes. 15% of the grade is allocated for the proper and full upkeep of the design documents that were started in CS-481.

    - Implementation and Testing: continue with the implementation and testing you started in CS-481.

    The table on page 3 titled "Deliverables for Winter Quarter" summarizes all deliverables with due dates.
- Presentations and Publications
    - Tech Presentation
    - Presentation of your project at the end of the quarter. Your project should now have progressed from a prototype phase (what you presented in CS-481) to showing major progress and real functionalities.
- Participation
    - **Attendance of weekly meetings, tech talk presentations, guest speaker sessions, and final presentations is required by all students.** It should be viewed as a regular class. Skipping classes will affect your grade and the cohesiveness of your team.
    - Participation within your team: you are attending the meetings your team agreed on and you are contributing to the project design and implementation.
    - Supervisors, working with their respective teams, will divide the quarter into 4 sprints (each sprint lasting 2 weeks – see table "Deliverables for Winter Quarter" on page 3 for the sprints dates). Each sprint will have well-defined tasks assigned to group team members. How tasks are distributed will be decided on by the supervisor and the team members.
    At the end of each sprint, the group discusses and presents the completion of the sprint tasks to the supervisor. The supervisor grades the team members for each sprint by separately evaluting each student's work . Therefore, not all team members will necessarily get the same grade on a given sprint. The rubric used in grading sprints completion is described in file "CS482_Rubric_SprintEvaluation.pdf".
- Late submissions of any material will be penalized by 20% per day for up to 2 days.
- If any student withdraw from the course the rest of the project should be completed by the remaining team members.

**Grading:**

| | | |
|---|---|---|
| Development | 55% | (13% each of first 3 sprints, and @ 16% the last sprint) |
| Final demonstration | 10% | |
| Technical Talks | 10% | |
| Attendance | 10% | |
| Documentation | 15% | |

## Deliverables for Winter Quarter

| Deliverable | Eval. Type | Sprint1 | Sprint2 | Sprint3 | Sprint4 |
|---|---|---|---|---|---|
| Development and sprint demo | Individual | Wed 1/13 – Tue 1/26 (Eval: Wed 1/27) | Wed 1/27 - Tue 2/9 (Eval: Wed 2/10) | Wed 2/10 - Tue 2/23 (Eval: Wed 2/24) | Wed 2/24 - Tue 3/16 (Eval: Wed 3/17) |
| Documentation | Team | SRS SDD STD (Due: Tue 1/26) | SRS SDD STD (Due: Tue 2/9) | SRS SDD STD (Due: Tue 2/23) | SRS SDD STD (Due: Tue 3/16) |
| Technical Talks | Individual | Techical talks should be no longer than 15 minutes. **Wed February 17**: Safe Shop, Expenses Advisor, Code Reviewer, Text Input Spy, Virtual Library, Pi Player, Global Electricity Generation, Expedia Review Trends, Road Lanes Detection, DevOps Pipeline with GitHub, Audit Now | | | |
| Final demonstration | Individual | Final presentations should be no longer than 15 minutes. **Wed March 17**: Safe Shop, Expenses Advisor, Code Reviewer, Text Input Spy, Virtual Library, Pi Player, Global Electricity Generation, Expedia Review Trends, Road Lanes Detection, DevOps Pipeline with GitHub, Audit Now | | | |

**Grading System**:

| | | |
|---|---|---|
| 930 – 1000 | A | 4 |
| 900 – 929 | A- | 3.7 |
| 870 – 899 | B+ | 3.3 |
| 830 – 869 | B | 3.0 |
| 800 – 829 | B- | 2.7 |
| 770 – 799 | C+ | 2.3 |
| 730 – 769 | C | 2.0 |
| 700 – 729 | C- | 1.7 |
| 670 – 699 | D+ | 1.3 |
| 600 – 669 | D | 1.0 |
| Below 600 | F | 0 |

A (93 -100)

A- (90 - 92.9)

B+ (87 - 89.9)

B (83 - 86.9)

B- (80 - 82.9)

C+ (77-79.9 )

C (76.9 - 73.0)