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| **CS4961 Course Syllabus** |
| **Instructors** | Russ Abbott, Chengyu Sun |
| **Course number** | CS 4961 |
| **Course name** | Software Design Laboratory I |
| **Credits**  | 3 |
| **Contact hours** | 9 hours/week |
| **Coordinator** | Raj Pamula |
| **Textbook** | None |
| **References** | * Thayer, Richard Hall, et. al. Software Engineering Essentials (volumes I, II, and III). Software Management Training, 2012.
* Ian Sommerville. *Software Engineering (9th Edition)*, Addison Wesley, 2010.
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| **Course Information** | a) *Catalog Description*Selection of a design project and develop a software system for a community organization or a corporate partner; determine customer needs; understand software solutions and profession in broader context. Laboratory 6 hours. Graded ABC/NC. Writing in the major course, Meets UD (wi) requirement, UD (GE C), UD (GE Db) *Prerequisites or Co-requisites*WPE; Completion of blocks A and B4, an additional course from block B, and at least one course each from blocks C and D. Minimum C grade in all courses listed; CS 3112, CS3220, CS3035, CS3337, CS3186, CS3801. c) *Required/Elective:* This course is required in the BS program. |
| **Course Goals** | The goals of the course are* To improve the ability of the students to undertake complex software projects by guiding them through the early stages of a project development cycle, which include problem and requirement analysis, and the research of tools, libraries, and technologies.
* To improve the ability of the students to perform independent learning of new technologies and concepts.
* To improve the oral communication skills of the students through oral presentations and interaction with project stake holders.
* To improve the written communication skills of the students through the writing of a Project Requirement Document.

CS4961 and CS4962 serve as capstone courses that weave together students’ undergraduate educational experiences (in both the major and general education) and enable them to integrate and apply the skills and knowledge they have acquired. The course learning outcomes contribute to the achievement of all the BSCS Student Learning Outcomes (listed below):SLO 5. Students will have the training to analyze problems and identify and define the computing requirements appropriate to their solutions.SLO 6. Students will have the training to design, implement, and evaluate large software systems working both individually and collaboratively.SLO 7. Students will be able to communicate effectively orally and in writing.SLO 8. Students will have the knowledge, skills, and attitudes for lifelong self-development.SLO 9. Students will have the ability to analyze the local and global impact of computing on individuals and society.SLO 10. Students will have a fundamental understanding of social, professional, ethical, legal, and security issues in computing.In addition, these courses contribute to the achievement of the GE Upper Division Block Learning Outcomes. |
| **Course Outline** | The Senior Design Project gives students an opportunity to design and develop a software project that addresses a realistic problem. Each team will work with a liaison (representing the "client") and a faculty advisor.  **Topics:*** Undertake complex software projects and see them through a complete software development cycle from pre-requirements to delivery.
* Planning and scheduling individual and team efforts to complete required work by the established deadlines
* Working productively within the team despite inevitable conflict
* Learning new technologies and utilizing resources available for the completion of the project.
* Assuming various specialized roles within the group.
* Decision making considering societal, ethical, environmental, political, and economic factors
* Customer relations during the development process
* Broad impacts of computational and software solutions encompassing humanities and social sciences
* Effective communication of project design and findings
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| **Laboratory Projects** | The students will be divided into groups with 3 to 5 students in each group. Each group works on a senior design project provided by faculty or industry sponsors. Each group should maintain and update its own project page at <http://csns.calstatela.edu/department/cs/projects>  |
| **Grading Policy** | All the listed “Deliverables” for the course must be completed on time.The students will be evaluated and graded based on the following rubrics:* *Software Engineering – Requirements and Design*
* *Teamwork*
* *Oral Communication*
* *Written Communication*
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| **ADA statement** | 1. Reasonable accommodation will be provided to any student who is registered with the Office of Students with Disabilities and requests needed accommodation.
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| **Academic honesty statement** | 1. Students are expected to do their own work and to abide by the University Policy on academic honesty, which is stated in http://www.calstatela.edu/academicsenate/handbook/ch5a#cheating.
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