

San José State University
Department of Electrical Engineering
EE 198B, Senior Design Project II, All Sections, Fall 2018

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| Instructor: | Ping Hsu |
| Office Location: | ENGR 491 |
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| Email: | ping.hsu@sjsu.edu |
| Office Hours: | Friday 3pm-5pm by appointment via booknow.appointment-plus.com/1hk199v2/ |
| Class Days/Time: | Sat. 0900-1800 |
| Classroom: | EE labs. |
| Prerequisites: | Senior in good Standing, 198A with a C or better, EE 198A (with grade of "C" or better), Senior EE student in good standing. Passage of the Writing Skills Test (WST) or ENGL/LLD 100A with a "C or better" (C- not accepted), completion of Core General Education and upper division standing are prerequisites to all SJSU studies courses. Co-requisite: ENGR 195B |

Course Description:

Implementation of group design projects initiated in EE 198A. Group oral and written reports. Integrate global and social issues in engineering. GE Area: V when taken as part of the EE Major sequence. Meets GE Areas S and V when course is taken in combination with: EE 198A, ENGR 195A and ENGR 195B

Student Learning Objectives for ABET Criteria

Upon successful completion of this course, students will be able to:

- Apply knowledge and skills acquired in earlier coursework to identify, formulate, and propose a sound solution to an engineering problem (1,2)
- Fabricate a system, device or component (1,2)
- Test a system, device or component (1,2,6)
- Can function effective in a team. (5)
- Research an Electrical Engineering topic (7)
- Write individual engineering reports (3)
- Write final Engineering Team reports (3)
- Orally present Engineering ideas and results (3)
- Have an understanding of ethics, social implication of engineering, and the need for life-long-learning (2,4,7)

The number in the parentheses corresponds to the ABET outcome as listed below.

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Student Learning Objectives for Area V of SJSU Studies (Advanced GE)

- GELO 1: Students shall be able to compare systematically the ideas, values, images, cultural artifacts, economic structures, technological developments, or attitudes of people from more than one culture outside the U.S.
 - ENGR 195B Reflection Paper 1 (**750 words**): Consider the ways in which small, rural, farmers in Mexico and India might be affected by the introduction of genetically modified crops. Oftentimes, the introduction of such technologies require small, rural, farmers to adapt or change their lifestyles, that is, the way they work, where they work, and how they live. Is there anything morally problematic, or morally questionable, about this? If there is, what is it? If there is not, please explain.
 - EE 198B Essay 2: Assume that your project is about to turn into a successful company. Using the studies provided in ENGR195A/B as a background, write about how to take into account at least two aspects (for example ideas, values, images, cultural artifacts, economic structures, or technological developments) while evaluating your decision to manufacture your product in two other countries. (minimum **750 words**)
- GELO 2: Students shall be able to identify the historical context of ideas and cultural traditions outside the U.S. and how they have influenced American culture.
 - ENGR 195B Reflection Paper 2 (**750 words**): Technology is often the product of people and their circumstances, yet its influence also far surpasses its immediate environment. Explain the historical context and cultural traditions which led to the development of the mechanical clock. How did the adoption of the mechanical clock in Europe later affect the United States? Be sure to give examples. Lastly, consider your own experience with either mechanized, electrical, or atomic timekeeping. How much of an influence does it have on your everyday life, especially as someone studying engineering? Again, give examples.

- EE 198B Essay 1. Consider a technology invented outside of the U.S. in your discipline. (a) Describe the cultural and social factors that led to this technology's "invention." (b) Describe how this invention has evolved and influenced the culture of the U.S. (**minimum 750 words**)
- GELO 3: Students shall be able to explain how a culture outside the U.S. has changed in response to internal and external pressures.
 - ENGR 195B - Reflection Paper 3 (minimum 750 words): Consider a technology invented within the 20th - 21st century. Choose a specific technology and a specific country outside of the US/Canada. Describe and explain how that technology has influenced a culture or group of people outside of the US/Canada, regardless of where the technology was first designed and developed.

Grading:

If you do not finish your project, you will be graded according to how much of the proposal you fulfilled. I (incomplete) grade will not be given in this case.

- 20% Final Written Report. Your proposal will be judged by your project advisor and one other EE faculty.
- 10% Two midterm reports (5% each). Midterm reports are graded by your project advisor.
- 25% Oral Presentation. There are two oral presentations: an in-class presentation (20%) and a poster session (5%). Your presentation will be judged by your project advisor and one other EE faculty.
- 20% Individual Effort (Evaluated by your project advisor)
- 25% Two Area V Essays* (Must get C or better in these assignments to satisfy Area V GE requirements.)
 - Technology invented outside US (12.5%)
 - Successful company essay (12.5%)

* Correct use of English is a fundamental requirement for your papers to be graded. If errors in English make it difficult for a grader to understand your sentences, or excessively slow down the grader to mark your technical errors, your paper will be returned to you for further work on its English, and your grade for the paper will be deferred until it is resubmitted with corrected English. If your assignment is returned for an excessive number of grammatical errors, you will be allowed to rewrite and resubmit it within two weeks of the original return date. If not resubmitted by the date set by your instructor, you will receive a zero (0) for the writing assignment. A 10% grade deduction will be made to a paper submitted up to two weeks late. No paper will be accepted two weeks after the due date.

Required Texts/Readings: NA

Classroom Protocol

Cell Phones:

Students will turn their cell phones off or put them on vibrate mode while in class. They will not answer their phones in class. Students whose phones disrupt the course and do not stop when requested by the instructor will be referred to the Judicial Affairs Officer of the University.

Computer Use:

In the classroom, students are allowed to use computers only for class-related activities. These include activities such as taking notes on the lecture underway, following the lecture on Web-based PowerPoint slides that the instructor has posted, and finding Web sites to which the instructor directs students at the time of the lecture. Students who use their computers for other activities or who abuse the equipment in any way, at a minimum, will be asked to leave the class and will lose participation points for the day, and, at a maximum, will be referred to the Judicial Affairs Officer of the University for disrupting the course. (Such referral can lead to suspension from the University.) Students are urged to report to their instructors computer use that they regard as inappropriate (i.e., used for activities that are not class related).

Grading Percentage Breakdown

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|---------------|----|
| 94% and above | A |
| 93% - 90% | A- |
| 89% - 87% | B+ |
| 86% - 84% | B |
| 83% - 80% | B- |
| 79% - 77% | C+ |
| 76% - 74% | C |
| 73% - 70% | C- |
| 69% - 67% | D+ |
| 66% - 64% | D |
| 63% - 60% | D- |
| below 60% | F |

Expected time commitment

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally 3 hours per unit per week with 1 of the hours used for lecture) for instruction or preparation/studying or course related activities including but not limited to internships, labs, clinical practice. Other course structures will have equivalent workload expectations as described in the syllabus.

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>

Course Schedule

Table 1 Course Schedule (Subject to change with fair notice as announced by instructor in class)

| Week | Date | EE198B |
|------|-------------------|--|
| 1 | 8/24/2018 | Meet with group's Advisor |
| 2 | 8/31/2018 | Meeting in ENG345 2:30 to 3:30. |
| 3 | 9/7/2018 | Meet with group's Advisor |
| 4 | 9/14/2018 | Meet with group's Advisor |
| 5 | 9/21/2018 | Prof. Backer presentation on Area V in ENG345 2:30 to 3:30. |
| 6 | 9/28/2018 | Midterm report #1 due on 10/1/2018 |
| 7 | 10/5/2018 | Meet with group's Advisor Essay #1 Due on 10/8/2018 (Individual essay) |
| 8 | 10/12/2018 | Meet with group's Advisor |
| 9 | 10/19/2018 | Prof. Backer presentation Area V in ENG345 2:30 to 3:30. |
| 10 | 10/26/2018 | Midterm report #2 due on 10/29/2018 |
| 11 | 11/2/2018 | Meet with group's Advisor Essay #2 Due on 11/5/2018 (Individual essay) |
| 12 | 11/9/2018 | Meet with group's Advisor |
| 13 | 11/16/2018 | Meet with group's Advisor Poster file (for poster presentation on 11/30) due on 11/16/2018 |
| 14 | 11/23/2018 | No Class: Holiday |
| 15 | 11/30/2018 | 2:00~4:00 poster presentation. |
| 16 | 12/7/2018 | ppt file for oral presentation due on 12/6/2018 9:00~12:00 Oral Presentations Final written report due on 12/9/2018 |