

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

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<b>Office Hours:</b>	Thursday 4pm-5pm
<b>Class Days/Time:</b>	Sat. 0900-1800
<b>Classroom:</b>	EE labs.
<b>Prerequisites:</b>	Senior in good Standing, 198A with a C or better

**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

Prerequisite: 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. Corequisite: ENGR 195B

Misc/Lab: Lab 9 hours.

Note: Meets GE Areas S and V when course is taken in combination with: EE 198A, ENGR 195A and ENGR 195B

**Implementation of group design projects initiated in EE 198A. Group oral and written reports.**

**Student Learning Objectives**

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

1. Design a system, device or component (c,k)
2. Fabricate a system, device or component (c,k )
3. Test a system, device or component(c ,k)
4. Work in a team. (d)
5. Research an Electrical Engineering topic (i,j)
6. Write individual engineering reports (g)
7. Write final Engineering Team reports(g)

8. Orally present Engineering ideas and results(g)

**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.
  - EE198B Advisor Meeting 1 (**1000 words**): Students prepare a draft of their Reflection paper 1, along with final literature review for the project.
  - EE 198B Reflection paper 1: 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**)
  - EE 198B Oral Presentation (**15 minute speech**): Expand upon the Reflection paper 1 and describe how your project could have a global impact in the future.
- 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.
  - EE198B Advisor Meeting 1 (minimum **1000 words**): Students prepare a draft of their Essay 1, along with an improved (compared to the proposal from EE198A) literature review for the project.
  - 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 500 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 (**750 words**): Locate some technology, such as an application, mobile technology, or non-software based technology. Do

research either on (i) how that technology has had a social impact on a culture or group of people outside of the US, or (ii) on how that technology, which was, developed in the US has affected a culture outside of the US. More details on this assignment are available on the course website.

### **Grading:**

- **If you do not finish your project you will be graded according to how much of the proposal you fulfilled. I grades will only be given for not following the presentation rules.**
- 10% Midterm Report. This will be a poster presentation of the project and teamwork status of your group to be given during the engineering open house. (Evaluated by the coordinator.)
- 25% Written Report. Your proposal will be judged by your project advisor and one other EE faculty.
- 25% Oral Presentation. There are two oral presentations: an in-class presentation and a final poster session. Your presentation will be judged by your project advisor and one other EE faculty.
- 20% Advisor Evaluation.
- 20% Area V (Must get C or better in these assignments to satisfy Area V GE requirements.)
  - Technology invented outside US (37% or 100/270 )
  - Successful company essay (37% or 100/270 )
  - Area V meeting 1 (14.8% or 40/270)
  - Area V meeting 2 (11.11% or 30/270)

### **Course Content Learning Outcomes**

- The students are able to apply knowledge and skills acquired in earlier coursework to identify, formulate, and propose a sound solution to an engineering problem (c,k)
- The students have an understanding of ethics, social implication of engineering, and the need for life-long-learning (i,f)
- The students can function in teams and can communicate effectively. (g)

### **Topics:**

- Team work and life-long learning
- Communication skills

### **ABET outcomes**

The letters in parentheses in the course learning objectives refer to ABET criterion 3 outcomes satisfied by the course. These are listed below as a reference:

- (a) An ability to apply knowledge of mathematics, science, and engineering
- (b) An ability to design and conduct experiments, as well as to analyze and interpret data
- (c) An ability to design a system, component, or process to meet desired needs

- (d) An ability to function on multi-disciplinary teams
- (e) An ability to identify, formulate, and solve engineering problems
- (f) An understanding of professional and ethical responsibility
- (g) An ability to communicate effectively
- (h) The broad education necessary to understand the impact of engineering solutions in a global and societal context
- (i) A recognition of the need for, and an ability to engage in life-long learning
- (j) A knowledge of contemporary issues
- (k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
- (l) Specialization in one or more technical specialties that meet the needs of companies
- (m) Knowledge of probability and statistics, including applications to electrical engineering
- (n) Knowledge of advanced mathematics, including differential and integral equations, linear algebra, complex variables, and discrete mathematics
- (o) Basic sciences, computer science, and engineering sciences necessary to analyze and design complex electrical and electronic devices, software, and systems containing hardware and software components

### **Required Texts/Readings**

#### **Textbook**

NA

#### **Other Readings**

#### **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

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)**

<b>Week</b>	<b>Date</b>	<b>EE198B</b>
<b>1</b>	1/26/2018	Meet with group's Advisor
<b>2</b>	2/2/2018	Meet with group's Advisor
<b>3</b>	2/9/2018	Meet with group's Advisor
<b>4</b>	2/16/2018	Meet with group's Advisor
<b>5</b>	2/23/2018	Meet with group's Advisor
<b>6</b>	3/2/2018	Area V
<b>7</b>	3/9/2018	Area V
<b>8</b>	3/16/2018	Meet with group's Advisor
	3/23/2018	Meet with group's Advisor
<b>9</b>	3/30/2018	Spring break (no class)
<b>10</b>	4/6/2018	Meet with group's Advisor
<b>11</b>	4/13/2018 4/14/2018	Meet with group's Advisor Open House IEEE
<b>12</b>	4/20/2018	Meet with group's Advisor
<b>13</b>	4/27/2018	Meet with group's Advisor
<b>14</b>	5/4/2018	Oral Presentations (8:30~10:30) (Area V embedded in presentation. )
	5/11/2018	Oral Presentations(8:30~10:30) (Area V embedded in presentation. )
<b>15</b>	5/19/2018 <b>Saturday</b>	Final Poster Presentations