

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

Instructor:	Ping Hsu
Office Location:	ENG491
Telephone:	(408) 924-3902
Email:	ping.hsu@sjsu.edu
Office Hours:	Friday 3pm-5pm by appointment via: booknow.appointment-plus.com/1hk199v2/
Class Days/Time:	Friday 10am-12:45pm
Classroom:	ENG 345
Prerequisites:	EE Senior in good standing, ENGR 100W with a C or better, EE120, EE122, and EE128 with a C- or better
Co-requisites:	<ul style="list-style-type: none">• ENGR195A (For General Education Area S credit)• The following courses allow you to learn some of the skills required to do a real design. These are suggested, not required.<ul style="list-style-type: none">– Analog Circuit design: 124, 223, 129, 174– Digital Circuit design: 174, 178, 138– Signal Processing: 153, 161– Integrated Circuit: 129, 166– MEMS: 129, 169– RF, microwave: 172– Control/Power electronics: 130, 132

Course Description

Team Design Project Proposal, Business Plan, Oral Design Presentations of the initial phases of the Design Project, a written and oral defense of the proposed Design Project. Global and Social Issues in Engineering. Individual written reports on Professional Development plans. GE Area: S when taken as part of EE major sequence.

Note:

- Students who do not have an approved project by the end of the 4th week will not be allowed to continue enrolling in this class.
- This course meets GE Areas S and V when course is taken in combination with: ENGR 195A (concurrently), EE 198B 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 effectively 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

GE/SJSU Studies Learning Outcomes (LO), if applicable

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

- GELO1: Describe how identities (i.e. religious, gender, ethnic, racial, class, sexual orientation, disability, and/or age) are shaped by cultural and societal influences within contexts of equality and inequality;
 - ENGR 195A Reflection Paper 3 (700-800 words): Discuss and provide examples of how at least one of your identities (i.e., religious, gender, ethnic, racial, class, sexual orientation, disability and/or age, among others) is shaped, or has been shaped, by cultural and societal influences within contexts of equality and inequality and how this impacts you as an engineer. Please integrate course material (concepts, theories, discussions, and lectures). Please cite at least one course reading and one appropriate source from outside class.
 - *EE 198A SLO 1: 5 Year Plan*: Based upon the lecture “Career Conversations & Professional Skill Development” and consider your identity, design a 5-year career plan. (minimum **500 words**)
- GELO2: Describe historical, social, political, and economic processes producing diversity, equality, and structured inequalities in the U.S.;

- ENGR 195A Reflection paper 2 (700-800 words): Consider technological innovations and developments in your field. Describe how one such innovation has either increased or decreased social justice and inequality in the U.S. Finally, discuss whether and/or how this will influence constructive and deconstructive interactions between people from different cultural, racial, and ethnic groups within the U.S. Please integrate course material (concepts, theories, discussions, lectures, readings). Please cite at least one course reading and one appropriate source from outside class..
- *EE198A SLO 2*. Using the material provided in ENGR195A, describe how your project fits into the historical, social, political, and economic processes producing diversity, equality, and/or structured inequalities in the U.S. (**minimum 500 words**).
- GELO3: Describe social actions which have led to greater equality and social justice in the U.S. (i.e. religious, gender, ethnic, racial, class, sexual orientation, disability, and/or age).
 - ENGR 195A Reflection paper 1 Discuss how your current or past projects have or will contribute to social and/or environmental action in the United States. Looking forward, can you predict any other possible unintended environmental and/or social consequences from your work as an engineer? Please integrate course material (concepts, theories, discussions, and lectures). Please cite at least one course reading and one appropriate source from outside class.
 - *EE198A SLO3*. Describe how the push for a lead free standard in electronic products (RoSH) increased social justice in the US. (**minimum 750 words**)
- GELO4: Recognize and appreciate constructive interactions between people from different cultural, racial, and ethnic groups within the U.S.
 - ENGR 195A Reflection paper 2 Consider technological innovations and developments in your field. Describe how one such innovation has either increased or decreased social justice and inequality in the U.S. Finally, discuss whether and/or how this will influence constructive and deconstructive interactions between people from different cultural, racial, and ethnic groups within the U.S. Please integrate course material (concepts, theories, discussions, lectures, readings). Please cite at least one course reading and one appropriate source from outside class.

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).

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 practica. Other course structures will have equivalent workload expectations as described in the syllabus.

Assignments and Grading Policy

Outcome Assessment (Grading):

- **25% Area S** Students must pass this part of the course with a 74% to receive Area S GE credit.
 - **Five-year plan***. consider your identity as a future engineer. How is your identity as an engineer shaped by cultural and societal influences within contexts of equality and inequality? **(Individual)**
 - **Your project's implication in area S***. describe how your project fits into the historical, social, political, and economic processes producing diversity, equality, and/or structured inequalities in the U.S. **(Individual)**
 - **Essay 3***. Describe how the push for a lead free standard in electronic products (RoHS) increased social justice in the US. **(Individual)**
- 10% Pre-proposal.
- 15% Individual Effort (Adviser Evaluation)
- 10% Midterm report (Adviser Evaluation)
- 10% Business plan
- 10% Oral Presentation.
- 20% Written Final Proposal. (Advisor Evaluation)

* 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.

Grading scale

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

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 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	EE198A
1	8/24/2018	Introduction, Professor's research areas. Group organization.
2	8/31/2018	Group organization. Pre-proposal organization
3	9/7/2018	Area S: lecture on identity and career plan * Proof of meeting prerequisite due on 9/9/2018
4	9/14/2018	Mini-presentation Pre-proposal (group assignment) on 9/16/2018
5	9/21/2018	Area S: lecture on identity and career plan
6	9/28/2018	No formal class. Meet with project advisor * Five-year plan (Essay 1) due on 9/30/2018
7	10/5/2018	No formal class. Meet with project advisor
8	10/12/2018	Presentation in Area S (Prof. Backer) Midterm report (group assignment) Due on 10/14/2018
9	10/19/2018	Lecture on Business plan * “Your project’s implication in Area S”. (Essay 2) due on 10/21/2018
10	10/26/2018	Meet with advisor, No formal class
11	11/2/2018	Meet with advisor, No formal class Business plan (group assignment) due on 11/4/2018
12	11/9/2018	No formal class. Meet with project advisor
13	11/16/2018	Effective oral presentation and written proposal * Lead-free Essay (Essay 3) due on 11/18/2018
14	11/23/2018	Thanksgiving holiday
15	11/30/2018	Oral Proposal Presentations
16	12/7/2018	Oral Proposal Presentations (if needed). Written proposal (group assignment) due on 12/7/2018

* **Individual assignment.**