San José State University  
Department of Electrical Engineering  
EE 198B, Senior Design Project II, All Sections, Spring 2015  

Instructor: David Wahlgren Parent  
Office Location: ENGR 355  
Telephone: (408) 924-3963  
Email: david.parent@sjsu.edu  
Office Hours: TBA  
Class Days/Time: Class does not meet during lab time. Meet with your group and advisor on your own. Mandatory attendance on the “Dead Day” to present your work orally.  
Classroom: ENGR 189 (For Final Presentations Only!)  
Prerequisites: Senior in good Standing, 198A with a C or better  
Corequisite: 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  

Course Description  
This course is the second course in a two-semester sequence in which each student will work in a group of 2 – 5 on a specific design project in Electrical Engineering. The focus of this course will be on creating an initial design and a proposal for the project and integrating social and global issues into your design project.  

In the College of Engineering at SJSU, we believe that it is critical that engineering students integrate the GE student learning outcomes into their engineering studies. In your senior project course and the Engr 195A course, you will be challenged to understand the relationship of engineering to the broader community both in the U.S. and worldwide. In addition to the assignments in Engr 195A, the engineering faculty have created linked activities in your senior project course that allows you to apply these concepts to your engineering discipline.  

Student Learning Objectives for Area V of SJSU Studies (Advanced GE)  
V-LO1: compare systematically the ideas, values, images, cultural artifacts, economic structures, technological developments, and/or attitudes of people from more than one culture outside the U.S.  

- ENGR 195B Essay 3: Write an essay that compares the ideas, values, technological developments, and/or attitudes of people from at least two different countries outside the US. Your essay must focus on renewable energy and one of your countries in your essay must be from your article (see details on individual assignment) (1000 words).  

- 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. (500-750 words)  

V-LO2: identify the historical context of ideas and cultural traditions outside the U.S. and how they have influenced American culture  

- ENGR 195B Essay 1: Choose one of the following technological developments that were discussed in the web tutorial: the mechanical clock, gunpowder, the Great or Jersey wheel, printing, or the compass. Write an essay that addresses the following topics. When you
respond to these topics, you should be specific and cite specific details either from the web tutorial or your own research. You should cite specific events and/or cultures as you answer these questions. (minimum length 500 words).

- Discuss the history of the technology from its early beginnings to the Renaissance. Please discuss at least three different events in the history of the mechanical clock.
- Describe one force (e.g., historical, cultural, social, economic, political) that affected the development of the technology?
- How did the development and use of the technology affect Europe in the Middle Ages?
- Overall, how did the technology affect the United States?

**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. (250-500 words)

V-LO3: explain how a culture outside the U.S. has changed in response to internal and external pressures.

- **ENGR 195B Essay 2:** Imagine you are part as part of a group of Engineers to Guatemala at the request of Habitat for Humanity. You have been hired to come up with a plan that will alleviate or at least mitigate the effects of Hurricane Stan on the Mayan communities in the Highlands. When thinking about your plan, you must consider all angles of the problem (for example, language barriers, culture, disease, landforms, seasonal weather, transportation, building materials, distrust and fear, etc.) (1000 words)

- **EE 198B Case Study 1:** Using the social and cultural processes introduced in ENGR195A&B, how have Non-US farmers have responded to the pressure of US farmers enhanced ability to grow food due to advances in Electrical Engineering Technology (GPS) are described. (250-500 words)

- **EE 198B Final Report:** Assume your project has turned into a successful company in the US, describe how your product will put pressure on a culture outside the US. (You have to choose a specific country.) Use the social and cultural processes introduced in ENGR195A&B to guide your answer. (500-750 words)

**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)
9. Describe the social and global impact of engineering on society (h)
10. Discuss the role of the impact of US culture on other cultures, and how cultures outside the US, affect US culture with respect to technology (Integration of Area V and Engineering)

**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

The course requirements are:

• Carry out the project proposed in EE198A within specifications.
• Pass a skill-audit exam.
• Meet with your advisor regularly as per his or her instructions.

**Grading**
- If you do not finish your project you will be graded according to how much of the proposal you fulfilled.
- 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.)
- 30% Reflection Papers and Activities related to social and global issues (Individual)
- 25% Written Report. Your proposal will be judged by your project advisor and one other EE faculty.
- 20% Oral Presentation. Your presentation will be judged by your project advisor and one other EE faculty.
- 15% Advisor Evaluation.
**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).

**Academic Honesty:**
Faculty will make every reasonable effort to foster honest academic conduct in their courses. They will secure examinations and their answers so that students cannot have prior access to them and proctor examinations to prevent students from copying or exchanging information. They will be on the alert for plagiarism. Faculty will provide additional information, ideally on the green sheet, about other unacceptable procedures in class work and examinations. Students who are caught cheating will be reported to the Judicial Affairs Officer of the University, as prescribed by Academic Senate Policy S04-12. “You are responsible for understanding the policies and procedures about add/drops, academic renewal, withdrawal, etc. found at [http://www2.sjsu.edu/senate/S04-12.pdf](http://www2.sjsu.edu/senate/S04-12.pdf)

• Expectations about classroom behavior; see Academic Senate Policy S90-5 on Student Rights and Responsibilities.

• As appropriate to your particular class, a definition of plagiarism, such as that found on Judicial Affairs website at [http://www2.sjsu.edu/senate/plagarispolicies.htm](http://www2.sjsu.edu/senate/plagarispolicies.htm)

• "If you would like to include in your paper any material you have submitted, or plan to submit, for another class, please note that SJSU’s Academic Integrity policy

**Dropping and Adding**

Students are responsible for understanding the policies and procedures about add/drops, academic renewal, etc. Information on add/drops are available at [http://info.sjsu.edu/web-dbgen/narr/soc-fall/rec-298.html](http://info.sjsu.edu/web-dbgen/narr/soc-fall/rec-298.html). Information about late drop is available at [http://www.sjsu.edu/sac/advising/latedrops/policy/](http://www.sjsu.edu/sac/advising/latedrops/policy/). Students should be aware of the current deadlines and penalties for adding and dropping classes.

**Grading Percentage Breakdown**

<table>
<thead>
<tr>
<th>Percentage Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>94% and above</td>
<td>A</td>
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</table>
Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of forty-five 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.

**University Policies**

**Academic integrity**

Students should know that the University’s [Academic Integrity Policy is available at http://www.sa.sjsu.edu/download/judicial_affairs/Academic_Integrity_Policy_S07-2.pdf](http://www.sa.sjsu.edu/download/judicial_affairs/Academic_Integrity_Policy_S07-2.pdf). Your own commitment to learning, as evidenced by your enrollment at San Jose State University and the University’s integrity policy, require you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The website for Student Conduct and Ethical Development is available at [http://www.sa.sjsu.edu/judicial_affairs/index.html](http://www.sa.sjsu.edu/judicial_affairs/index.html).

Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person’s ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include in your assignment any material you have submitted, or plan to submit for another class, please note that SJSU’s Academic Policy F06-1 requires approval of instructors.

**Campus Policy in Compliance with the American Disabilities Act**

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with the DRC (Disability Resource Center) to establish a record of their disability.

**Course Schedule**

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

<table>
<thead>
<tr>
<th>Week</th>
<th>Activity</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Finalize design architecture</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Present Project Status Update</td>
<td></td>
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<tr>
<td>3</td>
<td>Order Parts</td>
<td></td>
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<tr>
<td>4</td>
<td>Meet with group’s Advisor</td>
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<tr>
<td>5</td>
<td>Present working demo</td>
<td>EE 198B Essay 1</td>
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<tr>
<td>6</td>
<td>Finalize Literature Review</td>
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<tr>
<td>7</td>
<td>Meet with group’s Advisor</td>
<td></td>
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<tr>
<td>8</td>
<td>Meet with group’s Advisor</td>
<td></td>
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<tr>
<td>9</td>
<td>Spring Break</td>
<td></td>
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<tr>
<td>10</td>
<td>Meet with group’s Advisor</td>
<td>EE 198B Case Study 1</td>
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<tr>
<td>11</td>
<td>Student Poster session, IEEE at 12pm</td>
<td>Posters due 29 October to canvas for Printing</td>
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<tr>
<td>12</td>
<td>Draft of Final Report Due</td>
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<tr>
<td>13</td>
<td>Finalize written Report</td>
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<tr>
<td>14</td>
<td>Rehearse Oral Presentation with Advisor</td>
<td>EE 198B Reflection Paper</td>
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<tr>
<td>15</td>
<td>Conference day</td>
<td>PPTs due to Canvas 12/9/2013 10pm</td>
</tr>
<tr>
<td>16</td>
<td>Final Papers Due; EE 198B Final Report</td>
<td>Due to Canvas 10pm</td>
</tr>
</tbody>
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