EE295  Electrical Engineering Seminar/ Engineering Ethics

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Office Hours:  MW 4:30 to 5:00,  TTh 3:30 – 4:15

Or anytime the door is open

Prerequisites:  Graduate standing

Texts:


(Other readings and essays about contemporary issues which have relevance to this class will be available on the Internet or from the course website.)
Philosophy

- Theology – The relationship of a person to their God

- Epistemology – The relationship of a person to themselves

- Ethics – The relationship of a person to other people
Course Description

The engineer as person, engineering as a process, and the engineered as product. The nature of engineer, engineering, and engineered. The ethics of engineer, engineering, and engineered, namely Virtue Ethics, Process Ethics and Material Ethics.
This seminar examines the engineering project and its three major elements of engineer, engineering, and engineered. Starting with the modern engineering enterprise, a stress is placed on the process and the character of that process. The seminar then turns to an extensive discussion of Process Ethics. Next, there is a look at colonization of the human lifeworld by the engineering enterprise and the contextualization of the engineering enterprise by decisions made within the lifeworld. Then the course takes a backward look at the premodern engineering endeavor and the character of the engineer becomes the focus. A comparison of premodern and modern engineers is presented. Then the course considers Virtue Ethics as appropriate to the person of the engineer. In the third and final part of the course, attention is directed at the products of the focal or postmodern engineering venture. The ethics appropriate to it, called Material Ethics, is investigated with the idea of securing a good life in a human-made world, the attainment of which requires the balancing of many polarizing forces.
Course Objectives:

The purpose of EE 295 is to provide students the tools and techniques to support their understanding of these core topics:

1. The Nature of Engineering Practice
2. The Contexts of the Engineering Project
3. Ethical Theories and Analysis
   - Virtue Ethics
   - Process Ethics, Deontology
   - Material Ethics, Utilitarianism
4. Professionalism
   - Responsibility to clients
   - Responsibility to employers
   - Work place issues
5. Codes of Ethics (IEEE)
6. Legal Obligations and Professional Integrity
7. Environmental Ethics and Sustainable Development
8. Social Impact of Technology
9. The Promise of an Enlightened Engineering Practice
Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester’s Catalog Policies section at http://info.sjsu.edu/static/catalog/policies.html. Add/drop deadlines can be found on the current academic calendar web page located at:

http://www.sjsu.edu/academic_programs/calendars/academic_calendar/

The Late Drop Policy is available at http://www.sjsu.edu/aars/policies/latedrops/policy/. Students should be aware of the current deadlines and penalties for dropping classes. Information about the latest changes and news is available at the Advising Hub at www.sjsu.edu/advising/.
Academic integrity

Your commitment as a student to learning is evidenced by your enrollment at San Jose State University. The University’s Academic Integrity policy, located at http://www.sjsu.edu/senate/S07-2.htm, requires 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 Student Conduct and Ethical Development website is available at http://dev.sjsu.edu/studentconduct.
EE Department Honor Code
The Electrical Engineering Department will enforce the following Honor Code that must be read and accepted by all students.
“I have read the Honor Code and agree with its provisions. My continued enrollment in this course constitutes full acceptance of this code. I will NOT:
• Take an exam in place of someone else, or have someone take an exam in my place
• Give information or receive information from another person during an exam
• Use more reference material during an exam than is allowed by the instructor
• Obtain a copy of an exam prior to the time it is given
• Alter an exam after it has been graded and then return it to the instructor for re-grading
• Leave the exam room without returning the exam to the instructor.”
• Department policy mandates that the student or students involved in cheating will receive an “F” on that evaluation instrument (paper, exam, project, homework, etc.) and will be reported to the Department and the University.
• A student’s second offense in any course will result in a Department recommendation of suspension from the University.
What do you want your new engineers to have?

- Specific Technical Skillset
- Communication Skills – Written & Oral
- Teamwork
- Punctuality (new)
Interesting Study on Teamwork

- A team’s success (at work) isn’t driven by the IQ or talent of its individuals, but its culture and interpersonal relationships.

- Study reported in the New York Times, 1/1/2017
Ethics

- Ethics in this course is the vehicle we will use to strengthen your ability to communicate, work in teams and to be punctual.
## Evaluation Criteria:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>In-class writing, group presentations, homework</td>
<td>40</td>
</tr>
<tr>
<td>Major Research Report (individual, not group, effort)</td>
<td>45</td>
</tr>
<tr>
<td>Final Presentation (Final Exam)</td>
<td>15</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
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</tbody>
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Grading Criteria

Grading Percentage Breakdown

90% and above    A
85% - 90%         B+
80% - 85%         B
70% - 80%         C
60% - 70%         D
Below 60 %        F
Concerning the Major Research Report:

You must individually complete a research report. The report must be 15 pages or more, double-spaced, 12 point type, of at least 4000 words.

At least five credible references must be employed from referred journals.

The first 5 pages will be a Business Plan/Proposal.

The last ten pages will be a Technical Report.

(Other in-class and take-home writing assignments in the course will bring the number of words up to approximately 9000.)
Course Schedule:

Almost every week we will have

1) an in-class writing exercise (½ page, 125 words x 14 weeks=1750 words),

2) an in-class group exercise (forming into small groups of 3-5 students, discuss a handout from the literature and have the group’s spokesperson report to the class, with each student having the opportunity to report at least once),

3) a take-home writing exercise (1 page, 250 words x 13 weeks=3250 words).

Feedback regarding form and content will be provided on all the writing assignments in an on-going fashion. Along with class participation, these three weekly exercises will constitute 40% of your grade.
Schedule

• 3-8/9  First 5 Page Report

4-12/13  Second 5 Page Report

5-15/16  15 Page Report (Rewrite of first 5 page and/or second 5 page report)

• 5/22  Final Exam for 1030 Class – 0945 – 1200
• 5/24  Final Exam for 3:00 Class - 1215 – 1430
• 5/24  Final Exam for 4:30 Class - 1445 - 1700
The Types of Engineering Writing you will encounter first:

A proposal/Business Plan – I have an idea on how to:
   a. Decrease the power consumption ...
   b. Increase the applications ...

A Research Report – Your supervisor has an idea…
   a. Find out how companies are…
   b. What is the State of the Art for…

A Progress Report – How is your Project Progressing?
   a. Status Report
   b. Design Review
Weekly Report
Major Report

• The weekly reports and the final Major Report must be submitted to errnet.net before it is turned in.
• Errnet.net
• Username: david.parent@sjsu.edu
• Password: password
Typical Problems

- Grammar: errnet or similar website
- Does anyone agree with you?
  - Old or unreliable references
- Content: Long Paragraphs
  - Complex Sentences
  - Who is your audience?
  - What do you want?
Web Resources:
The Online Ethics Center for Engineering and Science:  http://onlineethics.org/

National Institute for Engineering Ethics:  http://www.niee.org/

Center for the Study of Ethics in the Professions at IIT:  http://ethics.iit.edu/

Practical and Professional Ethics at IU:  http://www.indiana.edu/~appe/

IEEE Ethic Committee:  http://www.ieee.org/organizations/committee/emcc/

IEEE Society on Social Implications of Technology:
http://policy.rutgers.edu/andrews/projects/ssit/ungercom.shtml

Texas A&M Univ. engineering ethics:  http://ethics.tamu.edu/

NSF Workshops,  http://www.cse.nd.edu/~kwb/nsf-ufe/index.html

NSPE Board of Ethical Review:  http://www.nspe.org/ethics/eh1-whb.asp

Ethics Officer Association:  http://www.eoa.org/