Overview of the course

CE80E -- Ethics for Computer Engineers examines ethical theories and analysis and their application to issues in the practice of engineering, such as safety and liability, professional responsibility to clients and employers, codes of ethics, legal obligations, environmental issues, and social issues. Emphasis is on developing independent ethical analysis through the use of case studies.

Required Skills to pass the course

1. Should be able to critically read and analyze written information, including:
   - Critically read descriptions and data for biased information.
   - Analyze the information in a written description to identify the factual issues and conceptual issues, determine the obligations and responsibilities of the actors, assess the relevant ethical values.
   - Based on the ethical analysis, propose possible solutions using an articulated ethical position/theory.
2. Should be able to form an opinion based on a reasoned ethical position. This opinion must be supported with facts and evidence to further the weight of the opinion being expressed.
3. Show development of an awareness of the ethical component of daily engineering decisions.
Core topics

1. Ethical Theories and Analysis
   • Virtue Ethics
   • Conceptual Ethics
   • Material Ethics
2. Safety, risk, and liability
3. Professionalism
   • Responsibility to clients
   • Responsibility to employers
   • Work place issues
4. Codes of Ethics
   • ACM
   • IEEE
5. Legal Obligations
   • Whistle blowing
   • Intellectual Property
   • Professional Integrity
6. Environmental Ethics
7. Social Impact of Technology
8. Engineering and Sustainable Development

Week 1 - Introduction and Ethical Codes (March 28th)
Goal: You are to learn the three conceptual categories of ethics used in this class and the basic engineering codes of ethics.

Readings:
1. ACM Code of Ethics
2. IEEE code of ethics.
4. GOF – Chapter 10 pages 401 – 411
5. EE – Chapters 1 and 2

Assignments:
- Assignment 1: Point by point statement in students own words the code of ethics for ACM and IEEE. Also explain why they are needed or relevant to the Engineer. Due April 5th.
- Assignment 2: Write a short (3 pages plus references) paper on “Ethics and Digital Media.” Details available on course web site. The short paper is due at the last lecture of NEXT week, format as per Paper Format web page.
- Assignment 3: Sign up to Web Forum and post. – Sign up for the forum and post and introduce yourself to the class. Give us your Name, major if you have declared, possible majors if you have not. Also some topics of interest to you in communication and information technologies and topics that interest you in general.
**Week 2 - Safety, Risk, and Liability (Apr 4th)**

Goal: Readings that highlight the implications of engineering work perhaps foreshadowing some social implications. This week will set the context for the rest of the course and drive home the point that engineers must have and follow ethical models for their work.

Readings:
1. EE – Chapter 5
3. GOF – Chapter 3, “Encryption and Interception of Communications,” pages 97-128

**EXAM**

Know the IEEE and ACM Codes of Ethics
Thursday, April 7

Assignments:
- Assignment 1: Due Tuesday
- Assignment 2: Due Thursday
- Assignment 4:
  - Post your ideas for team projects on the forum.
  - Participate in discussion of posted ethics cases. Grade is based on participation not views expressed. Extra points for referring the works presented in class and in readings.

**Week 3 - Ethical Analysis (Apr 11th)**

Goal: Start building a set of tools that match your ethical viewpoint and can be used to help make decisions and reasoned arguments.

Readings:
1. EE – Chapter 3
2. Research Ethics: An Introduction
3. GOF – Chapter 3, “Encryption and Interception of Communications,” pages 97-128

Assignments:
- Assignment 5: Declare group membership and topic ideas for the project.
- Assignment 6: Participate in web forum discussion of posted ethics cases.
**Week 4 - Ethics and Design (Apr 18^{th})**

Goal: The design phase is one of the key phases where engineering decisions are made; decisions that can impact the product and its users. In order to make good design decisions one needs to make good technical decisions combined with good ethical decisions.

Readings:
1. GOF – Chapter 2, “Privacy and Personal Information,” pages 35 – 96
2. “Interface Design: Ethical Consideration”
3. “Ethical Considerations in Engineering Design Processes,”

Assignments:
- **Assignment 7**: Hand in initial list of sources related to your team project.
- **Assignment 8**:
  - Web forum questions or topics that came up in class for full group posting.
  - Participate in web forum discussion of posted ethics cases.

**Week 5 - Environmental Ethics (Apr 25^{th})**

Goal: We switch gears here to impact of what engineers do and engineering does, on the natural and built environment.

Readings:
1. EE – Chapter 8
2. GOF – Chapter 1, “Unwrapping the Gift,” pages 11 – 34

Assignments:
- **Assignment 9**: Submit progress report on team project. Include an up-dated source list for project and any notes or comments about issues and problems.
- **Assignment 10**: Take some topic discussed in class and take a reasoned position on it or react to someone else’s position. NO "ME TOO" posts. If someone used up all your ideas try taking the counter position.

**Week 6 - Social Impact of Technology (May 2^{nd})**

Goal: Staying with the impact of what engineers do and engineering does, now we look at the Social and psychological ramifications.

Readings:
1. EE – Chapter 9
2. GOF – Chapter 8, “Computers and Work,” pages 328 – 363

Assignments:
- **Assignment 11**: Submit a rough draft of project report.
- **Assignment 12**: Participate in web forum discussion of posted ethics cases.
**Week 7 - Legal Obligations (May 9th)**
Goal: Understand the legal duties and responsibilities of an engineer.

Readings:
1. EE – Chapter 6
2. GOF – Chapter 6 “Intellectual Property,” pages 234 - 279

Assignments:
- Assignment 13: Ethical stand, both group stand and personal stand.
- Assignment 14:
  - Web forum questions or topics that came up in class for full group posting.
  - Participate in web forum discussion of posted ethics cases.

**Week 8 – Professionalism (May 16th)**
Goal: The challenge now is to become professional. You need to think in terms of what you would do in real situations. “I don’t know” is not acceptable, at this point you should be stating what they think should or must be done and why. The integration of all the proceeding concepts in the course should be happening.

Readings:
2. EE – Chapter 7

Assignments:
- Assignment 13 redo: Revised ethical stand if needed.
- Assignment 15: Participate in web forum discussion of posted ethics cases.

**Week 9 - Engineering and Sustainable Development (May 23rd)**
Goal: Look forward to an engineering role in creating a sustainable environment.

Readings:
1. TBD

Assignments:
- Assignment 16: Participate in web forum discussion of posted ethics cases.
**Week 10 - Project Week (May 30)**

Goal: Review the projects that have been completed during the course and critically reflect on the ethical positions that have been described.

Readings: None

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<th><strong>Project Presentations</strong></th>
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Assignments:

- **Assignment 17:** Project Files & Project Posters are due.
- **Assignment 18:** In the web forum react to two projects seen class. Express your own ethical stance on the issue.

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<th><strong>FINAL EXAM</strong></th>
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**Academic Integrity and Social Integrity**

UCSC’s policy on Academic Integrity:
http://oasas.ucsc.edu/avcue/integrity/

*Read this policy fully!!*

It is fairly simple, if you are cheating, in any fashion and I reasonably believe this is the case. We will have a long discussion as to the reasons for this and actions will be taken. Minimally you can expect an “F” with and evaluation that states clearly the offence and that you cheated in the ethics course of the department.

There should be no reason at all for Academic Dishonesty in this or any course. If an emergency happens, let me know. I am happy to help the students prove themselves and help them become good professionals. It may be you need more time or different grading criteria. A week lost due to bereavement or a nasty cold should not be thought of as justification for cheating. This course is about ethics; the last thing you want to prove is that you have none.


**Course Policy on Social Integrity**

This course will have a lot of thought, reactions and discussions. You will be asked to do readings and discuss and rate the readings. You will have in and out of class discussions. The goal is to empower you with a set of ethical standards to help you make decisions as engineers.

We want you to get used to standing up for what you think is correct. But – and this is important - personal opinion is not enough in this class. You must be able to provide and state a reasoned and supported position, not your personal opinion. To this end strong discussions are expected and hoped for. However there is a line of acceptable behavior, when discussing anything. You are responsible for your conduct in class and out regardless of circumstances. Actions of disrespect or intolerance towards anyone are unacceptable in any academic or professional setting. Discrimination on the basis of age, creed, ethnicity, gender, political views, religion or sexual orientation is not be allowed and will be dealt with.

You can disagree with a person’s view; you can argue that the ethical basis on which they make their decisions is wrong. But you must do it within the norms of academic discourse and be civil about it.