CSE40175 / CDT40630
Ethical and Professional Issues

Lecture 1

Course Information

CSE40175 / CDT40630
Ethical and Professional Issues (3 Credit)
Class Time/Location: 3:30 – 4:45 T/TH Fitzpatrick Hall Room 356
Course Description:
This course seeks to develop a solid foundation for reasoning about ethical, professional, and social issues that arise in the context of computer science and engineering. Emphasis is placed on identifying appropriate legal, professional and moral contexts and on applying sound critical thinking skills to a problem. Topics covered include professional codes of ethics, safety-critical systems, whistle blowing, privacy and surveillance, freedom of speech, intellectual property, and cross-cultural issues. This course relies heavily on case studies of real-world incidents.

Who am I

Curt Freeland

Interests

- System Administration
- System Security
- Networking
- Woodworking

Webster Definition of curt

1a: sparing of words
1b: marked by rude or peremptory (see peremptory sense 3) shortness: brusque

Who am I (revisited)

My name is Joseph Curtis Freeland, but I go by “Curt”.

My wife and I live on 10 acres in Edwardsburg, MI where I enjoy woodworking (designing and building “artsy” furniture and cabinetry). I also plant fruit trees/bushes on the property as I like the idea of “edible landscaping”.

– So do the deer and other critters in my area.

Why CSE40175?

In order to have a successful career, you must know how to handle situations which arise.

- You may have to deal with difficult co-workers.
- You may have to deal with difficult situations.
- You may have to report problems to corporate / governmental agencies.
- You may have to answer corporate / governmental agencies when problems arise.
- You may face difficult decisions on many fronts.

How will you handle these situations?

Why Study Ethical and Professional Issues?

- Identify/clarify your own ethical standards
- More quickly identify situations with ethical / professional implications
- Develop skills for analyzing situations
- Identify resources for assistance
- Ethical issues are very likely to affect your career
Primary Objective

- Develop a solid foundation for reasoning about the ethical, professional, and social controversies that arise in the computing field.
- Emphasis is placed on identifying the appropriate legal, moral, and professional context and applying sound critical thinking skills in the analysis of a situation.
  - At this point you should already possess the skills required to perform Engineering analysis!
- The course relies on the analysis of real-life case studies, both historical and current.

Learning Goals (ABET speak)

- Identify stakeholders and their responsibilities in a given case study
- Outline the range of ethically acceptable behavior for the various stakeholders in a case study
- Articulate the legal basis for rights such as privacy and free speech
- Define the basic mechanisms of patent, copyright, and trade secret as a means of protecting intellectual property
- Identify major factors that complicate the development and use of safety-critical software
- Identify how computing technology impacts the environment
- Identify how the introduction of computing technology enables or drives social transformation

Expectations

There is no code development aspect of this course.
There is no design aspect of this course.

This course is a discussion course!
Most discussion courses are much smaller than this course. This issue presents some challenges.

Guidelines for class discussions

- Be prepared to participate by completing any assignments before class.
- Respect others’ rights to hold opinions and beliefs that differ from your own. Challenge or criticize the idea, not the person.
- Listen carefully to what others are saying even when you disagree with what is being said.
- Comments that you make (asking for clarification, sharing critiques, expanding on a point, etc.) should reflect that you have paid attention to the speaker's comments.
- Be courteous. Don’t interrupt or engage in private conversations while others are speaking.
- Support your statements. Use evidence and provide a rationale for your points.
- Allow everyone the chance to talk.
  - If you have much to say, try to hold back a bit; if you are hesitant to speak, look for opportunities to contribute to the discussion.
- If you are offended by something or think someone else might be, speak up and don’t leave it for someone else to have to respond to it.

Expectations

I expect you to read the course material before you come to class.

I expect you to come to class!
I expect you to be prepared to lead a discussion, or represent a point of view in every class meeting!
I may randomly call on students to do just that!
If you are not present, or not prepared to participate in class, your grade will suffer!
Expectations

I DO NOT expect you to come to class, and spend the lecture time surfing, sleeping, or doing homework for some other course.

If you do so, you will not get participation points.

Class participation is 20% of the course grade.

If you want an A in this course, you need to participate!

Grading

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<tr>
<th>Grade</th>
<th>Points</th>
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<td>A</td>
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<td>D</td>
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(The best you can expect if you do not participate)

Assignments

- Reading/Writing Assignments: 12 x 10 points each
- Group Projects: 4 x 30 points each
- Attendance and Participation: 60 points

Due Dates

Unless specified otherwise:

All Reading/Writing assignments are due at noon on Monday.
All Group Projects are due at noon on Saturday.
Late submissions not accepted without prior approval.

Resources

- Grades: Sakai
  - The grade book is in Sakai
  - The reading questions will be in Sakai.
  - Writing assignments will be in Sakai
    - Sakai is awful. Do not type your writing assignment into sakai...create it as a text file, then copy/paste it into sakai.
- Course materials (lecture notes, calendar, …) located on class web page
  - www.crc.nd.edu/~curt
- Email addresses
  - Curt: curt@nd.edu
  - Course: sp20-cse-40175-group@nd.edu

Academic Integrity

This class follows the binding Code of Honor at Notre Dame as well as the CSE Department Honor Code.

The graded work you do in this class must be your own.

In the case where you collaborate with other students make sure to fairly attribute their contribution to your project.

Topics Covered

- Ethical Theory
- CS as a Profession
- Professional Codes
- Hiring and Work Life Issues
- Immigration and Diversity
- Milestones in Technology
- Networked Communication
- Intellectual Property
- Information Privacy
- Privacy and the Government
- Cyber Security
- Reliability
Topics Covered

• Hacking/Malware/Cyber Crime
• Professional Ethics
• Engineering Disasters
• Whistleblowing
• Automation
• Autonomous Vehicles
• Net Neutrality
• Cyber Bullying
• And more...

Background

Background - The Ethical Point of View

• Most everyone shares “core values”, desiring:
  – Life
  – Happiness
  – Ability to accomplish goals
• Two ways to view world
  – Selfish point of view:
    • consider only own self and own core values
  – Ethical point of view:
    • respect other people and their core values

Defining Terms

• Society
  – Association of people organized under a system of rules
  – Rules: advance the good of members over time
• Morality
  – A society’s rules of conduct
  – What people ought / ought not do in various situations
• Ethics
  – Rational examination of morality
  – Evaluation of people’s behavior

Why Study Ethics?

• Ethics: a way to decide the best thing to do
• New problems accompany new technologies – Computer Science is considered a “new” technology.
• “Common wisdom” may not exist for novel situations brought about by new technologies

General Ethics

• Ethics: rational, systematic analysis
  – “Doing ethics”: answers need explanations
  – Explanations: facts, shared values, logic
• Ethics: voluntary, moral choices
• Workable ethical theory: produces explanations that might be persuasive to a skeptical, yet open-minded audience
What about professional ethics?

* Professional ethics cover the personal, organizational and corporate standards that are expected of professionals.
  - Includes issues involving relationships or responsibilities with:
    - Employees, employers, and other people who use the products or services.

Honesty

* Honesty is one of the most fundamental ethical values.
  ◦ We all make hundreds of decisions each day.
  ◦ A lie disrupts an essential activity of being human.
  ◦ Falsifying data/research can be considered a form of theft.
  ◦ The indirect harm of a lie can be very large.

Issues of a Computer Professional

* General issues a computer professional might face everyday include:
  ◦ How much risk is acceptable in the system?
  ◦ What uses of another company’s intellectual property are acceptable?

Issues of a Computer Professional

* Example: A private company asks your software company to develop a database of information obtained from government records.
* Question: Would you accept the contract and develop the system?

Possible Choices

* Accept the contract:
  ◦ On the grounds that the records are already publicly available to anyone.
* Refuse to take the contract:
  ◦ You do not like the secondary use of information that people did not voluntarily provide.
* Accept the contract but refuse to make the methods to pull data out of the database.

Special Aspects of Professional Ethics

* Professional ethics have several characteristics that differ from general ethics.
* A professional is expected to:
  ◦ Be expert in a field that many people know little about
  ◦ Be competent and skillful
  ◦ Keep up-to-date
  ◦ Constantly research
  ◦ Act in an ethical way
* Being a professional also creates responsibilities you must uphold.
Responsibilities of a Professional

* As a professional, you advertise your expertise and therefore have an obligation to provide it.
  ◦ The customers rely on the knowledge, expertise, and most importantly the honesty.
* The products of professionals generally affect a large number of people.
  ◦ Dishonesty, carelessness or incompetence could negatively affect all of them.
* As a professional, your work could potentially affect the life, health, and finances of a client.

Responsibilities of a Professional (cont.)

* Computer professionals not only have responsibilities towards their direct customers, but also the general public.
  ◦ Think about potential risks
  ◦ Take action to correct these risks
* Responsibilities for noncomputer professionals:
  ◦ Knowing/learning enough about the system to understand potential problems

Professional Codes of Ethics

* Ethical values provided to remind people in the profession that ethical behavior is an essential part of their job.
* Main Organizations:
  ◦ Association for Computing Machinery (ACM)
  ◦ IEEE Computer Society (IEEE CS)
* These Organization:
  ◦ The code emphasizes the basic ethical values of honesty and fairness and areas that are particularly vulnerable regarding computer systems.

Guidelines and Professional Ethics

* Principles for producing good systems which concerns software developers, programmers, consultants, and others who make decisions about obtaining systems for large organizations.
* There are many more specific guidelines in the ACM Code, which we will examine in upcoming lectures.
* Principles:
  ◦ Understand what success means.
  Developers and institutional users of computer system’s must view the system’s role and their responsibility in a wide context.

Guidelines and Professional Ethics (cont.)

* Include users in the design and testing stages to provide safe and useful systems.
  ◦ Mistakes or accidents occur when technical people developed systems without sufficient knowledge of what is important to users.
* Design for real users
  ◦ People make typos, get confused, or are new at their job. So, system designers and programmers must provide clear user interfaces and include appropriate checking of input.
  ◦ Don’t assume existing software is safe or correct
  ◦ Software used from another application needs to be verified for suitability for the current project.

Guidelines and Professional Ethics (cont.)

* Be open and honest about capabilities
  ◦ Emphasizing your best qualities and being dishonest is not always clear, but it should be clear that hiding known, serious flaws and lying to customers are on the wrong side of the line.
* Require a convincing case for safety
  ◦ One of the difficult ethical problems that arise in safety-critical applications is deciding how much risk is acceptable.
  Ethical decision makers should always consider the balance of risk taken when undergoing a project.
Pay attention to defaults
- System designers should give serious thought to default settings as protection, ease of use, and compatibility with user expectations is a priority.

Develop communication skills
- Computer professionals have to explain technical issues to clients and coworkers.

Presentations can be more effective by organizing information, distinguishing what is important, and engaging the listener actively in the conversation to ensure the client is interested.

Example: You are a programmer at a bank and you found flaws in your program which is used in ATMs.

Would you tell your employer?

Solution: You have to be honest.
- Inform your employers and try to fix the program.
- The consequences for hiding faulty programs would be worst than admitting your mistakes.