

Reminders/Announcements

- Funding proposals due to Dean's Office by Friday, September 20. Submit a copy to Dr. Wu by Thursday morning for comments.
- Assignment 4 – Ethics Quiz and Assignment 5 – Ethics Essay posted to course webpage.
- No class on Friday

Professional Ethics

- What is a profession? Barger gives one possible definition:
 - Practitioner must have expert knowledge – "special technical knowledge that is certified by some authority and not possessed by the layperson"
 - Practitioner must have autonomy with respect to "independence in conducting one's professional practice"

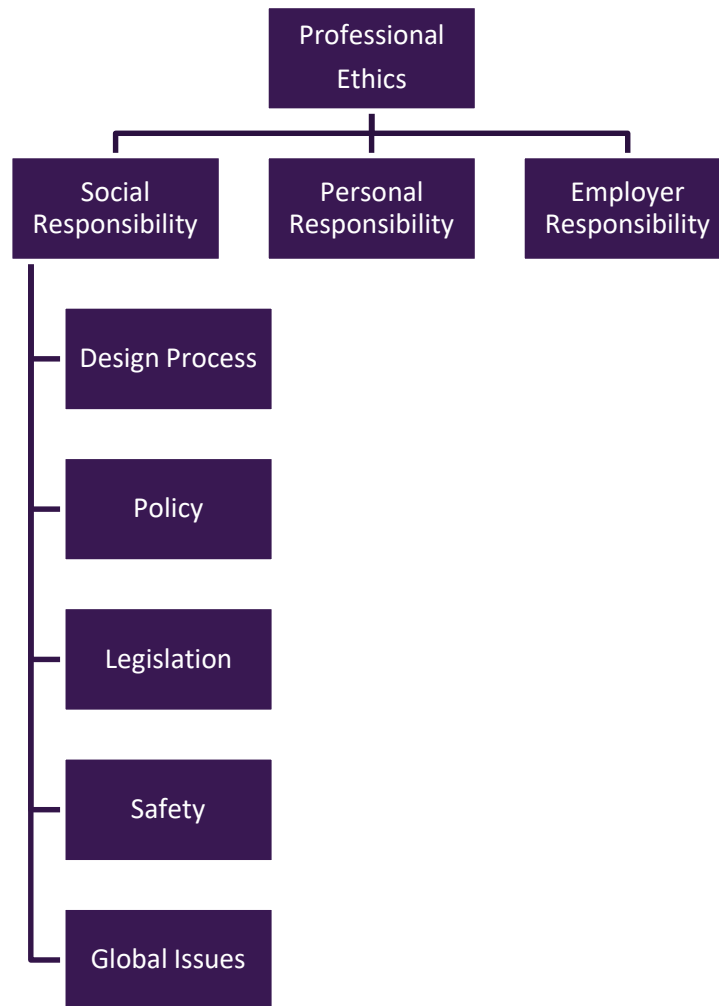
Professional Ethics

- Who is a professional? Buchanan suggests
 - An expert in a field, which provides an advantage over laypersons
 - Work has the potential to impact, either positively or negatively, the general public at large
- This is especially true for engineers and software developers of safety-critical systems
 - Not just directly used software like air traffic control
 - Also software used to design or analyze, e.g. buildings or for medical treatment

Scope of Professional Computing Ethics



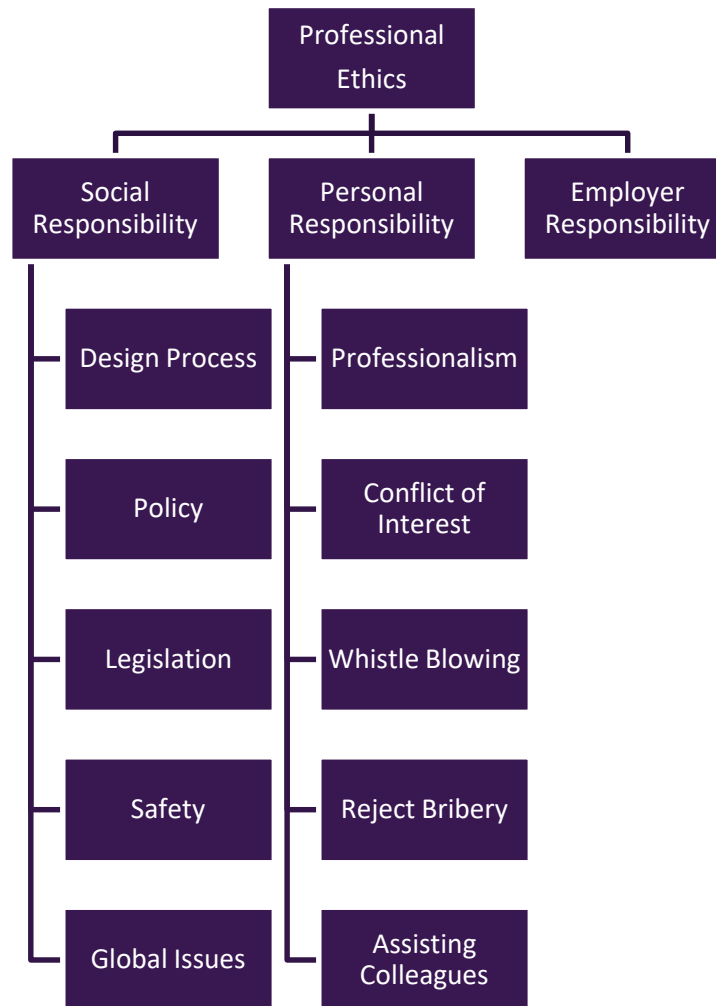
Scope of Professional Ethics



Social Responsibility

- Design process – is it environmentally friendly?
Can we do it better to protect our resources?
- Policy – does this conform to public policy?
- Legislation – is it lawful?
- Safety – am I putting the public in danger?
- Global issues – how does this affect the world,
not just my small part of it?

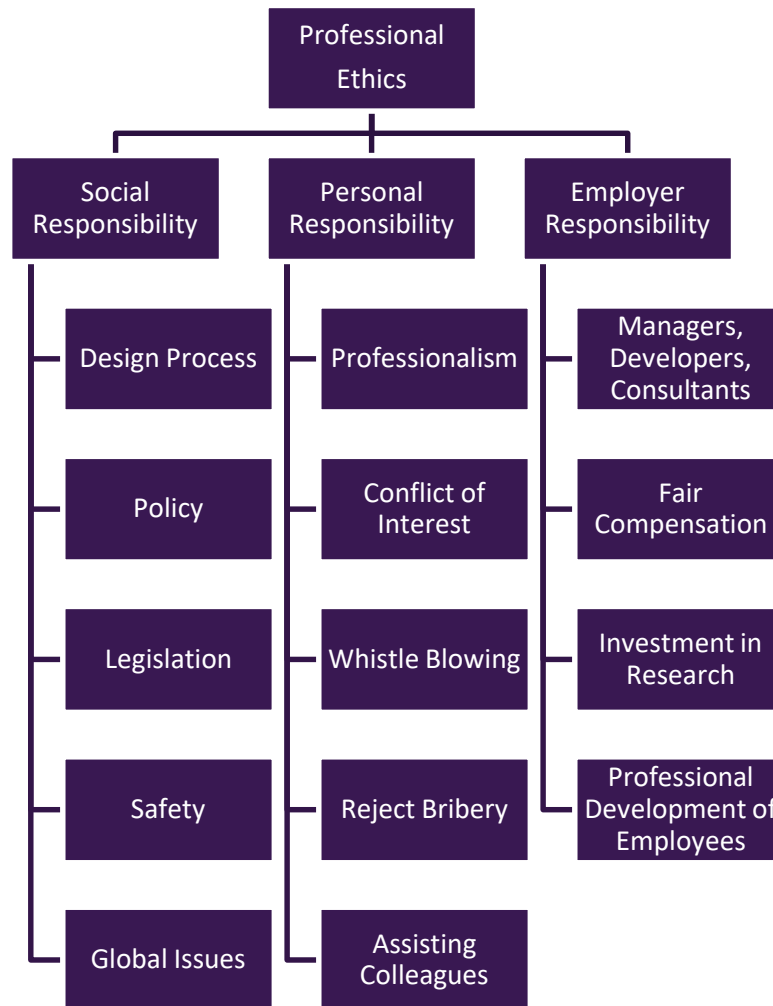
Scope of Professional Ethics



Personal Responsibility

- Professionalism – am I conducting myself in a professional manner?
- Conflict of Interest – does this involve multiple interests, one of which could possibly corrupt motivation for an act in the other?
- Whistle blowing – should I inform the authorities of a harmful, dangerous, or illegal activity? How does this conflict with my obligations to employer?
- Reject bribery – is this an attempt to buy a decision?
- Assisting colleagues – in professional development and support in upholding the code of ethics

Scope of Professional Ethics



Employer Responsibility

- Managers, developers, consultants – Define roles and hierarchy of responsibilities.
- Fair compensation – Pay people for their work.
- Investment in research – Research better ways to do things (relates back to social responsibility).
- Professional development of employees – Help develop professional, ethical developers/engineers.

Codes of Ethics for Engineering

- Provides a framework for ethical decisions
- Some governing agencies
 - IEEE: Institute of Electrical and Electronics Engineers
 - <https://www.ieee.org/>
 - NSPE: National Society of Professional Engineers
 - <http://www.nspe.org/>

Codes of Ethics for Computing

- Some governing agencies
 - ACM: Association for Computing Machinery
 - <http://www.acm.org/>
 - IEEE-CS: Institute of Electrical and Electronics Engineers Computer Society
 - <http://www.computer.org/>

Codes of Ethics

- Web Resources (just some of many)
 - ACM Special Interest Group on Computers and Society (SIGCAS): <http://www.sigcas.org>
 - NSF Workshops, Teaching Ethics and Computing, K. Bowyer, Univ. Notre Dame: <http://www.cse.nd.edu/~kwb/nsf-ufe/index.html>
 - Computer Professionals for Social Responsibility: <http://cpsr.org/>
 - Software Engineering Ethics Research Institute: <http://seeri.etsu.edu/>
 - The Research Center on Computing & Society: <http://ares.southernct.edu/organizations/rccs/>
 - The Online Ethics Center for Engineering and Science: <http://onlineethics.org/>
 - Center for the Study of Ethics in the Professions at IIT: <http://ethics.iit.edu/>
 - Association for Practical and Professional Ethics at IU: <http://www.indiana.edu/~appe/>
 - IEEE document of professional aspects of employment, click [here](#).
 - IEEE document on education/professionalism, click [here](#).
 - Texas A&M Univ. engineering ethics: <http://ethics.tamu.edu/>
 - National Institute for Engineering Ethics: <http://www.niee.org/>
 - NSPE Board of Ethical Review: <http://www.nspe.org/Ethics/BoardofEthicalReview/> (e.g., see Board of Ethical Review case analyses at <http://www.nspe.org/Ethics/EthicsResources/BER/>).

Codes of Ethics

- Summaries of the ACM Code of Ethics and the IEEE Code of Ethics are on the next slides. Look for similarities and differences, especially in emphasis. Are there any contradictions?

ACM Code of Ethics: General Ethical Principles

A computing professional should:

1. Contribute to society and human well-being, acknowledging that all people are stakeholders in computing.
2. Avoid harm.
3. Be honest and trustworthy.
4. Be fair and take action not to discriminate.
5. Respect the work required to produce new ideas, inventions, creative works, and computing artifacts.
6. Respect privacy.
7. Honor confidentiality.

ACM Code of Ethics: Professional Responsibilities

A computing professional should:

1. Strive to achieve the high quality in both the processes and products of professional work.
2. Maintain high standards of professional competence, conduct, and ethical practice.
3. Know and respect existing laws pertaining to professional work.
4. Accept and provide appropriate professional review.
5. Give comprehensive and thorough evaluations of computer systems and their impacts, including analysis of possible risks.

ACM Code of Ethics: Professional Responsibilities

6. Perform work only in areas of competence.
7. Foster public awareness and understanding of computing, related technologies, and their consequences.
8. Access computing and communication resources only when authorized or when compelled by the public good.
9. Design and implement systems that are robustly and usably secure.

ACM Code of Ethics: Compliance with the Code

A computing professional should:

1. Uphold, promote, and respect the principles of this Code.
2. Treat violations of this code as inconsistent with membership in the ACM.

This Code was adopted by the ACM Council on June 22, 2018. Copyright © 2018 by the Association for Computing Machinery.

IEEE Code of Ethics

We, the members of the IEEE, in recognition of the importance of our technologies in affecting the quality of life throughout the world, and in accepting a personal obligation to our profession, its members, and the communities we serve, do hereby commit ourselves to the highest ethical and professional conduct and agree:

1. to accept responsibility in making decisions consistent with the safety, health, and welfare of the public, and to disclose promptly factors that might endanger the public or the environment;
2. to avoid real or perceived conflicts of interest whenever possible, and to disclose them to affected parties when they do exist;

IEEE Code of Ethics

3. to be honest and realistic in stating claims or estimates based on available data;
4. to reject bribery in all its forms;
5. to improve the understanding of technology; its appropriate application, and potential consequences;
6. to maintain and improve our technical competence and to undertake technological tasks for others only if qualified by training or experience, or after full disclosure of pertinent limitations;
7. to seek, accept, and offer honest criticism of technical work, to acknowledge and correct errors, and to credit properly the contributions of others;

IEEE Code of Ethics

8. to treat fairly all persons regardless of such factors as race, religion, gender, disability, age, or national origin;
9. to avoid injuring others, their property, reputation, or employment by false or malicious action;
10. to assist colleagues and co-workers in their professional development and to support them in following this code of ethics.

The IEEE Code of Ethics has been in existence since the merger with AIEE and IRE in 1963. Every IEEE member agrees to abide by the IEEE Constitution, Code of Ethics, Bylaws and Policies when joining.

Ethical Conflicts

- Solving an ethical problem is similar to a design problem
- Sometimes the correct answer to an ethical issue is not obvious, so apply a process
 - Example: Inappropriate material is found by a technician on a work computer
 - Determine the technician has competing responsibilities
 - To keep personal information seen confidential
 - To report a violation of the computer use policy
 - Apply any guidelines, e.g. codes of ethics, laws, etc.
 - Conclude the technician should report what was seen, since the employee has no legal right to privacy on a company computer