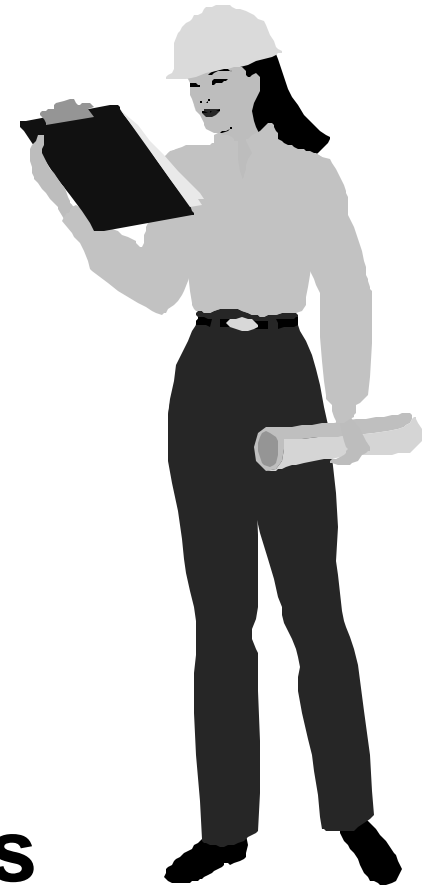


PPOHS

MIME 221



Ethical Issues and definitions

Technology and Ethical Issues

What is Ethics and the Impact of Technology on Society

- What is **Ethics?**
- What is **Technology?**
- What is **Society?**

INTRODUCTION TO ENGINEERING ETHICS

Engineering Ethics is the study of moral values, issues and decision involved in engineering practice.

ETHICS

- **The moral values take many forms, including**
- **responsibilities,**
- **ideal character behavior,**
- **social policies, and**
- **relationships**

Desirable for individuals and corporation engaged in technological development.

What is Ethics?

- **Ethics.**
 - **The science of moral values and moral duties; the study of ideal human character, actions and ends.**
 - **A set of moral principles or values.**
 - **A treatise on morals.**
 - **How we treat each other and nature.**

What is Ethics?



- **Morals.**

- **Relating to principals of right and wrong in behavior.**

- Conforming to a standard of right behavior.**

- **Conforming to a standard of what is good and/or what is right, virtuous, as a moral life.**

What is Morality?

- **From dictionaries, morality mainly concerns on right and wrong, good and bad, the rules that ought to be followed.**
- **This definition is incomplete, because there are non-moral as well as moral usages of these words. Therefore, morality is not easily explained in a simple definition.**

What is Morality?

We could say that morality is about reasons centered in respect for other people (any race ,religion or color) as well as ourselves

Moral reasons, may involve

- **being fair and just,**
- **respecting peoples right,**
- **avoiding unnecessary offense, cheating and dishonesty,**
- **caring, showing gratitude and empathy,**
- **minimizing damage to environment etc.**

MORAL DILEMMAS AND RELATED ISSUES

Moral dilemmas are situations in which two or more moral obligations, duties, rights, goods, or ideals come into conflict with one another. It is also possible for one moral principle to have two or more incompatible applications in a given situation.

MORAL DILEMMAS AND RELATED ISSUES

- **Because moral principles can conflict, it is often difficult or impossible to formulate rules that are absolute, that is, never have a justified exception. Even such basic principles as Do Not Lie, Do Not Steal, and Do Not Kill have some permissible exceptions when they conflict with more pressing moral duties.**

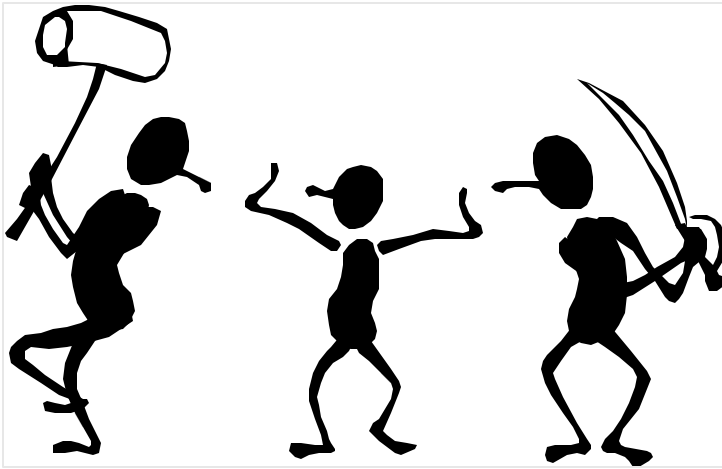
MORAL DILEMMAS AND RELATED ISSUES

Resolving moral dilemmas involves good moral judgment in weighing conflicting moral reasons, but frequently it involves several related tasks:

- conceptual clarification,
- factual inquiries, and
- resolution of interpersonal disagreements.

MORAL DILEMMAS AND RELATED ISSUES

- a) ***Conceptual clarification*** is the clarification of moral ideas and morally relevant notions. In general, moral ideas contain areas of vagueness and ambiguity that need to be dealt with.
- b) ***Factual inquiries*** are inquiries into the facts relevant to resolving particular moral issues. These are engineering, scientific, financial, or legal matters, as they are brought to bear on resolving moral dilemmas.
- c) ***Interpersonal disagreements*** are controversies among persons or groups about how to understand and resolve moral dilemmas. Ideally, either through mutually enriching perspective or compromises



CONFLICT

Morality....provides one possibility of settling conflict,a way of encompassing conflict which allows the continuance of personal relationships against the hard and apparently inevitable fact of

- **Misunderstanding,**
- **Mutually incompatible wishes,**
- **Commitments,**
- **Loyalties,**
- **Interests and needs....**

CONFLICT

We do not have to agree with one another in order to live in the same moral world, but we do have to know and respect one another's differences.

Stanley Cavell



Conflict



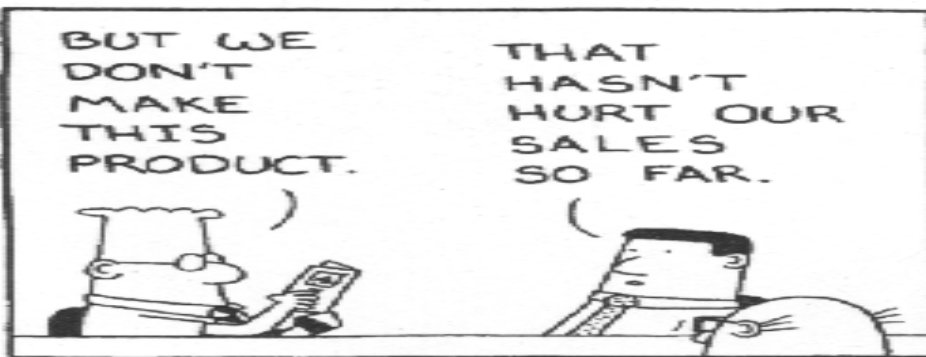


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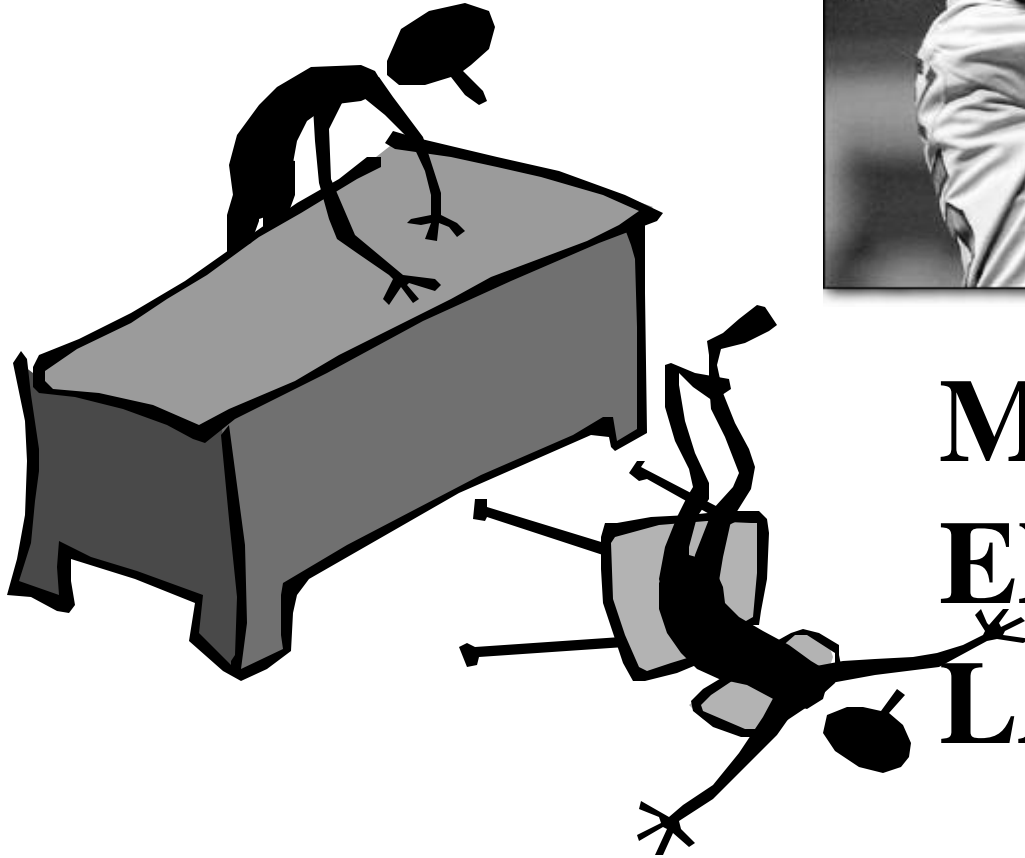


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CONFLICT



Peter Mühly / AFP



MANAGER
ENGINEER
LABOUR

Variety of Moral issues

- EMPHASIZES SMALL EVERYDAY PROBLEMS
- LARGER SOCIAL PROBLEMS

WHICH APPROACH IS BETTER?

- NEITHER BY ITSELF
- WHAT IS REQUIRED IS ONGOING INTERACTION BETWEEN THE TWO.

Variety of Moral issues

■ AN INSPECTOR AND FAULTY CONSTRUCTION EQUIPMENT.

□ AN ELECTRICAL UTILITY COMPANY AND NUCLEAR POWER PLANT.

❖ CHEMICAL PLANT DUMPED WASTES IN A LANDFILL.

➤ ELECTRONIC COMPANY AND UNFINISHED ITEM.

ILLUSTRATED CASES

- **These examples show how ethical problem arise most often when there are differences of judgment or expectation**

ILLUSTRATED CASES

An inspector discovered faulty construction equipment and applied violation tag, preventing its continued use. The inspector's supervisor . Whom is the construction manager, viewed the case as a minor infraction of safety regulations and ordered the tag removed so the project would not be delayed. The inspector objected but he was threatened with disciplinary action. The continued use of equipment led to the death of a worker on a tunnel project.

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ILLUSTRATED CASES

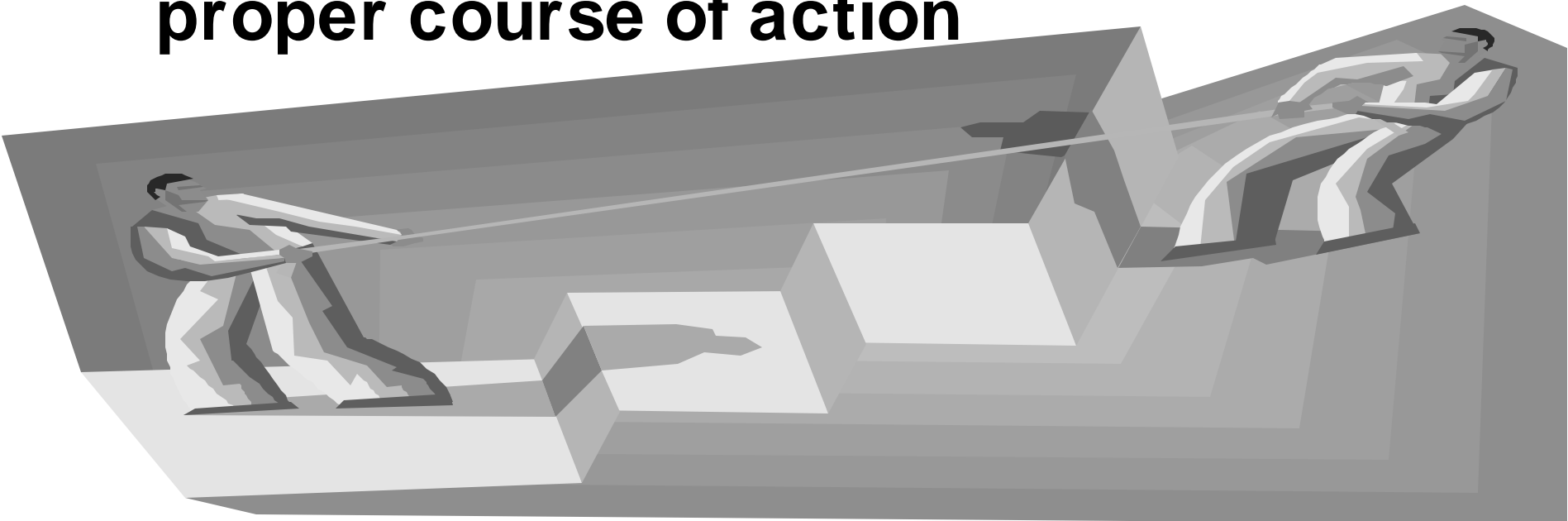
- A chemical plant dumped wastes in a landfill. Hazardous substances found their way into the underground water table. The plant's engineers were aware of the situation but did not change the disposal method because their competitors did it the same cheap way. Plant supervisors told the engineers it was the responsibility of the local government to identify any problems.

ILLUSTRATED CASES

- The ABC company began selling its latest high-tech product before it had been fully checked out in beta tests, that is, used on real applications by a group of knowledgeable users. It was not ready for distribution, but clients were already lured to this product by glossy advertising designed to win the market by being first to capture clients' attention.

Variety of Moral issues

The ethical problems arise most often when there are differences of judgment or expectation as to what constitutes the true state of affairs or a proper course of action



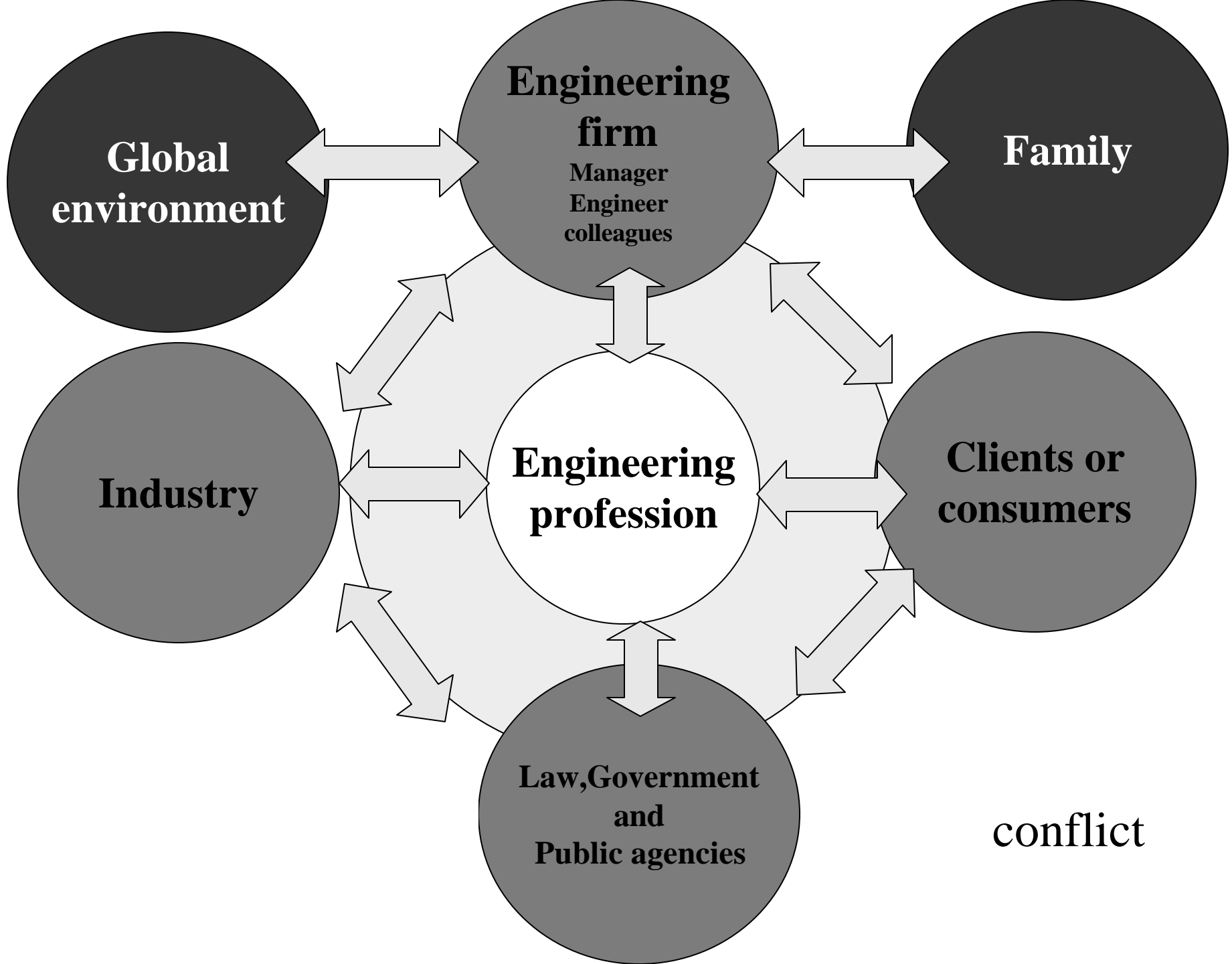
Variety of Moral issues

**The Engineer may
be faced with
contrary opinion
from within**

- **The firm**
- **The client**
- **Other firms within
the industry**
- **Government**
- **professional society**

PERTINENT MORAL QUESTIONS

- **To what extent should an employer's or supervisor's directive to be the authoritative guide to an engineer's conduct?**
- **Is it fair to be expected to put one's job on the line?**
- **What does one do when there are differences of judgment?**
- **Should one always follow the Law to the letter?**
- **Is an engineer to do more than those initially anticipated ?**
- **How far does an engineer's responsibility extend into the realm of anticipating and influencing the social impact of the projects he or she participates in?**



What Do We Mean by Technology?



"I'm a mechanical engineer!"

What Is Technology?

The Oxford Dictionary of the English Language (OED) defines technology as,

- **“a discourse or treatise on an art or arts: the scientific study of the practical or industrial arts.”**

It’s roots come from the Greek language that combines “systematic treatment” with “art or craft.”

Technology (Continued)

technology can be defined as:

“the application of organized knowledge to practical tasks by ordered systems of people and machines.”

Technology (Continued)

- **“Organized knowledge” includes practical experience, invention and scientific theories.**
- **“Practical tasks” include both the production of material goods and the provision of services, i.e. the products.**
- **“Application by ordered systems of people and machines” refer to the process of engineering and the tools engineers (and others) use.**

What Is Science?

- **Protocol of methodologies for the discovery of “fact” through measurement, peer review, public validation and debate, and by replication by others of the same experiments (Scientific Method).**
- **It seems to be the best “fact-finding” technique developed by humans.**

What Do We Mean by Society?

- **How do we draw boundaries?**
- **Who says what the boundaries are?**
- **Are we concerned with local or global impacts? Inter-generational impacts?**
- **Multi-stakeholder versus individual?**
- **Who is the public?**
- **Who represents the public?**

Where Do Ethical Issues Arise?

**Genetically Modified Organisms
and Transgenic Plants in
Agriculture.**

Global Warming.

**High-level Radioactive Waste
Disposal.**

Stem Cell Research and Cloning.

Privacy Issues on the Internet.

WHY STUDY ENGINEERING ETHICS?

Engineering ethics should be studied because it is *important*, both in preventing **grave consequences of faulty** ethical reasoning and in giving meaning to engineers' endeavors, but it is *complex*. It cannot be understood through casual observation.



WHY STUDY ENGINEERING ETHICS?

- The direct aim is;

To increase the ability to deal effectively with moral complexity in engineering.

- It also aim to empowering individuals **to reason more clearly and carefully concerning moral questions, rather than inculcate any particular beliefs.**
- The unifying goal is to increase moral autonomy.



WHY STUDY ENGINEERING ETHICS?

- ***Autonomy*** literally means “*self-determining*” or “*independent*”.
- **Moral autonomy** can be viewed as the skill and habit of thinking rationally about ethical issues on the basis of moral concern

NASA



IMPORTANT

Improving the ability to reflect carefully on moral issues can be accomplished by improving various practical skill that will help to produce autonomous thought about moral issues

These skills include the following:

- 1. Proficiency in recognizing moral problems and issues in engineering**
- 2. Skill in comprehending, clarifying, and assessing critically arguments on opposing sides of**

Moral issues can be accomplished by improving various practical skill

- 3. The ability to form consistent and comprehensive viewpoints based on considerations of relevant facts.**
- 4. Imaginative awareness of alternative responses to the issues and receptivity to creative solutions for practical difficulties.**
- 5. Increased precision in the use of a common ethical language, a skill needed to express and support one's moral views adequately to others.**

**Moral issues can be accomplished by
improving various
practical skill**

- 6- Sensitivity to genuine difficulties.**
- 7- An awakened sense of the importance of integrating one's professional life and personal convictions.**
- 8- Enriched appreciation of both the possibilities of using rational dialogue in solving moral conflicts and the need of tolerance of differences in perspective among morally reasonable people.**

With respect to each of the following topics,

- (a) State what you see as any moral dilemmas (situations where two or more moral reasons conflict);
- (b) Identify any factual inquiries you think might be needed in making a reliable judgment about the case
- (c) Identify any ideas or concepts involved in dealing with the moral issues that it would be useful to clarify
- (d) Present and defend your view about how best to resolve the moral issues

Steps in Confronting Moral Dilemmas

- A- Identify the relevant moral factors and reasons**
- B- Gather all available facts that are pertinent to the moral factors involved**
- C- Rank the moral considerations in order of importance as they apply to the situation.**
- D- Consider alternative courses of action as ways of resolving the dilemma, tracing the full implications of each**
- E- Talk with colleagues/friends, seeking their suggestions and alternative perspectives on the dilemma.**
- F- Arrive at a carefully reasoned judgment by weighing all the relevant moral factors and reasons in light of the facts**

**Subject: McGill strengthens policy on hazing –
addresses misinformation in the media about complaint
Sent on behalf of Morton J. Mendelson, Associate Provost (Academic Programs &
Services)**

Dear members of the McGill community,

The first stage of an internal investigation into a complaint regarding initiation activities at McGill University has been completed and a report submitted. The report makes 10 primary recommendations, including that the university's existing anti-hazing policies be strengthened and that measures be implemented to ensure that team-building at McGill is based on positive activities that do not involve any inappropriate behaviour.

University investigations are on-going into the roles individuals may have played with respect to the complaint. The investigations will follow university procedures to ensure that all sides are heard and that the rights of all involved are respected. Every appropriate action will be taken.

Recommendations include a zero-tolerance policy in the Student Athlete Code of Ethics and educational measures to ensure that all students and staff are fully aware of their responsibilities in fostering an environment of respect for others. Such measures could include requiring varsity athletes to sign individual commitments to live up to the Student Athlete Code of Ethics.

The investigations were launched by the university when a complaint was received from a student about initiation activities at the end of August on one of our athletics teams alleging inappropriate and disrespectful behaviour. We are taking this complaint very seriously. Hazing is inconsistent with the university's values and it will not be tolerated.

In the past few days, there has been a great deal of media speculation generated about the nature of the complaint. It is important to set the record straight on some of the most misleading statements. While the complaint must be treated in a confidential manner, we can confirm that it does not refer to any nudity, alcohol or drugs, as some journalists have reported. In addition, incorrect information about those suspended has also been reported.

There has also been incorrect information in the media about measures taken against team members: in this regard, the coach suspended one player indefinitely and five for one game for breaking team rules.

Sincerely,

Morton J. Mendelson, Associate Provost (Academic Programs & Services)

Moral Responsibility

important

Moral judgments are involved whenever moral responsibility is ascribed to individuals or corporations, but judgments may be different .

They might ascribe;

- 1. *A virtue*** (*good quality, good worth, desirable quality*)
- 2. *Obligations***
- 3. *General moral capacities***
- 4. *Liabilities and accountability for actions***
- 5. *Blameworthiness or praiseworthiness***

There are two other concepts of responsibility that should not be confused with moral responsibility in any of its five preceding.

- **Causal responsibility consists simply in being a cause of some event. People can be causally responsible for an event without necessarily being morally responsible for it.**
- **Legal responsibility should also be distinguished from moral responsibility. An engineer or engineering firm can be held legally responsible for harm that was so unlikely and unforeseeable that little or no moral responsibility is involved.**

WHAT IS A PROFESSION?

important

In general term, a profession is any occupation that provides means to earn a living. In deeper sense, a profession involves:

- 1. *Advanced Expertise.*** Professions require sophisticated skills and theoretical knowledge in exercising judgment
- 2. *Self-Regulation.*** Well established societies of professionals are allowed by the public to play major role in setting standards for admission to the profession, drafting codes of ethics, enforcing standards of conduct, and representing the profession before the public and government.
- 3. *Public Good.*** The occupation serves some important aspect of public good. E.g. engineering toward technological solutions to problems concerning the public's well-being, safety, and health.

ROLES OF CODES OF ETHICS

- **Professional codes of ethics consist primarily of principles of responsibility that delineate how to promote the public good.**
- **The codes provide guidance and support for responsible engineer, establish shared minimum standards, and play additional important roles,**

•Shared Standard

- Great diversity of moral views make it essential that profession establish explicit standards.

•Support

- Codes give positive support to those seeking to act ethically.

•Guidance

- Codes provide a positive stimulus for ethical conduct and helpful guidance concerning main obligations of engineers.

•Inspiration

- Codes also provide *stimulus* (motivation) for ethical conduct.

•Education and Mutual Understanding

- Codes can be used by professional societies and in the classroom to prompt discussion and reflection on moral issues.

•Deterrence and Discipline

- Codes can also serve as the formal basis for investigating unethical conduct.

•Contributing to the Profession's Image

- Codes can present a positive image to the public of an ethically committed profession.

ABUSE OF CODES

When codes are not taken seriously within a profession, it will increase public cynicism about the profession. One of the worst abuse of engineering codes can occur when honest moral effort on the part of individual engineers is restricted by an attempt to preserve the profession's public image and protect the status quo.

LIMITATION OF CODES

- **Codes are no substitute for individual responsibility in grappling with concrete dilemma. Most codes are restricted to general wording and contain substantial areas of vagueness. They may not be able to straightforwardly address all situations.**

An Ethical Corporate Climate

An ethical climate is a working environment conducive to morally responsible conduct. Within corporations, it is produced by a combination of formal organization and policies, informal traditions and practices, and personal attitudes and commitments.

What are the defining features of an ethical corporate climate? There are at least 4 features:

- a) Ethical values must be widely acknowledged and appreciated by managers and employees alike. Responsibilities to all constituencies of the corporation are affirmed – not only to stockholders, but also to customers, employees of the corporation.
- b) The use of ethical language is applied and recognized as a legitimate part of corporate dialogue, e.g. include a statement of ethical responsibilities in job descriptions of all layers of management.
- c) Top management must set a moral tone, in words, in policies, and by personal example.
- d) Procedures for conflict resolution.

Social Responsibility Movement has raised sensitivity within companies concerning product quality and the well being of workers, wider community, and the environment.

“Our customers are not the people buying cars, but the people buying our stock”.

-Attributed to Lee Iacocca

OIQ CODE

- On WebCt link to OIQ web Site is given where you can find the CODE of Engineering defined by OIQ

Reference

- This presentation is put together from, course books , other presentations as well as various websites in the forms of text, photos, audio and video clips.
- All the references will be given in the general reference section on the Web Ct

END