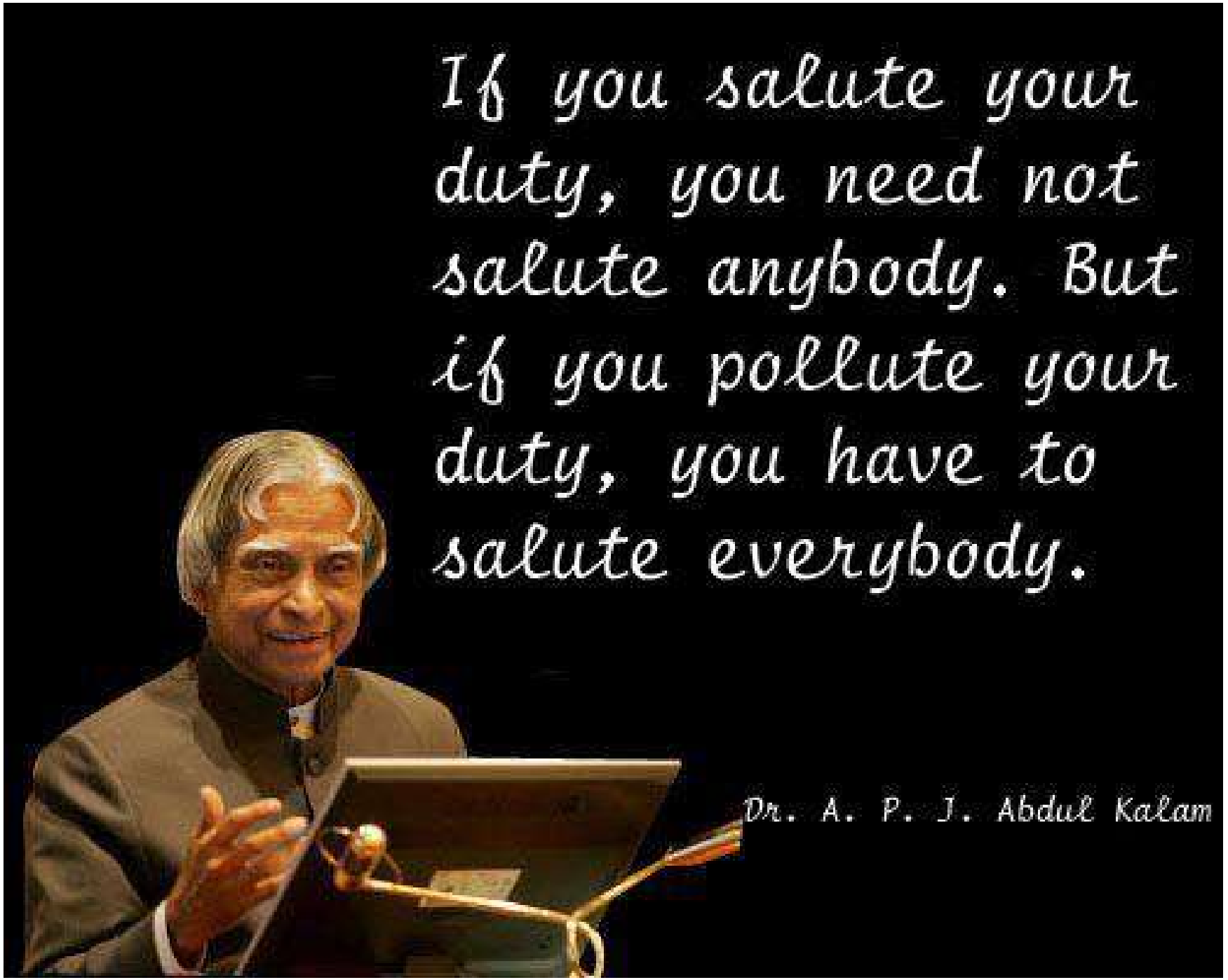
Chapter 2: Ethics and Professionalism


If you salute your duty, you need not salute anybody. But if you pollute your duty, you have to salute everybody.
Dr. A. P. J. Abdul Kalam

Why Study Engineering Ethics?

- Engineer's technical work has far-reaching impacts on society.
- The work of Engineers can affect public health and safety and can influence business practices and even politics.
- Several cases that have received a great deal of media attention led Engineers to gain an increased sense of their professional responsibilities.

Why Study Engineering Ethics?

- Good people already know the right thing to do, and bad people aren't going to do the right thing no matter how much ethical training they receive (Fleddermann, C.B).

- Study of Ethics helps
  - Clarity in thought
  - Reinforcement of ethics
  - People becoming virtuous
  - Adhering to organizational values
  - Reduce and avoid stress
  - Build character, etc.

Engineers

- Engineering is considered to be a "profession" rather than an "occupation" because of several important characteristics.
- These are shared with other recognized learned professions, law, medicine, and theology.
- They all require special knowledge, special privileges, and special responsibilities.
- Professions are based on a large knowledge base requiring extensive training.
- Professional skills are important to the wellbeing of society.
- Professions are self-regulating, in that they control the training and evaluation processes that admit new persons to the field.

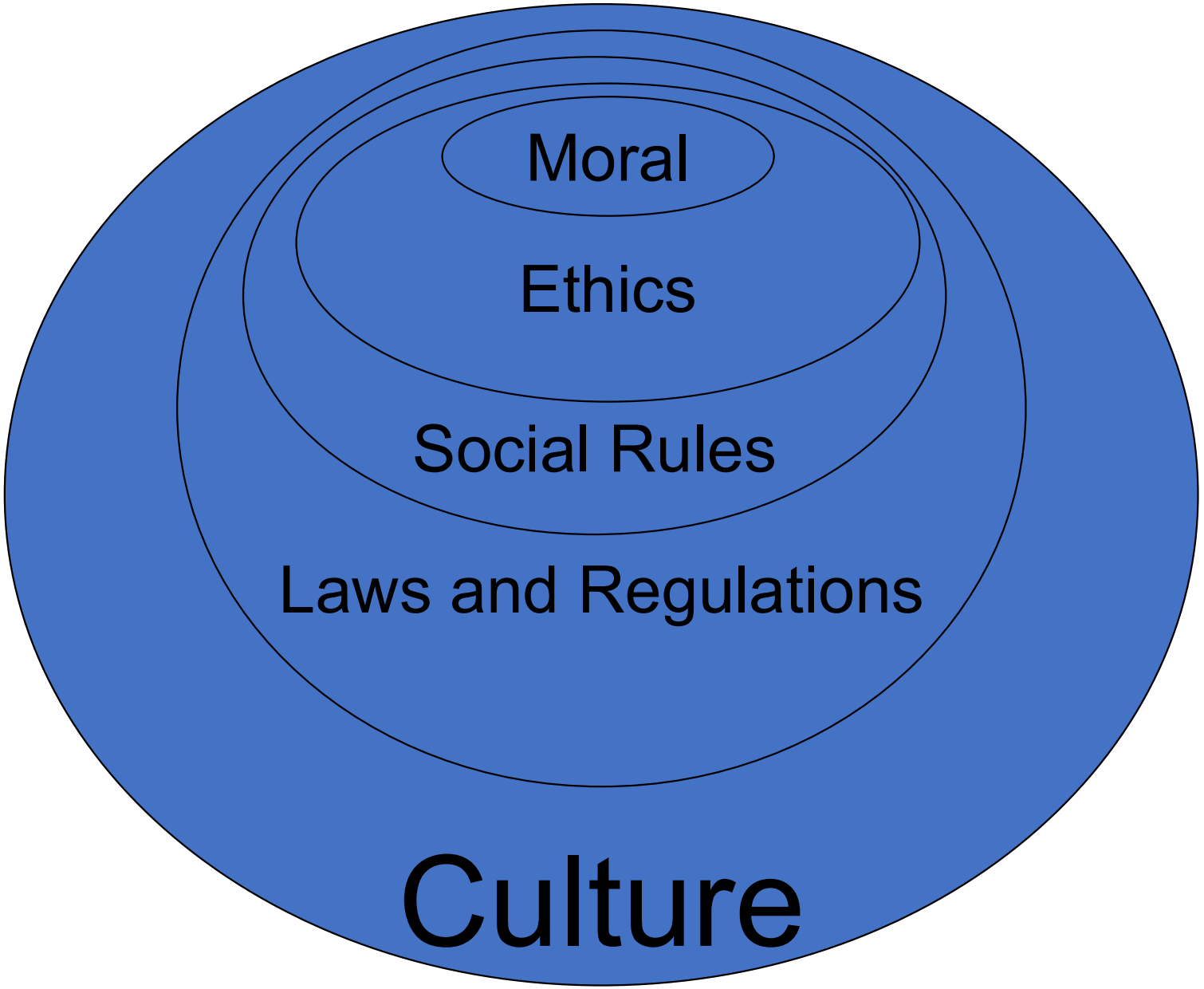
Engineers

- Professionals have autonomy in the workplace.
- They are expected to utilize their independent judgment in carrying out their professional responsibilities.
- Finally, professions are regulated by ethical standards.
- The expertise possessed by engineers is vitally important to the public welfare.
- In order to serve the public effectively, engineers must maintain a high level of technical competence.
- However, a high level of technical expertise without adherence to ethical guidelines is as much a threat to public welfare as is professional incompetence.
- Therefore, engineers must also be guided by ethical principles.

Engineers

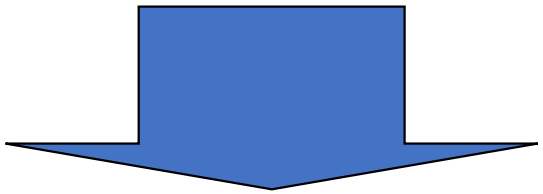
- The ethical principles governing the engineering profession are embodied in codes of ethics.
- Such codes have been adopted by state boards of registration, professional engineering societies, and even by some private industries.
- As part of an engineers responsibility to the public, an engineer is responsible for knowing and abiding by these codes.
- Application of these codes in many situations is not controversial.
- However, there may be situations in which applying the code may raise more difficult issues.
- In particular, there may be cases in which terminology in the codes is not clearly defined, or in conflict.

Structure of Social Order



Moral

- Of or concerned with the judgment of the goodness or badness of human action and character
- Moral applies to personal character and behavior measured against standard goodness



Ask your mind whether it is good or bad

Ethics

- The rules or standards governing the conduct of a person or the members of a profession: eg. Medical ethics
- Stresses conformity with the idealistic standards of right and wrong

To compare what you are doing with your society rules and define whether it is acceptable or not

Morality and Ethics

- "Although Morality and Ethics are often used as synonyms,
- morals are beliefs based on practices or teachings regarding how people conduct themselves in personal relationships and in society,
- while ethics refers to a set or system of principles, or a philosophy or theory behind them.
- When comparing morality with ethics, the word ethics is often used to refer to a philosophical analysis of a particular morality, especially when the formal definition is applied.

Morality and Ethics

- Ethics is the “philosophy of morality” and “morale” is the study of reality, knowledge, language, and psychology.
- It investigates the question, “What's moral philosophy all about?” And many other related question, such as :

1. What does 'good' and 'bad,' 'right' and 'wrong,' or 'justice' refer to?
2. Are any moral judgments true?
3. Are there moral facts?
4. Are any moral beliefs rational or justified?
5. Can we attain moral knowledge?
6. How do we know when a moral judgment is probably true or rationally justified?
7. Does anything have intrinsic value (value just for existing), or are all values based on our personal desires and interests?

Ethics Questions

- **Top Ten Questions You Should Ask Yourself When Making an Ethical Decision**

10. Could the decision become habit forming? If so, don't do it.
9. Is it legal? If it isn't, don't do it.
8. Is it safe? If it isn't, don't do it.
7. Is it the right thing to do? If it isn't, don't do it.
6. Will this stand the test of public scrutiny? If it won't, don't do it.
5. If something terrible happened, could I defend my actions? If you can't, don't do it.

Ethics Questions

4. Is it just, balanced, and fair? If it isn't, don't do it.
3. How will it make me feel about myself? If it's lousy, don't do it.
2. Does this choice lead to the greatest good for the greatest number? If it doesn't, don't do it.

And the #1 question you should ask yourself when making an ethical decision:

1. Would I do this in front of my mother? If you wouldn't, don't do it.

What are Professional Ethics?

- A professional code of ethics has the goal of ensuring that a profession serves the legitimate goals of all its constituencies: self, employer, profession, and public.

- The code protects the members of the profession from some undesired consequences of competition (for example, the pressure to cut corners to save money).

- While leaving the members of the profession free to benefit from the desired consequences of competition (for example, invention and innovation).

What are Professional Ethics?

- Having a code of ethics enables an engineer to resist the pressure to produce substandard work by saying:

"As a professional, I cannot ethically put business concerns ahead of professional ethics."

- It also enables the engineer to similarly resist pressures to allow concerns such as personal desires, greed, ideology, religion, or politics to override professional ethics.

Guidelines

- Guidelines for Facilitating Solutions to Ethical Dilemmas in Professional Practice

Step 1: Determine the facts in the situation.

Obtain all of the unbiased facts possible.

Step 2: Define the Stakeholders - those with a vested interest in the outcome.

Step 3: Assess the motivations of the stakeholders by using effective communication techniques and personality assessment.

Step 4: Formulate alternative solutions based on the most complete information available. Using basic ethical core values as a guide.

Guidelines

Step 5: Evaluate proposed alternatives. Make a short-list of ethical solutions; there may be a potential choice between or among two or more totally ethical solutions.

Step 6: Seek additional assistance, as appropriate – engineering codes of ethics, previous cases, peers, reliance on personal experience, prayer.

Step 7: Select the best course of action - that which satisfies the highest core ethical values.

Step 8: Implement the selected solution. Take action as warranted.

Step 9: Monitor and assess the outcome. Note how to improve the next time.

Core Concepts

Core Concepts in Engineering Ethics

I. The public interest

A. Paramount responsibility to the public health, safety, and welfare, including that of future generations

B. Call attention to threats to the public health, safety, and welfare, and act to eliminate them

C. Work through professional societies to encourage and support engineers who follow these concepts

D. Apply knowledge, skill, and imagination to enhance human welfare and the quality of life for all

E. Work only with those who follow these concepts

Core Concepts

II. Qualities of truth, honesty, and fairness

A. Be honest and impartial

B. Advise employer, client, or public of all consequences of work

C. Maintain confidences; act as faithful agent or trustee

D. Avoid conflicts of interest

E. Give fair and equitable treatment to all others

F. Base decisions and actions on merit, competence, and knowledge, and without bias because of race, religion, sex, age, or national origin

G. Neither pay nor accept bribes, gifts, or gratuities

H. Be objective and truthful in discussions, reports, and actions

Core Concepts

III. Professional performance

A. Competence for work undertaken

B. Strive to improve competence, and assist others in so doing

C. Extend public and professional knowledge of technical projects and their results

D. Accept responsibility for actions and give appropriate credit to others

An Ethical Situation

- You and your roommate are both enrolled in the same class. Your roommate spent the weekend partying and did not do the homework that is due on Monday. You did the homework, and your roommate asks to see it. You are afraid he/she will just copy it and turn it in as his/her own work. What are you ethically obligated to do?

a. Show your roommate the homework.

b. Show the homework but ask your roommate not to copy it.

c. Show the homework and tell the roommate that if the homework is copied, you will tell the professor.

d. Refuse to show the homework.

e. Refuse to show the homework but offer to spend time tutoring the roommate.

Is Engineering a Profession

- Job
  - Any work for hire, regardless of the skill level and responsibility granted
- Occupation
  - Employment through which someone makes a living
- Profession

What is profession

- Work that requires sophisticated skills, the use of judgment and the exercise of discretion. Not routine and is not capable of being mechanized.

- Membership in the profession requires extensive formal education, not simply practical training

- To set standards for admission to the profession, to set standards of conduct for members and to enforce

Requirements to be a Profession

- Carpentry
  - Require special skills
  - But many work can be mechanized
  - A little judgment and discretion required
  - Training in Carpentry not formal but rather is practical

So Carpentry doesn't meet the requirements to be a profession

Engineering as a Profession

- Requires extensive and sophisticated skills
- Discretion is required: intellectual property, business information confidentiality, etc.
- Judgment

Engineering as a Profession

- Mechanization
  - Cannot be mechanized
  - Each new situation that requires new design and modification
  - E.g. CAD is a tool and this should not be mistaken for mechanization.
  - Requires extensive formal education/training
  - Serve for the public good

Engineering and Other Profession

- Engineering
- Medical
- Lawyer

Herbert Hoover's view (31st President of the US)

- The great liability of the engineer compared to men of other professions is that his works are out in the open where all can see them. His acts, step by step, are in hard substance. He cannot bury his mistakes in the grave like doctors. He cannot argue them into thin air or blame the judge like the lawyers. He cannot, like the architects, cover his failures with trees and vines. He cannot, like the politicians, screen his shortcomings by blaming his opponents and hope that the people will forget. The engineer simply cannot deny that he did it. If his works do not work, he is damned.

What is code of ethic?

- Framework for ethical judgment for a professional
- No code can be totally comprehensive and cover all possible ethical situation
- Rather, code serve as a starting point for ethical decision making
- Code also express commitment to ethical conduct shared by members of a profession.
- Code defines the roles and responsibilities of professionals (Harris, Pritchard and Robins, 2000)

Importance of Codes (refer: Martin, M.W.)

- Serving and Protecting the public:
  - Professionals stand in a fiduciary relationship with the public.
  - Code of ethics functions as a commitment by the profession as a whole that engineers will serve the public health, safety and welfare.
- Guidance:
  - Codes provide general guidance on the main obligation of engineers.

Importance of Codes (contd.)

- Inspiration:
  - Code expresses collective commitment to ethics
  - Positive motivation for ethical conduct
- Shared standards:
  - Profession establishes explicit standards
  - Public is assured of a minimum standard of excellence on which it can depend engineers.

Importance of Codes (contd.)

- Support for responsible professionals:
  - Positive support to professionals to act ethically
  - Can serve as legal support for engineers for professional obligations
- Education and mutual understanding:
  - Widely circulated and officially approved by professional societies
  - Codes can be used in the classroom to discuss and reflect moral issue

Importance of Codes (contd.)

- Discipline:
  - Formal basis for investigating unethical conduct
  - Some professional societies do suspend or expel members whose professional conduct has been proven unethical
- Contributing to the professional's image
  - Codes can present a positive image to the public
  - Can help engineers more effectively serve the public where the image is warranted