Engineering Ethics
(Hum 4441)

Lecture 5

Defining Profession

- **Professions** are those occupations that require both advanced study and mastery of a specialized body of knowledge, and undertake to promote, ensure, or safeguard some aspect of others' well-being.

- A calling requiring *specialized knowledge* and often long and *intensive preparation* including instruction in skills and methods as well as in the scientific, historical, or scholarly principles underlying such skills and methods, maintaining by force of *organization* or concerted opinion *high standards of achievement and conduct*, and committing its members to *continued study* and to *a kind of work which has for its prime purpose the rendering of a public service.*

- A Profession is "the pursuit of a learned art in the spirit of public service"

Engineers Council for Professional Development: What one who practices a profession must do:

- They must have a service motive, *sharing their advances in knowledge*, guarding their professional integrity and ideals, and rendering gratuitous public service in addition to that engaged by clients.
- They must recognize their obligations to society and to other practitioners by living up to established and accepted codes of conduct.
- They must assume relations of confidence and accept individual responsibility.
- They should be members of professional groups and *they should carry their part of the responsibility of advancing professional knowledge, ideals, and practice.*

Engineers Council for Professional Development: What one who practices a profession must do:

- **Engineers** shall hold paramount the safety, health, and welfare of the public in performance of their professional duties.
- Engineers shall seek to promote the "common good".

Defining Profession

❑ *Attributes of a profession-*

- Work that requires sophisticated skills, the use of judgment, and the exercise of discretion. So it requires some degree of expertise in making decisions about the problems that someone is solving as a part of being a professional.
- Membership in the profession requires **extensive formal education**, not simply practical training or apprenticeship.
- The public allows special societies or organizations that are controlled by members of the profession to set standards for admission to the profession, to set standards of conduct for members, and to enforce these standards.
- Significant public good results from the practice of the profession.

Essence of Judgment and Discretion

- In a profession, "**judgment**" refers to making significant decisions based on formal training and experience. In general, the decisions will have serious impacts on people's lives and will often have important implications regarding the spending of large amounts of money.

- "**Discretion**" involves - being discrete in the performance of one's duties by keeping information about customers, clients, and patients confidential. This confidentiality is essential for engendering a trusting relationship and is a hallmark of professions.

Essence of Judgment and Discretion

- Another attributes of a profession is the **compensation** received by a professional for his services.

- Although **most professionals** tend to be relatively well-compensated, high pay is not a sufficient condition for professional status. Because pay never determines the degree of judgment that an engineer has to take for a particular decision.

- **Engineers** have to show great degree of discretion regarding the confidentiality and trustworthiness of the information that others may share with them. The intensity and the degree of these two things will determine the importance of the profession; pay is a very secondary related to these things.

Requirements of a Professional

- A set of highly developed skills and deep knowledge of the domain
- Autonomy. Room to vary the say the service is provided.
- Observance of a code of conduct:
  - **Professional code:** set of guidelines provided to the professional by the profession
  - **Personal code:** a set of individual moral guidelines on which professionals operate
  - **Institutional code:** imposed by the institution for which the professional works
  - **Community code:** community standard developed over a period of time based on either the religion or culture of the community.

Pillars of Professionalism

Commitment

- Person making the commitment must do so willingly.
- Person responsible must try to meet the commitment.
- Must be agreement on what is be done, by whom, and when.
- Commitment must be openly and publicly stated.
- Commitment must not be made easily.

Integrity

- State of undivided loyalty to self-belief.
- Honesty, uncompromising self-value, and incorruptible.
- 3 maxims
  - Vision
    - Capacity to anticipate and make a plan that will circumvent obstacles and maximize benefits
  - Love
    - Love of what you do
  - Commitment
    - Bond with work until it is finished

Responsibility

- Deals with roles, tasks, actions and their ensuing consequences.
- Depends on person's value system.
- Various types
  - Provider
  - Service
  - Product
  - Consequential

Accountability

- Obligation to answer for the execution of one's assigned responsibilities.
- 3 key elements
  - A set of outcome measures that reliably and objectively evaluate performance – minimum set of measures.
  - A set of performance standards defined in terms of these outcome measures.
  - Set of incentives for meeting the standards and/or penalties for failing.

Engineering as a Profession

- Certainly, engineering requires extensive and sophisticated skills.
- The essence of engineering design is **judgment**: how to use the available materials, components, and devices to reach a specified objective.
- **Discretion** is required in engineering: Engineers are required to keep their employers' or clients' intellectual property and business information confidential.

Engineering as a Profession

- Besides bachelor's degree in an engineering program, engineers need to work under the supervision of an experienced engineer. Many engineering jobs even require advanced degrees.

- The products that are developed out of these engineering practices are directed towards the public good by providing services like communication system, transportation energy resources, medical treatments diagnostic equipment; these are only to name a few there are large gamut of things.

- So, beyond the three qualities of having an advanced knowledge, the judgment and discretion, engineering requires extensive formal training.

Differences between Engineering and Other Professions

- It should be noted there are significant differences, how engineering is practiced and how other professions like law and medicine are practiced. Like, lawyers are generally self-employed and essentially having an independent business, or in a large group practices with other lawyers, i.e. relatively few are employed when large organizations are as corporations.

- Until recently, then this was also the trend for physicians, although with the accelerating trend towards managed care and HMOs (health maintenance organization) in the past decade, many more physicians work for large corporation rather than in private practice.

Differences between Engineering and Other Professions

- Again, training for engineers is different rather than for physicians or lawyers.
- Engineering profession does not have the social stature that law and medicine have. Form the perspective of the pay structure, though it is changing but are not that highly paid as that of doctors.
- In engineering, a lot of judgment and discretion is required along with the application of their specialized knowledge, So, engineering is a very important profession.
- And also the engineers practice their professions in a very different way from the physicians and lawyers, because physicians and lawyers generally practice independently, but engineers are generally get employed.

Differences between Engineering and Other Professions

- Most engineers are not self-employed, but more often are a small part of larger companies involving many different occupations, including accountants, marketing specialists, and extensive numbers of less skilled manufacturing employees. The exception to this rule is civil engineers, who generally practice in independent consultants, either in their own or an engineer firms similar to many law firms.

- Physicians and lawyers generally practice independently. But if the physicians are part of in a hospital system, then they also have to follow the same thing, like interacting with people from different occupations.

- When employed by large corporations, engineers are rarely in significant managerial positions, except with regard to managing other engineers.

- Although **engineers** are paid well compared to the rest of society, they are generally less well compensated than physicians and lawyers.

Ethical dilemmas

- **Ethical (or moral) dilemmas** are situations in which moral reasons come into conflict, or in which the applications of moral values are unclear, and it is not immediately obvious what should be done. The moral reasons can be rights, duties, goods or obligations, which make the decision making complex.
- An ethical dilemma (ethical paradox or moral dilemma) is a problem in the decision-making process between multiple possible options, neither of which is absolutely acceptable from an ethical perspective.
- Ethical dilemmas are extremely complicated challenges that cannot be easily solved. Therefore, the ability to find the optimal solution in such situations is critical to everyone.

Ethical dilemmas

- One important part of the profession of engineers and engineering practice is to deal with ethical dilemma, because there are many stakeholders involved and moral values are many and varied and can make competing claims. Also the welfare of the public at large is the major focus. So, there could be many ethical dilemmas in the process of engineering practice.

- Code of ethics serve as guide for resolving ethical dilemmas.