**Lesson 1:**

**Ancient:**

* Doctors, lawyer were not organized as professions.
* A professional was a person who professed his/her faith publicly. There is a religious origin to the word “profession”.

**Medieval:**

* Religious orders
* Secular guilds: Exclusive organizations created to preserve rights and of members. Guild associations received authority from kings, city hall or clergy. 2 Types:
  + Merchant guilds: created to protect traders.
  + Craft guilds: group of craftsmen involved in same profession: bakers, cobblers, etc.

Guilds operated in feudal society. Extreme inequality between peasants and landlords. Restricted movement between levels. Guilds located in cities and so separate from rural exploitation. Guilds provided a way of upward movement un status/wealth.

Functions if a Guild

|  |  |
| --- | --- |
| Responsibilities | Services |
| * Restricted poor workmanship * Forbade advertising. * Regulated prices * Exerted monopoly control * Limited number of masters | * Gave some health insurance to members. * Supported dependents of members in case of death. * Made donations to city. * Served as councilors. * Constructed public buildings |

**Modern:**

* Business entrepreneur:
  + Owns a business enterprise.
  + Generates revenue from a stock of human, financial or physical capital.
* White-collar worker
  + Salaried with high wages
  + Administrative or technical work
  + Risk of obsolescence.
* Blue-collar worder
  + Members who sell their manual labour (low-skilled)
  + Earn hourly wages for their labour, limited or no benefits.
  + Risk of technological obsolescence.

**Attributes of Modern Professionals**

Modern professionals share four main attributes. These attributes are:

* Intellectual skills that are acquired through a formalized system of education or training
* The exercise of judgment on matters connected with the practice of work
* Membership in self-governing societies
* Their practice of work contributes directly to advance public welfare.

**The attribute of skill:** A key aspect of the nature of skill that professionals possess is that it is composed of varied and intellectually demanding techniques and practices, thus requires individuals to exert considerable effort in acquiring them. In order to acquire these skills individuals are required to undergo an extensive and formal education usually at the university level. This is so because many of the techniques require a base of scientific, technological or mathematical education that can only be gained from university based education. It is therefore not enough to have an individual serve as an apprentice for practical training.

**The attribute of judgment**: A key factor of this attribute arises from the nature of the work that professionals perform. Since the work is varied and not routine work, it cannot be mechanized. The variation in the requirements of work means that individuals as part of their work have to make choices. These choices while based on the training they receive, have to be made by the understanding of the individual. These choices have direct consequences for the public.

**The attribute of membership in self-governing societies:** Given the specialized training and knowledge that professionals possess, and given the importance of their work for public welfare, it is vitally important that the actions of professionals be governed by other professionals who are capable of evaluating the nature of work they do. Thus modern professionals need to be members of self-governing professional associations. These associations are usually established by the government to govern the actions of professionals to ensure that they practice their profession to further public welfare.

**The attribute of advancing public welfare:** A critical aspect of a professional is the important role they play in advancing public welfare in society. If they practice their profession in an ethical fashion, professionals make a significant contribution to improving the welfare of citizens. Conversely, malpractice or the unethical practice of the profession can have a significantly adverse effect on citizens and society. For example, consider the effect that bad construction in a bridge could have on the general population that relies on the bridge to meet their transportation needs.

In Canada, a professional is usually described as a person who meets these above four attributes. For example, in the Canada Labour code, a professional is defined as in the course of their employment, engaged in the application of specialized knowledge ordinarily acquired by a course of instruction and study resulting in graduation from a university or similar institution, and is eligible to be a member of a professional organization that is authorized by statute to establish the qualifications for membership in the organization. Now, even though professionals may all possess these same attributes, professionals may be categorized into two kinds depending on the type of employment they have. These two kinds of professionals are independent professionals and employed professionals.

* **Independent professionals** as the name indicates work independently and are paid directly by the client for the service provided by the professional. As a result of their independence in employment these professionals have much greater autonomy in their actions. o A good example of this kind of an arrangement might be a consulting engineer or a private doctors or architects.
* An **employed professional**, on the other hand, is usually hired by a company or organization. In return for a monthly salary, the professional provides their services to their employer. It is the employer that usually sets the terms of their work and so the professional has much less autonomy in their actions. An example of this kind of professional would be a nurse working in a hospital, a manufacturing engineer working for a company.

**Professional System**

Since professionals play a vital role in advancing the public welfare of societies, governments around the world have devised mechanisms to control how professionals can be made accountable to society at large for their actions. When a member of the public feels they have been treated unjustly or unfairly by a professional, there needs to be a mechanism that will allow the public to ask a professional to explain their actions. One such means is the professional system. The professional system can be defined as a formalized organization that links professionals with society they operate within. The key objective of the professional system is to ensure that professions are organized to be accountable to society. Professional associations composed of professionals practicing the same profession are a key aspect of the linkage between professionals and society. The professional systems vary considerably around the world depending on local values and norms. But there are some aspects that are common between most professional systems.

* First, most professional systems have formal rules (sometime laws) that govern the actions of individual professionals.
* Second, professionals become members of a profession when they receive a license to practice the profession. The professional license, just like a driver’s license, allows the individual to practice that profession.
* Third, breaking formal rules can result in penalties and depending on the nature of violation even loss of license. It is through the licensing system that the actions of professionals are governed by the government.

The moral aspects of a profession, in turn, direct our attention to values that underpin professional actions. These values can be understood along two dimensions.

* First, professional values are those that guide the nature of professional relations with clients, employers, and fellow professionals. This includes aspects such as values of honesty, integrity, loyalty and responsibility.
* A second aspect of professional values relate to societal leadership that relate to how the professional should relate to the values that underpin a particular society or nation they work within. These relate to such aspects as law, prejudice, and safety.

The power that a profession has in society translates directly into the higher social status that professionals have in society. While an individual professional may not be the most financially successful, their status is usually disproportionate to their means. This higher status is the result of two factors.

* First, society values professionals for the skill and expertise they possess in contributing directly to public welfare.
* Second, society values professionals, because their technical expertise can guide important decisions that society can make collectively. Technical expertise is relevant because of the scientific basis that it brings in solving global problems. In doing so, it provides an alternative to the messiness of decision-making of politicians and political leaders in democracies.

**Lesson 2:**

Ordre des ingénieurs du Québec entre 2020-2021:

* 6.6 mois la durée moyenne d’une enquête
* 3068 inspections (2745 en 2018-2019)
* 1450 ingénieurs sensibilisées à la prévention de la pratique illégale
* 3228 nouveaux permis d’exercice de la profession d’ingénieur octroyés
* 16469 participants aux activités de développement professionnel

Difference between Canada and U.S.

|  |  |  |
| --- | --- | --- |
|  | Canada | US |
| Engineering professional associations | Statutorily self-regulated | Not governed by a comprehensive legislation  Managed by a board constituted with both engineers and non-engineers |
| Practice of the profession | Closed  Need to obtain a professional license.  Illegal to work as an engineer without that license | Can do engineering work without license |

**Professional System in Québec:**

Unique system of governance of professions in north America

* 5 primary groups that administer the System
  + Government of Québec
    - Reports to the National assembly (NA) of Québec on the operation of the professional system
    - The minister presents legislations and resolutions regarding the professional system in the NA
  + Professional Tribunal
    - Judges who are appointed by the court of Québec.
    - Hears appeals on decisions made by disciplinary councils of different orders.
  + Office des professions du Québec
    - Ensures that different orders respect their mission.
    - Advices the government of Québec
  + Québec Interprofessional Council
    - Composed of representatives of all 46 orders.
    - Advisory body that can be consulted in professional matters.
  + 46 Professional Orders
    - Mission of professional orders. Encure protection of the public
    - 2 Types of professional orders
    - Professions with reserved titles & exclusive practice (25)
      * OIQ
    - Professions with reserved titles (21)
      * Order of the professional technologists.
* Reason for the professional System
* Operation of the professional system
* Management of professional orders

C-26 Professional code <http://legisquebec.gouv.qc.ca/en/ShowDoc/cs/C-26>

I-9 Engineers Act <http://legisquebec.gouv.qc.ca/en/ShowDoc/cs/I-9>

**The Professional System in Canada**  One of the factors that make it very unique is **the formal nature of control** over individual professionals. This formal control is created by making professional associations **statutory bodies**. In other words, the work of professional associations is strengthened by the power of a law passed by the respective provincial legislative assembly.

Each professional association derives its power to control individual professionals from this statutory standing. Another aspect of the professional system in Canada is the **closed nature of the profession. In other words, in order to practice most professions in Canada**, an individual has to become a member of the corresponding professional association. A person, who practices the profession without an explicit license, is considered to be practicing the profession illegally and could face legal action. The statutory nature of professional associations in Canada gives it a strong social contract model. A social contract model for professional associations allow it to clearly define how professional associations contribute to improving public good. Such a model places more emphasis on member responsibilities rather than rights. The social contract model needs to be differentiated from the collective bargaining model of associations. **A collective bargaining model is common for labour unions. In a collective bargaining model, associations are groups that try to further private interest rather than public good**. So, such associations **have more rights and demands and fewer responsibilities**. It is important to remember that the professional system in **Canada** follows the **social contract model** and not the collective bargaining model. As a result, professional associations are very different from labour unions.

**History of Professions in Québec**

Since Québec was colonized by France and then subsequently by Britain, the model of professional regulation that developed in Québec bore the influences of professional systems from these countries. Prior to 1970, the professional system in Québec could be characterized by the existence of weak social contracts. In other words, the professional system did little to be explicitly accountable to society. This lack of direct accountability was the product of nonstandardized professional associations, whose mandates were not uniform across the province. Another fact was the acceptance of the “liberal professional”. A liberal professional operated with limited oversight and was independent to conduct their professional practice. A related aspect was the absence of a strong, legally binding code that governed the conduct of individual professionals. A combination of these three factors resulted in the weak social accountability of the professional system.

**Impetus for Change**

By the 1970, for several social and political reasons, there was considerable interest in transforming the professional system in the province. The force for this change came from several directions. A major force for change was the Quiet Revolution or La Revolution Tranquille. The quiet revolution, during the 1960s and 1970s, initiated an immense social and political transformation in Québec society. The objective was to begin a period of massive state intervention into the affairs of society at different levels in order to transform the province from a traditional, conservative society to a progressive and modern one. This period saw the government intervene in reforming sectors of health, education, and social welfare to institute Page 2 of 2 policies that we see around us even today – universal health care, nationalization of electricity production, and a network of public universities. In 1970, as part of the Quiet Revolution, the Castonguay-Nepveu Commission into the province’s health system made some important recommendations regarding Québec’s professional system. The commission recommended reorganizing the professional system to make it appropriate to the province’s new social and economic changes. It also recommended strengthening the professional system’s social contract to ensure the government had a strong supervisory role over the affairs of the system.

**Québec’s Revamped Professional System**

In response to these pushes, in 1973, the National Assembly of Québec initiated the reorganization of a new professional system. The professional system has its legal basis in The Professional Code. The Professional Code is a law of public order that was passed by the National Assembly to reflect its desire to protect the public in matters concerning professional service. In other words, the professional code is a law that lays down in detail how Québec’s professional system should be organized and administered. The Professional Code describes the key components of the professional system. It also specifies the actions of different professional orders that are part of the professional system. Finally, it creates a single law that applies to the entire professional system in the province.

**Lesson 3:**

Professional morality:

* Internal influences (Self-governance)
  + Ethics
    - NOT a personal opinion.
    - Understanding of the philosophical basis for making moral choices.
    - An objective system of making choices.
    - Objectivity of ethical analysis is qualified by circumstances.
  + Values
    - Beliefs that define individuals.
    - Are the basis of world views and guide behaviors.
    - Govern the choices we make
* External influences (governance by an outside authority)
  + Law
    - Established by competent authorities in a society.
    - Govern what is allowed, required or forbidden.
    - Are often based in customs and morals of that society.
  + Morals
    - ARE personal opinion
    - Classification of right or wrong acts
    - Based on cultural, religious or customary mores.
    - Can differ from place, community, region, and country.
    - Example: not looking at someone face is respectful in some countries but disrespectful in others.

Engineering ethics are both internal and external:

* Is the analysis of decision, choices and policies that are morally desirable in engineering practice and research.
* Purpose:
  + Moral Awareness: Awareness of value conflicts that underlie choices.
  + Moral Autonomy: ability to think critically and independently about moral issues.
  + Moral imagination: ability to discern alternative solutions to moral dilemmas.
  + Moral communication: ability to communicate ethical issues in a precise and reasonable manner.

Code of ethics:

* National assembly requires engineers to adopt a code that would establish rules of conduct for professional practice.
* The code of ethics is a mandatory regulation for engineers.
* Engineers have duties towards:
  + Public
  + Clients (employers)
  + Profession

**What Are Ethics?**

We have all encountered the word ethics or ethical in newspapers or on the news, and most of us associate the word with morals. But the word ethics has a very specific meaning. Ethics is a branch of the discipline of philosophy. Philosophy as we all know is a discipline that is concerned with the study of fundamental truths of human existence. The discipline of philosophy has several branches, such as logic, epistemology, metaphysics and ethics. It is the method and theory of this branch of ethics that we rely on in order to think about the choices humans and societies face. How can we define ethics? Ethics is the systematic analysis of behavioral choices that humans or societies face. The key point is that it is a way of analyzing and thinking about choices. Now you may think that ethics is a form of decision analysis that one finds in modern project management. But ethics differs from decision tools, because it helps humans to reflect on questions of right or wrong, of obligations and rights, or whether social and political goals are being met. Now these kinds of decisions tend to be very subjective and dependent on the values or world view of the person making the decision. For example, if someone asks you whether euthanasia or the choice for an individual to die a good thing or not. This is a very difficult question to answer, because it is related to the values you as an individual believe in or on the values society holds dear. You require a means of evaluating a decision that is influenced by values. Ethics provides a means of doing exactly that. Ethics thus is closely related to values. But what are values? Values are beliefs or worldviews that define individuals. It defines them because it governs the choices we make, or the behavior we display.

**Needs for Ethics**

Why do we need something like ethics? A simple answer is that ethics are needed to help humans make choices. Humans are constantly making choices in their lives. Being personal or professional lives, a human cannot run away from making choices in everyday of their life. In fact, a decision to not make choices is also a choice that a person can make. Given that we need to make choices in our lives, it helps to have a mechanism that can guide how we think, reflect and then justify the choice we make. Why do we need a mechanism to think about choices? This is because choices provide alternative courses of action that lead to different consequences and to different personalities that individuals have. For example, if I make a decision that I will not write any quizzes or examinations because I do not believe in evaluating the knowledge I have, that choice can lead to far-reaching consequences for the person making such a choice. The person making such a choice will either not have a current system of education or find an educational environment that supports their choices. Either case can have important consequences for the kind of life the person will live in the future. Now for many everyday decisions like the kind of breakfast you are going to eat or the clothes you are going to wear, you do not need a system to guide your decisions. But if you are facing an important professional decision that can have important consequences on your career, the future of your company and your family life, you need a systematic method to help you think about the choice and then justify your decision. This is where ethics comes in. Ethics provides a means to rationally reason your choices. This is just as true if our society is facing an important question, such as abolishing death penalty. How can we evaluate such a decision? Ethics provides a reliable and impersonal way of thinking about larger societal choices like this. There is another important reason for relying on ethics to make vital decisions because it allows us to avoid two pitfalls that many of us find ourselves in when making a decision. One pitfall is the belief in absolutism that means the irrespective of circumstances, my decision never changes because my morals are absolute and always true. A good example of absolutism is when we make the decision to punish a person because they lied since it is always wrong to tell a lie, irrespective of whether the lie was told for self-interest or to protect someone else. A second pitfall is the belief in relativism that suggests that one can never make a decision that is ok for everyone because all decisions are subjective and so no one guideline is valid for everyone. A good example of relativism is when you suggest that it is ok to hurt animals because in my community we believe it is an accepted thing to do. Ethical thinking and reasoning provides a way of thinking that can avoid these pitfalls.

**Differentiate between Ethics And Morals**

Ethics are similar to morals and often in general conversation they are used interchangeably to mean one and the same thing. However, there are important differences between the two that we need to bear in mind. This is especially true in the professional context where it is important to be an ethical engineer and not a moral engineer. The difference between the two stems from how ethics and morals are derived. Broadly ethics is an understanding of the philosophical basis for making moral choices. The key point is that the individual arrives at an understanding of what is an ethical action through a process of philosophically structured thinking and reflection. This process allows an individual to make choices in an objective fashion. Objective means something that is separate from personal experience. But objectivity of ethical analysis is always qualified by the relevant circumstances that influence the decision. For example, in thinking about whether it is ok to take a life, the decision needs to consider circumstances like self-defense. It is this process of reflection that makes ethical thinking different from personal opinion. Morals, on the other hand, are closely related to personal opinion. Why are morals personal opinion? This is because morals are arrived not through a process of reflection, but through a process of classification of right and wrong acts that are dependent on cultural, religious or customary norms. Thus, if a religion believes that it is wrong to eat meat of any kind, then the irrespective of circumstances if you believe in that religion and you eat meat, your action is considered immoral. Another aspect of about morals is that they vary from place to place, and from region to community. Thus, while in one place it maybe immoral to eat meat, in another place there may not be such a restriction. So comparing ethics and morals, we can say the following things when differentiating between the two. While ethics are the systematic analysis of human behavior, morals are customary norms of behavior. While morals vary with time and geography, ethical frameworks are not specific to cultural or geographic contexts. Similarly, while ethics are products of rational examination, morals are acquired through socialization or being a member of a particular community. As a result, while morals could be considered as personal opinion, ethics are impersonal in nature.

**What Are Engineering Ethics?**

Ethics, as we have found out, provide a means to think through the choices we face in our lives. Now ethics can inform our decisions in both personal and professional life. While personal ethics is concerned with relationships between individuals in daily life, professional ethics are concerned with how the individual interacts with others in a company or organizational setting. These relationships often are quite different from the ones in personal life. Engineering ethics is a form of professional ethics. Engineering ethics can be defined as the analysis of decisions, choices and policies that are morally desirable in engineering practice and research. It is a body of philosophy that indicates how engineers should conduct themselves in their professional capacity. The goal of engineering ethics is to sensitize students to key ethical issues before you confront them in your workplace. By doing so, you will be in a position to respond in a more ethical fashion to professional challenges.

**Why Are Engineering Ethics Important?**

Engineering ethics have become important in modern engineering practice for several reasons. One key reason is because the media has highlighted several cases where unethical practice on the part of engineers resulted in decisions that had disastrous consequences for the welfare of the public. In famous cases like the Ford Pinto car, the space shuttle challenger disaster or in the famous walkway collapse in a hotel, engineers were held responsible for their actions. These cases have enhanced the sense of professional responsibility that engineers should have over their work. Furthermore, offices of major industries now consider ethics an important aspect of professional work. The combination of these factors have created an awareness that engineering ethics provides a means to avoid making poor decisions.

**Main Goals of the Study of Engineering Ethics**

The study of engineering ethics has some main goals. Through these goals, students can expect to learn how to respond to ethical dilemmas in their professional work as engineers. Four goals are important. First, at a basic level, is to develop moral awareness. Moral awareness provides an awareness of value conflicts that underlie choices engineers face in their professional context. Second is to have moral autonomy. Moral autonomy can be defined as the ability to think critically and independently about moral issues in professional work. Third is to have moral imagination. Moral imagination is an essential quality to have and can be defined as the ability to discern alternative solutions to moral dilemmas. Fourth is to develop the ability for moral communication. Moral communication is the ability to communicate ethical issues in a precise and reasonable manner. By accomplishing these four goals, a practicing engineer possesses the ability to think and communicate ethical issues to others in the professional setting.

Moral absolutism suggests that morals are not subjective and therefore do not offer a common guideline for everyone.