JEPPIAAR INSTITUTE OF TECHNOLOGY

"Self-Belief | Self Discipline | Self Respect"

DEPARTMENT
OF
COMPUTER SCIENCE AND ENGINEERING

LECTURE NOTES

GE8076 – PROFESSIONAL ETHICS IN ENGINEERING
(Regulation 2017)

Year/Semester: IV/ 08 CSE
2020 – 2021

Prepared by

Dr. K. Tamilarasi

Associate Professor /CSE

UNIT II ENGINEERING ETHICS

Senses of „Engineering Ethics‟ – Variety of moral issues – Types of inquiry – Moral dilemmas – Moral Autonomy – Kohlberg‟s theory – Gilligan‟s theory – Consensus and Controversy – Models of professional roles - Theories about right action – Self-interest – Customs and Religion – Uses of Ethical Theories

2.1   Introduction

Engineering Ethics is a Study of the moral issues and decisions confronting individuals and organizations engaged in engineering / profession.

It is a study of related questions about the moral ideals, character, policies and relationships of people and corporations involved in technological activity. Moral standards / values and system of morals.

In general it is a study of
- Study of right or wrong.
- Good and evil.
- Obligations & rights.
- Justice.
- Social & Political deals.

Need to study Ethics
• To responsibly confront moral issues raised by technological activity.
• To recognize and resolve moral dilemma.
• To achieve moral autonomy.

Difference Moral and Ethics
Moral:
• Refers only to personal behaviour.
• Refers to any aspect of human action.
• Social conventions about right or wrong conduct.

Ethics :
• Involves defining, analyzing, evaluating and resolving moral problems and developing moral criteria to guide human behaviour.
• Critical reflection on what one does and why one does it.
• Refers only to professional behaviour.

2.2   Senses of 'Engineering Ethics'

The word ethics has different meanings but they are correspondingly related to each other. In connection with that, engineering ethics has also various senses which are related to one another.

Comparison of the senses of Ethics and Engineering Ethics

Ethics	Engineering ethics
1. Ethics is an activity which concerns with investigations and knowing about aims at , finding solutions to moral engineering and justifying moral issues and moral problems in engineering and justifying moral judgments	1. Like the ethics, engineering ethics also making knowing moral values related to moral values, finding accurate solutions to the issues justifying moral judgments of engineering.
2. Ethics is a means of contrasting moral questions from non-moral problems.	2. Engineering Ethics gives a total view of the moral problems and how to solve these issues specifically related to engineering field.
3. Ethics is also used as a means of describing the beliefs, attitudes and habits related to an individual's or group's morality. Eg. : Ethics given in the Bhagavat Gita or the Bible or the Quran.	3. Engineering ethics is also using some currently accepted codes and standards which are to be followed by group of engineers and engineering societies.
4. As per the definition of dictionaries – 'moral principles' is about the actions and principles of conduct of the people. i.e. ethical or unethical.	4. Engineering ethics also concerns with discovering moral principles such as obligation, rights and ideals in engineering and by applying them to take a correct decision.

From these senses of Engineering ethics, one can realize that it is the study of morality.

2.3   Variety of moral issues

The term 'morality' concerns with (a) what ought or ought not to be done in a given situation, (b) what is right or wrong in handling it, (c) what is good or bad about the persons, policies and principles involved in it.

If an action is said to be morally right or a principle is said to be morally good, then they are said to be had some moral reasons in supporting it.

Moral reasons include respecting others and ourselves, respecting the rights of others, keeping promises, avoiding unnecessary problems to others and avoiding cheating and dishonesty, showing gratitude to others and encourage them to work.

So, if an engineering decision is said to be a good one, it has to meet out all the specifications. These specifications must be covered both the technical and the moral specifications such as safety of the product, reliability, easy maintenance and the product should be user-friendly with environment.

There are so many engineering disasters which are greater / heavier than the level of acceptable or tolerable risk.

Therefore, for finding and avoiding such cases such as nuclear plant accident at Chernobyl (Russia), Chemical plant at Bhopal (India) where a big disaster of gas leakage, occurred in 1980, which caused many fatal accidents. In the same way, oil spills from some oil extraction plants (the Exxon Valdez plant), hazardous waste, pollution and other related services, natural disasters like

floods, earth quake and danger from using asbestos and plastics are some more cases for engineering disasters. These fields should be given awareness of engineering ethics.

Hence, it is essential for engineers to get awareness on the above said disasters. They should also know the importance of the system of engineering.

When malfunction of the system is a rapid one, the disaster will be in greater extent and can be noticed immediately. When they ate slow and unobserved, the impact is delayed. So, the engineers should not ignore about the functions of these systems.

These cases also explain and make the engineers to be familiar with the outline of the case in future and also about their related ethical issues.

Approaches to Engineering Ethics:

i. Micro-Ethics: This approach stresses more about some typical and everyday problems which play an important role in the field of engineering and in the profession of an engineer.

ii. Macro-Ethics: This approach deals with all the social problems which are unknown and suddenly burst out on a regional or national level.

So, it is necessary for an engineer to pay attention on both the approaches by having a careful study of how they affect them professionally and personally. The engineers have to tolerate themselves with the everyday problems both from personal and societal point of view.

Where and How do Moral Problems arise in Engineering?

Any product or project has to undergo various stages such as planning, idea, design, and manufacturing which is followed by testing, sales and services. This has to be done by engineers of various branches like Civil, Mechanical, Electrical, Chemical etc. These engineers may be grouped together as a team or they may be separated from each other with an interconnection or co-ordination.

Inspite of the engineers' full attention and care, sometimes the product or project may be unsafe or less useful. This may be due to some reasons 1) The product or project may be designed for early obsolescence or 2) due to under pressure because of running out of time, budgetary etc or 3) by ignorance on the size of the project, or 4) because of the large number of a products sold on the mass market, people may be affected.

Some cases with which different areas covered by engineering ethics:

1. An inspector finds a faulty part in the manufacture of a machine, which prevents the use of that machine for a longer period. But his superior, takes this as a minor mistake and orders that the faulty part to be adjusted so that the delay in the process has to be avoided. But the inspector doesn't want this and so he is threatened by the supervisor.

2. An electronic company applies for a permit to start a Nuclear Power Plant. When the licensing authority comes for visit, they enquire the company authorities on the emergency measures that have been established for safety of the surroundings. The engineers inform them about the alarm system and arrangements have been made in local hospitals for the treatment of their employees and they have no plan for the surrounding people. They also inform that it is the responsibility of the people.

3. A Yarn Dyeing company which dumps its wastes in the nearby river. It causes heavy damage to the people those who are using the river. The plant engineers are aware of this, but they do not change the disposal method because their competitors also doing similarly as it happens to be a cheaper. They also say that it is the responsibility of the local government.

The above given examples clearly explain how the ethical problems arise most often because of wrong judgments and expectations of engineers. These necessitate for establishing some codes of conduct which has to be imposed on engineers' decisions on the basis of ethical view.

2.4   Types of inquiry

Inquiry means an investigation. Like general ethics, Engineering ethics also involves investigations into values, meaning and facts. These inquiries in the field of Engineering ethics are of three types.
1. Normative Inquiries
2. Conceptual Inquiries
3. Factual or Descriptive Inquiries

Normative Inquiries

These inquiries are mostly helpful to identify the values which guide the individuals and groups in taking a decision. These are meant for identifying and justifying some norms and standards of morally desirable nature for guiding individuals as well as groups. In most of the cases, the normative questions are given below:

1. How do the obligations of engineers protect the public safety in given situations?
2. When should an engineer have to alarm their employers on dangerous practices?
3. Where are the laws and organizational procedures that affect engineering practice on moral issues?
4. Where are the moral rights essential for engineers to fulfill their professional obligations? From these questions, it is clear that normative inquiries also have the theoretical goal of justifying moral judgments.

Conceptual Inquiries

These are meant for describing the meaning of concepts, principles, and issues related to Engineering Ethics. These inquiries also explain whether the concepts and ideas are expressed by single word or by phrases. The following are some of the questions of conceptual inquiries:
1. What is the safety and how it is related to risk?
2. What does it mean when codes of ethics say engineers should protect the safety, health and welfare of the public?
3. What is a 'bribe'?
4. What is a 'profession' and 'professional'?

Factual / Descriptive Inquiries

These help to provide facts for understanding and finding solutions to value based issues. The engineer has to conduct factual inquiries by using scientific techniques. These help to provide information regarding the business realities such as engineering practice, history of engineering profession, the effectiveness of professional societies in imposing moral conduct, the procedures to be adopted when assessing risks and psychological profiles of engineers. The information about these facts provide understanding and background conditions which create moral problems. These facts are also helpful in solving moral problems by using alternative ways of solutions.

These types of inquiries are said to be complementary and interrelated. Suppose an engineer wants to tell a wrong thing in an engineering practice to his superiors, he has to undergo all these inquiries and prepare an analysis about the problem on the basis of moral values and issues attached to that wrong thing. Then only he can convince his superior. Otherwise his judgment may be neglected or rejected by his superior.

2.5   Moral dilemmas
Why study engineering ethics?

Engineering ethics is not only teaching moral behaviour in knowing about immoral and amoral in a set of beliefs, but also increasing the ability of engineers and other professionals to face boldly with the moral problems arising from technological advancements, changes and other related activities. This can be possible be imparted among the engineers, only through college courses, seminars, etc. which are involved individual study.

Moral Dilemmas

Dilemmas are certain kind of situations in which a difficult choice has to be made.

Moral dilemmas can also be called moral problems. Moral dilemmas have two or more foldings - moral obligations, duties, rights, goods or ideals come into disagreement with each other. One moral principle can have two or more conflicting applications for a particular given situation.

Moral dilemmas can be occurred in so many ways. For example, suppose one gives a promise to his friend that he will meet him on the evening of a particular day, but unfortunately on the same day his brother has met with an accident and he has to take him to hospital.

The dilemma here consists of a conflict between the duty to keep promise and obligations to his brother. In this situation, to solve his moral problem, he can make a phone call to his friend and make apology for his inability to come. So, from the above it is clear that the duty to keep promise always has two different and conflicting applications.

The moral dilemmas cannot easily be addressed or resolved always. It requires an elaborate searching which sometimes causing extreme suffering and reflection of a situation. The modern engineering practice compels that all the engineers have to face boldly about the moral dilemmas in their careers.

To find a simple and clear solution to the moral problems in the field of engineering, there must be some provision to allocate time to for learning ethics in engineering courses. But at the same time, it should not be ignored in the following three categories of complex and gloomy moral situations:

The Problem of Vagueness

The problem of vagueness is related to individuals. The individuals may not know how to moral considerations or principles in resolving a moral problem at a particular situation. For example, an engineer in a higher position of a company, is responsible and having the sole right to make purchases on his own and behalf of the company.

There may be many suppliers for supplying materials. In this situation, a sales representative from one of the suppliers approaches him with a moderating gift. In this case, the engineer may have some doubts like (i) Whether this is an acceptance of a bribe? (ii) Does it create a conflict of interest? The solution is only with that engineer. He can also discuss with his colleagues about the problem. The colleague may find the

solution on the basis of previous experiences, - it may not be a kind of bribe, but at the same time it should not be encouraged in future because there is the possibility of supplying substandard materials. It is difficult to arrive at the conclusion whether the gift is an innocent amenity or an unacceptable bribe.

The problems of Conflicting reasons

These occur more frequently. In a difficult situation of a moral problem, an individual may clearly know about what moral principle has to be applied to resolve the problem. When it arises, there are two or more principles with clear solutions lead into conflict with one another or one particular moral principle.

Simultaneously there can be of two different directions. In this case, that individual has to choose a better one among them on the basis of the importance and the applicability. For example, an engineer has given a promise to his employer and another one to a colleague.

If it is difficult to fulfill both the promises, he can drop off one promise which is of least importance. If he explains the situations to his colleagues, it can be understood.

The problems of disagreement

The individuals and groups in engineering companies may disagree with resolving moral problems in difficult situations. The disagreement will be normally about how to interpret, apply and balance the moral problems. In this situation they have to use the following steps to resolve the problems.

Steps / Procedures in facing / confronting moral dilemmas

All the above said three problems pave the way for the need of several steps in resolving the moral dilemmas. All the steps are interrelated and they can also be used jointly.

1) Identifying the relevant moral factors and reasons: i.e. Finding solutions for (i) the conflicting responsibilities (ii) the competing rights and (iii) the clashing ideals involved.

2) Collecting and gathering all the available facts which are relevant to the moral factors while resolving.

3) Ranking the moral considerations or principles on the basis of importance as applicable to the situation. But sometimes it is not possible when the objective is to find a way to meet equally urgent responsibilities and to promote equally important ideals.

4) Considering alternative courses of action for resolving the problems and tracing the full implications of each. i.e. conducting factual inquiries.

5) Having talked with the colleagues, friend about the problem getting their suggestions and alternative ideas on resolving that dilemma and

6) Arriving at a careful and reasonable judgment or solution by taking into consideration of all important moral factors and reasons on the basis of the facts or truths.

7) But it seems to be difficult. to conclude, only the study of Engineering Ethics can help in developing the skills and attitudes to follow the above steps in resolving a moral problem among the engineers and other professionals by means of case studies, discussions and debating.

2.6   Moral Autonomy

Meaning and Causes

Autonomy means self-governing or self-determining i.e act independently. Moral autonomy means the right or the wrong conduct which is of independent on ethical issues. It deals with the improvement of an individual's moral thoughts which make high to adopt good habits. Moral autonomy is concerned with the independent attitude of a person related to ethical issues. It helps to improve the self-determination among the individuals.

The need for moral autonomy in the field of engineering ethics

The objectives of engineering ethics are not related to implanting particular moral beliefs on engineers. In other way they help the engineers and other professionalists to strength their professional values such as honesty, respect the colleagues and think for the welfare of the general public. Though the above said values have been already in the minds of the engineers, engineering ethics helps to improve these qualities in a better manner among the engineers, and not inculcating newly. The structural objective of engineering ethics is to be enable the individuals to understand the

moral responsibilities in a clear and careful manner. So, the main aim of studying engineering ethics is to increase the moral autonomy within him.

Moral autonomy is a skill and habit of thinking ethical problems in a rational manner. These ethical issues are to be found out on the basis of moral problems. These general responsiveness of moral values are derived only from the training what we have received as a child with response to the sensitive and right of others and ourselves. Suppose the training is not given in the childhood itself, those children may be ill-treated or neglected by the society. These children in future may grow up with lack of senses on moral issues and they become as sociopaths. They are never morally autonomous. They won't regret for their mistakes and wrong doings.

These moral concerns can be initiated or imparted among the engineers, mainly engineers of various subjects and also by the way of their friends, or by social events occurring around them or by books and movies. So the main aim of all the courses of Applied Ethics is only to improve their abilities in order to face the moral issues critically. This can only be achieved by improving the practical skills which are helping in producing effective independent or self-determination thoughts among the individuals about the moral problems.

Skills for improving moral autonomy

1. The engineers must have the competence for identifying the moral problems and ethical issues related to the field of engineering – they must have the ability to distinguish and relate these moral problems with the problems of law, economics, religions principles etc. They must possess the skills of understanding, clarifying and assessing the arguments which are against the moral issues.

2. They must have the ability to suggest the solutions to moral issues, on the basis of facts. These suggestions must be consistent and must include all the aspects of the problem.

3. They must have the imaginative skill to view the problems from all view points and also be able to suggest a proper alternative solution.

4. They must be able to tolerate while giving moral judgments and decisions which may cause trouble. i.e. they have to understand the difficulties in making moral decisions.

5. They must have adequate knowledge and understanding about the use of ethical language so as to defend or support their views with others.

6. They must have some better knowledge in understanding the importance of suggestions and better solutions while resolving moral problems and also about the importance of tolerance on some critical situations.

7. They must understand the importance of maintaining the moral honesty i.e. the personal convictions and beliefs and individual's professional life must be integrated. They must have this skill of doing so.

Conclusion

From the above decisions on moral autonomy, we can conclude that moral autonomy helps an engineer to increase his moral outlook in an appreciable manner. It also helps him to be morally responsible in his daily activities.

2.7   Kohlberg's theory

Moral Autonomy is based on the psychology of moral development. The first psychological theory was developed by Jean Piaget. On the basis of Piaget's theory, Lawrence kohlberg developed three main levels of moral development which is based on the kinds of reasoning and motivation adopted by individuals with regard to moral questions.

The Pre Conventional Level

It is nothing but self-centered attitude. In this level, right conduct is very essential for an individual which directly benefits him. According to this level, individuals are motivated by their willingness to avoid punishment, or by their desire to satisfy their own needs or by the influence of the power exerted by them. This level is related to the moral development of children and some adults who never want to go beyond a certain limit.

The Conventional Level

The level deals with the respect for conventional rules and authority. As per this level the rules and norms of one's family or group or society has been accepted as the final standard of morality. These conventions are regarded as correct, because they represent with authority. When individuals are under this level, always want to please/satisfy others and also to meet the expectations of the society and not their self interest. Loyalty and close identification with others have been given much importance. No adult tries to go beyond this level.

The Post Conventional Level

This level is said to be attained when an individual recognizes the right and the wrong on the basis of a set of principles which governing rights and the general good which are not based on self-interest or social conventions.

These individuals are called "autonomous", because they only think for themselves and also they do not agree that customs are always correct. They want to live by general principles which are universally applied to all people. They always want to maintain their moral integrity, self-respect and the respect for other autonomous peoples.

Kohlberg's theory of moral development is very much related to the goals of studying ethics at college level. To become morally responsible, an individual must be able and willing to undergo with moral reasoning. Moral responsibility comes out of the foundation of early moral training given by an individual's parents and culture. This early training helps to complete the above said three levels of moral development by an individual.

As per Kohlberg's view only few people would reach the post conventional level which is based on assumption that movement towards autonomous is morally desirable.

2.8   Gilligan's theory

Gilligan's argument

Caorl Gilligan was one of the students of Kohlberg. She criticizes Kohlberg's theory on the basis of approached made by both male and female towards morality. On the basis of her studies and researches, she criticizes Kohlberg's theory which is only based on male bias and his studies are of typically male preoccupation with general rules and rights.

She also suggest that men are always more interested in resolving moral dilemmas by applying some most important moral rules. But women always want to keep up the personal relationship with all those involved in a situation and they always give attention only on the circumstances responsible for that critical situation and not on general moral rules.

She also states that Kohlberg's theory is only on ethics of rules and rights. But her theory is known as ethics of care. i.e. context oriented emphasis required to maintain the personal relationship.

Levels of Moral Development

Gilligan recasts Kohlberg's three levels of moral development on the basis of her own studies of women, as follows:

The Pre-Conventional Level

This is more over the same as Kohlberg's first level i.e. Right conduct is a selfish thing as solely one what is good for oneself.

The Conventional Level

This level differs from Kohlberg's second level. According to her, women don't want to hurt others and want to help others i.e. women always want to give up their interests in order to help the others to fulfill their needs.

The Post Conventional Level

This level is also differed from Kohlberg's level. In this level, individual (particularly women) want to balance between caring about other people and their interests. The main aim here is to balance an individual's needs with those of others on the basis of mutual caring. This can be achieved only through context-oriented reasoning and not by abstract rules.

Heinz's Dilemma

Gilligan's criticism on the Kohlberg's theory can be made very clear with the help of a famous example used by Kohlberg in his questionaries and interviews. This is called Heinz's Dilemma.

This example was about a woman and Heinz, her husband living in Europe. The woman was affected by cancer. The doctors told her to use an expensive drug to save her life.

The pharmacist who also invented that medicine charged ten times the cost of making the drug. Besides his poverty, Heinz took a lot of effort to borrow money, but he could get only half of the amount needed. He approached to the pharmacist and begged him to sell the medicine at a cheaper price or allow him to pay for it later. But the pharmacist refused to do so.

Finally, without any hope, Heinz forcibly entered into the pharmacy and stolen the drug. The question here is "Was the theft morally right or wrong?"

By asking this question among the male, Kohlberg has received two sets of answers: One is based on the conventional level i.e. Heinz did a wrong thing. Another one is based on the post conventional level i.e,Heinz was correct as the life of the wife is more important than the property right of the pharmacist.

But when the same question was asked among the women, they gave (all women) same answers. They replied that Heinz was wrong. They further told that instead of stealing the medicine, Heinz could have tried other alternative solutions. They also told that Heinz should have convinced still the pharmacist to get the medicine.

From the above, Kohlberg concluded that women's decisions are always based on conventional rule and they always have different opinions in applying the general moral rules and principles about the right to live.

On the basis of the Kohlberg's comment on the women, Gilligan came to a different conclusion. She tells that it shows greater sensitivity to people and personal relationships. She concluded that the decision taken by women is context-oriented and not on the basis of general rules ranked inorder of priority.

Now, the question here is, how Gilligan's theory of moral development relates to moral autonomy as a goal of studying ethics at the college level?

Autonomy requires independent reasoning on the basis of moral concern and not separated from other people. As per Gilligan's theory and Kohlberg's theory, moral autonomy should be consistent with context-oriented and also with an awareness of general moral principles and rights.

2.9 Consensus and Controversy

Consensus means 'agreement' and 'controversy' means disagreement. The consensus and the controversies are playing the vital roles while considering the moral autonomy.

When an individual exercises the moral autonomy, he cannot get the same results as others get in applying moral autonomy. Surely there must be some moral differences i.e. the results or verdicts will be of controversy. This kind of disagreements is unavoidable. These disagreements require some tolerances among individuals those who are autonomous, reasonable and responsible.

As per the principle of tolerance, the goal of teaching engineering ethics is not merely producing an agreed conformity on applying moral principles among engineers but also to reveal the ways of promoting tolerances to apply moral autonomy.

Both the goals of engineering ethics and the goals of engineering courses have some similarities. These similarities have to be extended with the help of exercising authority. For example, in the class room, the teachers are having the authority over students and in the work place, the managers are having the authority over engineers.

There are two general points regarding the relationship between autonomy and authority with reference to the class room:

1) Moral autonomy and respect for the authority cannot be differentiated or separated from each other. Moral autonomy is exercised on the basis of moral concern for other people and also recognition of good moral reasons. Authority provides for the framework in which learning can take place. It is based on the acceptance of authority by both the students and the professors. Without this acceptance, the classes cannot be conducted in a smooth way. On the other hand, cheating will be encouraged and the trust between faculty and the students may be reduced to some extent. These kind of deviations are due to the absence of moral views and respect for authority. They must be coincide with each other.

2) Generally a tension may arise among the individuals regarding the need for consensus about authority and need for autonomy. This tension can be reduced by discussing openly regarding a moral issue between students and faculty with the help of the authority.

In short, conflicts will arise between autonomy and authority, when the authority is misused. For example, in small classes, the students are having the authority to express their own views. But when the professor doesn't allow them to do so, he misuses his authority. This will create some moral problems between the students and the faculty.

2.10   Models of Professional Roles (Professions and Professionalism)

A **professional** is a member of a profession. The term also describes the standards of education and training that prepare members of the profession with the particular knowledge and skills necessary to perform the role of that profession. In addition, most professionals are subject to strict codes of conduct enshrining rigorous ethical and moral obligations. Professional standards of practice and ethics for a particular field are typically agreed upon and maintained through widely recognized professional associations.

Definition of a Profession

"A profession is a disciplined group of individuals who adhere to ethical standards and who hold themselves out as, and are accepted by the public as possessing special knowledge and skills in a widely recognised body of learning derived from research, education and training at a high level, and who are prepared to apply this knowledge and exercise these skills in the interest of others.
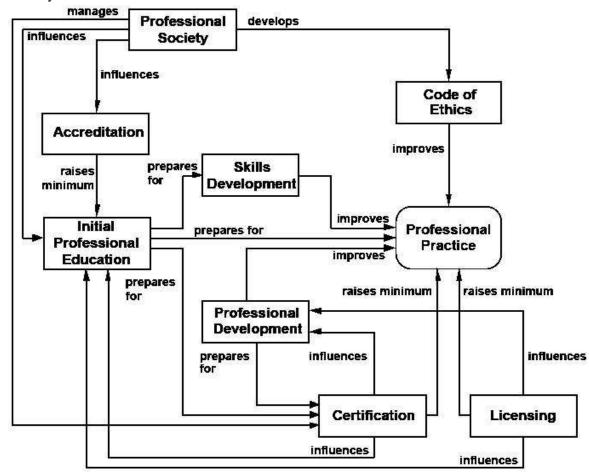
It is inherent in the definition of a profession that a code of ethics governs the activities of each profession. Such codes require behaviour and practice beyond the personal moral obligations of

an individual. They define and demand high standards of behaviour in respect to the services provided to the public and in dealing with professional colleagues. Further, these codes are enforced by the profession and are acknowledged and accepted by the community."

Elements of a profession

According to Krakar profession is based upon:

1. Scientific methods, disciplines, techniques, tools (THE THEORY)
2. Field of work/labour practices, market, reputation (THE PRACTICE)
3. Professional standards
4. Occupational classifications
5. Educational system(s)

6. Communication channels
7. Language (jargon)
8. Professional associations, chambers
9. Professional ethics & legislation
10. History/tradition

Figure 1.3: Examples of Interactions among Components of a Profession

Meaning - to be a member of a profession

The words "profession" and "professional" come from the Latin word *profess*, which means a public declaration with the force of a promise. Professions are groups which declare in a public way that their members promise to act in certain ways and that the group and the society may discipline those who fail to do so. The profession presents itself to society as a social benefit and society accepts the profession, expecting it to serve some important social goal. The profession

usually issues a code of ethics stating the standards by which its members can be judged. The traditional professions are medicine, law, education and clergy.

The marks of a profession are:

1. Competence in a specialized body of knowledge and skill;
2. An acknowledgment of specific duties and responsibilities toward the individuals it serves and toward society;
3. The right to train, admit, discipline and dismiss its members for failure to sustain competence or observe the duties and responsibilities.

Difference between a profession and a business

The line between a business and a profession is not entirely clear, since professionals may engage in business and make a living by it. However, one crucial difference distinguishes them: professionals have a fiduciary duty toward those they serve. This means that professionals have a particularly stringent duty to assure that their decisions and actions serve the welfare of their patients or clients, even at some cost to themselves. Professions have codes of ethics which specify the obligations arising from this fiduciary duty.

Ethical problems often occur when there appears to be a conflict between these obligations or between fiduciary duties and personal goals.

- A high level of professionalism is expected when working with clients.
- One may be highly respected their professionalism.

The professionalism is "the conduct, aims, or qualities that characterize or mark a profession or a professional person"; and a profession is defined as "a calling requiring specialized knowledge and often long and intensive academic preparation."

These definitions imply that professionalism encompasses a number of different attributes, and, together, these attributes identify and define a professional. The attributes are

Specialized Knowledge

First and foremost, professionals are known for their specialized knowledge. They've made a deep personal commitment to develop and improve their skills, and, where appropriate, they have the degrees and certifications that serve as the foundation of this knowledge.

Not all business areas have a stable core of knowledge (and the academic qualifications that go with this); not all areas demand extensive knowledge to practice successfully; and not all professionals have top degrees in their field.

What matters, though, is that these professionals have worked in a serious, thoughtful and sustained way to master the specialized knowledge needed to succeed in their fields; and that they keep this knowledge up-to-date, so that they can continue to deliver the best work possible.

Competency

Professionals get the job done. They're reliable, and they keep their promises. If circumstances arise that prevent them from delivering on their promises, they manage expectations up front, and they do their best to make the situation right. Professionals don't make excuses, but focus on finding solutions.

Honesty and Integrity

Professionals exhibit qualities such as honesty and integrity . They keep their word, and they can be trusted implicitly because of this. They never compromise their values , and will do the right thing, even when it means taking a harder road.

More than this, true professionals are humble – if a project or job falls outside their scope of expertise, they're not afraid to admit this. They immediately ask for help when they need it, and they're willing to learn from others.

Accountability

Professionals hold themselves accountable for their thoughts, words, and actions, especially when they've made a mistake. This personal accountability is closely tied to honesty and integrity, and it's a vital element in professionalism.

Self-Regulation

They also stay professional under pressure.

For instance, imagine a customer service employee who's faced with an irate customer. Instead of getting upset or angry in return, the employee exhibits true professionalism by maintaining a calm, business-like demeanor, and by doing everything that she can to make the situation right.

Genuine professionals show respect for the people around them, no matter what their role or situation. They exhibit a high degree of emotional intelligence(EI) by considering the emotions and needs of others, and they don't let a bad day impact how they interact with colleagues or clients.

Eg. Recognized obligations and values of a professional physician

Professionalism requires that the practitioner strive for excellence in the following areas, which should be modeled by mentors and teachers and become part of the attitudes, behaviors, and skills integral to patient care:

Altruism: A physician is obligated to attend to the best interest of patients, rather than self-interest.

Accountability: Physicians are accountable to their patients, to society on issues of public health, and to their profession.

Excellence: Physicians are obligated to make a commitment to life-long learning.

Duty: A physician should be available and responsive when "on call," accepting a commitment to service within the profession and the community.

Honor and integrity: Physicians should be committed to being fair, truthful and straightforward in their interactions with patients and the profession.

Respect for others: A physician should demonstrate respect for patients and their families, other physicians and team members, medical students, residents and fellows.

These values should provide guidance for promoting professional behavior and for making difficult ethical decisions.

Difference between profession and professionalism

Profession is a noun describing a job type, usually reserved for a recognized specific career, i.e. Doctors, Lawyers, Engineers, Psychologists, Social Workers, Vets, Military Officers. It conveys expertise and/or education.

Professionalism is an adverb. It generally describes the type of behavior that should be the gold standard for a profession. It can, however, also be used to describe expertise in a career that is not commonly considered a "profession." Professionalism is an adverb that can be applied to almost any job. It can be a description of a single momentous act or used as a description of job performance on a review.

Simply, Profession is "a set of persons using knowledge to engage in a set of activities"

Professionalism "the conduct, aims, or qualities that characterize or mark a profession or a professional person"
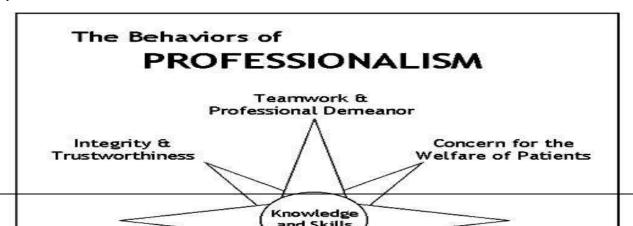

The Behaviors of
PROFESSIONALISM

Teamwork &
Professional Demeanor

Integrity &
Trustworthiness

Concern for the
Welfare of Patients

Knowledge
and Skills

Fig 2.2. Behaviors of Professionalism

2.11   Theories About Right Action

There are four types of theories on ethics, which help to create the fundamental principles of obligation suitable and applicable to professional and personal conduct of a person in his everyday life. These theories are essential for cause of right action and morality. They are:

1."Golden mean" ethics (Aristotle, 384 –322 B.C.). The best solution is achieved through reason and logic and is a compromise or "golden mean" between extremes of excess and deficiency. For example, in the case of the environment, the golden mean between the extremes of neglect and exploitation might be protection. Problem: Variability from one person to another in their powers of reasoning and the difficulty in applying the theory to ethical problems.

2."Rights –based" ethics (John Locke, 1632 –1704). Every person is free and equal and has the right to life, health, liberty and possessions (in effect prohibiting capital punishment, medical charges, jails and income taxes).Problem: One person's right may be in conflict with another's rights.

3."Duty –based" ethics (Immanual Kant, 1724 –1804). Each person has a duty to follow a course of action that would be universally acceptable for everyone to follow without exception. (Thus we would all be honest, kind, generous and peaceful).Problem: Universal application of a rule can be harmful.4."Utilitarian" ethics (John Stuart Mill, 1806 –1873). The best choice is that which produces the maximum benefit for the greatest number of people (which could endanger minority rights).Problem: Qualification of the benefits can be difficult. All these theories can be differentiated on the basis of what they provide for moral concept, good results for all, duties and human rights.

2.12   Self –Interest, Customs And Religion

Moral justifications and principles form a distinct category of value, which are different from other category of values. This can be more clear by relating and contrasting moral values to three other types of values namely self-interest, customs and religion. Focus must be made in each case, how we can reduce morality to these types of value. Self – Interest and Ethical Egoism Self-interest is

nothing but one's personal good. It refers to the goodness of oneself in the long run. Each of the ethical theories recognizes the importance of self-respect.

Utilitarian considers one's own good as well as the good of others. Duty ethicists stresses duties to ourselves and for won well-being. Ethicists of rights emphasize our rights to pursue our own good. Virtue ethicists accent the importance of self –respect. Each of these theories insists that the pursuit of self –interest must be balanced and kept under control by moral responsibilities to other people. Now let us consider a view called "ethical Egoism" which challenges all the ethical theories and it tries to reduce morality to the pursuit of self-interest. It is called „egoism‟, because it says that the main duty of us is to maximize our own good.

According to Thomas Hobbes and Any Rand, moral values are reduced to concern for oneself but always a rational concern which requires consideration of a person's long-term interests. The Supporters of ethical egoism make a differentiation between narrower and wider forms of self-interest. When a person who selfishly preoccupies his own private good and disregard for the good of others, will be off from rewarding friendships and love. Personal well-being generally requires taking some large interest in others. But the rational egoist insists that the only reason for showing an interest in others is for the sake of oneself. Ethical Egoists try to protect their positions by arguing that an ironic importance of everyone rationally pursuing one's self-interest is that everyone get benefited.

The society benefits mostly when (i) individuals pursue their private good and (ii)corporations pursue maximum profits in a competitive free market. The main idea here is that leads to the improvement of economy through which benefiting everyone. Because, both the individual and the corporation know very well that what is good for them and how best to pursue that good. As per ethical egoism, people should always and only pursue their self –interest in a very cautious manner to value the interest rationally on the basis of facts.

Morality essentially needs a willingness on the part of both individuals and corporations to place some restrictions on the pursuit of private self –interests. Accepting these constraints is presupposed in what is meant by moral concern Engineering Ethics also has one task of exhibiting the moral limits on the pursuit of self interest in the Engineering profession. The above said remarks do not constitute a wrong proof for ethical egoism. Morality stresses that we have to give value and we are concerned for the good of other people.

Ethical egoism is not a persuasive or probable theory to state what is morality but it is only a convinced rejection of morality. Customs and Ethical Relativism As we live in a society which is of increasingly diverse nature, it is more important to have tolerance for various customs and outlooks. Hence the concept of ethical pluralism emerges. It views that there may be alternative moral attitudes that are reasonable. But none of the moral perspectives can be accepted completely by all the rational and the morally concerned persons. Ethical pluralism allows the customs which plays an important role in deciding how we should act. Moral values are many, varied and flexible.

So, these moral values allow considerable variation in how different individuals and groups understand and apply them in their day-today activities. In other words, to be precise, reasonable persons always have reasonable disagreement on moral issues, including issues in engineering ethics. Ethical Relativism, an objectionable view, should not be confused with Ethical Pluralism. As per Ethical relativism says that actions are morally right when they are approved by law or custom and they are said to be wrong when they violate laws or customs. Ethical relativism tries to reduce moral values to laws, conventions and customs of societies. What is the necessary for a person to accept ethical relativism? There are so many reasons for accepting ethical relativism –I. The laws and customs seem to be definite, real and clear –cut. They help to reduce the endless disputes about right and wrong. Moreover, laws seem to be an objective way to approach values.

The above argument is somewhat weak. This reason underestimates the extent to which ordinary moral reasons are sufficiently objective to make possible criticism of individual prejudice and bias. Moreover, moral reasons allow objective criticism of the given laws as morally in adequate. For example, the apartheid laws (racial segregation) in south Africa. This law violated the human rights are not given any legal protections to the majority of the blacks, but morally ought to be.

The second reason for accepting ethical relativism is because it believes the values are subjective at the cultural level. They also state that the moral standards are varied from one culture to another. The only kind of objectivity is relative to a given set of laws in a given society. This relativity of morality encourages the virtue of tolerance of difference among societies. The above said argument is also confusing one. It assumes that ethical relativism is implied by descriptive relativism. i.e., values and beliefs differ from culture to culture. There is nothing self-certifying about the laws and beliefs. This can be explained by the following illustration.

Ethical relativism would allow that Hitler and his followers (Nazis) acted correctly when they killed 6 million Jews, for their laws, customs, and beliefs which were based on anti –Semitism (hostile to Jews).So, ethical relativism refers anything but for the tolerant doctrine it pretends to be. But there is nothing tolerant in accepting Nazi beliefs about morality Admitting in tolerant anti-Semitic beliefs is not an act of tolerance. The supporters of ethical relativism, generally say that an action is right "for cultures" when believe it as the right one. i.e., it is right "for them" though not "for us". So, beliefs, however customary or widely shared, are not self-certifying whether we are talking about moral beliefs or scientific beliefs.

The third reason is based on the moral relationalism or moral contextulaism. This states that moral judgments must be made in relation to some factors which varies from case to case. Making simple and absolute rules are impossible in this way. In most of the cases, customs and laws are considered as morally important factors for making judgments. All philosophers accepted this moral relationalism. But contemporary duty and right ethicists like „Kant‟ do not accept. As per their views, respecting people require some sensitiveness to special circumstances. The virtue ethicists stress the role of practical wisdom in identifying the facts which are relevant to assessment of conduct based on virtual manner.

The ethical relativism was accepted by early cultural anthropologists because they had a specified tendency to overstress the scope of moral difference between cultures. Absorbed with unusual practices such as head –hunting, human sacrifices and cannibalism (cannibal is a person who eats human flesh); these persons who shifted their idea quickly form moral views differ greatly to "Morality is a simply a culture as such". But modern anthropologists states that all cultures by virtual show some commitment to promote social co-operation and protect their members against needless death and suffering. Moral differences are based only on the circumstances and facts, not on the difference in moral attitudes. For example, we can consider the practice of human sacrifice in the Aztecs. [Members of a former Indian people who ruled Mexico before the 16thcentury]. This practice seems to be a sign of cruelty an lack of concern for life. But a full examination of their beliefs reveal that they believed their gods are pleased by such sacrifice to ensure the survival of their people and also it was considered an honor for the victims. Refer to the sacrifice or placing chicken and goal to god. Religion and Divine Command Ethics Moral responsibilities and religious belief are intertwined in many positive ways.

First, they are related historically. Our moral views have been shaped by the most known central moral values within the major world religions. For example, the Judeo-Christian tradition has been influential in Western countries like England, USA etc. Islam has been having a great influence

in middle east countries such as Saudi Arabia, Kuwait, Pakistan etc. Confucianism has been influential in China and Buddhism, Hinduism and Taoism have been famous in Asian countries.

Second, most of the people still having beliefs and show some important and inevitable psychological connections between their moral and religious beliefs. Religious views frequentlysupportmoralresponsibilitybyprovidingadditionalmotivation for being moral. Faith in Religions or religious hopes imply trust. This trust gives an inspiration to be moral. The main social functions of religion is motivating right action based on ethical principles. Religion supports many people to follow their beliefs and promote tolerance and moral concern for others. Many of the engineers are motivated by the religious beliefs.

Thirdly, religions form a set of higher moral standards. For example, Christianity suggests for loving neighbors. Many religions include virtue ethics that stresses about particular virtues. For example, the ethics if Christianity focuses in the virtue of hope, faith and love. Buddhism emphasizes a feeling of pity (compassion). Islam pressures "insane" (being religious and pursuit of excellence).Some times, religious set standards below the level of acceptable moral standards. Some religions do not give equal rights to women, as in Islam (particularly in Iran, Iraq). In this situation the conflict is not only between secular morality and religion but also among other religions.

By giving stress on the positive connections between secular morality and religion, we go for defining Divine Command ethics. It views that right action is defined by the commands of God, and without a belief in God there could be no moral values and if an action is said to be wrong, it means that it is forbidden by God.

The Major difficulties in Divine Command ethics are: how to know what God's commands are and whether God exists or not. Judaism, Christianity, Islam and Hinduism are mostly God-centered i.e., they believe in God. But some other religions such as Buddhism, Taoism and Confucianism calls for only faith in a right path from which code of ethics can be derived. For example in Buddhism the right path include delight steps such as right understanding, right intention, right intention, right action, right livelihood, right effort, right mindfulness and right concentration.

Questions on the belief in God were rejected by most of he theologians,[Theology – study of God] based on the question asked by Socrates. Socrates asked why does god make certain commands and not others? Are these commands made on the basis of sudden fancy? The answer is surely no. Because God is supposed to be morally good and He never commands bad acts such as irresponsible killing, rapes, tortures and other immoralities. Suppose a man claimed that God commands him to kill people randomly without making any religious inquiry, we can say that the main is mistaken.

Divine Command ethics has things backwards. A morally divine being commands on the basis of moral reasons which determines the wrongness of actions and rightness of other actions. Moral reasons are presupposed as the foundation for making certain commands. Moral reasons cannot force hard to religious matters. Religious beliefs provides an added inspiration for responding to moral reasons.

2.13   Uses of Ethical Theories

A theory is a kind of explanation, and an ethical theory is an attempt to explain moral values, to provide a single and unifying statement about moral value, one that is true throughout all the differences and conflict in moral values.

Ethical theory is a tool. In order to find out how or when we should use this tool, we need to know something about our goals or purposes in ethics. Tools are always created or invented to fulfill certain instrumental needs.

Some goals of ethical analysis

1. Exploring an issue. Just exploring it, learning about it, what it involves. Just want to satisfy our curiosity and maybe even learn something. That's a value in itself and good enough reason for doing ethics.

2. Getting past conflict. Resolve a dispute, get yourself and others "unstuck," by looking to multiply options, reframe problems, discover common ground, etc.

3. Making a case. Take a side in a moral debate and defend it. Make an argument. Persuade others of the value and correctness of your position, and to do so eloquently, showing awareness of the concerns of others and that these are not serious drawbacks.

4. Deciding for yourself. To resolve problems for which you feel a personal urgency, a need to have an answer, to take a stand. To settle an issue for yourself, at least for now. You want this to be careful, creative, and give due consideration to all relevant values, inferences, and options.

Simply Ethical theories have so many uses. Out of them, the following three are the most important uses:

1. Understanding moral dilemmas.
2. Justifying professional obligations and ideas and
3. Relating ordinary and professional morality