

Professional Ethics and Global Issues

Semester V / VI

HUM 3152

Essentials of Management

Professional Ethics

- Senses of Engineering Ethics
- Variety of moral issues
- Types of inquiry
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- Moral Autonomy
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Senses of Engineering Ethics

- Engineering ethics is defined by the codes and standards of conduct endorsed by engineering (professional) societies with respect to the particular set of beliefs, attitudes and habits displayed by the individual or group.
- Engineering Ethics is the activity and discipline aimed at
 - Understanding the moral values that ought to guide engineering profession or practice
 - Resolving moral issues in engineering
 - Justifying the moral judgments in engineering (deals with set of moral problems and issues connected with engineering)

Senses of Engineering Ethics

- There are two different senses (meanings) of engineering ethics, namely the **Normative** and the **Descriptive** senses.
- The **normative** sense include:
 - Knowing moral values, finding accurate solutions to moral problems and justifying moral judgments in engineering practices
 - Study of decisions, policies, and values that are morally desirable in the engineering practice and research
 - Using codes of ethics and standards and applying them in their transactions by engineers.
- The **descriptive** sense refers to what specific individual or group of engineers believe and act, without justifying their beliefs or actions.

Variety of moral issues

- The reasons how moral issues (problems) arise in a profession or why people behave unethically may be classified into three categories:
 1. Resource Crunch
 2. Opportunity
 3. Attitude

Variety of moral issues

1)Resource Crunch:

- Due to pressure, through time limits, availability of money or budgetary constraints, and technology decay or obsolescence.
- Pressure from the government to complete the project in time (e.g., before the elections), reduction in the budget because of sudden war or natural calamity (e.g., Tsunami) and obsolescence due to technological innovation by the competitor lead to manipulation and unsafe and unethical execution of projects.

Variety of moral issues

2) Opportunity:

- Double standards or behavior of the employers towards the employees and public. The unethical behaviors of World Com (in USA), Enron (in USA as well as India) executives in 2002 resulted in bankruptcy for those companies.
- Management projecting their own interests more than that of their employees. Some organizations over-emphasize short-term gains and results at the expense of themselves and others.
- Emphasis on results and gains at the expense of the employees.
- Management by objectives, without focus on empowerment and improvement of the infrastructure. This is best encountered by developing policies that allow 'conscience keepers' and whistle blowers and appointing ombudsman, who can work confidentially with people to solve the unethical problems internally.

Variety of moral issues

3) Attitude:

- Poor attitude of the employees set in due to
 - (a) Low morale of the employees because of dissatisfaction and downsizing
 - (b) Absence of grievance redressal mechanism
 - (c) Lack of promotion or career development policies or denied promotions
 - (d) Lack of transparency
 - (e) Absence of recognition and reward system
 - (f) Poor working environments

Variety of moral issues

- Some of the directions to promote positive attitudes among the employees are:
 - Giving ethics training for all
 - Recognizing ethical conduct in work place
 - Including ethics in performance appraisal
 - Encouraging open discussion on ethical issues
- To get firm and positive effect, ethical standards must be set and adopted by the senior management with input from all personnel.

Types of inquiry

- The three types of inquiry in solving ethical problems are:
 1. Normative Inquiry
 2. Conceptual Inquiry
 3. Factual or Descriptive Inquiry

Types of inquiry

1) Normative Inquiry:

- It seeks to identify and justify the morally-desirable norms or standards that should guide individuals and groups.
- It also has the theoretical goal of justifying particular moral judgments.
- Normative questions are about what ought to be and what is good, based on moral values. For example,
 1. How far does the obligation of engineers to protect public safety extend in any given situation?
 2. When, if ever, should engineers be expected to blow whistle on dangerous practices of their employers?
 3. Whose values ought to be primary in making judgment about acceptable risks in design for a public transport system or a nuclear plant? Is it of management, senior engineers, government, voters or all of them?

Types of inquiry

2) Conceptual Enquiry:

- It is directed to clarify the meaning of concepts or ideas or principles that are expressed by words or by questions and statements. For example,
 - (a) What is meant by safety?
 - (b) How is it related to risk?
 - (c) What is a bribe?
 - (d) What is a profession?
- When moral concepts are discussed, normative and conceptual issues are closely interconnected.

Types of inquiry

3) Factual or descriptive Inquiry:

- It is aimed to obtain facts needed for understanding and resolving value issues. Researchers conduct factual inquiries using mathematical or statistical techniques.
- The inquiry provide important information on business realities, engineering practice, and the effectiveness of professional societies in fostering moral conduct, the procedures used in risk assessment, and psychological profiles of engineers.
- The facts provide not only the reasons for moral problems but also enable us to develop alternative ways of resolving moral problems. For example,
 1. How were the benefits assessed?
 2. What are procedures followed in risk assessment?
 3. What are short-term and long-term effects of drinking water being polluted?

Moral dilemmas

- Dilemmas are situations in which moral reasons come into conflict, or in which the application of moral values are problems, and one is not clear of the immediate choice or solution of the problems.
- The three complex situations leading to moral dilemmas are:
 1. The problem of vagueness: One is unable to distinguish between good and bad (right or wrong) principle. Good means an action that is obligatory. For example, code of ethics specifies that one should obey the laws and follow standards. Refuse bribe or accept the gift, and maintain confidentiality
 2. The problem of conflicting reasons: One is unable to choose between two good moral solutions. One has to fix priority, through knowledge or value system.
 3. The problem of disagreement: There may be two or more solutions and none of them mandatory. These solutions may be better or worse in some respects but not in all aspects. One has to interpret, apply different morally reasons, and analyze and rank the decisions. Select the best suitable, under the existing and the most probable conditions.

Moral Autonomy

- Moral autonomy is defined as, decisions and actions exercised on the basis of moral concern for other people and recognition of good moral reasons.
- Alternatively, moral autonomy means 'self determinant or independent'. The autonomous people hold moral beliefs and attitudes based on their critical reflection rather than on passive adoption of the conventions of the society or profession.
- Autonomy which is the independence in making decisions and actions, is different from authority. Authority provides freedom for action, specified within limits, depending on the situation.
- Moral autonomy and respect for authority can coexist. They are not against each other.
- If the authority of the engineer and the moral autonomy of the operator are in conflict, a consensus is obtained by the two, upon discussion and mutual understanding their limits.

Moral Autonomy

The engineering skills related to moral autonomy are listed as follows:

- Proficiency in recognizing moral problems in engineering and ability to distinguish as well as relate them to problems in law, economics, and religion
- Skill in comprehending, clarifying, and critically-assessing arguments on different aspects of moral issues
- Ability to form consistent and comprehensive view points based on facts
- Awareness of alternate responses to the issues and creative solutions for practical difficulties
- Sensitivity to genuine difficulties and subtleties, including willingness to undergo and tolerate some uncertainty while making decisions
- Using rational dialogue in resolving moral conflicts and developing tolerance of different perspectives among morally reasonable people
- Maintaining moral integrity

Kohlberg's theory

- Moral development in human being occurs over age and experience.
- Kohlberg suggested there are three levels of moral development based on the type of reasoning and motivation of the individuals in response to moral questions.
 1. Pre-conventional level
 2. Conventional level
 3. Post-conventional level

Kohlberg's theory

1) Pre-conventional level:

- At this level, right conduct for an individual is regarded as whatever directly benefits oneself.
- Individuals are motivated by obedience or the desire to avoid punishment or to satisfy their own needs or by the influence by power on them.
- All young children exhibit this tendency.

Kohlberg's theory

2) Conventional level:

- At the conventional level, people respect the law and authority.
- Rules and norms of one's family or group or society is accepted, as the standard of morality.
- Individuals in this level want to please or satisfy, and get approval by others and to meet the expectations of the society, rather than their self interest (Eg: good boy, good girl).
- Loyalty is regarded as most important.
- Many adults do not go beyond this level.

Kohlberg's theory

3) Post-conventional level:

- At the post-conventional level, people are called autonomous.
- They think originally and want to live by universally good principles and welfare of others. They have no self-interest.
- They live by principled conscience. They follow the golden rule, 'Do unto others as you would have them do unto you'.
- They maintain moral integrity, self-respect and respect for others. Kohlberg believed that individuals could only progress through these stages, one stage at a time.
- He believed that most of the moral development occurs through social interactions.

Gilligan's theory

- Carol Gilligan found that Kohlberg's theory had a strong male bias. According to Gilligan's studies, men had a tendency to solve problems by applying abstract moral principles.
- Men were found to resolve moral dilemma by choosing the most important moral rule, overriding other rules.
- In contrast, women gave importance to preserve personal relationships with all the people involved.
- The context oriented emphasis on maintaining personal relationships was called the ethics of care, in contrast with the ethics of rules and rights adopted by men.
- Gilligan revised the three levels of moral development of Kohlberg, as stages of growth towards ethics of caring.

Gilligan's theory

- The pre-conventional level, which is same as that of Kohlberg's first one, right conduct, is viewed in a selfish manner solely as what is good for oneself.
- The second level called conventional level, the importance is on not hurting others, and willing to sacrifice one's own interest and help others.
- This is the characteristic feature of women. At the post-conventional level, a reasoned balance is found between caring about others and pursuing the self-interest.
- The balance one's own need and the needs of others, is aimed while maintaining relationship based on mutual caring.
- This is achieved by context-oriented reasoning, rather than by hierarchy of rules.

Kohlberg's theory & Gilligan's theory

The theories of moral development by Kohlberg and Gilligan differ in the following respects:

| <i>Kohlberg's Theory</i> | <i>Carol Gilligan's Theory</i> |
|---|---|
| <i>A. Basic Aspects</i> | |
| <ol style="list-style-type: none"> 1. Is based on the study on men. 2. Men give importance to moral rule. 3. Ethics of rules and rights. | <ol style="list-style-type: none"> 1. Is based on the study on men and women 2. Women always want to keep up the personal relationships with all the persons involved in the situations. 3. Women give attention to circumstances leading to critical situations rather than rules: (context-oriented and ethics of care) |
| <i>B. Characteristic Features</i> | |
| <ol style="list-style-type: none"> 1. Justice 2. Factual 3. Right or wrong 4. Logic only 5. Logic and rule-based 6. Less of caring 7. Matter of fact (practical) 8. Present focus 9. Strict rules 10. Independence 11. Rigid 12. Taking a commanding role 13. Transactional approach | <ol style="list-style-type: none"> 1. Reason 2. Emotional 3. Impact on relationships 4. Compassion too 5. Caring and concern 6. More of caring 7. Abstract 8. Future focus 9. Making exceptions 10. Dependence 11. Human-oriented 12. Shying away from decision-making 13. Transformational approach |

Consensus and Controversy

The moral judgment may lead to conflicts if they are not delivered properly without hurting the feelings of the persons involved. There are two stages after the judgment. The stages are described below:

Consensus

This is that state where people come into agreement with the judgment given by getting convinced with the moral reasons. This will leave the persons with a feel that justice has been done, the verdict may favor any party.

Controversy

This is that state where the persons involved in an issue are not satisfied by the verdict and might feel that it was decided on partial interests. This will leave the people with a sense of dissatisfaction that justice was not done, which might lead to another conflict.

Models of professional roles

There are several role models to whom the engineers are attracted. These models provoke their thinking, attitudes and actions.

1. Savior : The engineer as a savior, save the society from poverty, illiteracy, wastage, inefficiency, ill health, human (labor) dignity and lead it to prosperity, through technological development and social planning. For example, R.L. Stevenson.
2. Guardian: He guards the interests of the poor and general public. As one who is conversant with technology development, is given the authority befitting his expertise to determine what is best suited to the society. For example, Lawrence of Arabia (an engineer).
3. Bureaucratic Servant: A person who is loyal and can solve problems when they occur using his own skills, is a Bureaucratic servant. An engineer who can be a loyal person to the organization and also the one who solves the technical problems the company encounters, using his special skills can be termed as a Bureaucratic servant. The company relies on his decision-making capability for the future growth.

Models of professional roles

- 4. Social Servant: It is one who exhibits social responsibility. The engineer translates the interest and aspirations of the society into a reality, remembering that his true master is the society at large. For example, Sir M. Viswesvarayya.
- 4. Social Enabler and Catalyst : One who changes the society through technology. The engineer must assist the management and the society to understand their needs and make informed decisions on the desirable technological development and minimize the negative effects of technology on people and their living environment. Thus, he shines as a social enabler and a catalyst for further growth. For example, Sri. Sundarlal Bahuguna.
- 4. Game Player: A person who plays a game according to the rules given is a Game player in general. An engineer who acts as neither a servant nor a master, but provides his services and plans his works according to the economic game rules in a given time, can be termed as a Game player. He is smart enough to handle the economic conditions of the company.

Theories about right action

Several ethical theories have been developed over different times, each of them stressing certain ethical principles or features. Each stresses a view and many a times, we find that these theories converge and reinforce the ethics, in deciding upon the actions and justifying the results.

1. Utilitarian Theory
2. Duty Ethics theory
3. Rights Theory
4. The Virtue Theory
5. Self- realization Ethics
6. Justice (Fairness) Theory

Theories about right action

1) Utilitarian Theory:

- The standard of right conduct is maximization of good consequences. Good consequences mean either 'utilities' or the 'balance of good over evil'.
- This approach weighs the costs and benefits. Right actions are the ones that produce the greatest satisfaction of the preferences of the affected persons. In analyzing an issue in this approach, we have to:
 - (a) Identify the various courses of action available to us.
 - (b) Ask who will be affected by each action and what benefits or harms will be derived from each.
 - (c) Choose the action that will produce the greatest benefits and the least harm. The ethical action is the one that provides the greatest good for the greatest number.

Theories about right action

2) Duty Ethics theory:

- The duty ethics theory, proposed by Immanuel Kant (1724-1804) states, that actions are consequences of performance of one's duties such as, 'being honest', 'not cause suffering of others', 'being fair to others including the meek and weak', 'being grateful', 'keeping promises' etc.
- The stress is on the universal principle of respect for autonomy i.e., respect and rationality of persons.
- As per Kant we have duties to ourselves, as we are rational and autonomous beings. We have a duty not to commit suicide; a duty to develop our talents and a duty to avoid harmful drugs.

Theories about right action

3) Rights Theory:

- Rights are entitlement to act or to have another individual act in a certain way. Minimally, rights serve as a protective barrier, shielding individuals from unjustified infringement of their moral agency by others. For every right, we have a corresponding duty of noninterference.
- The RIGHTS approach to ethics has its roots in the 18th century philosopher Immanuel Kant, who focused on the individual's right to choose for oneself. People are not objects to be manipulated; it is a violation of human dignity to use people in ways they do not freely choose.

Theories about right action

4) The Virtue Theory:

This emphasizes on the character rather than the rights or duties. The character is the pattern of virtues (morally-desirable features). The theory advocated by Aristotle, stressed on the tendency to act at proper balance between extremes of conduct, emotion, desire, attitudes to find the golden mean between the extremes of 'excess' or 'deficiency'.

| <i>Virtue</i> | <i>Excess</i> | <i>Golden mean</i> | <i>Deficient</i> |
|--------------------------------------|--|--|-----------------------------|
| Truthfulness (governs communication) | Revealing all in violation of tact and confidentiality | Necessary and sufficient, to proper person | Secretive |
| Courage (face danger, risk) | Roguishness, bold | Firm and humble | Cowardice |
| Generosity (giving) | Wasting resources | Give, in appropriate measure | Miserly |
| Friendliness (governs relationship) | Without anger, effusive | Within decent limits | Bad-tempered |
| Green environment | Exploitation | Protection | Neglect |
| Work and earn | Tiresome work (strained) | Balance of work and leisure | Lazy (no work) and more pay |

Theories about right action

5) Self- realization Ethics:

- Right action consists in seeking self-fulfillment.
- In one version of this theory, the self to be realized is defined by caring relationships with other individuals and society.
- In another version called *ethical egoism*, the right action consists in always promoting what is good for oneself.
- No caring and society relationships are assumed.

Theories about right action

6) Justice (Fairness) Theory:

- The justice or fairness approach to ethics has its roots in the teachings of the ancient Greek philosopher Aristotle, who said that “equals should be treated equally and unequal unequally.”
- The basic moral question in this approach is: How fair is an action? Does it treat everyone in the same way, or does it show favoritism and discrimination?
- Issues create controversies simply because we do not bother to check the fairness or justice.
- Favoritism gives benefits to some people without a justifiable reason for singling them out; discrimination imposes burdens on people who are no different from those on whom burdens are not imposed.

Self-interest

- Self-interest is being good and acceptable to oneself. It is pursuing what is good for oneself.
- It is very ethical to possess self-interest.
- As per utilitarian theory, this interest should provide for the respect of others also.
- Duty ethics recognizes this aspect as duties to ourselves.
- Then only one can help others. Right ethicist stresses our rights to pursue our own good.
- Virtue ethics also accepts the importance of self-respect as link to social practices.

Customs and Religion

- Religions have played major roles in shaping moral views and moral values, over geographical regions. Christianity has influenced the Western countries, Islam in the Middle-East countries, Buddhism and Hinduism in Asia, and Confucianism in China.
- Further, there is a strong psychological link between the moral and religious beliefs of people following various religions and faiths. Religions support moral responsibility.
- They have set high moral standards. Faith in the religions provides trust and this trust inspires people to be moral.

Uses of Ethical Theories

The ethical theories are useful in many respects.

1. In understanding moral dilemma. They provide clarity, consistency, systematic and comprehensive understanding.
2. Ethical theories aid in identifying the moral considerations or reasons that constitute a dilemma.
3. Ethical theories provide a more precise sense of what kinds of information are relevant to solving moral dilemmas.
4. It provides helpful practical guidance in moral issues towards the solution. Sometimes it offer ways to rank the relevant moral considerations in order of importance and thereby provide at least rough guidance in solving moral problems.
5. Justifying professional obligations and decisions.
6. By providing frameworks for development of moral arguments ,the theories strengthen our ability to reach balanced and insightful judgments.

Global Issues

- Multinational Corporations
- Environmental Ethics
- Computer Ethics
- Weapons Development
- Engineers as Managers
- Consulting Engineers
- Engineers as Expert Witnesses and Advisors
- Moral Leadership
- Code of Conduct
- Corporate Social Responsibility

Multinational Corporations

- Organizations, who have established business in more than one country, are called Multinational Corporation. The headquarters are in the home country and the business is extended in many host countries.
- The Western organizations doing business in the less-economically developed (developing, and overpopulated) countries gain the advantage of inexpensive labor, availability of natural resources, conducive-tax atmosphere, and virgin market for the products.
- At the same time, the developing countries are also benefited by fresh job opportunities, jobs with higher remuneration and challenges, transfer of technology, and several social benefits by the wealth developed.
- But this happens invariably with some social and cultural disturbance. Loss of jobs for the home country, and loss or exploitation of natural resources, political instability for the host countries are some of the threats of globalization.

Multinational Corporations

The economic and environmental conditions of the home and host countries may vary. But the multinational institutions have to adopt appropriate measures not to disturb or dislocate the social and living conditions and cultures of the home countries. A few principles are enlisted here:

- MNC should respect the basic human rights of the people of the host countries.
- The activities of the MNC should give economic and transfer technical benefits, and implement welfare measures of the workers of the host countries.
- The business practices of the multinational organizations should improve and promote morally justified institutions in the host countries.
- The multinationals must respect the laws and political set up, besides cultures and promote the cultures of the host countries.
- The multinational organizations should provide a fair remuneration to the employees of the host countries. If the remuneration is high as that of home country, this may create tensions and if it is too low it will lead to exploitation.
- Multinational institutions should provide necessary safety for the workers when they are engaged in hazardous activities and 'informed consent' should be obtained from them. Adequate compensation should be paid to them for the additional risks undertaken.

Environmental Ethics

Environmental ethics is the study of

- moral issues concerning the environment, and
- moral perspectives, beliefs, or attitudes concerning those issues.

Engineers in the past are known for their negligence of environment, in their activities. It has become important now that engineers design eco- friendly tools, machines, sustainable products, processes, and projects. These are essential now to

- ensure protection (safety) of environment
- prevent the degradation of environment, and
- slow down the exploitation of the natural resources, so that the future generation can survive.

Environmental Ethics

Engineers as experimenters have certain duties towards environmental ethics, namely:

1. Environmental impact assessment: One major but sure and unintended effect of technology is wastage and the resulting pollution of land, water, air and even space. Study how the industry and technology affects the environment.
2. Establish standards: Study and to fix the tolerable and actual pollution levels.
3. Counter measures: Study what the protective or eliminating measures are available for immediate implementation
4. Environmental awareness: Study on how to educate the people on environmental practices, issues, and possible remedies.

Computer Ethics

- Computer ethics is defined as
 - study and analysis of nature and social impact of computer technology
 - formulation and justification of policies, for ethical use of computers.
- This subject has become relevant to the professionals such as designers of computers, programmers, system analysts, system managers, and operators.
- The use of computers have raised a host of moral concerns such as free speech, privacy, intellectual property right, and physical as well as mental harm.

Computer Ethics

Different types of problems found in computer ethics are:

1. Computer as the Instrument of Unethical Acts: Breaking privacy, information or data of the individuals accessed or erased or the ownership changed, fraud a bank or a client, by accessing and withdrawing money from other's bank account.
2. Computer as the Object of Unethical Act: Hacking, spreading virus, health hazards.
3. Problems Related to the Autonomous Nature of Computer: Security risk, loss of human lives (automated defense system).

Weapons Development

Military activities including the world wars have stimulated the growth of technology. The growth of Internet amply illustrates this fact. Engineers involve in weapons development because of the following reasons:

1. It gives one job with high salary.
2. One takes pride and honor in participating in the activities towards the defense of the nation (patriotic fervor).
3. One believes the he fights a war on terrorism and thereby contribute to peace and stability of the country. Ironically, the wars have never won peace, only peace can win peace!
4. By research and development, the engineer is reducing or eliminating the risk from enemy weapons, and saving one's country from disaster.
5. By building-up arsenals and show of force, a country can force the rogue country, towards regulation.

Engineers as Managers

The characteristics of engineers as managers are:

- Promote an ethical climate, through framing organization policies, responsibilities and by personal attitudes and obligations.
- Resolving conflicts, by evolving priority, developing mutual understanding, generating various alternative solutions to problems.
- Social responsibility to stakeholders, customers and employers. They act to develop wealth as well as the welfare of the society.

Engineers as Managers

Managing conflicts: Most of the conflicts can be resolved by following the principles listed here,

1. People

Separate people from the problem. It implies that the views of all concerned should be obtained. The questions such as what, why, and when the error was committed is more important than to know who committed it. This impersonal approach will lead to not only early solution but also others will be prevented from committing errors.

2. Interests

Focus must be only on interest i.e., the ethical attitudes or motives and not on the positions (i.e., stated views). A supplier may require commission larger than usual prevailing rate for an agricultural product. But the past analysis may tell us that the material is not cultivated regularly and the monsoon poses some additional risk towards the supply. Mutual interests must be respected to a maximum level. What is right is more important than who is right!

Engineers as Managers

3. Options

Generate various options as solutions to the problem. This helps a manager to try the next best solution should the first one fails. Decision on alternate solutions can be taken more easily and without loss of time.

4. Evaluation

The evaluation of the results should be based on some specified objectives such as efficiency, quality, and customer satisfaction. More important is that the means, not only the goals, should be ethical.

Consulting Engineers

The consulting engineers have ethical responsibilities different from the salaried engineers, as follows:

- Advertising: The consulting engineers are directly responsible for advertising their services, even if they employ other consultants to assist them. But in many organizations, this responsibility is with the advertising executives and the personnel department. They are allowed to advertise but to avoid deceptive ones.

Consulting Engineers

- Competitive Bidding: It means offering a price, and get something in return for the service offered. The organizations have a pool of engineers. The expertise can be shared and the bidding is made more realistic. But the individual consultants have to develop creative designs and build their reputation steadily and carefully, over a period of time. The clients will have to choose between the reputed organizations and proven qualifications of the company and the expertise of the consultants. Although competent, the younger consultants are thus slightly at a disadvantage.

Consulting Engineers

- Contingency Fee: This is the fee or commission paid to the consultant, when one is successful in saving the expenses for the client. A sense of honesty and fairness is required in fixing this fee. The NSPE Code III 6 (a) says that the engineers shall not propose or accept a commission on a contingent basis where their judgment may be compromised. The fee may be either as an agreed amount or a fixed percentage of the savings realized. But in the contingency fee-agreements, the judgment of the consultant may be biased. The consultant may be tempted to specify inferior materials or design methods to cut the construction cost. This fee may motivate the consultants to effect saving in the costs to the clients, through reasonably moral and technological means.

Consulting Engineers

- Safety and Client's Needs: The greater freedom for the consulting engineers in decision making on safety aspects, and difficulties concerning truthfulness are the matters to be given attention. For example, in design-only projects, the consulting engineers may design something and have no role in the construction. Sometimes, difficulties may crop-up during construction due to non-availability of suitable materials, some shortcuts in construction, and lack of necessary and adequate supervision and inspection. Properly-trained supervision is needed, but may not happen, unless it is provided. Further, the contractor may not understand and/or be willing to modify the original design to serve the clients best.

Engineers as Expert Witnesses and Advisors

- Frequently engineers are required to act as consultants and provide expert opinion and views in many legal cases of the past events.
- They are required to explain the causes of accidents, malfunctions and other technological behavior of structures, machines, and instruments, e.g., personal injury while using an instrument, defective product, traffic accident, structure or building collapse, and damage to the property, are some of the cases where testimonies are needed.

Engineers as Expert Witnesses and Advisors

1. The expert-witness is required to exhibit the responsibility of confidentiality just as they do in the consulting roles. They can not divulge the findings of the investigation to the opposite side, unless it is required by the court of law.
2. More important is that as witness they are not required to volunteer evidence favorable to the opponent. They must answer questions truthfully, need not elaborate, and remain neutral until the details are asked for further.
3. They should be objective to discover the truth and communicate them honestly.
4. The stand of the experts depends on the shared understanding created within the society. The legal system should be respected and at the same time, they should act in conformance with the professional standards as obtained from the code of ethics.
5. The experts should earnestly be impartial in identifying and interpreting the observed data, recorded data, and the industrial standards. They should not distort the truth, even under pressure.

Engineers as Expert Witnesses and Advisors

Engineers as Advisors:

For an engineer to be an advisor, should study the costs and benefits of all alternatives in objective manner, study economic viability, technical feasibility, operational feasibility and social acceptability, follow honesty, and technical complicity leading to moral complicity. Then after analyzing the factors that lead to such things and also the consequences that occur, engineers can work as an advisor.

Moral Leadership

Moral leadership is essentially required for the engineers, for the reasons listed as follows:

1. It is leading a group of people towards the achievement of global and objectives. The goals as well as the means are to be moral. For example, Hitler and Stalin were leaders, but only in an instrumental sense and certainly not on moral sense.
2. The leadership shall direct and motivate the group to move through morally desirable ways.
3. They lead by thinking ahead in time, and morally creative towards new applications, extension and putting values into practice. 'Morally creative' means the identification of the most important values as applicable to the situation, bringing clarity within the groups through proper communication, and putting those values into practice.
4. They sustain professional interest, among social diversity and cross-disciplinary complexity. They contribute to the professional societies, their professions, and to their communities.

Code of Conduct

- Engineering is an important and learned profession. As members of this profession, engineers are expected to exhibit the higher standards of honesty and integrity.
- Engineering has a direct and vital impact on the quality of life for all people. Accordingly, the services provided by engineers require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of then public health, safety, and welfare.
- Engineer must perform under a standard of professional behavior that requires adherence to the highest principles of ethical conduct.

Code of Conduct

- I Fundamental Canons
- Engineers in the fulfillment of their professional duties shall
 1. hold paramount the safety, health, and welfare of the public.
 2. perform services only in areas of their competence.
 3. issue public statements only in objective and truthful manner.
 4. act for each employer or client as faithful agents or trustees.
 5. avoid deceptive acts.
 6. conduct themselves honorably, responsibly, ethically, and lawfully so as to enhance the honor, reputation, and usefulness of the profession.

Code of Conduct

- II Rules of Practice
 1. Engineers shall hold paramount the safety, health, and welfare of the public.
 2. Engineers shall perform services only in the areas of their competence.
 3. Engineers shall issue public statements only in an objective and truthful manner.
 4. Engineers shall act for each employer or client as faithful agents or trustees
 5. Engineers shall avoid deceptive acts

Code of Conduct

- III Professional Obligations

1. Engineers shall be guided in all their relation by the highest standards of honesty and integrity.
2. Engineers shall at all times strive to serve the public interest.
3. Engineers shall avoid all conduct or practice that deceives the public.
4. Engineers shall not disclose, without consent, confidential information concerning the business affairs or technical processes of any present or former client or employer, or public body on which they serve.
6. Engineers shall not attempt to obtain employment or advancement or professional engagements by untruthfully criticizing other engineers, or by other improper methods.
7. Engineers shall not attempt to injure, maliciously or falsely, directly or indirectly, the professional reputation, prospects, practice, or employment of other engineers. Engineers who believe others are guilty of unethical or illegal practice shall report such information to the proper authority for action.
8. Engineers shall accept personal responsibility for their professional activities, provided, however, the engineers may seek indemnification for services arising out of their practice for other than gross negligence, where the engineer's interests can not otherwise be protected.

Corporate Social Responsibility

- A company has an economic responsibility: it must earn a return for its stockholders within the confines of the law.
- However, corporate social responsibility means that organizations have also ethical and societal responsibilities that go beyond their economic responsibilities.
- CSR requires organizations to expand their understandings of their responsibilities to include other stakeholders such as employees, customers, suppliers, local communities, state governments, international organizations, etc.
- Ethics could be seen as a crucial component of individual and group behaviors at the heart of organizations' responsibilities.