

Professional Ethics and Human Values

NOTES

Pre-requisites : NIL

Unit – I Human Values

10 Hours

Chapter 1: Objectives, Morals , Values, Ethics, Integrity, Work ethics, Service learning, Virtues, Respect for others, Living peacefully, Caring, Sharing, Honesty, Courage ,Valuing time, Cooperation, Commitment, Empathy, Self-confidence, Challenges in the work place, Spirituality.

Unit – II Professional Ethics

10 Hours

Chapter 2: Engineering Ethics: Overview, senses of engineering ethics, variety of moral issues, types of enquiries, moral dilemma, moral autonomy, moral development (theories), consensus and controversy, profession, models of professional roles, responsibility, Theories about right action (ethical theories), self-control, self-interest, customs, religion, self-respect, case studies (Choice of the Theory), engineering as experimentation, engineers as responsible experimenters.

Chapter 3: Codes of ethics, Environmental ethics, Computer ethics, Engineers as managers, Ethics and code of business conduct in MNC.

Books

1. Durga Das Basu : “ Introducing to the Constitution on India’, (Students Edn.)
Prentice – Hall EEE, 19th / 20th Edn., 2001
2. Raman B.S. and Yagi R.K., Constitutional Law and Professional Ethics, United
Publishers, 2005
3. Rajaram M., Constitution of India and Professional Ethics, New Age International
Publishers, 3rd Ed.,
4. Nagarazan R.S., Professional Ethics and Human Values, New Age International
Publishers Pvt.Ltd. 2006

‘Professional ethics and Human values’ is a very relevant subject of today’s environment of conflicts and stress in the profession, with obligations to be met by one person in many directions. A formal study will certainly improve one’s ability and judgment and refine one’s behaviour, decisions and actions in performing the duty to the family, organization, and to the society. A contemplation on ‘Professional ethics and Human values’ operates as Engine Oil in Automobiles.

1.0 General objectives of study of Professional Ethics and Human values

- (a) to understand the moral values that ought to guide the Engineering profession
- (b) resolve the moral issues in the profession
- (c) justify the moral judgment concerning the profession
- (d) to develop a set of beliefs, attitudes, and habits to increase one’s ability to deal effectively with moral complexity in engineering practice.

Example: In a Production Organisation comprising of General Manager, HR section, Design section, Production section, Quality assurance section, Marketing section, Finance section, Administration section etc, each has the moral and ethical issues are in terms of concern about vision & mission, coordination cooperation, communication, sympathy, discipline, credibility, punctuality etc. both at personal level and organizational level.

Objectives of the study on Professional Ethics :

(A) Improvement of the cognitive skills (skills of the intellect in thinking clearly)

1. Moral awareness (proficiency in recognizing moral problems in engineering)
2. Cogent moral reasoning (comprehending, assessing different views)
3. Moral coherence (forming consistent viewpoints based on facts)
4. Moral imagination (searching beyond obvious the alternative responses to issues and being receptive to creative solutions)
5. Moral communication, to express and support one’s views to others.

(B) To *act* in morally desirable ways, towards moral commitment and responsible conduct

1. Moral reasonableness i.e., willingness and ability to take moral responsibility.
2. Sense of conduciveness, Respectfulness and obligation with respect to the people around(showing concern for the well-being of others, besides oneself) (Sanskrit Verse- *Bahu Jana Sukhaaya BahuJana Hitaaya* principle)
3. Tolerance of diversity i.e., endurance and respect for ethnic, cultural and religious differences, and acceptance of reasonable differences in moral perspectives.
4. Moral hope i.e., believe in using rational dialogue for resolving moral conflicts.
5. Moral Integrity, which means integrating one’s professional life and personal convictions in the profession(Kannada Verse-*Nudidante Nade*).

1.1 MORALS

Morals are the principles enunciated by the wise people, based on their experience and wisdom for the welfare of Mankind.(*Ex: Work is Worship, Kannada Verse- Kaayakave Kailaasa, Modalu Maanavanaagu, Sanskrit Verse-Satyameva Jayate*)

Edited, changed or modified or evolved to suit the geography of the region, rulers (dynasty), human race and in accordance with development of knowledge in science and technology in due course of time.

Morality Definition

A comprehension about the objectives like

- (a) What ought or ought not to be done in a given situation? (*Dutifulness- Kartavya Pradnya*)
- (b) What is right or wrong about the handling of a situation? (*Prudentness -Viveka*)
- (c) What is good or bad about the people, policies, and ideals involved?(*Virtuous , Right mindedness , Sadaachaar*)

Differences between Morality and Ethics

Morality

1. More general and prescriptive based on customs and traditions.
2. More concerned with the results of wrong action, when done.
3. Thrust is on judgment and punishment, in the name of God or by laws.
4. In case of conflict between the two, morality is given top priority, because the damage is more. It is more common and basic.
5. Example: Character flaw, corruption , extortion, and crime.

Ethics

1. Specific and descriptive. It is a critical reflection on morals.
2. More concerned with the results of a right action, when not done.
3. Thrust is on influence, education, training through codes, guidelines, and correction.
4. Less serious, hence second priority only. Less common. But relevant today, because of complex interactions in the modern society.
5. Example: Notions or beliefs about manners, tastes, customs, and towards laws.

Laws & Moral and Ethics

As a complimentary to morals and ethics, laws are framed which are the norms, formally approved by the administrative authorities(Government or Private). Breaking the norms is called *crime*, and invites specific prosecution & punishment.

1.2 VALUES

1.2.1 Definitions

1. A value is defined as a principle that promotes well-being or prevents harm.”
2. Values are our guidelines for our success—our paradigm about what is acceptable.”
3. Values are Emotional beliefs in principles regarded as particularly favorable or important for the individual.”

General Human Values

Ethics, Integrity, Work ethics, Service learning, Virtues, Respect for others, Living peacefully, Caring, Sharing, Honesty, Courage, Valuing time, Cooperation, Commitment, Empathy, Self-confidence, Challenges in the work place, Spirituality.

Role and Impact of values in Profession

Our values associate emotions to our experiences and guide our choices, decisions and actions. Values are the scales we use to weigh our choices for our actions, whether to move towards or away from an objective directly influence a person’s behavior.

Since Humans have the unique ability to define their identity, choose their values and establish their beliefs, all three of these directly influence a person’s behavior.

Behaviour of an individual decides the success in a profession

Factors affecting Manifestation of Values

All values do not have the same weight or priority. Some are more important than others and the important one must be satisfied before others can be addressed. Hierarchy of Human needs define the priority. Observing the Hierarchy of Human needs as follows, the Human values tend to change.

Ex: Survival > Security > Social acceptance > Self esteem

Ex: In some scandal in an organization the superior official tends to protect himself on higher priority ignoring the human values as regards his subordinates.

A person’s beliefs, values and identity are usually acquired unconsciously based on his personal experience or observations of others’ experiences as to what produces desirable or undesirable results in the environment.

If the emotions produced are strong enough, the resulting behavior will be automatic and instantaneous, and the behavior may not be necessarily logical or rational, and completely in accordance with the person’s strongest held beliefs, values and/or identity. Means the values may be degraded on that occasion. Hence one must be careful about the emotions to uphold the values. Ex: A superior official using unparliamentary words in anger, addressing his subordinate

By positive affirmations (through training or counseling), one can modify or create new beliefs about a person’s identity and/or what is important to him (values) using Verbal repetition of statements intended to become new beliefs, and values.

1.2.2 Types of Values

The five core human values are:

(1) Right conduct (2) Peace (3) Truth (4) Love (5) Nonviolence.

1. Values related to RIGHT CONDUCT are:

- (a) SELF-HELP SKILLS: Care of possessions, diet, hygiene, modesty, posture, self reliance, and tidy appearance
- (b) SOCIAL SKILLS: Good behavior, good manners, good relationships, helpfulness, No wastage, and good environment, and
- (c) ETHICAL SKILLS: Code of conduct, courage, dependability, duty, efficiency, ingenuity, initiative, perseverance, punctuality, resourcefulness, respect for all, and responsibility.

2. Values related to PEACE are:

Attention, calmness, concentration, contentment, dignity, discipline, equality, equanimity, faithfulness, focus, gratitude, happiness, harmony, humility, inner silence, optimism, patience, reflection, satisfaction, self-acceptance, self-confidence, self-control, self-discipline, self-esteem, self-respect, sense control, tolerance, and understanding

3. Values related to TRUTH are: Accuracy, curiosity, discernment, fairness, fearlessness, honesty, integrity (unity of thought, word, and deed), intuition, justice, optimism, purity, quest for knowledge , reason, self-analysis, sincerity, spirit of enquiry, synthesis, trust, truthfulness , and determination.

4. Values related to LOVE are: Acceptance, affection, care, compassion, consideration, dedication, devotion, empathy, forbearance, forgiveness, friendship, generosity, gentleness, humanness, interdependence, kindness, patience, patriotism, reverence, sacrifice, selflessness, service, sharing, sympathy, thoughtfulness, tolerance and trust

5. Values related to NON-VIOLENCE are:

(a) PSYCHOLOGICAL: Benevolence, compassion, concern for others, consideration, forbearance, forgiveness, manners, happiness, loyalty, morality, and universal love

(b) SOCIAL: Appreciation of other cultures and religions, brotherhood, care of environment, citizenship, equality, harmlessness, national awareness, perseverance, respect for property, and social justice.

(c) PERSEVERANCE is defined as persistence, determination, resolution, tenacity(firmness), dedication, commitment, constancy, steadfastness, stamina, endurance and indefatigability. To persevere is described as to continue, carry on, stick at it (in formal), keep going, persist, plug away, (informal), remain, stand firm, stand fast, hold on and hang on to the task. Perseverance builds character. Ex: Success of ISRO projects is outcome of Perseverance

(d) ACCURACY means freedom from mistake or error; conformity to truth or to a standard or model and exactness. Accuracy is defined as correctness, exactness, authenticity, truth, veracity, closeness to truth (true value) and carefulness. The value of accuracy embraces a large area and has many implications.

Engineers are encouraged to demonstrate accuracy in their behavior through the medium of praise and other incentives. Accuracy includes telling the truth, not exaggerating, and taking care over one's work.

(e) DISCERNMENT means discrimination, perception, penetration, and insight. Discernment means the power to see what is not obvious to the average mind. It stresses accuracy, especially in reading character or motives. Discrimination stresses the power to distinguish or select what is true or genuinely excellent. Perception implies quick and often sympathetic discernment, as of shades of feelings. Penetration implies a searching mind that goes beyond what is obvious or superficial. Insight suggests depth of discernment.

Definitions of other terms are given in the appropriate pages of this book.

1.2.3 Evolution of Human Values

The human values evolve because of the following factors:

1. The impact of norms of the society on the fulfillment of the individual's needs or desires.
2. Developed or modified by one's own awareness, choice, and judgment in fulfilling the needs.
3. By the teachings and practice of Preceptors (Gurus) or Saviors or religious leaders.
4. Fostered or modified by social leaders, rulers of kingdom, and by law (government).

***People have gone to great lengths to demonstrate the validity of their beliefs, including war and sacrificing their own life! Ex: Mahatma Gandhiji, Veer Sawarkar sacrificed their life for Independence. Vikram Sarabhai, Dr. A P J Abdul Kalam dedicated his life for Science and Technology.

Conversely, people are not motivated to support or validate the beliefs of another, when those beliefs are contrary to their own. People will act congruent with their personal values or what they deem to be important.

A person's observations on its environment are filtered through his values to determine whether or not he should expend energy to do something about his experiences. A person who values gold and sees a large bag of gold (a positive value) in his path as he walks, will be motivated to reach down and pick it up. A person who values his life and knows about venomous snakes will retreat from the sound of a rattlesnake (a negative value) from nearby, when he is walking in the desert. Said in another way,

"Values are the scales we use to weigh our choices for our actions, whether to move towards or away from something."

Not all values have the same weight or priority. Some are more important than others and must be satisfied before others can be addressed.

Dr. Abraham Maslow illustrated this with his hierarchy of human needs. Survival has a higher priority than security, which has a higher priority than social acceptance. Self-esteem can only be addressed to the degree that social acceptance is fulfilled. Similarly, self-actualization can only be pursued to the degree that self-esteem has been satisfied.

A person's beliefs, values and identity are usually acquired unconsciously based on his personal experience or observations of others' experiences as to what produces desirable or undesirable results in the environment.

A baby's learning *to walk and talk* is a clear example of identifying with human adults, valuing the act of being able to have the mobility and communication ability of an adult and the belief, based on unconscious observation, that humans can do walk and do talk with each other.

Physiologists have identified the parts of the human brain that are involved in producing behavior in accordance with beliefs and values. All information collected by human senses is passed through a net-like group of cells, known as the Reticular Activating System (RAS), located near the top of the brain stem. The RAS compares the data received with accepted values, positive and negative (threats), and beliefs stored in memory and determines whether or not immediate action is required. The results of the RAS's comparison are communicated to the 'amygdala' near the mid-brain.

The 'amygdala' produces neuro-chemicals that cause emotions consistent with the nature of and proportional to the match between environment and values and beliefs. The neuro-chemicals initiate the chemical processes needed for the action to be taken.

If the emotions produced are strong enough, the perceived information is blocked from reaching the logical, rational and conscious executive center of the brain, the pre-frontal lobes. In which case, the resulting behavior will be automatic, not necessarily logical or rational, and completely in accordance with the person's strongest held beliefs, values and/or identity.

By positive affirmations, one can modify or create new beliefs about a person's identity and/or what is important to him (values). Verbal repetition of statements intended to become new beliefs, and values will result in these being stored for use by the RAS for comparison with the environment being experienced. This is the mechanism how the beliefs or values are modified.

1.3 ETHICS

Ethics is the word that refers to morals, values, and beliefs of the individuals, family or the society.

The word Ethics has several meanings.

Basically it is an activity and process of inquiry (investigation, analysis).

Secondly, it is different from non-moral problems, when dealing with issues and controversies.

Thirdly, ethics refers to a particular set of beliefs, attitudes, and habits of individuals or family or groups concerned with morals.

Fourth, it is used to mean 'morally correct'.

Role of Ethics in Profession

- The study on ethics helps to know the people's beliefs, values, and morals, learn the good and bad of them, and practice them to maximize their well-being and happiness.
- It involves the inquiry on the existing situations, form judgments and resolve the issues. In addition, ethics tells us how to live, to respond to issues, through the duties, rights, responsibilities, and obligations.
- In religion, similar principles are included, but the reasoning on procedures is limited.
- The principles and practices of religions have varied from time to time (history), region (geography, climatic conditions), religion, society, language, caste and creed. But ethics has grown to a large extent beyond the barriers listed above. In ethics, the focus is to study and apply the principles and practices, universally.

1.4 INTEGRITY

Integrity is defined as the unity of thought, word and deed (actions with honesty) and open mindedness. (Working with Kaaya, Vaacha, Manasaa i.e. Trikarana purvaka Karma)

It includes the capacity to communicate the factual information so that others can acknowledge and make well-informed decisions and actions.

Role of Integrity in Profession

- It yields the person's 'peace of mind', and hence adds strength and consistency in character, decisions, and actions. This paves way to one's success. It is one of the self-direction virtues.
- It enthuse people not only to execute a job well but to achieve excellence in performance. It helps them to own the responsibility and earn self-respect and recognition by doing the job.
- Moral integrity is defined as a virtue, which reflects a consistency of one's attitudes, emotions, and conduct in relation to justified moral values.

(Further discussion on this is available in Chapter 2.)

1.5 WORK ETHICS

Definition of Work Ethics

Work ethics is defined as a set of attitudes concerned with the value of work, which forms the motivational orientation.

Objectives of Work Ethics

Ensuring the

1. Good economy (get job, create wealth, earn salary)
2. Productivity (wealth, profit)
3. Safety (in workplace)
4. Health and hygiene (working conditions)
5. Privacy (raise family), security (permanence (stability) against contractual (instability), pension, and retirement benefits),
6. Cultural and social development (leisure, hobby, and happiness),
7. Welfare (social work),
8. Environment (anti-pollution activities),
9. Offer opportunities for all, according to their abilities, but without discrimination.

Role of Work Ethics (Necessity of Work Ethics)

- Work with ethics is good for the body and mind and valuable at personal and social levels..

- It promotes self-respect, self-esteem, good for the family, Society ,nation and the world.
- Work lays a moral and meaningful foundation for life.
- It improves the quality of life and makes life purposeful, successful and happy.
- By work ethics, duties to the self, family, society, and nation are fulfilled.
- Rights of the individuals are respected and nourished.
- Values and virtues are cultivated and enjoyed by all human beings.
- The quality of life is improved and the environment protected.
- On the other hand due to poor Work Ethics, unemployment and under-employment lead to frustration, social tensions, and occasional militancy.

We need to *promote work ethics*, at all levels, to flourish as developed nation.

Industry and Society are the two systems which interact with each other and are interdependent. Society requires industry/business system which provides manufacturing, distribution and consumption activities. It needs investment (capital input), labor (input), supply (raw materials), production (industries, business organizations), marketing and distribution (transport), and consumption (public, customer). A lot of transactions (and interactions) between these sub-systems involving people are needed for the welfare of the society. It is here, the work ethics plays an essential role.

Complex social problems existing in the industrial/business scenario

1. Dignity, Self Esteem and Self fulfillment: The people desire to be recognized as individuals and treated with dignity, as living human beings. Work is intrinsically valuable so far as it is enjoyable or meaningful in allowing personal expression and self-fulfillment. Meaningful work is worth doing for the sense of personal identity and the self-esteem it holds.
2. Economic independence: Work is the major instrumental good in life. It is the main source of providing the income needed to avoid economic dependence on others, for obtaining desired materials and services, and for achieving status and recognition from others.
3. Salary, Exploitation: Pay as well as the pace of work should be in commensurate with the expertise required,acquired, and utilized in the persons. Exploitation and bargained pay should be discouraged.
4. Privacy (personal freedom) of the employee: Privacy (personal freedom) of the employee including women, is to be protected. At the same time, confidentiality of the employer is also to be protected. Mutual trust and loyalty both ways play major roles in this aspect.
5. Security during job and upon retirement: This concept is being accepted only in government jobs, public limited companies, and corporate organizations. The western thought has influenced the Indian private industries and multinationals in a paradigm shift from 'lifelong employment' to policies such as 'merit only', 'hire and fire', 'pay and use' etc. This situation has no doubt created tension in the Indian scene.

6. Recognition to non-work activities: Recognition to non-work activities, such as leisure, paid holiday on the day of visit of a dignitary, social service, and other developmental activities. The workers in prosperous countries are less willing to consider 'work' as their prime interest in life. They claim that such service activities give them *peace of mind* and *happiness*. However, such a trend is likely to decline the work ethics.

7. Hard work and productivity Hard work and productivity are very essential for the success of an industry. The quality of work life deserves to be improved. Hard labor, undignified jobs (human-drawn *rikshaw*, people carrying night soil), and hazardous jobs are to be made less straining, dignified, and safer. Automation and CNC systems to a large extent have been successful in lessening the human burden. Still, many a hard work can not be replaced by 'virtual work', in the near future.

8. Employee alienation (Disaffection , unfriendliness): Absence of or inadequate 'recognition and reward system' and 'grievance redressal system', lack of transparency in policy implementation, factions in trade unions etc. lead to ethical problems, affecting the work ethics. Participative management, quality circles, job rotation, and flexible working hours are some of the measures to counter this situation.

9. Negative perspective of Work Ethics(A different view of work ethics): Work is considered as a necessary evil. It is a thing one must do in order to avoid worse evils, such as dependency and poverty. That is a major source of anxiety and unhappiness.

(Udyogam Purusha Laxanam, Kaayakave Kailasa, Yogah Karmasu Koushalam)

Note: As per the Protestant Work Ethics, the financial success is a sign that is favored by God. It means making maximal profit is a duty mandated by God. It is to be obtained rationally, diligently, and without compromising with other values such as spending time with one's family and not exploiting or harming others¹

1.6 SERVICE LEARNING

Service learning refers to learning the service policies, procedures, norms, and conditions, other than 'the technical trade practices'. The service learning includes the characteristics of the work, basic requirements, security of the job, and awareness of the procedures, while taking decisions and actions. Alternatively, the service learning may be defined as the *non-paid activity*, in which service is provided on voluntary basis to the public (have-nots in the community), non-profitable institutions, and charitable organizations.

It helps the individuals to interact ethically with colleagues, to effectively coordinate with other departments, to interact cordially with suppliers as well as the customers, and to maintain all these friendly interactions.

The service learning is a methodology falling under the category of experiential education. It is one of the forms of experiential learning and community service opportunities. It is distinguished in the following ways:

1. *Connection to curriculum(Integration of Academic learning and Service Project)*: Integrating the learning into a service project is a key to successful service learning. Academic ties should be clear and built upon existing disciplinary skills. It is the service during learning. This includes training or study on real life problems and their possible solutions, during the formal learning, i.e., courses of study
2. *Learner's voice* (selection, design, implementation, and evaluation their service activity): Beyond being actively engaged in the project, trainees have the opportunity to select, design, implement, and evaluate their service activity.
3. *Reflection(Service Experience)*: Structured opportunities are created to think, talk, and write about the service experience. The balance of reflection and action allows the trainee to be constantly aware of the impact of their *work*.
4. *Partnership in the industrial and customer community*: Partnership with community agencies are used to identify genuine needs, provide mentorship, and contribute input such as labor and expertise towards service learning.

Example: The engineering student analyzing and executing a socially-relevant project is an example of service learning.

1.7 VIRTUES

Virtues are *positive* and *preferred* values in terms of desirable attitudes that enable us to be successful and to act in ways that develop our highest potential. They energize and enable us to pursue the ideals that we have adopted.

Virtues are tendencies which include, solving problems(issues) through peaceful and constructive means and follow the path of the golden mean between the extremes of 'excess and deficiency'.

Examples of virtues: Honesty, courage, compassion, generosity, fidelity, integrity, fairness, transparency, self-control, and prudence

A person who has developed virtues will naturally act in ways consistent with moral and ethical principles. They are like habits, once acquired, they become characteristics of a person.

1.7.1 Civic Virtues

Civic virtues are the moral duties and rights, as a citizen of the village or the country or an integral part of the society and environment. An individual may exhibit civic virtues by voting, volunteering, and organizing welfare groups and meetings.

The civic duties are:

1. Paying Tax punctually
2. Keeping cleanliness in and around.
3. Avoiding pollution of the environment garbage disposal.(air, water,sound,garbage)
4. Following traffic safety rules.

The civic rights are:

1. Voting in Elections(local,state,central)
2. Contesting in the elections.
3. Seeking a public welfare facilities(education,health,transfortation, communion).
4. Establishing and maintaining a green,pollution free and safe environment, pollution free.

George Washington⁴ embodied the civic virtues as indispensable for a self-governing administration.

Categories of Civic Virtues:

1. Civic Knowledge(about duties and rights)

Citizens must understand what the Constitution says about how the government is working, and what the government is supposed to do and what not to do. We must understand the basis of our responsibilities as citizens, besides duties and rights. We must be able to recognize when the government or another citizen infringes upon our rights. It implies that the government requires the participation of the enlightened citizens, to serve and survive.

2. Self-Restraint(non ethical issues)

For citizens to live in a free society with limited government each citizen must be able to control or restrain himself from non ethical activities at personal and social level.

3. Self-Assertion(pride regarding their rights and action for their fulfilment)

Self-assertion means that citizens must be proud of their rights, and have the courage to stand up in public and defend their rights.

4. Self-Reliance(as regards basic needs such as food, shelter, health)

These civic virtues, applicable to local, state, and central governments, nourish freedom and civil liberty at the root of democracy.

1.8 RESPECT FOR OTHERS

To nurture friendship, team work, and promotion and sustainance of the synergy (team strength and spirit)

Principles of respecting others

1. Recognition and accepting the existence of other persons as human beings: Recognize and accept the existence of other persons as human beings, because they have a right to live, just as you have.
2. Respecting others' ideas (decisions), words, and labor (actions) and interaction (in terms of listening, appreciation, critics & corrections,): Appreciate colleagues and subordinates on their positive actions. Criticize constructively and encourage them. They are bound to improve their performance, by learning properly and by putting more efforts.
3. Extending Goodwill and Affection to promote coherence, strength and overall growth: This will facilitate co linearity, focus, coherence, and strength to achieve the goals.

1.9 LIVING PEACEFULLY

To live peacefully, one should start install peace within (self). Charity begins at home. Only who are at peace can spread peace.

- Means to live peacefully, in the professional world:

The following are the factors and means that promote living, with internal and external peace:

1. Conducive environment (safe, ventilated, illuminated and comfortable).
2. Secured job and motivated with 'recognition and reward'.
3. Absence of threat or tension by pressure due to limitations of money or time.
4. Absence of unnecessary interference or disturbance, except as guidelines.
5. Healthy labor relations and family situations.
6. Service to the needy (physically and mentally-challenged) with love and sympathy.

1.10 CARING

- It is a process which exhibits the interest in, and support for, the welfare of others with fairness, impartiality and justice in all activities, among the employees, in the context of professional ethics.
- It includes showing respect to the feelings of others, and also respecting and preserving the interests of all others concerned.

- Caring is reflected in activities such as friendship, membership in social clubs and professional societies, and through various transactions in the family, fraternity, community, country and in international councils.
- In the present day context, caring for the environment (including the *fauna and flora*) has become a necessity for our very survival. If we do not care for the environment, the environment will scare us.

1.11 SHARING

- Sharing is a process that describes the transfer of knowledge (teaching, learning, and information), experience (training), commodities (material possession) and facilities with others. For the humanity, 'sharing' is a *culture*.
- The transfer should be genuine, legal, positive, voluntary, and without any expectation in return. However, the proprietary information it should not be shared with outsiders.
- Through this process of sharing, experience, expertise, wisdom and other benefits reach more people faster.
- Sharing is voluntary and it can not be driven by force, but motivated successfully through ethical principles. In short, sharing is 'charity'

Advantages of Sharing

The 'happiness and wealth' are multiplied and the 'crimes and sufferings' are reduced, by sharing. It paves the way for peace and obviates militancy. Philosophically, the sharing maximizes the happiness for all the human beings. In terms of psychology, the fear, divide, and distrust between the 'haves' and 'have-nots' disappear. Sharing not only paves the way to prosperity, early and easily, and sustains it. Economically speaking, benefits are maximized as there is no wastage or loss, and everybody gets one's needs fulfilled and satisfied. Commercially speaking, the profit is maximized. Technologically, the productivity and utilization are maximized by sharing.

Examples of Sharing

- Code-sharing in airlines for bookings on air travels
- Common Effluent Treatment Plant constructed for small-scale industries in the industrial estates.
- The co-operative societies for producers as well as consumers of sharing of the goods, profit and other social benefits.

Here is an anecdote that illustrates the benefits of sharing, for the young minds!

The shouting...the screaming...the fighting. That was the breaking point for me as I poured out my woes to my mother. "How can I get them to share as well as we did as kids?", I pleaded. Laughter was her reply. "Well, thanks a lot, mom," I said. "I'm sorry," she chuckled, "but you didn't always share." She went on to explain about the "Box of Misbehaved Toys." Every time we fought over a toy, she would quietly take that and put it into the box. Yes, I did remember that box. I also remember it wasn't always fair since one person may have caused all the commotion. But my mother was consistent. No matter what the reason for the struggle was, the toy disappeared into the box for one week. No questions asked, and no chance of parole. My siblings and I soon learned that sharing a toy was better than losing it. Often, one person would decide to just wait for a time when no one else was playing with the toy, rather than fight

and lose it. It was not a perfect system, but I tried it anyway That box was a shock to my kids and it was close to full, within a few days.....As the weeks progressed, I noticed the box was emptier and the arguing was less. Today, I heard quiet music to my ears as my son said to his sister, "That's OK, you can play with it."

This story illustrates the worthy joy of sharing as compared to the pain of losing.

1.12 HONESTY

Honesty is a virtue, and it is exhibited in two aspects namely,

- (a) Truthfulness and
- (b) Trustworthiness.

Truthfulness is to face the responsibilities upon telling truth. One should keep one's word or promise. By admitting one's mistake committed (one needs courage to do that!), it is easy to fix them. Reliable engineering judgment, maintenance of truth, defending the truth, and communicating the truth, only when it does 'good' to others, are some of the reflections of truthfulness.

Trustworthiness is maintaining integrity and taking responsibility for personal performance. People abide by law and live by mutual trust. They play the right way to win, according to the laws or rules (legally and morally). They build trust through reliability and authenticity. They admit their own mistakes and confront unethical actions in others and take tough and principled stand, even if unpopular.

HONESTY IS THE BEST POLICY

Honesty is reflected commonly in terms of :

- (a) Beliefs (intellectual honesty).
- (b) Communication (writing and speech).
- (c) Decisions (ideas, discretion).
- (d) Actions (means, timing, place, and the goals). and
- (e) Intended and unintended results achieved.

Actions that lead to dishonesty are:

1. *Lying*: It is giving *wrong* information to the *right* people.
2. *Deliberate deception*: Decisions based on with insufficient understanding, data or proof, to impress upon the customers or employers.
3. *Withholding the information*: during communication to one's superior or subordinate, intentionally or otherwise.
4. *Not seeking the truth*:
5. *Not maintaining confidentiality*: It is giving *right* information to *wrong* people.
6. Giving professional judgment under the influence of extraneous(inappropriate) factors such as personal benefits and prejudice, violating the laws and ignoring experience, social welfare, and conscience(sense of right or wrong i.e Viveka).

1.13 COURAGE

Courage is the tendency to accept and face risks and difficult tasks in rational ways. Self-confidence is the basic requirement to nurture courage. In addition the following attitudes are required (a) Facing the criticism, (b) owning responsibility

c) accepting the mistakes and vigilance against the past mistakes

d) creative in finding the alternate means to achieve the desired objectives

(e) involvement (attitude, clear and firm resolve to act) and Commitment (willing to get it) (f) Perseverance (sustained hard work),

(i) Experimentation (preparedness to face the challenges, that is, unexpected into action and to reach the desired goals by any alternative but ethical means).

Courage is classified into three types, based on the types of risks, namely

(a) Physical courage,

(b) Social courage, and

(c) Intellectual courage.

- In physical courage, the thrust is on the adequacy of the physical strength, including the muscle power and armaments. People with high adrenalin, may be prepared to face challenges for the mere 'thrill' or driven by a decision to 'excel'.
- The social courage involves the decisions and actions to change the order, based on the conviction for or against certain social behaviors. This requires leadership abilities, including empathy and sacrifice, to mobilize and motivate the followers, for the social cause.
- The intellectual courage is inculcated in people through acquired knowledge, experience, games, tactics, education, and training. In professional ethics, courage is applicable to the employers, employees, public, and the press.

Supporting factors for acquiring Courage

- SWOT analysis: Look before you leap. One should perform Strengths, Weakness, Opportunities, and Threat (SWOT) analysis.
- Calculate (estimate) the risks, compare with one's strengths, and anticipate the end results, while taking decisions and before getting into action.
- Learning from the past helps. Past experience (one's own or borrowed!) and wisdom gained from self-study or others will prepare one to plan and act with self-confidence, succeed in achieving the desired ethical goals through ethical means.
- Opportunities and threat existing and likely to exist in future are also to be studied and measures to be planned.
- This anticipatory management will help any one to face the future with courage.

Dhairyam Sarvatra Sadhanam (Courage is the means of success in All endeavors)

Prof. Sathish Dhawan, Chief of ISRO, was reported to have exhibited his courage and owned responsibility, when the previous space mission failed, but credited Prof. A.P.J. Abdul Kalam (former

President), when the subsequent mission succeeded. The courageous people own and have shown the following characteristics, in their professions:

1.14 VALUING TIME

Time is the most perishable, most valuable and rare resource which is Once spent, is lost for ever. It can not be either stored or recovered. Hence, 'Time and tide wait for none' and 'Procrastination(postponing action) is the thief of time' amply illustrate this point.

To realize the value of one year, ask the student who has failed in the examinations; To realize the value of one month, ask the mother who has delivered a premature baby; to realize the value of one week, ask the editor of weekly; to realize the value of one day, ask the daily-wage laborer; to realize now the value of one hour, ask the lovers longing to meet; to realize the value of one minute, ask a person who has missed the train; to realize the value of one second, ask the person who has survived an accident; to realize the value one milli second, ask the person who has won the bronze medal in Olympics; to realize the value of one micro second, ask the NASA team of scientists; to realize the value of one nano-second, ask a Hardware engineer!; If you have still not realized the value of time, wait; are you an Engineer?

1.15 COOPERATION

It is a team-spirit present with every individual engaged in engineering. Co-operation is activity between two persons or sectors that aims at integration of operations (synergy), while not sacrificing the autonomy of either party. Further, working together ensures, coherence, i.e., blending of different skills required, towards common goals.

Willingness to understand others, think and act together and putting this into practice, is cooperation.

Role of Cooperation in Profession

- Cooperation promotes collinearity, coherence (blend), co-ordination (activities linked in sequence or priority) and the synergy (maximizing the output, by reinforcement).
- The whole is more than the sum of the individuals and hence cooperation leads to integral success.
- It helps in minimizing the input resources (including time) and maximizes the outputs, which include quantity, quality, effectiveness, and efficiency.
- According to professional ethics, cooperation should exist or be developed, and maintained, at several levels; between the employers and employees, between the superiors and subordinates, among the colleagues, between the producers and the suppliers (spare parts), and between the organisation and its customers.
- The absence of cooperation leads to lack of communication, misinformation, void in
- communication, and undue delay between supply, production, marketing, and consumption. This is likely to demoralize and frustrate the employees, leading to collapse of the industry over time and an economic loss to the society.

The codes of ethics of various professional societies insist on appropriate cooperation to nourish the industry.

The impediments(obstacles) to successful cooperation are:

1. Clash of ego of individuals.
2. Lack of leadership and motivation.
3. Conflicts of interests, based on region, religion, language, and caste.
4. Ignorance and lack of interest.

Methods to develop Cooperation

By careful planning, motivation, leadership, fostering and rewarding team work, professionalism and humanism beyond the 'divides', training on appreciation to different cultures, mutual understanding 'cooperation' can be developed and also sustained.

1.16 COMMITMENT

Definition

Commitment means *alignment to goals and adherence to ethical principles during the activities in a profession* holding sustained interest and firmness, in the ethical values, with the fervent(enthusiastic) attitude, confidence in action and the conviction to achieve success.

Examples:

- For example, a design engineer shall exhibit a sense of commitment, to make his product or project designed a beneficial contribution to the society.
- Only when the teacher (Guru) is committed to his job, the students will succeed in life and contribute 'good' to the society.
- The commitment of top management in vision and mission will naturally lead to committed employees, in all sections in the organization. This results in flourishing of the organization, society and the nation.

1.17 EMPATHY

Definition

It is defined as the ability to put one's self into the psychological frame(imaginative projection) of views of another person, to know what the other person feels. Empathy is an act of showing concern, and then obtaining and understanding the feelings of others, from others' point of view.

Role and Importance of Empathy

This is an essential ingredient for good human relations and transactions.

Empathy is social radar. Sensing what others feel about, without their open talk, is the essence of empathy. It motivates social service.

Example of Empathy:

Understanding of other's background such as parentage, physical and mental state, economic situation, and association then extending any help orally, physically or financially .

Ex:Participation in Blood Donation Camp

Requisite characteristics to practice Empathy

To practice 'Empathy', a leader must have the following characteristics

1. *Understanding others*: It means sensing others feelings and perspectives, and taking active interest in their welfare.
2. *Service orientation*: It is anticipation, recognition and meeting the needs of the clients or customers.
3. *Developing others*: This means identification of their needs and bolstering their abilities. positive expectation of the subject's abilities and the resulting performance.
4. *Leveraging diversity* (opportunities through diverse people): This leads to enhanced organizational learning, flexibility, and profitability.
5. *Political awareness*: It is the ability to read political and social currents in an organization.

Advantages(benefits) of empathy :

1. Good relations with stakeholders in any profession
2. Harmony in labour relations (in industry and marketing).
3. Good vendor-producer relationship (in partnering).
4. Increase in the efficiency of an organization(industry, finance, medical, education administration).

While dealing with customer complaints, empathy is very effective in realising the unbiased views of others and in admitting one's own limitations and failures. According to Peter Drucker, purpose of the business is not to *make a sale*, but to *make and keep a customer*. Empathy assists one in developing courage leading to success!

1.18 SELF-CONFIDENCE

Definition

Certainty in one's own capabilities, values, and goals, is self-confidence.

Characteristics of a Self Confident person

- Positive attitude and thinking, flexible and willing to change.
- Respect others efforts and give due credit.
- Professional courage and unshakable faith in their abilities.
- Not influenced by threats or challenges in a profession.
- Willing to listen to learn from others and adopt (flexibility),
- Frank to speak the truth

The self-confidence in a person develops a sense of partnership, respect, and accountability, and this helps the organization to obtain maximum ideas, efforts, and guidelines from its employees.

On the contrary, some leaders expose others when failure occurs, and own the credit when success comes.

Factors determining self-confidence in a person :

1. Heredity (attitudes of parents) and family environment (elders),
2. Friendship (influence of friends/colleagues),
3. Influence of superiors/role models, and
4. Training in the organization(e.g., training by Technical Evangelists at Infosys Technologies).

Methodologies for developing self-confidence in a person:

1. Encouraging SWOT analysis. By evaluating their strength and weakness, they can anticipate and be prepared to face the results.
2. Training to evaluate risks and face them (self-acceptance).
3. Self-talk . It is conditioning the mind for preparing the self to act, without any doubt on his capabilities. This make one accepts himself while still striving for improvement.
4. Study and group discussion, on the history of leaders and innovators (e.g., Sam Walton of Wal-Mart, USA).

1.19 CHALLENGES IN THE WORK PLACE

Employee's work ethics(The biggest workplace challenge)

Showing up to work everyday (interest in work and attendance),

Showing up to work on time (punctuality),

Taking pride in the quality of their work,

Commitment to the job,

Cooperation and Getting along with others.

This situation demands inculcation of good character in the workplace by employees.

1.19.1 Character

Definitions

- It is a human attribute that defines the behavior of an individual. It is the pattern of virtues(desirable moral features) which determine a person's moral and ethical actions and responses. It is also the ground on which morals and values blossom.
- The character is the expression of the personality of a human being and exhibited through conduct. Character is determined by the expectations of society. Character implies certain unity of qualities with a recognizable degree of *constancy(faithfulness)* in mode of action.

People are divided into several categories, according to common tendencies such as ruthless, aggressiveness, and ambition, constricting selfishness, stinginess, or cheerfulness, generosity and goodwill. Individuals vary not only in the type of their character but also in the degree of the character value.

Psychology analyzes the elements of character to trace the laws of its growth, to distinguish the chief agencies which contribute to the formation of different types of character, and to classify them.

1.19.2 The Four Temperaments

Definition

A person's nature in terms of its effect on their behavior is called Temperament. It is the inherent element in character with which the individual starts life .

From the times of Hippocrates, they distinguished four main types of temperaments:

1. Sanguine
2. Choleric
3. Phlegmatic
4. Melancholic.

The modern speculation accepts the same classification, but under other names.

These different types of temperaments are accounted for differences in physiological conditions of the tissues of the body, by diverse rates of activities in the processes of nutrition and waste, in the changes of nerve-energy, or in circulation, and by differences of tonicity in the nerves. It is agreed that different forms of temperaments have an organic basis such as *hormones* .

Shaping of Character

Although the original temperament is hereditary, we are responsible for moulding our character by following certain ethical qualities. Hence Character is defined as . *natural temperament completely*

fashioned by the human will". The manner and degree in which currents of thought and waves of emotion are initiated, guided, and controlled by the will power in the complex situations has more effect in determining the resultant type of character. Frequent use of the intellect, controlled imagination, reasoning, practice of judgment and reflection etc contribute to the formation and refinement of mental habits.

1.19.3 Types of Character

From the four fundamental temperaments, various classifications of character have been adopted by different psychologists.

- (a) the sensitive (humble, contemplative and emotional,
- (b) the active (great and the mediocre), and
- (c) the apathetic (purely apathetic or dull), and
- (d) the intelligent.

1.19.4 Ethics and Character

Ethical values build the character of human being. Different systems of ethics emphasize different virtues in constituting the ideal moral character.

For the utilitarian (Useful practically), *benevolence(compassion)* forms the primary element in the ideal character.

For the stoic (person with endurance & patience), fortitude (determination, stamina), and *self-control forms the primary element in the ideal character.*

In all conceptions of ideal character, firmness of will, fortitude (determination, stamina), constancy in adhering to principle, virtue of justice, the recognition of the rights, duties, and claims of others.

The richness of culture of the mind, results in larger intellectual horizon, broader sympathies and the character nearing to the ideal of human perfection.

1.19.5 Education and Character

The aim of education is for the cultivation of the intellect (understanding) and building up of moral character. Increased intelligence or physical skill without character be detrimental (destructive) for the community. As per Sanskrit Subhashita "Vidyaa Vinayena Shobhate" means Human Intellect is adored only by Humbleness.

Ex: Great Intellectuals like Sir M. Vishveshvarayya, Mahatma Gandhi, Dr. Babasaheb Ambedkar, Dr. S. Radhakrishnan, Dr. Abdul Kalam were very humble in Character.

1.19.6 Building Character in the Workplace

Managers have to influence the employees and employ creative means to build up character in the workplace, in the following ways

- *Activities Employee Hiring, Training, and Promotion*

- a) Implementing character oriented norms and procedures during Interviews, recruitment
- b) Training the employees to promote the ethical values, such as: trustworthiness, respect(towards self, organization, ,nation), responsibility, fairness, caring and citizenship and civic values
- c) Instituting recognition and reward system for the employees who exemplify(illustrate) the positive character. Example: Awards and appreciation certificates.

- *Internal Communication*

Use internal communication channels to create a friendly environment that praises positive role at the workplace by encouraging voluntarism, and mentoring through

- (a) Internal newsletters,
- (b) Posters in the workplaces and recreation rooms,
- (c) Mailers, and
- (d) Electronic mails.

- *External Communication*

Communicating with customers, vendors and other stakeholders consciously affirming messages about character and ethics, such as

- (a) Advertising and marketing with highlighting of consensual(everaccepted) values
- (b) Assurance of products and services blended with character building,
- (c) Include positive messages about voluntarism and celebrate(public praise), and
- (d) ‘Character counts’ week in advertising, billings and other mailers.

- *Providing Financial and Human Resources*

- (a) Supporting by encouraging public activities of the staff members, by offering sponsorship and incentives .
- (b) Sponsor ‘character’ movement through financial support.

4. *Community Outreach*

- (a) Use public outreach structures to encourage mentoring and other character-building programs.
- (b) Encourage educational and youth organizations to become active in character building.
- (c) Use corporate influence to encourage business groups (chambers of commerce, conferenceboards, and Rotary clubs) and other companies to support ‘character’ building.

Responsibility

Responsibility is an act of

- (i) being accountable for one's actions,
- (ii) being dependable in carrying out obligations and duties,
- (iii) being reliable and consistent in word and action, and
- (iv) being committed to community development.

1.20 SPIRITUALITY

Spirituality is an act of contemplation on the inner being of human beings which is everlasting and omnipresent. It promotes a sense oneness and unity and facilitates to cultivate all the human values and virtues in the natural course. Spirituality involves self introspection and mental exercises such as meditation. Spirituality results in long lasting vision and fruitful mission. For example spiritual leaders like Shankaracharya, Ramanujacharya, Madhvacharya, Sant Tukaram, Basaveshvara, Guru Nanak, Swami Vivekanand, could do amazing socio religious work having impact on the community. Many of the ancient and modern scientists are spiritually oriented. Ex: Albert Einstein, Dr. Abdul Kalam. An organization can remain efficient and excellent with a dynamic balance between the material development and the spiritual development. This is said to be the great virtue of Indian philosophy and for Indians. Sometimes, spirituality includes the faith or belief in supernatural power/God, regarding the worldly events.

Role of Spirituality in a Profession

1. It functions as a fertilizer for the soil 'character' to blossom into values and morals.
2. Spirituality promotes all the human values and virtues like
3. Spirituality promotes creativity, communication, recognition of an individual as human being
4. Cultivates the sense cooperation, respect to others and reasonable acceptance of ideas and actions
5. Spirituality promotes long lasting vision and fruitful mission in a profession, organization and nation.
6. Spirituality promotes partnership (with cooperation, sharing, caring and sense of growing together).
7. Spirituality promotes Tolerance and empathy resulting in good health of an individual, organization and society.
8. Spirituality facilitates to be energetic and flexible to adapt to challenging and changing situations.
9. Spirituality is motivation as it encourages the colleagues to perform better.

1.20.1 Spirituality in the Workplace

Building spirituality in the workplace: Spirituality is promoted in the workplace by adhering to the following activities:

1. Respect the individuals as human beings and recognize their values in the profession.
2. Interact with work team members try to know their goals, aspirations, ideas and dreams too.
3. Share your personal ethics and beliefs without hesitation.
4. Support the noble causes outside the profession and business.
5. Encourage leaders to formulate and perform value-based policies and actions
6. Illustrate self-knowledge and spiritual awareness in all your actions.

7. Do for others the things what you expect from them.

1.20.2 Spirituality for Corporate Excellence

The spiritual traits(qualities) to be developed for excellence in corporate activities are listed as follows:

1. *Self-awareness* — Realization of self-potential. A human has immense capability but it needs to be explored and developed.
2. *Alertness in observation and quickness in decision making*, i.e., spontaneity which includes quick reflexes, no delay but also no hasty decisions.
3. *Being visionary and value based* — This includes an attitude towards future of the organization and the society, with clear objectives.
4. *Holism (Belongingness)* —Holistic thinking, which means the welfare of the self, family, organization and the society including all other living beings and environment.
5. *Compassion* — Extending Sympathy, empathy and concern for others, essential for effective team functioning.
6. *Respect for diversity* — It means exploring unity in diversity and respect others and their views.
7. *Moral Autonomy* — Actions should be based on rational and moral judgment without yielding to unethical mass objectives.
8. *Creative thinking and constant reasoning* — Be innovative with consistent reasoning and Refrain from doing something only traditional.
9. *Positive views of adversity* — Tendancy of Converting every threat is converted into opportunity.
10. *Humility* — The attitude to accept criticism (it requires courage!) and willing to correct. It includes modesty and acknowledging the work of colleagues.
11. *Sense of vocation* — Treat the duty as a service to society, besides your organization.

Chapter – 5 Professional Ethics

Engineering Professional Ethics

5.1 OVERVIEW

Engineering ethics is defined by the codes and standards of conduct endorsed by engineering (professional) societies in terms of a set of beliefs, attitudes and habits displayed by the individual or group.

Engineering is the largest profession and the decisions and actions of engineers affect all of us in almost all areas of our lives, namely public safety, health, and welfare.

Objectives of Professional ethics

- understanding the moral values and their implementation in professional practice,
- Justification of judgements and decisions in engineering profession.
- Discovery of justified moral principles of obligation, rights and ideals.
- Resolving complex moral issues in engineering profession

Scope Professional ethics

Twofold scope:

1. Ethics of the workplace related to employees in an organization.
2. Ethics related to the production in terms of product quality, transportation, storage, safety, marketing and social environment.

Approaches to Professional Ethics

The Two approaches are

1. Micro-ethics which deals with decisions and problems of individuals, professionals, and companies.
2. Macro-ethics which deals with the societal problems on a regional/national/global level. .

5.2 SENSES(meanings) OF ENGINEERING ETHICS

1. Normative and
2. Descriptive senses.

The normative sense includes:

- (a) Knowing moral values, resolving moral problems and justifying moral judgments in engineering practices,
- (b) Study of decisions, policies, and values that are morally desirable in the engineering practice and research
- (c) Using codes of ethics and standards and implementation

The descriptive sense includes :

Specific individual or group of engineers believe and act, without justifying their beliefs or actions.

5.3 VARIETY OF MORAL ISSUES

The reasons for people (the employer and employees) behaving unethically may be classified into three categories:

1. Resource Crunch 2. Opportunity 3. Attitude

1. Resource Crunch

Occurs due to pressure, time limits, budgetary constraints, and technology obsolescence(outdating).

Example: 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 technology innovation by the competitor lead to manipulation and unsafe and unethical execution of projects.

In such situation, involving individuals in the development of goals, values and developing policies that consider individual diversity, dissent(disagreement), and input to decision-making will prevent unethical results.

2. Opportunity(Misuse of opportunities)

Reasons for unethical behavior in a Profession

(a) Double standards or behavior of the employers towards the employees and the 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,

(b) 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,

(c) Emphasis on results and gains at the expense of the employees, and

(d) Management by objectives, without focus on empowerment and improvement of the infrastructure.

This issue can be resolved by developing policies that allow ‘conscience keepers’ and whistle blowers and appointing ombudsman(grievance cell), who can work confidentially with people to solve the unethical problems internally.

3. Attitude

Poor attitude of the employees set in due to

(a) Low morale of the employees because of dissatisfaction and downsizing(shedding of staff)

(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, and

(f) Poor working environments.

Methods of Improving Attitude

- Giving ethics training for all the employees.
- Recognizing ethical conduct in work place

- Including ethics in performance appraisal.
- Encouraging open discussion on ethical issues for promoting positive attitude
- Setting and adopting ethical standards by the management, with inputs from all the personnel(human resources)

5.4 TYPES OF INQUIRIES(Investigations)

The three types of inquiries, in solving ethical problems are:

1. Normative(standard) inquiry
2. Conceptual(Theoretical) inquiry
3. Factual or descriptive inquiry.

1. Normative Inquiry

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. What are the reasons on which the engineers show their obligations to their employees or clients or the public?

2. Conceptual Inquiry

It is aimed to clarify the meaning of concepts 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.

3. Factual or Descriptive Inquiry

It is aimed to obtain facts needed for understanding and resolving value issues. 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 the reasons for moral problems develop alterative 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? and
4. Who conducted the tests on materials?

5.4 MORAL DILEMMA

1 Definition

Dilemmas are situations in which moral reasons come into conflict, where one is not clear of the immediate choice or solution of the problems. Moral reasons could be rights, duties, goods or obligations. This makes the decision making complex.

- For example, a person promised to meet a friend and dine, but he has to help his uncle who is involved in an accident — one has to fix the priority.

There are some difficulties in arriving at the solution to the problems, in dilemma. 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.
2. The problem of *conflicting reasons*: One is unable to choose between two good moral solutions. One has to fix priority, through knowledge of value system.
3. The problem of *disagreement*: There may be two or more solutions and none of them is Mandatory then select the best suitable, under the existing conditions.

2 Steps to Solve Dilemma

The logical steps in overcome moral dilemma are:

1. Identification of the moral factors and reasons referring the professional codes of ethics, as interpreted by the professional experience i.e Conceptual Inquiry.
- 2 Talking with colleagues who can focus or narrow down the choice of values.
3. Collection of all information, data, and facts (factual inquiry) relevant to the situation.
3. Rank the moral options in the perspective of their impact on the society and individual. For example, give higher priority to public and environment issues, as compared to the individuals issues.
4. Explore alternate courses of action to resolve the dilemma by writing the main options and sub-options chart.
5. If no ideal solution possible choose course of action of average satisfaction level.

5.6 MORAL AUTONOMY

Moral autonomy is defined as 'self determinant or independent adoption of ethical conventions based on their own moral beliefs and attitudes rather than on passive adoption of the conventions of the society or profession.

Factors affecting Moral Autonomy

Moral Autonomy can be promoted by considering engineering as social experimentation .It retains professional identity.

Moral autonomy is discouraged by Periodical performance appraisals, tight-time schedules and fear of foreign competition .

Moral autonomy is discouraged if the management is concerned more on *profitability* than on *consistent quality and retention of the customers*.

Moral autonomy can be obtained by the help of labour unions or legal pursuit.

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

1. Proficiency in recognizing moral problems in engineering and ability to distinguish as well

as relate them to problems in law, economics, and religion,

2. Skill in comprehending, clarifying, and critically-assessing arguments on different aspects of moral issues,
3. Ability to form consistent and comprehensive view points based on facts,
4. Awareness of alternate responses to the issues and creative solutions for practical difficulties,
5. Sensitivity to genuine difficulties and subtleties, including willingness to undergo and tolerate some uncertainty while making decisions,
6. Using rational dialogue in resolving moral conflicts and developing tolerance of different perspectives among morally reasonable people
7. Maintaining moral integrity.

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.

5.7 MORAL DEVELOPMENT (THEORIES)

1. Kohlberg Theory

Moral development in human being occurs over age and experience. There are three levels of moral development 1. pre-conventional 2. Conventional 3. post-conventional, based on the type of reasoning and motivation of the individuals in response to moral questions.

Pre-conventional level: Here right conduct exhibited for an individual welfare and benefit self. At this level, individuals are motivated by obedience or the desire to avoid punishment(not by law) or to satisfy their own needs. Ex: Innocent people and children exhibit this tendency.

Conventional level: Here 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 wish to meet the expectations of the society first and get acceptance from the society first(rather than their self interest). Loyalty is most important at this level. Ex: Getting reward or certification as Good Employee

Post-conventional level: Here people are called *autonomous*. They think originally with conscience and want to live by universal good principles and welfare of others. They have less priority to self-interest. They follow the golden rule, 'Do unto others as you would have them do unto you'(Vasudhaiva Kutumbakam, Aatmavat Sarva Bhooteshu). 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.

2. Gilligan's Theory

Carol Gilligan found that Kohlberg's theory had a strong male bias. According to Gilligan's studies, while resolving moral dilemma

- Women follow the context oriented focus in maintaining personal relationships, called the *ethics of care*
- On the other hand men follow the *ethics of rules and rights*.

Gilligan revised the three levels of moral development of Kohlberg, as stages of growth towards ethics of caring.

- The pre-conventional level, right conduct, is viewed in a selfish manner solely as what is good for oneself.
- The *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.
- post-conventional level, a reasonable balance is found between caring about others and pursuing the self-interest. This is achieved by context-oriented reasoning, rather than by hierarchy of rules.
-

Comparison of the Two theories

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

Kohlberg's Theory

Carol Gilligan's Theory

A. Basic Aspects

1. Is based on the study on men.
2. Men give importance to moral rule.
3. Ethics of rules and rights.

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 consider context-oriented and ethics of care

B Characteristic Features

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

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

Example: The difference in these two theories is explained through the well-known example, *Heinz's dilemma*¹. Heinz being poor and a debtor could not buy the costly medicine for his sick wife, at ten times the normal cost. Initially he begged the Pharmacist to sell at half the price or allow him to pay for it later. Pharmacist refused to oblige him either way. Finally he forcibly entered the Pharmacy and stole the drug. According to Kohlberg study, men observed that the theft was morally 'wrong' at the conventional level, because the property right was violated. But men at the post-conventional level, concluded that the theft was 'right', as the life of the human being was in danger. But women observed that Heinz was wrong. They observed that instead of stealing he could have tried other solutions (threatening or payment in installments?) to convince the Pharmacist. Gilligan however attributed the decision by women as context-oriented and not on the basis of rules ranked in the order of priority.

5.8 CONSENSUS and CONTROVERSY

In the study of moral autonomy, consensus and controversy are relevant factors to discuss on. Consensus means agreement and controversy means conflict or disagreement.

In exercising moral autonomy, one is not likely to obtain the same results as by others. This situation is likely to end in a controversy. In this case, good amount of tolerance among the individuals who are autonomous, reasonable and responsible is necessary. This does not mean forcing the engineers to reach unique moral solutions. Many reasonable solutions are possible to a given ethical problem. The ethics make the engineers realize the importance of tolerance among them, in case of disagreement while applying moral autonomy.

5.9 PROFESSION

PROFESSION is defined as any occupation/job/vocation that requires advanced expertise (skills and knowledge), self-regulation, and concerted service to the public good. It brings a high status, socially and economically. The characteristics of a profession are:

The *criteria* for achieving and sustaining professional status or professionalism are:

1. *Advanced expertise*: A professional should analyse the problem in the relevant area, in an objective manner using sophisticated expertise and knowledge.
2. *Self-regulation*: Giving an autonomous judgment (unbiased and on merits only) following the codes of conduct of professional societies towards the best interest of the clients/customers.
3. *Public good*: The concerted efforts in the job should be towards promotion of the welfare, safety, and health of the public.

5.8 Characteristics of Profession

The characteristics of the 'profession' as distinct from 'non-professional occupation' are listed as follows:

1. *Extensive Training*

Entry into the profession requires an extensive period of training of intellectual (competence) and moral (integrity) character. The theoretical base is obtained through formal education Diploma/UG/PG

2. Knowledge and Skills

Knowledge and skills (competence) are necessary for the well-being of the profession and society.
Example: Knowledge of physicians protects us from disease and restores health.

3. Monopoly

The monopoly control is achieved in two ways:

- (a) legally prescribing the professional qualifications and establishing accreditation standards
- (b) Legal licensing system for those who want to enter the profession.

4. Autonomy in Workplace

Professionals are empowered with certain rights to establish their autonomy with possession of specialized Knowledge.

5. Ethical Standards

Professional societies promulgate(propagate) the codes of conduct to regulate the professionals to avoid unethical decisions and actions affecting the individuals or groups or the society.

5.10 MODELS OF PROFESSIONAL ROLES

Promotion of public welfare is the primary concern of the professional engineers. There are several role models through which the engineers and professionals are motivated. 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. Ex: Lawrence of Arabia (an engineer).

3. Bureaucratic Servant

He serves the organization and the employers. The management of an enterprise fixes its goals and assigns the job of problem solving to the engineer, who accepts the challenge and shapes them into concrete achievements. For example, Jamshedji Tata.

4. Social Servant

It is one who exhibits social responsibility. For example, Sir M.Viswesvarayya.

5. Social Enabler and Catalyst

One who changes the society through technological development and minimize the negative effects of technology on people and their living environment. For example, Sri Sundarlal Bahuguna.

6. Game Player

He plays a unique role successfully within the organization, enjoying the excitement of the profession and having the satisfaction of surging ahead in a competitive world. For example, Narayanamurthy, Infosys and Dr. Kasthurirangan, ISRO.

5.11 RESPONSIBILITY

1. Senses of responsibility

1. Characteristic Quality

Primarily responsibility implies duty with care and efforts.

2. Obligations

These are one's moral responsibility i.e., duty to act right and in moral ways. For example, a Safety Engineer has a responsibility to make regular inspections in a factory shops.

3. General Moral Capacity

One has the general capacity for moral agency, including the understanding and action on moral reasons.

4. Liability and Accountability

Liability means one is liable (with a legal sense) to meet the obligations satisfactorily. Accountability means the act of justifying or defending the decisions, actions and outcomes.

5. Praiseworthiness/Blame worthiness

When accountability for wrong actions or results is at issue, responsibility means blameworthy. When the right conduct or successful result is at issue, responsible is synonymous with praiseworthy.

2. Types of Responsibility

Different types of responsibilities exhibited in human transactions are:

1. Moral Responsibility

Moral responsibility as applied to a professional: A professional must be responsible morally, in creating goodness in and around and good outcomes, and eliminating /minimizing un- intended side-effects by following:

(a) *Obligations*: A commitment to moral actions

(b) *Conscientious(Meticulous)*: A comprehensive approach in accepting and performing the duties with desirable outcomes

(c) *Accountability* (being accountable for the decisions, actions, and the results of product/project including safety), and

(d) *Readiness to be Praiseworthy/Blameworthy* as applied to context of doing things right/doing things wrongly, respectively.

2. Causal Responsibility

Responsibility for some causal event during routine course.

Ex: a. Damage to a motor due to unintended maloperation.

3. *Job Responsibility*

It consists of assigned tasks at the place of employment and achieving the objectives.

4. *Legal Responsibility*

It is the responsibility associated with legal obligations and accountability to meet them.

Ex: Higher level Financial transactions.

Many of these responsibilities overlap with moral responsibility.

5.12 Social Responsibility

Corporate organizations have social responsibility to all of their 'stakeholders'. Social responsibility includes the well being of the employees and their unions, investors, customers, dealers, suppliers, local communities, governments, non-governmental organizations, and the business owners and managers. environment, health and education.

Ex: Providing education to the communities staying around the industry

Various types of responsibilities such as causal, moral, and legal are distinguished through appropriate examples, as shown below:

<i>Events</i>	<i>Responsibility</i>
1. A stray cattle on the rail track caused of the cattle is morally responsible	(a) Although cattle is the cause, the owner (b) For letting the cattle go astray on the railway track, that is trespassing the owner is legally responsible the derailment of goods train
2. A child playing with matches causes fire	Although the child is the cause, the parents who who have left the match box within the reach of the child, are morally responsible
3. (a) Seth was driving a car. He failed to stop at the red signal, which caused an accident (b) Suppose he applied brakes, but brakes they failed	(a) Seth is causally responsible (b) Seth has been negligent of maintenance of
4. The products sold have caused harm	The engineer or the engineering firm is legally responsible for the harmful effects of defects in

their products. But they are not morally responsible for the harm or defects while being used

5. A fitter lost one his eyes
while inserting a chip by using a hammer

The hammer manufacturer was legally responsible on the basis of the doctrine of strict liability, which does not require any proof of effect in the design of the hammer. Morally the manufacturer was not responsible

6. In a contract, it is not implied that the engineer to be held for not observing the possibility of danger. But an accident occurs

The engineer is free from legal to be held but he has moral responsibility to observe the work done

5.13 Accountability

Accountability can be defined as the capacity to understand and act on moral reasons and preparedness to be answerable for meeting specific obligations assigned.

The terms 'corporate responsibility' and 'corporate accountability' have different meanings.

Corporate responsibility related to the voluntary compliance of to particular codes of conduct in a particular organization by the groups of individuals in the organization through policy manuals and flow charts.

The corporate accountability means holding all the corporate organizations accountable to the public, employees, customers, and stock holders, as empowered by rules and laws.

5.14 Responsible Professionalism (Professional Responsibility)

The most comprehensive virtue of engineers is responsible professionalism. This consists of five types of virtues, as follows:

1. Self-direction (Self-governance) virtues:

On the basis of 'understanding and cognition', it includes self-understanding, Humility (proper assessment of one's character), and good moral judgment (termed as 'practical wisdom' by Aristotle).

On the basis of 'commitment and action', it covers courage, selfdiscipline, perseverance, self-respect, and integrity.

Honesty as a virtue in terms of truthfulness in thoughts and words and trustworthiness in actions.

2. Public-spirited (directed) virtues: Focus on the welfare of the clients and the public, respect for rights, public safety and health justice, social welfare, unbiased decisions and actions.

3. Team-work virtues: Focus on Collegiality (team work and learning), cooperation, communicative ability, motivation and respect for higher authority.

4. Proficiency virtues: Focus on technical skills , competence (in terms of qualification, license, execution) , diligence(alertness) , creativity, excellence (perform at the highest level), and self-renewal through continuing education.

5. Cardinal (chief) virtues: Focus on Wisdom (prudence), courage (fortitude), temperance and justice.

They are called ‘cardinal’ because they are hinges on which all virtues depend.

These are also called *moral* (Latin:mores, fixed values). because they govern our actions, regulate our passions, and guide our conduct according to faith and reason

5.15 Social Responsibility

Corporate organizations have social responsibility to all of their ‘stakeholders’. This includes the wellbeing of the employees and their unions, socially responsible investors, customers, dealers, suppliers, health and culture of local communities, governments, non-governmental organizations, and the business owners and managers, marketing and distribution system, protection of environment.

5.16 Obligation

The performance, production, quality, supply, safety and other social obligations of professional engineers are justifiable based on the following aspects.

1. Moral obligations through laws and enforced codes of conduct
2. Through membership of professional society
3. Contractual agreement with the employers

The *paramount(main) obligation* means, giving importance to the safety, health, and welfare of the public in performing the professional duties.

Chapter 6

6.1 THEORIES ABOUT RIGHT ACTION (ETHICAL THEORIES)

1.Uses of Ethical theories

The ethical theories are useful in many respects.

- a. In understanding moral dilemma. They provide clarity, consistency, systematic and comprehensive understanding.
- b. It provides helpful practical guidance in moral issues towards the solution.
- c. Justifying professional obligations and decisions, and
- d. In relating ordinary and professional morality.

2.Criteria for Evaluation of Ethical theories

Different *criteria* may be applied for evaluating various ethical theories and deciding upon the

best.

1. The theory must be clear and (coherent) formulated with concepts that are logically connected.
2. It must be internally consistent, without conflicts within.
3. The theory and its defense must depend, only upon facts.
4. It must organize basic moral values in systematic and comprehensive manner. It is to fix priority of values and provide guidance in all situations
5. It must provide guidance compatible with our moral convictions (judgments) about concrete situations.

For example, if an ethical theory says that it is all right for engineers to make explosive devices without the informed consent of the public, we can conclude that the theory is inadequate.

Theories and judgments adjust mutually to reach a reflective(thoughtful) equilibrium. Most of the theories converge towards the welfare of the humanity. The duty ethics and right ethics differ in great extent on their emphasis but they are complementary to each other.

3. Ethical Theories/Approaches

Several ethical theories have been developed over different times as follows

1. Utilitarian Theory

The term Utilitarianism was conceived in the 19th century by Jeremy Bentham and John Stuart Mill to help legislators determine which laws were morally best.

The steps in analyzing an issue in this approach,

- (a) Identify the various courses of action available .
- (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.

The ACT UTILITARIAN theory proposed by J.S. Mill (1806-73) focuses on actions, rather than on general rules. An action is right, if it generates the most overall good for the most people involved.

The act utilitarian theory permitted a few immoral actions. Hence, there was need to develop rule *utilitarian theory* to establish morality and justice, in the transactions

The RULE UTILITARIAN theory, developed by Richard Brandt (1910-97), stressed on the rules, such as 'do not steal', 'do no harm others', 'do not bribe', as of primary importance. He suggested that individual actions are right when they are guided by set of rules which maximizes the public good.

2. Duty Ethics

A. 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.

For example, we should be honest because honesty is required by duty. A businessman is to be honest because honesty results in profits from customers and avoids prosecution for dishonesty.

B. On the other hand, the DUTY ethics theory (agreement based), by John Rawls, gave importance to the actions that would be voluntarily agreed upon by all persons concerned, assuming impartiality. Rawls proposed two basic moral principles;

- (1) each person is entitled to adequate liberty compatible with an equal amount for others, and
- (2) differences in social power and economic benefits are justified only when they are likely to benefit every one, including members of the most disadvantaged groups.

In the business scenario, for example, the free enterprise is permissible so far it provides the capital needed to invest and prosper, thereby making job opportunities to the public and taxes to fund the government spending on the welfare schemes on the poor people.

C. Prima facie duty Ethics theory (justified exceptions) by W.D. Ross, the British philosopher. Ross assumed that the prima facie duties are intuitively obvious (self-evident), while fixing priorities among duties. 'Do not kill' has higher respect and priority than 'Do not lie' (less harmful).

He has listed various aspects of Duty Ethics that reflect our moral convictions, namely:

1. Fidelity : duty to keep promises.
2. Reparation : duty to compensate others when we harm them.
3. Gratitude : duty to thank those who help us.
4. Justice : duty to recognize merit.
5. Beneficence : duty to recognize inequality and improve the condition of others.
6. Self-improvement : duty to improve virtue and intelligence.
7. Non-maleficence : duty not to injure others.

3. Rights Theory (Theory of Rights)

Rights serve as a protective barrier, shielding individuals from unjustified infringement (encroachment, violation) of their moral agency (organization) by others. For every right, we have a corresponding duty of noninterference.

A. The RIGHTS theory by philosopher Immanuel Kant, who focused on the individual's right to choose for oneself based on their dignity and freedom of choice. Other rights he advocated are:

1. *The right to access the truth:*
2. *The right of privacy:* We have the right to do, believe, and say whatever we choose in our personal lives so long as we do not violate the rights of others.
3. *The right not to be injured:* We have the right not to be harmed or injured unless we harm others.
4. *The right to what is agreed:* We have a right to what has been promised by the people in the professional transactions. More serious violation of rights more, the more wrongful actions.

B. The RIGHTS theory by John Locke states that the actions are right, if they respect human rights namely *life, liberty, and property* of every one concerned.

His views were reflected in the modern American society, when Jefferson declared the basic rights as life, liberty, and pursuit of happiness.

C. As per A.I. Melden's theory highlighted that the rights should be based on the social welfare system.

D. Human rights: Human rights are explained in two forms, namely liberty rights and welfare rights.

1. Liberty Rights are natural in so far as they are not created by government.

2. They are universal, as they do not change from country to country.

3. They are equal since the rights are the same for all people, irrespective of caste, race, creed or sex.

4. They are inalienable(indisputable) i.e., one cannot hand over his rights to another person such as selling oneself to slavery.

The Welfare Rights are the rights to benefit the needy for a decent human life, when one can not earn those benefits available in the society.

E. Economic rights: In the free-market economy, the very purpose of the existence of the manufacturer, the sellers and the service providers is to serve the consumer. The consumer is eligible to exercise some rights. The consumers' six basic rights are: Right to Information, Right to Safety, Right to Choice, Right to be Heard, Right to Redressal, and Right to consumer Education.

Rights ethics makes human rights the ultimate appeal — the moral bottom line.

Human rights constitute a moral authority to make legitimate(legal) moral demands on others to respect our choices, recognizing that others can make similar claims on us.

Thus, we see that the rights ethics provides a powerful foundation for the special ethical requirements in engineering and other professions.

F. 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 find the golden mean between the extremes of 'excess' or 'deficiency' of conduct, emotions and attitude. The examples shown below illustrate the theory:

<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

H. Justice (Fairness) Theory

The justice or fairness approach to ethics by the ancient Greek philosopher Aristotle, who said that “equals should be treated equally and unequals unequally.” It is based on bad impacts (controversies) of discrimination, favouritism

6.2 SELF-CONTROL

It is a virtue of maintaining personal discipline by avoiding evil conduct such as fear, hatredness, laziness, passiveness, untoward discrimination, self deception . Self-respect promotes self-control.

6.4 SELF-INTEREST

Self-interest is an act of being good and acceptable to oneself without harming others. It is very ethical (in duty, right, virtue justice) to possess self-interest and be concerned for the interest of others also. However this self interest should not degenerate into egoism or selfishness, i.e., maximizing only own good in the pursuit of self-interest. Self-interest is necessary initially to begin with and it should be one of the prime motives for action .

The principles of ‘Live and let (others) live’, and ‘reasonably fair competition’ are recommended for good profession.

6.5 CUSTOMS

Ethical Pluralism: Various cultures and customs result in Ethical Pluralism. There are diverse moral values, which allow variation in the understanding and application of values by the individuals or groups in their transactions. It is difficult to agree on all moral issues and professional ethics.

Ethical Relativism: According to this principle, the ethics relative to laws, customs and culture should be considered by following a balance between customs, laws and practical wisdom to maintain good profession. Ethical Relativism should be followed in implementing professional ethics to avoid professional and social unrest.

For example, the Apartheid laws of South Africa violated the human rights of the native Africans. No legal protection was available for native citizens for a long time. Later, these laws have been repealed.

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6.6. RELIGION

Religions have played major roles in shaping moral views and moral values.

Religions create trust and beliefs, support moral responsibility, set high moral standards, tolerance , harmony and inspires people to be moral. But sometimes, due to poor ethics in the past atrocities happened to promote religion for monopoly. Thus, conflicts exist between the ‘secular’ and religious people and between one religion and another. Hence, religious views have to be morally scrutinized.

6.7 Divine Command Ethics

As per this principle, the right action is defined by the commands by God. It implies that to be moral, a person should believe in God and an action is right only if it is commanded by God. There are some difficulties in this approach, namely, (a) whether God exists or not is not clear. (b) How to know what are the God’s commands? and (c) How to verify the genuineness of the commands? Further, religions such as Hinduism, Islam, and Christianity accept the existence of God. But Buddhism, Taoism, and Confucianism adopt only faith in a right path and do not believe in God.

Socrates was said to have argued that God, an entity which is responsible, morally good, and beyond fear or favor, would not command murder, rape, torture, immoral activities, and even mass suicide. Many such crimes were committed in the name of God then and continue even now in different parts of the world. Some Western leaders had claimed that God had commanded them to invade against the Middle-East countries. If anyone claims to have obtained commands from God to kill people merciless, then we have to conclude that the person is not religious but insane.

6.8 SELF-RESPECT

Self-respect includes recognition self appraisal in terms of moral standards and professional commitments

Feeling of self-respect is sense of honor and feeling of poor self respect is intense agony(distress).

Self respect promotes virtues of sense of honor, self-control and courage

Self-respect is different from self-esteem in the following manner:

<i>Self-respect</i>	<i>Self-esteem</i>
1. A moral concept	1. A psychological concept
2. Valuing oneself in morally-suitable ways	2. Having a positive attitude towards oneself. It may be excessive or unwarranted or normal
3. It includes virtues of recognition and appraisal. It promotes virtues of sense of honor, self-control and courage	

6.9 CASE STUDY: CHOICE OF THE THEORY

The ground water gets contaminated and significant health problems surface in the community. The choice of the ethical theory to study a problem is illustrated herein with an example. In tackling ethical problems, we can apply all the theories and analyze the actions and results from different angles and see what result each theory gives rise to. This enables us to examine the problem in different perspectives. Many a time, the result will be the same though we have applied various theories.

Case: A chemical plant near a small town is discharging hazardous wastes into the fields nearby. Since harm is caused to the residents, the action is unethical as per rights ethics. The agriculturists who have the agrarian right of water supply have been over looked. The pollutants may endanger their profession and welfare. Hence, *rights* ethics also concludes that the action is unethical. The effects of polluted water and the cost to purify the water by the municipality may out weigh the economic benefits of the plant. Hence, the *utilitarian* analysis leads to the same conclusion. The groundwater harms the people and caused health problems. Hence, discharging the pollutants is unethical as per *duty* ethics. Generally, because the rights of the individuals should weigh strongly than the needs of the society as a whole, rights and duty ethics take precedence over utilitarian considerations.

Caution is necessary in applying theory of virtue ethics. When we use the word ‘honor’, we mean it to be a measure of dignity and integrity. It is a positive virtue. When it points to ‘pride’ it is not a virtue and has a negative connotation. History abounds with examples of war, which have been fought and atrocities were committed on innocent people in order to preserve the honor (pride) of an individual or a nation. In

using virtue ethics, we have to ensure that the traits of virtue are actually virtuous and will not lead to negative consequences.

6.10 Engineering as Social Experimentation

a. ENGINEERING AS EXPERIMENTATION

The development of a product or a project as a whole may be considered as an experiment. Before manufacturing a product or providing a project, we make several assumptions and trials, design and redesign and test several times till the product is observed to be functioning satisfactorily. We try different materials and experiments. From the test data obtained we make detailed design and retests.

Thus, design as well as engineering is iterative process.

Several redesigns are made upon the feedback information on the performance or failure in the field or in the factory. Besides the tests, each engineering project is modified during execution, based on the periodical feedback on the progress and the lessons from other sources. Hence, the development of a product or a project as a whole may be considered as an experiment.

b. ENGINEERS AS RESPONSIBLE EXPERIMENTERS

Engineers facilitate experiments by sharing their responsibility with the production and research Development organizations, government, society and environment others as follows. Based on this, they can take decisions to participate or protest or promote.

The engineer, as an experimenter, owe several responsibilities to the society, namely,

1. A conscientious(hard working) commitment to live by moral values.
2. Having a comprehensive perspective(outlook, perception) on relevant information.
3. Having constant awareness of the progress of the experiment and readiness to monitor the side effects.
3. Unrestricted free-personal involvement in all steps of the project/product development (autonomy).
- 4.Be accountable for the outcomes of the project (accountability).

As a summary, engineers must possess open eyes, open ears, and an open mind (i.e., moral vision, moral listening, and moral reasoning). This makes the engineers as social experimenters.

Chapter 7

7.1 CODES OF ETHICS

The 'codes of ethics' exhibit, rights, duties, and obligations of the members of a profession and a professional society.

a. Roles of Codes of Ethics:

1. *Inspiration and guidance* for the professionals and the professional societies.
2. *Support to engineers*. The codes give positive support to professionals to discharge professional obligations.
3. *Deterrence (discourage to act immorally)* and discipline (regulate to act morally). The codes serve as the basis for investigating unethical actions.
4. *Education and mutual understanding*. Codes of Ethics develop a shared understanding by the professionals, public, and the government on the moral responsibilities of the engineers.
5. *Create good public image*. The codes present positive image of the committed profession to the public, help the engineers to serve the public effectively and establish public trust.
6. *Protect the status quo*. Primary obligation namely the safety, health, and welfare of the public, declared by the codes serves and protects the public.
7. *Promotes business interests*. The codes offer inspiration to the entrepreneurs, establish shared standards, healthy competition, and maximize profit to investors, employees, and consumers.

b. Limitations of Codes of Ethics:

The codes are not remedy for all evils because of many limitations, namely:

1. General and vague wordings make them unable to solve all the ethical problems.
2. Not applicable to all situations.
3. Codes of Ethics are sometimes mutually controversial causing internal conflicts.
4. They can not act as final moral authority for professional conduct because of undefined perview.
5. Lack of awareness of codes of Ethics among the members the professional society.
6. Non uniform codes of ethics for different societies .
8. Codes are said to be coercive, sometimes claimed to be threatening and forceful.

7.2 ENVIRONMENTAL ETHICS

Environmental ethics includes (a) ensuring protection (safety) of environment (b)

Preventing the degradation of environment, and (c) reducing the exploitation of the natural resources, so that the future generation can survive.

Duties of Engineers regarding environmental ethics:

1. *Environmental impact assessment*: One major unintended effect of technology is wastage and the resulting pollution of land, water, air and even space.
2. *Establish standards*: Study and to fix the tolerable and actual pollution levels.
3. *Counter measures*: Design the protective or eliminating measures are available for immediate implementation in the form of *Plastic Waste Disposal, e-Waste Disposal, Industrial Waste Disposal, Depletion of Ozone Layer and Global Warming, Acid Rain*
4. *Environmental awareness*: Educate the people on environmental practices, issues, and possible remedies.

7.3 COMPUTER ETHICS

Computer ethics is defined as (a) study and analysis of nature and social impact of computer technology, (b) formulation and justification of policies, for ethical use of computers.

Problems in computer ethics.

- (a) Hacking
- b) Spreading virus
- (c) Health hazard due to e –Waste and radiation
- d) defrauding a bank or client
- e). Elimination of routine and manual jobs and creation of skilled and IT-enabled service jobs
- f) Computer failure and disturbance in transactions.

Measures to maintain Computer Ethics

1. The privacy of the individuals or organizations, confidentiality, integrity by deploying only the authorized persons
2. Uninterrupted service. By installing appropriate uninterrupted power supply or back-up provisions

3. Protection against hacking are Licensed anti-virus packages and firewalls are used by all computer users to ensure this protection.

4. Computer software Security: By Passwords and data encryption

5. Constitution Cyber laws.

Professional Responsibility

The computer professionals should be aware of different conflicts of interests as they transact with other at different levels. The IEEE and Association for Computing Machinery (ACM) have established the codes of ethics to manage such responsibilities.

7.4 ENGINEERS AS MANAGERS

The duties of engineers as managers are:

1. Promote an ethical climate, through framing of organization, administration, planning, finance, production and marketing, health and safety, evaluation policies and responsibilities and by considering personal attitudes and obligations.

2. Resolving conflicts, by evolving priority, developing mutual understanding, generating options as alternative solutions to problems.

3. The engineers have the responsibility to protect the safety, health, and welfare of the public. .

7.5 Ethics and code of business conduct in MNC

Globalization means integration of countries through commerce, transfer of technology, and exchange of information and culture. Organisations who have established business in more than one country, are called multinational corporation. For the engineers, the issues such as multinational organizations, computer, internet functions, military development and environmental ethics have assumed greater importance for their very sustenance and progress.

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 exploitation of natural resources, political instability for the *host* countries are some of the threats of globalization.

Codes of business conduct in MNC:

1. MNC should respect the basic human rights of the people of the host countries.

2. The activities of the MNC should give economic and transfer technical benefits, and implement welfare measures of the workers of the host countries.

3. The business practices of the multinational organisations should improve and promote morally justified institutions in the host countries.

4. The multinationals must respect the laws and political set up, besides cultures and promote the cultures of the host countries.

5. The multinational organisations 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.

6. 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.

Example

Union Carbide Company, Bhopal, Gas Leakage case 4 December, 1984: Poisonous gas escaped into the air and spread over 40 sq. km. About 600 people died and left 7000 injured and the health of about 2 million people was affected adversely. Even after 22 years, influence of the Central Government and the courts, the compensation had not reached all the affected people.