BAOU
Education for All

Dr. Babasaheb Ambedkar Open University

(Established by Government of Gujarat)

NAAC ACCREDITED A++ GRADE 3.55/4

BBA

SEMESTER - 6

BBAR24603

Corporate Governance & Professional Ethics

Message for the Students

Dr. Babasaheb Ambedkar Open (University is the only state Open University, established by the Government of Gujarat by the Act No. 14 of 1994 passed by the Gujarat State Legislature; in the memory of the creator of Indian Constitution and Bharat Ratna Dr. Babasaheb Ambedkar. We Stand at the seventh position in terms of establishment of the Open Universities in the country. The University provides as many as 54 courses including various Certificate, Diploma, UG, PG as well as Doctoral to strengthen Higher Education across the state.

On the occasion of the birth anniversary of Babasaheb Ambedkar, the Gujarat government secured a quiet place with the latest convenience for University, and created a building with all the modern amenities named 'Jyotirmay' Parisar. The Board of Management of the University has greatly contributed to the making of the University and will continue to this by all the means.

Education is the perceived capital investment. Education can contribute more to improving the quality of the people. Here I remember the educational philosophy laid down by Shri Swami Vivekananda:

> ***"We want the education by which the character is formed, strength of mind is Increased, the intellect is expand and by which one can stand on one's own feet".***

In order to provide students with qualitative, skill and life oriented education at their threshold. Dr. Babaasaheb Ambedkar Open University is dedicated to this very manifestation of education. The university is incessantly working to provide higher education to the wider mass across the state of Gujarat and prepare them to face day to day challenges and lead their lives with all the capacity for the upliftment of the society in general and the nation in particular.

The university following the core motto 'स्वाध्यायः परमं तपः does believe in offering enriched curriculum to the student. The university has come up with lucid material for the better understanding of the students in their concerned subject. With this, the university has widened scope for those students who are not able to continue with their education in regular/conventional mode. In every subject a dedicated term for Self Learning Material comprising of Programme advisory committee members, content writers and content and language reviewers has been formed to cater the needs of the students.

Matching with the pace of the digital world, the university has its own digital platform Omkar-e to provide education through ICT. Very soon, the University going to offer new online Certificate and Diploma programme on various subjects like Yoga, Naturopathy, and Indian Classical Dance etc. would be available as elective also.

With all these efforts, Dr. Babasaheb Ambedkar Open University is in the process of being core centre of Knowledge and Education and we invite you to join hands to this pious *Yajna* and bring the dreams of Dr. Babasaheb Ambedkar of Harmonious Society come true.

Prof. Ami Upadhyay
Vice Chancellor,
Dr. Babasaheb Ambedkar Open University,
Ahmedabad.

NameofProgram:	**BBA**
CourseCodewithTitle:	**BBA: BBAR24603 Corporate Governance & Professional Ethics**
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Acknowledgement:	The content in this book is modifications based on the work created and shared by the Tamil Nadu Open University (TNOU) for the subjectProfessionalEthics usedaccordingtotermsdescribedinCreativeCommons Attribution-ShareAlike4.0International(CCBY-SA4.0)
ISBN :	
Printedandpublishedby	Dr.BabasahebAmbedkarOpenUniversity, Ahmedabad


BAOU
Education
for All

CORPORATE GOVERNANCE/PROFESSIONALETHICS

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Block 1

Unit - 1 Human Value

Unit - 2 Ethics

Unit - 3 Professional Ethics

Unit 1

HUMAN VALUES

Overview

The skills of ethical reflection are central to the practice in every profession. Medicine and Law in particular have seen the creation of almost a separate, high-profile discipline of applied ethics. More than the others, software professionals play a vital role in the development of platform using various technologies for configuration. They need to develop as well as create awareness about the ethical and social implications that arises in their profession.

In this chapter, we discuss about the basic human values that every human being should possess during their life time.

Learning objectives

After completing this unit, you should able to

- ❖ Know about the basic of Human values
- ❖ Describes the need for the study of Human value
- ❖ Differentiate between Morality and Ethics

1.1 Human values

Professional are mainly to “To Serve the People”, the work of professional involves interaction with clients, other professional, and the public at large. More than any other profession, their work also directly involves and affects the society and environment. They play a key role in all aspects of technical, economical, and environmental development.

Professional as professionals, invariably face different situations during their careers, where values become variables in the decision-making process. Infect, the ethical aspects of a decision often prove more difficult than the technical. The professional should be aware of their social responsibilities. They need to develop a greater awareness and an understanding of the ethical and social implications that arises in their profession.

Recognizing this, the professional profession has strongly encouraged professional colleges and universities to introduce he course “Professional Ethics and Human Values” into professional curricula. Thus the subject “Professional Ethics and Human Vales” has rightly become an integral part of professional education.

1.2 Objectives

The objectives of this course on 'Professional Ethics are: (*a*) to understand the moral values that ought to guide the profession, (*b*) resolve the moral issues in the profession, and (*c*) justify the moral judgment concerning the profession. It is intended to develop a set of beliefs, attitudes, and habits that engineers should display concerning morality.

The prime objective is to increase one's ability to deal effectively with moral complexity in engineering practice. Alternatively, the objectives of the study on Professional Ethics may be listed as:

(A) Improvement of the Cognitive Skills (Skills of intellect in Thinking)

1. Moral awareness (proficiency in recognizing moral problems)

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 their Work.

6. Moral reasonableness i.e., willing and able to be morally responsible.

7. Respect for persons, which means showing concern for the well-being of others, besides oneself.

8. Tolerance of diversity i.e., respect for ethnic and religious differences, and acceptance

of reasonable differences in moral perspectives.

9. Moral hope i.e., believes in using rational dialogue for resolving moral conflicts.

10. Integrity, which means moral.

(C) Human Values

Human values are nothing but basic moral values one ought to posses to live as a citizen or as a person.

Foundations of Human Values: A few key principles compose the foundation of human values upon which societies have been established. They are as follows:

- The innate dignity of human life.
- Respect and consideration for the "other".
- The interconnection between humankind and the environment and thus the need to care for and preserve the earth.
- The importance of integrity and service.
- An attitude of non-violence.
- The individual and collective quest for peace and happiness.

1.3 Need to study about human values

As we aware, economic and social globalization has yielded positive as well as negative effects. On the one hand, cultures around the world are threatened by the uniformity that globalization brings. They are struggling to maintain their identities, their distinctive qualities, traditions and character that provide a unique contribution to human history. Globalization has been seen to endanger cultural diversity and this would be a tragic loss for humankind.

On the other hand, increased contact between peoples and nations enhances awareness of our kinship and the shared code of ethics and conduct that underlies all civilization. It is these values that we must now promote to create a common vision and means for moving forward toward a more peaceful and sustainable world.

The success of globalization may in the future be judged by our ability to maintain our cultural distinctions while giving birth to a new understanding of global community.

HUMAN VALUES AND SUB VALUES

List of most important human values and sub values required from human being. Human values can be broadly grouped under the following five headings:

1. Love
2. Truth
3. Right conduct
4. Peace
5. Non-violence

Also in the teachings of Spiritual Leaders, Love is the undercurrent that flows through and supports the other four values. Love is the divine energy inherent in everyone and in all. They connect other values with Love as: truth= Love in speech; Right = Love in action: Peace =Love in thought; Non-violence= Love in understanding.

Now, we shall discuss the various human values, in detailed manner.

1.4 Morals, values, and ethics

1.4.1 "Good" and "Evil"

Before we start analyzing the human values and ethical issues, we must clarify the answers to the questions: what is good?, and what is evil?

According to the Webster's New World Dictionary, the first two meanings of the term "good "are: 'having the proper qualities' and 'beneficial'. The first two meanings given for the term "evil" are: 'morally bad or wrong; wicked' and 'harmful'. These definitions appropriately suggest abstract concepts that are the opposite of each other. They also arise some fundamental question: how d you determine 'the proper qualities' are? ; To whom is it 'beneficial'? and In what way?

These questions suggest that it is impossible to standardize on what is good and what is evil?. However, we can see and feel the quality of good and evil in each action an individual takes. So it is at least theoretically possible to label an action as 'right' or 'wrong'. Therefore our concept of 'good' and 'evil', 'right' and 'wrong' must serve as the foundation of a framework that motivates and guides us in choosing the appropriate action in different situations.

1.4.2 "Morality" and "ethics"

Though the terms moral and ethical (or morality and ethics) are often used interchangeably in casual conversation, but there are important distinctions between them.

Some definitions, given by 'The American Heritage Dictionary of the English Language', for the terms 'moral' and 'ethical' are listed below.

Definitions of 'moral'

1. It concerned with the judgment of the goodness or badness of human action and character; pertaining to the discernment of good and evil.
2. Arising from conscience or a sense of right and wrong.
3. Being or acting in accordance with standards and precepts of goodness.
4. Having psychological rather than physical or tangible effects, for instance, the effort on one's character.
5. Based on strong likelihood or firm conviction rather than on actual evidence or demonstration.
6. A concisely expressed precept or general truth, a maximum.
7. Instructive of what is good or evil.

Definitions of 'ethical/ethic'

1. The discipline dealing with what is right or wrong or with moral duty and obligation.

a) A group of moral principles or set of values.
b) A particular theory or system of moral values.
c) The principles of conduct governing an individual or a profession; standards of behavior.

2. The character or the ideals of character manifested by a group or people.

Ethical: Self-position, one's own condition or place, custom. Being in accord with approved standards of behavior or a socially or professional accepted code.

The key is: Conformity to some code or standard Code of conduct.

1.5 From morality to law

The difference between the 'moral' and 'ethical' can be better understand if we add the concept of law. Fig 1.1 depicts the relationship between all three phenomena.

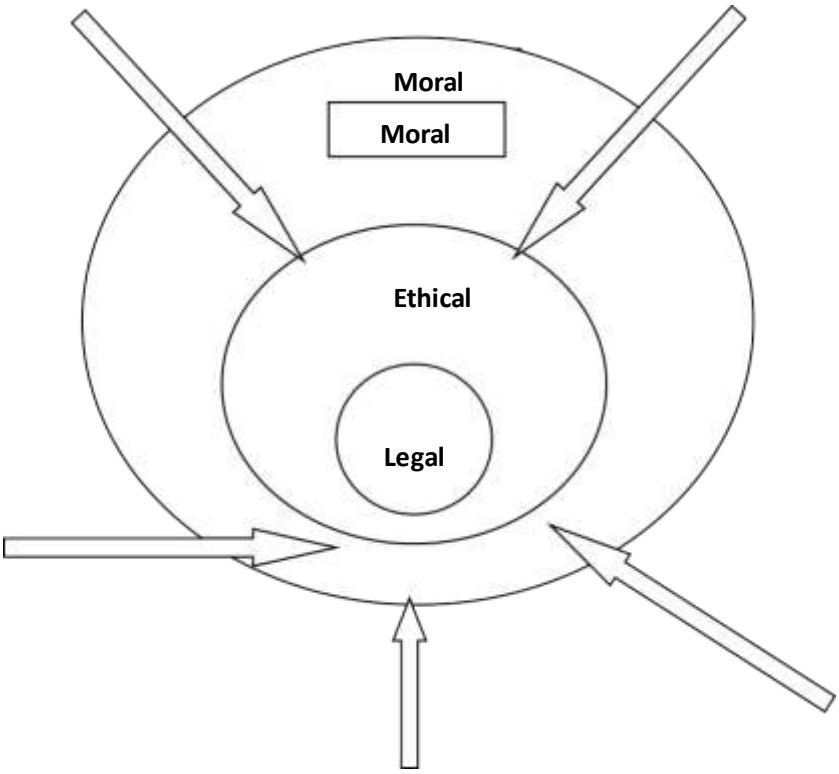

Figure. 1.1

It can be interpreted from the Fig 1.1 that any moral principle becomes progressively more "rigid", with clearer boundaries between right and wrong, as it moves into the areas of ethics and law. For example, the moral principle that "life is sacred" takes on clear definition in the medical doctor's code of ethics; the same moral principle is rigidly defined in the laws prohibiting manslaughter.

MORAL

- Moral values are understood to be those that make a person "good" purely and simply as a person.
- They are not qualities or attributes of the person but outside his or her control.

- Moral values are personal; not only because a person has them, but also because they are the expression of each one's unique personality in the innermost center of one's being as shown in the act of choice.
- Moral values, therefore, reside both in the acts a person chooses to do and in the results of those acts on the character of the person. There are morally good or bad human acts and morally good or bad persons.
- Two husbands have wives afflicted with a lingering and incapacitating disease. Both families are alike, five children, moderate income, no hope of remedy. One husband does his best to be both father and mother to the children, works overtime to pay for his wife's care and spends what time he can with her to and children, get work in a distant city and is not heard of again. We make our judgment, we have to approve the first husband and we condemn the action of the second as morally wrong.
- The moral good is seen not as optional but as necessary. This necessity is of a unique kind called "moral necessity" not a must, but an ought, not physically compelling but morally demanding.

1.6 Characteristics of moral value

Some distinct characteristics of moral value are as follows:

- Moral value can exist only in free personal being and in that person's voluntary or human acts
- Moral value is universal in the sense that what one holds for all in the same conditions.
- Moral value is self-justifying.
- Moral value has preeminence over every other value.
- Moral value implies obligation.

Morality is different from Ethics in the following ways:

MORALITY	ETHICS
1. More general and prescriptive based on customs and traditions.	1. Specific and descriptive. It is a critical reflection on morals.
2. More concerned with the results of wrong action, when done.	2. More concerned with the results of a right action, when not done.
3. Thrust is on judgment and punishment, in the name of God or by laws.	3. Thrust is on influence, education, training through codes, guidelines, and correction.
4. In case of conflict between the two, morality is given top priority, because the damage is more. It is more	4. Less serious, hence second priority only. Less common. But relevant today, because of complex

common and basic.	interactions in the modern society.
5. Example: Character flaw, corruption, extortion, and crime.	5. Example: Notions or beliefs about manners, tastes, customs, and towards laws.

As against morals and ethics, laws are norms, formally approved by state, power or national or international political bodies. Breaking the norms is called crime, and invites specific punishment.

1.7 values

- The term "value" or "worth" seems to have its origin in economics; eventually it was applied analogously t other aspects of life, human values as such. There is much agreement on the definition of value as definition of good.
- One thing appeals to us in some way, whereas something else does not. What appeals may supply a need, satisfy a desire, arouse an interest, stimulate an emotion, provoke a response, motivate deed or merely draw an approval. The existence of subjective values is a matter of experience.
- We do make value judgments. Some of these judgments are no comparative, in which we merely express our approval or disapproval. Other is comparative and by putting them in order we can construct a scale of values.

1.7.1 Characteristics of values

Some general characteristics of values are:

- Values are bipolar, with a positive and a negative pole such as pleasant, painful, easy, difficult, strong, weak, rich, poor, beautiful, ugly, true, false, good and bad. The positive pole is the one preferred. Negative pole is better not called value at all but a disvalue.
- Values are not homogeneous but of many kinds.
- Values should exist; they deserve to be.
- "Value" or "worth" is a term used for anything that appeals to us in any way. As ideals they exist in the mind but are formed by the mind's abstractive power from the date of experience.

1.7.2 TYPES OF VALUES

The five core human values are a) Right Conduct b) Peace c) Truth d) Love and e) Non-Violence.

a) Value related to Right Conduct:

(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.

b) Value related to Peace:

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.

c) **Value Related to Truth:**

Accuracy, curiosity, discernment, fairness, fearlessness, honesty, integrity (unity of thought, word, and deed), intuition, justice, optimism, purity, quest for knowledge, reason, self-analysis, sincerity, sprit of enquiry, synthesis, trust, truthfulness, and determination.

d) Value Related to Love:

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.

e) Value Related to Non-Violence:

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

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

1.14 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. 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).

Let Us Sum Up

We studied the concept of human values and its need, types of values which is highly required in this digital world. We have to understand about the human values and its morality which is inbound of the society.

Check Your Progress

1. Human values are essential for

a. Living in harmony with self, each other and nature
b. Make life easier and happy
c. Living with family and friends
d. Making money to full desires

2. Many human values seem good or right due to

a. Positive feelings
b. Internal happiness
c. Natural acceptance
d. All of the above

3. Values important for relationship as they include

a. Aggression
b. Competition
c. Integrity and character
d. Arrogance

4. A harmonious world is created by values at 4 levels. Those are

a. Home, family, society and country

b. Individual, family, society and Universe
c. School, home, office, temple
d. None of the above

5. The philosophical study of beliefs and knowledge is known as

a. Ontology
b. Epistemology
c. Entomology
d. Etymology

Glossaries

Moral: Capable of distinguishing right from wrong with a predilection for right.

Morality: The inherent right or wrong nature of an action or conduct.

Value Judgment: A judgment that assigns good or evil to an action or entity.

Utilitarianism: It produces best balance of goodness over badness for everyone involved

Cognitivism: Possible to know right from wrong or good from bad in a very clear and objective manner

Non-Cognitivism: Moral judgments' are not capable of being true or false.

Epistemology: Field of philosophy concerned with the theory of knowledge.

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Answers to check your progress

1.A 2. B 3. C 4. B 5 B.

Model Questions

1. What human values? List few key principles that compose the foundation of human values.
2. Explain why the study about human values is very essential to professional. Also list some important human values.
3. Differentiate between the following:
4. 'Good' and 'Evil'
5. 'Morality' and 'Ethics'
6. Explain the relationship between moral, ethical, and law.
7. List the various characteristics of moral values?

Unit – 2

ETHICS

Overview

It is clear that professional play a vital role in creating and enhancing all the needs of the society. Without them, one would not achieve many things, which once dreamed of in math and science fiction.

They play a key role in all aspects of technological, economical and environmental development.

In order to be effective, they require not only basic and technical skills, but also imagination, persistence and a strong sense of responsibility. All professionals will face different challenging situations during their careers. They require an understanding of the ethical implications of their work. They should be aware of their social responsibilities. They must equip themselves to reflect on the moral dilemmas they will encounter.

In simple words, professional ethics is a body of philosophy, which indicates the ways through which professionals should conduct themselves in their profession. It is very essential for students to become a successful professional.

Learning objectives

After completing this unit, you should able to

- Understand ethics and its meaning
- Discuss about origin of ethics
- Explain ethics in relation to other studies

2.1 Ethics

An ethic, by definition, is a set of moral principles. The word derives from the Greek work “ethos”, which means “the characteristic spirit or attitudes of a community, people, or system”.

- Ethics is “art of human living”.
- Ethics intends to form good men.
- The end product of ethics should be ease in being the good man in every circumstance.

Ethics is the systematic analysis of morality. In other, ethics is the scientific evolvement and demonstration of morality. Ethics deals with

right and wrong and reflects one's morals (personal sense of what is right or just in conduct, not necessarily aligned with legal rights and obligations. Your personal sense of ethics is in short, 'your conscience'). In a wider perspective, ethics is putting every activity and goal in it is concerned with knowing what is worth doing; knowing what is worth wanting and knowing what is not worth wanting.

2.2 Definition

Ethics may be defined as the discipline that deals with what is good and bad and with moral duty and obligation.

2.3 Origin of ethics

We see that in our various activities just any way of behaving will not do, and there is a right and a wrong way to conduct ourselves. Early in human history people must have seen that these questions could be asked of life as a whole: Is there a right and wrong way of living, of gathering all these activities into the spending of one's life? Are there a pattern, a model, and an ideal of the good human life? If so, where can people find it and how strictly ought they follow it?

We have no record of such a speculation in history. Ancient Greeks being seafarers and colonizers had come into close contact with various surrounding people and were struck by the variety of customs, laws, and institutions that prevailed. They began to ask themselves whether their won were really superior if so why? In time their study led to an examination of all human conduct. This part of philosophy they called "Ethics". We call it by the same name.

2.4 Ethics in relation to other studies

Ethics is closely related to other studies such as psychology, anthropology, sociology, economics, political science, and law.

2.4.1 Psychology and ethics:

Both psychology and ethics deal with human behavior, with the abilities people have and the acts they perform. Psychology studies how humans actually do behave, ethics how they ought to behave.

2.4.2 Anthropology and ethics:

Both anthology and ethics deal with human customs on various levels of culture and civilization. Anthropology studies the origin and development of human customs without passing any judgment on their moral rightness or wrongness, but it is this rightness or wrongness alone that interests ethics.

2.4.3 Social sciences and ethics:

Social sciences such as social, economic, and political science deal with actual social, economic, and political institutions- what they are and how they ought to function.

2.4.4 Law and ethics:

The study of law is closely related to ethics. Though both deal with the ought, the civil law and the moral law do not always perfectly correspond. The study of civil law deals only with those acts permitted or prohibited by civil law, ethics with the tribunal of conscience judging all of our acts.

2.5 Integrity

Integrity means unity of thought, honesty and open-mindedness. It also includes the capacity to communicate the factual information, so that others are able to make well-informed decisions. It will pave the way to one's own success by adding the strength and in making a quick decision. People will enthusiasm towards the work by performing well and earn self respect and recognition in doing their respective jobs.

Moral integrity can be defined as a virtue which reflects a consistency of one's attitudes, emotions and conduct in relation to justified moral values. Integrity comes in many forms in that honesty and dependability are most expected in the workplace situations. A responsible behavior and activity can make a working environment more comfortable and enthusiastic which helps you to stand out as a trustworthy employee.

Some of the examples of integrity are as follows:

a) Abiding by the company policies which will showcase you as a faithful worker who will carry out the duties effectively.

b) Proper communication with the co-workers able to create a healthy working environment.

c) Working diligently as per the clock is the perfect example of workplace integrity, without detract from the work time.

d) Integrity in the workplace which stems the moral and ethical behavior which no one question your honesty and code of conduct as a employee.

2.6 Work ethics

Definition: "The work ethic is a cultural norm that advocates being personally accountable and responsible for the work that one does and is based on a belief that work has intrinsic value.

Society and Industry are two important systems which will interact with each other and they are interdependent. Society requires industry through which the process of manufacturing, production, distribution and consumption activities will be carried out. It requires huge capital investment as an input; production is carried out through the corporate organizations and finally consumed by the consumer. A lot of transactions and interactions have been carried out through this entire sub system, in that work ethics plays an essential role.

Work ethics can be defined as a "set of attitudes mainly concerned towards the value of work, which will create a motivation towards the work. Work ethics is mainly aimed at providing safety in the workplace, healthy working conditions, providing security both in personal and financial aspect, social development and provide opportunities for all, as per their individual abilities without any discrimination. Workers exhibiting a good work ethic in the environment will be selected for better position, additional responsibility and promotion. Work ethic is not just about doing hard work but also to set accompanying virtues whose crucial role in the development of organization in the free markets.

Some of the common problems exist in the industrial scenario, because of

a. Everyone in an organization need to be recognized as an individual for their work, as a personal identity and self-esteem.

b. Work is providing major source of income to the people which help them to avoid the economic dependence from others, so it is the major instrument for the good life.

c. Privacy of the employees needs to be protected in an organization especially for women's.

d. Job security till retirement will always create a tension in the Indian scenario, due to multinational company policies regarding "hire and fire"" only for the merit".

e. Nowadays automation has reduced the human requirement to the large extent, but still hard work cannot be replaced by the virtual work.

f. Absence of proper rewards and recognition, lack of transparency in implementing the policies, factions in the trade unions are affecting the work ethics in an organization. Work will lay a moral and meaningful life such as creating self-respect among the society i.e., why work ethics affirms that "Work per se" means worthy and creates values both as personal and in the social level. Work not only for the monetary considerations but also for the good for body and mind.

2.7 Service learning

Service learning refers to teaching and learning strategy that integrates meaningful community with instruction and it will reflects in enriching the learning experience, teach about the civic responsibility and to strengthen the community. Through the Service learning from kindergarten to college students' use what they learn in the classroom to solve the real life problems. It is the study of real life problems and their possible solutions, during formal learning i.e., in the course of study. They not only learn the practical applications of study, they also contributing as a citizen and community members by the service they performing to the society.

In the industrial scenario, adoption, study and development of public health or welfare or safety is the perfect example of service learning by the employees. Service learning includes the characteristics of the work relating to basic requirements, security of the job and awareness of the procedures while taking any decision and actions. It

helps an individual to interact ethically with colleagues, to effectively co-ordinate with the suppliers as well as to the customers, to maintain a friendly interaction among them. Professional students analyzing and executing a socially-relevant project is another example of service learning. Service learning is falling under the category of experimental education, in which classroom learning is enriched and applied through services to others.

Service learning is a program that must have a perfect balance between the traditional learning and real life serving experience, for it to be effective. The goal of service learning is to equip the necessary knowledge required to fulfill the required services during the needy hours. The importance of service learning as it combines the traditional learning and physical action, adding value to each experience while transforming our views of academics and life, in terms of thinking how to apply what is learned in class to face the real life situations. Transformation among the students is necessary for the actual learning process to take place by not only learn to connect your personal, social and educational lives all together in one learning but also to serve which benefit you as well as others in a good manner.

2.8 Virtues

Virtues are positive and preferred values. Virtues are desirable attitudes or character traits, motives and emotions that enable us to be successful and act in way which develops our potential. It will energize and enable us to pursue the ideals that we have adopted. Some of the perfect examples of virtues are honesty, courage, compassion, integrity, transparency and self-control. Virtues are like a habit, once acquired they will become the characteristics of a person.

A person who has developed the virtues will act in a way consistent with moral principles. The virtue person is the ethical person, who will solve the problems in a peaceful and constructive manner.

2.8.1 Civic Virtues:

A civic virtue is the moral duties how a citizen behaves in the society. An individual may exhibit civic virtue by voting, volunteering and organizing other community activities. A civic virtue is the cultivation of habits of personal living that are claimed to be important for the success

in the community. Some of the important aspects of civic virtues include polite conversation, civilized behavior in the industry and society.

Some of the duties are as follows:

1. To pay the taxes to government.

2. To keep the surroundings clean and green.

3. Following hygiene and proper garbage disposal without polluting the land, water and air.

4. To ensure a bright future for young people and society they will inherit, every adult must take it seriously about their responsibility to raise the young people for lives of virtue.

George Washington has embodied the civic virtues as indispensable for a self governing administration. The virtues are divided into four categories, they are as follows,

a. Civic Knowledge.

b. Self Restraint

c. Self assertion

d. Self reliance.

a. Civic knowledge:

Civic knowledge means as a citizen he needs to understand how the constitution is working and what are the activities they supposed to do and not to do. Every citizen needs to understand the basic responsibilities, duties and rights needs to be carried out in the constitution. It implies that every government requires participation of enlightened citizens to serve and survive in the society.

b. Self Restraint:

To live in a free society, every citizen needs to control or restrain themselves; otherwise, we need a dictatorial government to maintain the safety and order. Every citizen needs to be advocated about the morality and then only happiness is achieved through the virtues and morals.

c. Self-Assertion:

Self assertion means as a citizen everyone needs to be proud in doing their rights with courage in the society. Sometimes, a government may usurp the very rights that it was created to protect, in such cases the right of the people to alter or remove the government by their voting rights available to them.

d. Self Reliance:

Self reliant citizens are the free citizens in the sense which means they are not dependent on others for their basic needs. Citizens who cannot provide for themselves will need a government to take care of them, but strong self reliant citizen has the potential to meet their needs and enjoy the full blessings of liberty. These civic virtues are applicable to local, state and central government to nourish freedom in the democratic country

2.9 Respects for others

Respect for others is fully based on the self-respect. It is a basic requirement for nurturing friendship, team work and for the synergy it promotes in our society. In today's world being polite and courteous person makes one as a rare individual seen in the society. Loud smart phones conversations, terrible customer service by the staff and finding politeness among the people in the world is on the declining stage. A culture of rudeness has become a feature of modern society. Some of the basic principles enunciated in this regard are as follows:

a. Recognize and accept the existence of other persons as human beings, because they also have a equal right to live in this society.

b. Respect other ideas, work and actions carried out in the working environment. One need not require to rewards, first they need us to listen for their activity. Appreciating colleagues and subordinates will encourage them to improve their performance by learning properly and putting more efforts towards it. Respect others is a good sign of gaining self confidence.

c. Everyone deserves to be treated with dignity, by valuing their time and rights, as well your own which will helps to stand out in the society.

2.10 Peaceful living

Living in peace is both an inward and outward process. Living in peace is a way of life which we respect and love each other in spite of our cultural, religious and political differences. The principle of peaceful living mainly center on the ethical and sustainable application of technologies which would aim to provide basic needs for everyone without compromising the resources. One should adopt the following means to live peacefully such as self-discipline, loving others friendly and not criticizing others in any manners.

Some of the following factors that will promote living with peace both in internal and external aspects are as follows:

1. Develop the skills of negotiation, conflict resolution and assertive communication.

2. Secured job and motivated with recognition and reward

3. Healthy labor relations and family situations.

4. Absence of unnecessary interference or disturbances.

5. Service to the needy for the physical and mentally challenged person with love and sympathy.

2.11 Honesty

Honesty refers to a facet of moral character and connotes positive and virtuous attributes such as integrity, truthfulness and straightforwardness along with the absence of lying, cheating or theft. It's been said that honesty is the best policy. It will sounds like a simplest thing in the world, but being truly honest with others and with you will be a real challenge. Honesty is a virtue and it is exhibited in two aspects namely,

i) Truthfulness

ii) Trustworthiness

Truthfulness is to face the responsibilities on telling the truth. By admitting one's mistake committed, it is easy to fix them. Reliable judgment, maintenance of truth, defending the truth and communicating it are some of the reflections of truthfulness. Trustworthiness is maintaining integrity and taking responsibility for personal performance. Everyone will abide by law and live by mutual trust. They will build the trust through the

reliability and authenticity. Honesty can be mirrored in many ways such as Intellectual honesty, communication, decisions, and actions and in achieving the intended results.

Some of the actions of a professional that leads to dishonesty are as follows:

a. Lying: In Honesty it is implied avoidance of lying. As a professional they need to communicate any wrong or distorted results to their clients. If not it will provide the wrong information to the right people.

b. Withholding Information: it means hiding the facts during communication with others in an intention not to showcase the desired results.

c. Not maintaining confidentiality: Every professionals should keep information of their client or their employees with highly confidential and should not discuss with others.

d. Providing professional judgment under the influence of extraneous factors by getting personal benefits.

e. Not seeking the truth: some professionals accept the information or data as it is provided, without applying their mind and seeking the truth.

2.12 Courage

Courage is the tendency to accept and face risks and difficult tasks in a rational way. Self- confidence is the basic requirement to nurture courage.

Courage can be classified into three types on the types of risks engage in it, such as

a) Physical Courage

b) Social Courage

c) Intellectual Courage

a) Physical Courage:

The physical courage the thrust is on the adequacy of the physical strength, including muscle power and armaments. People with high adrenalin, are prepared to face the challenge for the thrill or driven by a decision to excel.

b) Social Courage:

The social courage involves the decisions and actions to change the order, based on the conviction for or against certain social behavior. It requires leadership abilities like empathy, sacrifice, motivate the followers for the welfare of social well being.

c) Intellectual Courage:

It can be inculcated in the people by acquiring knowledge, experience, tactics, education and training. In professional ethics, courage is applicable to the employers, employees and to the public. Facing the criticism, owing responsibility and accepting the mistakes or errors when committed and exposed are the various expressions of courage.

2.13 Valuing time

Time is a rare resource. Once it is spent, it is lost forever. It cannot be either stored or recovered. Time is most perishable and most valuable resources, so if the resources is properly spent, then it will create a great reformers and innovators. It is observed that the secret of all successful persons is that they are good at time management.

Time as a Resource:

As a profession they need to learn to think of their time and their subordinate's time as valuable resources. We are forced to use the time whether we can use it effectively or not, but it can be utilized in the proper way by applying time management principles. Some of the time management principles are as follows:

1. Define the proper objectives

The first step in the time management is to define the objectives. Then it needs to divided into smaller, individual and in manageable tasks.

2. Prioritize the work.

Each and every individual need to prioritize their work on the work assigned to them. High priority work needs to be completed first, then the others.

3. Schedule the task as per the time.

One must allocate a proper time schedule for each task assigned to them, so they can stick to them and get things done within his deadlines.

4. Manage the time wasters

All sorts of time wasters such as lack of adequate planning, ineffective communication, lack of goals and lack of supervision should be removed.

2.14 Cooperation

Cooperation is activity between two persons or sectors that aims at integration of operations, while not sacrificing the autonomy of either party. It is a team spirit present with each and every individual engage in the profession.

According to professional ethics cooperation should be exist or to be developed, and maintained at various levels; between the employers and employees, between the supervisors and subordinates, among the colleagues, between the producers and the suppliers and between the organization and its customers. The codes of ethics of various professional societies insist cooperation to nourish the industry. The absence of cooperation will leads to lack of communication, misinformation, and delay between production, marketing and consumption. Some of the impediments of successful cooperation are:

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

So as an engineer they need to learn the art to coordinate, cooperate with various other units to complete a task.

2.15 Commitment

- Commitment means alignment to goals and adherence to ethical principles during the activities. Every individual has to perform their duty not only for his livelihood but also for the betterment of social and national conditions. First of all, one must believe in one's action performed and the expected end results i.e., confidence.

- When the teacher is committed to his job, the students will succeed in life and will contribute good to the society. The commitment of top management will naturally lead to committed employees, whatever may be their positions or emoluments. It is bound to add wealth to oneself, to the employer, to the society and to the nation at large.

2.16 Empathy

Empathy is social radar. Sensing what others feel about, without their open talk, is the essence of empathy. Empathy begins with showing concern, and then obtaining and understanding the feelings of others, from others' point of view. It is also defined as the ability to put one's self into the psychological frame or reference or point of view of another, to know what the other person feels. It includes the imaginative projection into other's feelings and understanding of other's background such as parentage, physical and mental state, economic situation, and association. This is an essential ingredient for good human relations and transactions.

Characteristics of Empathy:

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. In developing others, the one should inculcate in him the 'listening skill' first. So, One should get the feedback, acknowledge the strength and accomplishments, and then coach the individual, by informing about what was wrong, and giving correct feedback and 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.

Benefits of Empathy

1. Good customer relations (in sales and service, in partnering).
2. Harmonious labor relations (in manufacturing).
3. Good vendor-producer relationship (in partnering.) Through the above three, we can maximize the output and profit, as well as minimizing the loss. While dealing with customer complaints, empathy is very effective in realizing the unbiased views of others and in admitting one's own limitations and failures.

2.17 Self-confidence

Self-confidence is positive attitude, wherein the individual has some positive and realistic view of himself, with respect to the situations in which one gets involved. The people with self-confidence exhibit courage to get into action and unshakable faith in their abilities, whatever may be their positions. Some of the people are usually positive thinking, flexible and willing to change. They respect others so much as they respect themselves.

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.

The people with self-confidence have the following characteristics:

1. A self-assured standing

2. Willing to learn from others and adopt (flexibility),

3. Frank to speak the truth

4. Respect others' for their efforts and give credit to them.

The following methodologies are effective in 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.

Challenges in the work place

The biggest workplace challenge is said to be the employee's work ethics: showing up to work every day (interest in work and attendance), showing up to work on time (punctuality), taking pride in the quality of their work, commitment to the job, and getting along with others. This situation demands inculcation of good character in the workplace by employees.

2.18 Characters

It is a characteristic property that defines the behavior of an individual. Character includes attributes that determine a person's moral and ethical actions and responses. It is also the ground on which morals and values blossom.

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. Those whose lives are determined and directed by the prevailing habits, fashions, beliefs, attitudes, opinions and values of the society in which they live have at best a developed social as opposed to an individual character.

Character is the expression of the personality of a human being, and that it reveals itself in one's conduct. In this sense every human has a character. At the same time only human beings, not animals have character: it implies rationality. But in addition to this usage, the term is also employed in a narrower sense, as when we speak of a person "of character". In this connotation, character implies certain unity of qualities with a recognizable degree of *constancy* in mode of action. 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.

2.19 Spirituality

Spiritually is a broad term that refers to the way of living. It emphasizes constant awareness of the spiritual dimension of nature.

It is a sense f meaning and purpose, a 'sense of self'.

Spirituality can be of two kinds:

1. Religious spirituality
2. Workplace spirituality.

2.20 Spirituality related to religion

Many believe that all moral obligations are duties to God, because He is the Author of the moral law and the beginning and end of all things. In many cases, God is the object of our moral obligation only mediatory and indirectly. But duties to God we refer solely to obligations only which have God as their direct object. Whatever these duties prove to be, we can group the under a single heading – Religion.

Spirituality emphasizes certain beliefs in religions to attain secular power and wealth. However many aspects of spirituality differ from that of religion. The main social function of religion is to sustain people's convictions and to promote tolerance and moral concern for others. All religious emphasize a particular virtue. For example, the Christianity and Hinduism emphasize the correctness of the action. On the other hand, spirituality carries the connotations of the believer's faith; it is more of a personal experience associated with an individual's specific quest to search for their essence.

2.21 Spirituality in workplace

For many people in the workplace, work is not a "calling" but a means to an end. The challenge is to make the experience of being within that particular job have value and meaning rather than allow oneself to be worn down by the experience.

Teamwork a Spiritual Value

Teamwork is thing of beauty when it is done well. It has the capacity to bring satisfaction to our efforts and learning to our minds and hearts. And always there is the challenge of learning to get along with all different kinds of people. People who hold different values make life challenging and interesting. It is a challenge to learn to be open to others, and yet hold your own grounds when it is essential to do so. It is a challenge to strive to do one's best when other on the team simply want to get the task done. The conflicts and tensions that are produced are the stuff of real spirituality. This is the place to be very clear and very intentional about what I want to accomplish in my interactions with this

person. We should remember that all actions have rewards and consequences, both personally, for the other person, and for the other team members.

Creating a Context of Spirituality in the Workplace

1) In order to create a context of spirituality in the workplace, the following suggestions may be followed;
2) Commit yourself to an in-depth process of self-discovery to learn your spiritual values.
3) Create a list of actions and behaviors consistent with your spiritual value- and live them!
4) Integrate your values and ethics with important business decisions you make. Ask yourself, "Is this the right thing to do?"
5) Create a personal wellness program that includes eating, exercise, health, recreation, and a balanced life.
6) Trust others in a responsible way without the necessity of proof.

Let Us Sum Up

From this unit, we able to understand that ethics is the systematic analysis of morality. Ethics deals with right and wrong and reflects one's morals (personal sense of what is right or just in conduct, not necessarily aligned with legal rights and obligations. It is evident that Ethics is closely related to other studies such as psychology, anthropology, sociology, economics, political science, and law.

Check Your Progress

1. Which of the following is an alternative to moral principle

_____

a. Virtue Ethics
b. Logic Ethics
c. Real Ethics
d. A and C Ans: A

2. Which statement is correct about the relationship between honesty and trustworthiness

a. Trustworthiness is the ideological basis of honesty
b. Honesty is the inner content of Trust
c. Honesty is the external manifestation of trustworthiness.
d. Honesty is the ideological basis of trustworthiness Ans: D

3. The major type of ethical issues includes except _____

a. Communication issues
b. Systematic issues
c. Corporate issues
d. Individual issues Ans: A

4. Factor that affects ethical and unethical behavior is _____

a. Diversity
b. Ethical Dilemma
c. Team work
d. Open Communication Ans: B

5. For referent power to be effective, what must exist between individuals in the relationship?

a. Antipathy
b. Rivalry
c. History
d. Empathy Ans: D

Glossaries

Accountability – State of being answerable, liable or responsible

Applied Ethics – Application of moral standards in decision-making

Autonomy – Power to make more choice and be self-governing

Ethics – Discipline related to what is good and bad including moral duty

Empathy – Ability to understand and share the feelings of another.

Virtues – A Quality considered morally good or desirable in person.

Suggested Reading

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Answers to check your progress

1. A 2. D 3.A 4.B 5.D

Model Questions

1. What is ethics?
2. What is meant by the virtue term 'integrity'?
3. What is work ethic?
4. Bring out any four important characteristics of service learning. Also differentiate between service learning and volunteerism.
5. Explain the term civic virtue.
6. Why should we respect others?
7. What is ethics? Explain it in relation to other studies.
8. Explain the different accounts of integrity.
9. Discuss the various elements of work ethics?
10. What is meant by honesty? How society discourages honesty?
11. "Courage is the first of human qualities because it is the quality which guarantees all others". - Comment.
12. What is courage? What are some salient features of courage?
13. What is time management? List some time wasters. Write down the steps required to manage one's time.

14. Explain the importance of following human values:
    i. Caring
    ii. Sharing
    iii. Co-operation
    iv. Commitment
15. What is meant by empathy? What is the difference between
16. Empathy and sympathy? List the benefits of empathy.
17. Write short notes on the following human values:
    i. Self-confidence;
    ii. Character
18. What is meant by spirituality? How does it differ from religion?
19. Explain the concept of spirituality in workplace.

Unit 3

PROFESSIONAL ETHICS

Overview

a. Professional ethics is the activity mainly aimed at Understanding the moral values that ought to guide the profession in practice.

b. Resolving the moral issues in the practice

c. Justifying the moral judgments in the profession. It deals with set of moral problems and issued connected in the profession.

d. Professional ethics is defined by the codes and standards of conduct endorsed by professional societies with respect to the particular set of beliefs, attitudes and habits displayed by the individual or group. Another important goal of professional ethics is the discovery of the set of justified moral principles of obligation, right and ideals that ought to be endorsed by the profession and apply them to concrete situations.

Learning Objectives

After completing this unit, you should able to understand

- The essential of professional education which helps to deal with issues they will face in their profession.
- The standards of professional practice through which the members of a profession should not affect others in practicing their profession.
- Scope of professional ethics.

3.1 Introduction

It's clear that professionals play a vital role in creating, protecting and enhancing all the needs of the society. Without them we would not achieve many things, which are once dreamed of myth and science fiction. They play key role in all aspects in technological, economical and environmental development. In order to be effective in professional, they require not only basic competence and technical skills but also they require persistence, and a sense of responsibility.

All professional will face different challenging situation in their careers. They require an understanding of the ethical implications of their work. They should be aware of the social responsibilities. They must equip themselves to reflect on the moral dilemma they will encounter in their works.

Professional ethics is the activity and discipline aimed at understanding the moral values, resolving moral issues in their work and justifying the moral judgments. In other words, professional ethics is a body of philosophy, which indicates the way they should conduct themselves in their profession. Thus study of professional ethics is very essential for all students became a successful professional.

3.2 Ethics

- The term 'ethics' is derived from the Greek word 'ethos', which meant 'customs'". Ethics is the study of the characteristics of morals. First of all, ethics is the quest for and the understanding of the good life, living well, a life worth living.
- Ina wider perspective, ethics is putting every activity and goal in its place. It is concerned with knowing what is worth doing and what is not worth doing; knowing what is worth a wanting and knowing what is not worth wanting.

3.2.1 Definition:

- Ethics is defined as the discipline dealing with what is god and ad and with moral duty and obligation.
- Some of the universally accepted ethical principles are integrity, honesty, humanity, responsibility, accountability, confidentiality, discipline, loyalty, colligability, conscientiousness, competency, diligence, wisdom, courage, temperance, justice, etc.

3.3 Types of ethics

They are different disciplines of ethics. They are:

1. Personal ethics
2. Business ethics
3. Professional ethics
4. Medical ethics
5. Legal ethics
6. Accounting ethics

1. Personal Ethics

Personal ethics is concerned with the rules by which an individual lives his or her personal life. It also deals with how we treat others in our day-to-day lives.

2. Business Ethics

Business ethics is concerned with truth and justice and has a variety of aspects such as the expectation of society, fair competition, advertising, public relations, social responsibilities, consumer autonomy, and corporate behavior. It involves choices on an organization level rather than a personal level.

3. Professional Ethics

Professional ethics is concerned with the rules and standards governing the conduct of professional in their role as professionals. It is a body of philosophy guiding the ways that professional should conduct themselves in their professional capacity.

4. Medical Ethics

Medical ethics is concerned with the rules and standards governing the conduct of doctors and other medical practitioners in their role as professionals.

5. Legal Ethics

Legal ethics is concerned with the codes that guide the professional conduct of lawyers, judges, etc.

6. Accounting Ethics

Accounting ethics is concerned with the codes that guide the professional conduct of accountants.

3.4 PROFESSIONAL ETHICS

❖ The study of the moral issues and decisions confronting individuals and organizations engaged in professional field and the study of related issues about the moral ideals, characters, policies, and relationships of people and corporations involved in technological activity.

❖ It refers to the ethical obligations that professional have to follow because of their professional status. It not only emphasizes how professional should conduct themselves; it also encompasses how the professional ought to be having in their professional work.

3.5 Definition

❖ Professional ethics may be defined as the identification, study and resolution of ethical problems occurring in the practice of the professional profession.

❖ The concept of professional ethics is not applicable only for professional. It can also be applied to others who engage in any technological enterprises, such as scientists, technicians, technical writers, production staffs, supervisors, sales staffs, doctors, lawyers, and the general public.

3.6 Professional ethics vs engineering ethics

❖ In general, the terms professional ethics and engineering ethics are used interchangeably. But the professional ethics is wider in scope than the engineering ethics. In fact, the professional ethics is wider in scope than the engineering ethics. In fact, the engineering ethics is a part of professional ethics.

❖ Professional ethics is the discipline aimed at understanding the moral values that ought to guide all professional practices, including professional, medicine, law and other practices. But the engineering ethics refers to the set of specific moral problems and issues related to engineering profession only.

3.7 Senses of professional ethics

There are two different senses (meanings) of Professional ethics, namely the Normative and the Descriptive senses. The normative sense includes:

(a) Knowing moral values, finding accurate solutions to moral problems and justifying moral judgments in professional practices,

(b) Study of decisions, policies, and values that are morally desirable in the professional practice and research

(c) Using codes of ethics and standards and applying them in their transactions by professional. The descriptive sense refers to what specific individual or group of professionals believe and act, without justifying their beliefs or actions.

3.8 Variety of moral issues

1. Micro Ethics: This approach addresses typical everyday problems that the face in their professional life. In other words, micro ethics describes ethical issues that may affect a professional and their personal life.

2. Macro Ethics: This approach deals with all societal problems that every professional encounter during their career. In other words, macro ethics discusses ethical issues concerning all societal problems that professionals might encounter.

3.9 MORAL PROBLEMS ARISES TO THE PROFESSIONAL:

Professional carries out various decisions which involve technical, financial, managerial, environmental and ethical issues. In most of the situations moral issues causes a disagreement among the professionals. The variety of moral issues that the professionals may encounter will be as follows:

3.9.1 Clients Oriented Issues

The purpose of any business is to reach and satisfy the end users; therefore the customer's requirements should be met. In this regard, professional have a major role to play in identifying the 'customer voice', and incorporating the voice of the customer into the product design and manufacture. Professional also should face other moral and ethical issues with their client/customers.

3.9.2 Law, Government and Public Agencies Oriented Issues

The professional should obey and voluntarily comply with all the governmental rules and regulations related to them. They should also respect and honestly practice all other similar laws, policies, and regulations.

3.9.3 Professional Societies Oriented Issues

The professional should follow strictly the various codes of ethics by various professional societies to perform standard professional behavior. Professional codes of ethics reflect basic 'norms' of conduct that exist within a particular professional and provide general guidance relating to a variety of issues.

3.9.4 Social and Environmental Oriented Issues

Since the works of professional have a direct and vital impact on the quality of life for all people, the professional should be dedicated to the protection of the public health, safety and welfare. Professionals need to be aware role as agents of experimenters. They would have a united commitment in protecting the environment. They should not involve in any unethical environmental issues such as misusing scarce resources, and fouling environment.

3.9.5 Family Oriented Issues

As a human being and the member of a family, the professional do have the family obligations to take care the needs of their family members. But they should not take any decisions for their own benefits at the cost of public, clients, or employers. Thus the above discussion explains how the ethical problems often arise in the professional profession.

3.10 TYPES OF INQUIRY

Professional ethics combines inquiries into values, meanings, and facts. In order to find answers to many moral dilemmas, it is necessary to understand the types of inquiry".

In professional ethics, the three types of inquiry are:

- Normative inquiries
- Conceptual inquiries
- Factual inquiries.

3.10.1 Normative Inquiries

Normative inquiries are useful to identify the values that guide the individuals and groups in taking a decision. Normative inquiries are meant for identifying and establishing the morally desirable norms or standards that are used as guide to assess something as good or bad. Generally, normative questions are about what ought to be? and what is good?

Examples

1. When and why the professional have obligations to their employers, their clients, and the general public?
2. When should the professional attempt for whistle blowing?
3. Why some professional information must kept confidential?
4. How a professional can protect the public safety in a given situation?

3.10.2 Conceptual Inquiries

These inquiries are useful in clarifying the meaning of concepts, principles, and issues in professional ethics. In other words, the aim of conceptual inquiries is to clarify the meaning of key ideas and issues, possibly expressing by single word or by statements.

Examples

1. What is safety?
2. What is meant by risk?
3. How safety is related t risk?
4. What is a bribe? When a gift becomes a bribe?
5. What is a profession?

3.10.3 Factual Inquiries

Factual inquiries are also known as 'descriptive or exploratory" inquiries. These inquiries are helpful to provide facts required for understanding and resolving value issues.

Researchers and professional use these inquiries to get various information such as the history of professional profession, the effectiveness of professional societies in promoting moral conduct, the procedures used in risk-benefit analysis, and psychological profiles of professional.

The above-obtained information through factual inquiries provides an understanding of the background conditions that generate moral problems by using alternative ways of solution. Thus factual inquiries are helpful in understanding the business, social and political realities in which the company operates.

Examples

1. What are the laws enforced in the intellectual property rights law recently?
2. What are the procedures used in making risk assessments?
3. In what way, the 'code of ethics' of professional societies inspires and guides the professional' obligations?
4. What is the validity period of a patented product?

3.11 MORAL DILEMMAS

Moral dilemmas are situations in which two or more moral obligations, duties, rights, goods, or ideals come into conflict with each other. The crucial feature of a moral dilemma is that all the moral principles cannot be fully respected in a given situation. Also solving one moral principle can create two or more conflicting applications for a particular situation.

3.12 Causes of Moral Dilemmas

Moral dilemmas are situation, mostly, due to the following three problems.

1) Problem of vagueness
2) Problem of conflicting reasons
3) Problem of disagreement

Problem of Vagueness

- Vague means not clearly expressed or perceived not specific or exact.
- For a given situation, sometimes it is unclear to the professional to apply the most appropriate moral considerations or principles. They may not know how and which moral principles to be used in resolving a moral problem. This situation creates a typical moral dilemma.

Problem of Conflicting Reasons

- This is a situation where two or more moral problems conflicting each other, each of which seems to be correct.
- In other words, this is a situation where two or more moral obligations, duties, rights or ideals come into conflict with each other; independently each one is good and correct. But when they come together it is very difficult choice to choose the good one.

- This situation is another moral dilemma.

Problem of Disagreement

- It is quite obvious that individuals and groups may have different views, suggestions, interpretations, and solutions on a moral problem in particular situations. This disagreement among individuals and groups on interpreting moral issues will create a situation of another moral dilemma.

3.13 Steps in confronting moral dilemmas

In order to face/overcome the above said moral dilemmas, one can follow one or more of the following

Step 1: Identifying the pertinent moral factors and reasons. It involves addressing solutions for conflicting responsibilities, opposing rights, and incompatible ideals involved.

Step 2: Collecting all the available moral considerations, which are relevant to the moral factors involved.

Step 3: Raking the above collected moral considerations on the basis of importance as applicable t the particular situation.

Step 4: Making factual inquires. In other words, finding alternative courses of action to resolve the moral dilemmas and following the complete implications of each.

Step 5: Inviting discussions, suggestions from colleagues, friends, and other involved persons to critically examine the moral dilemmas.

Step 6: Taking the final decision. That is, selecting the more reasonable solution by weighing all the relevant moral factors and reasons.

In practice, exercising the above skills to face moral dilemmas is very difficult. The study of professional ethics helps the professional to develop and strengthen the skills in resolving various moral dilemmas.

3.14 Moral autonomy

- As already discussed, the practical aim in studying and teaching this professional ethics course is to foster the moral autonomy of future professional.
- Autonomy means 'self-determining' or 'independent'.

- Moral autonomy is the ability to think critically and independently about moral issues and apply this normal thinking to situations that arise during the professional practice.
- In other words, moral autonomy means the skill and habit of thinking rationally on ethical issues based on moral concern.
- It is concerned with the independent attitude of an individual related to ethical issues.
- It is the ability to arrive at reasoned moral views based on the responsiveness to humane values.

3.15 Factors Influencing the Moral Concern

The moral concern of a person depends on many factors. Some of the factors influencing one's moral concern are:

1. Atmosphere in which the person is brought up in his childhood.
2. One's relationship with friends and relatives;
3. One's interaction with his neighbors.
4. One's family structure and the family's economy.
5. Influence of educational institutions such as school, college, etc.
6. Influence of educational institutions such as temples, churches, mosques, etc.
7. Influence of teachers and other mentors.
8. Influence of media like newspapers, novels, televisions, movies, etc.
9. Influence of some social events.

3.16 Skills Required to Improve Moral Autonomy

The important skills required for professional to improve the moral autonomy, given by Mike Martin and Roland Scherzinger, are as follows:

1. Proficiency in recognizing moral problems and issues in professional. That is, the skill required to identify and to differentiate problems related to law, economics, environment, society, or religion.
2. Skill in understanding, clarifying, and critically evaluating the arguments, which are against the moral issues.
3. The ability to form consistent and complete perspectives on the basis of relevant facts.
4. The ability to make imaginative and creative alterative solutions under difficult situations.
5. Sensitivity to valid difficulties and delicacies. That is, sensitivity to others views, problems, and sufferings.

6. Adequate knowledge to use the common ethical language so fast to support or defend one's moral views with others.
7. The ability of understanding the impotence of maintaining one's moral integrity.

Let Us Sum Up

Professional ethics is the activity and discipline aimed at understanding the moral values, resolving moral issues in their work and justifying the moral judgments. Thus, study of professional ethics is very essential for all students became a successful professional. In this we can able to know about various types of ethics and its moral values and judgments.

Check Your Progress

1. _____ are the principles, which govern and guide business people to perform business functions.

a. Code of conduct
b. Business Ethics
c. Legal Ethics
d. Personal Ethics

2. A value shall refrain from being involved in any action that would bring disrepute to the _____

a. Business & Profession
b. Business
c. Profession
d. Valuation

3. A written statement of policies and principles that guides the behaviour of all employees is called

a. Code of Ethics
b. Word of Ethics
c. Legal Ethics
d. Ethical Dilemma

4. Which of the following is a second stage of moral development?

a. Principled
b. Conventional
c. Pre-Conventional
d. None of the above

5. The word ethics comes from

a. Eternity
b. Ethos
c. Elementary
d. Essentiality

Glossaries

Moral Autonomy – Idea of building one self's with moral values

Moral Dilemma – Difficult choice has to be made between two courses of action.

Factual Inquiry – Aimed to obtain facts needed for understanding and resolving value issues.

Conceptual Inquiry – Clarifying the meaning of key ideas and issues.

Normative Inquiry - Identifying and establishing the morally desirable norms or standards.

Suggested Reading (References)

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Answers for check your progress

1.B 2. C 3.D 4.A 5.B

Model Questions

SHORT ANSWERS:

1. Define professional ethics.
2. What is morality?
3. Give any four moral reasons required for a professional.
4. What is normative inquiry?
5. What is meant by conceptual inquiry?
6. What is factual inquiry?
7. What are moral dilemmas?
8. What is meant by moral autonomy?

LONG ANSWERS:

9. Classify the types of inquiry.
10. What are the causes of moral dilemmas?
11. What are the steps required in confronting moral dilemmas?
12. What are the factors that are influencing the moral concern?

Block 2

Unit - 4 Theories of Moral Development

Unit - 5 Ethical Dilemmas

Unit - 6 Responsibility for Safety-1

Unit - 7 Responsibility for Safety-2

Unit 4

THEORIES OF MORAL DEVELOPMENT

Overview

In this chapter, we shall examine various ethical theories that can be applied to the ethical problems faced by the professional. As we aware, ethical problems cannot be solved by applying formulas, theories or laws, but it can be solved by application of ethical theories. In order to have a framework for decision-making and to develop workable ethical problem-solving techniques, professional requires the basic knowledge of ethical theories. In short, ethical theories are developed to illuminate, unify and correct the judgments about the specific situations. In this we are going to discuss about various ethical theories and how these theories can be applied to a particular situation.

Learning Objectives

After completing this unit, you should able to understand

- About various theories of moral development
- Application of theories to the specific situation
- Discuss about the uses of ethical theories.

4.1 Theories of Moral Development

The concept of moral autonomy is very much related to the study of psychology of moral development. In this regard, the famous psychologists Lawrence Kohlberg and Carp Gilligan have developed theories on moral development. These theories are based on the sorts of reasoning and motivation adopted by individuals with regard to moral questions.

4.2 Kohlberg's Theory

Lawrence Kohlberg was a professor at Harvard University. He started as a developmental psychologist and then moved to the field of moral education. He was particularly well known for his theory of moral development which he popularized through research studies conducted at Harvard's center for Moral Education. Moral development in human being occurs overage and experience.

Kohlberg applied Piaget's theory to the development of moral thinking. Piaget was a careful observer of children's thought and behavior in a wide variety of circumstances. Piaget central claim was that increases in reasoning skill over time were punctuated by shifts in perspective that could only be called qualitative change from one stage of thinking to another.

4.3 Piagetian Stages of Cognitive Development

Stage	Age- Range	Typical Development
Sensorimotor	Birth to 2 Years	Children develop the concept of object permanence and the ability to form mental representations
Preoperational	Age 2 to 7 Years	Children's thought is egocentric; they lack the concept of conversation and the ability to decenter.
Concrete Operations	Age 7 to 11 Years	Children can decenter; they acquire the concept of conversion; but they cannot reason abstractly or test hypotheses systematically.
Formal Operations	Starts at Age of 11 or 12	Children begin to reason abstractly.

Borrowing from Piaget's pre-operational/concrete/formal distinctions Kohlberg came up with the various stages such as pre-conventional, conventional and Post-conventional. According to Kohlberg, the people progressed in their moral reasoning through a series of stages. His theory is based on the foundation that morality is a form of reasoning that develops in structural changes. The three stages of moral development are

1. Pre-Conventional level
2. Conventional level
3. Post- Conventional level

1. Pre- Conventional Level:

In the pre-conventional level, right conduct for an individual is regarded as whatever directly benefits oneself. At this level, individual behave according to socially acceptable norms, which are taught mainly by parents and teachers. All young children will exhibit this tendency. In this stage, individuals are motivated mainly by their interest to avoid punishment or by their desire to satisfy their own needs or by the external power exerted on them.

2. Conventional Level:

In this level, the moral thinking and behavior of the individual are determined by the standards of their family, community and society. Rules and norms of one's family or group or society is accepted, as the standard of morality. Individuals in this level want to please or satisfy, and get approval by others and to meet the expectations of the society, rather than their self interest (e.g., good boy, good girl). At this level, individuals give more importance to loyalty and close identification with others, that their own self-interest. As per Kohlberg study, Many adults do not go beyond this level.

3. Post-Conventional Level:

In the post-conventional level, people are called autonomous; because they think originally and want to live by universally good principles and welfare of others. They have no self-interest. They live by principled conscience. They follow the golden rule, 'Do unto others as you would have them do unto you'. They always desire to maintain their moral integrity, self-respect and respect for other individuals. Kolhberg felt that the majority of adults do not reach the post-conventional level.

Kohlberg's classification can be outlined in the following manner:

Stage	**Age Range**	**Sub Stages**
Pre Conventional	From Birth to 9 Years	Obedience and Punishment
		Gain Reward
Conventional	Age 9 to 20 Years	Gain Approval and Avoid Disapproval

		Duty, Law and order
Post-Conventional	Age 20+	Social Contract
		Agreed upon universal principles Personal Moral Standards

4.4 Drawbacks of Kohlberg's Theory:

Some of the drawbacks while applying the Kohlberg's theory to practical situations, they are as follows:

1. First of how to judge an individual belongs to first, second or in third level? What are the criteria for judging that?
2. In what stage we can exactly specify moral development or growth? How does one can say that the higher levels represent more advanced stage of moral maturity?
3. As per Kohlberg's theory, only a few people can reach the post-conventional level. Hence this theory does not record the path of moral development that the majority of people follow in their life.

4.5 Gilligan's Theory

Gilligan was a student of Lawrence Kohlberg and has criticized Kohlberg's theory as male based. Gilligan has charged that Kohlberg's studies were concluded with male samples only and also his approach his dominated by a typical preoccupation with general rules and rights. Gilligan proposes a stage theory of moral development for women. In his study, women gave importance to preserve personal relationships with all the people involved. The context oriented emphasis on maintaining personal relationships was called the ethics of care, in contrast with the ethics of rules and rights adopted by men.

4.6 Gilligan's Level of Moral Development

Gilligan produces her own stage theory of moral development for women. It has three major divisions such as pre-conventional, conventional and post conventional. The pre-conventional level, which is same as that of Kohlberg's first one, right conduct, is viewed in a selfish manner solely as what is good for oneself. The second level called Conventional level; the importance is on not hurting others, and willing to sacrifice one's own interest and help others. This is the characteristic feature of women. At the post-conventional level, a reasoned balance is

found between caring about others and pursuing the self-interest. The balance one's own need and the needs of others, is aimed while maintaining relationship based on mutual caring. This is achieved by context-oriented reasoning, rather than by hierarchy of rules.

Gilligan's Stages of the Ethic of Care

Stage	Age Range	Sub Stages
Pre Conventional	Not Listed	Goal is for Individual Survival
Transition is from selfishness to responsibility to others		
Conventional	Not Listed	Self Sacrifice is goodness i.e, Individuals sacrifice their interest to others
Transition is from goodness to truth that she is a person too in this world		
Post-Conventional	May be never	Principles of Non Violence Do not hurt others or self.

4.7 Heinz's Dilemma:

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

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

As per 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.

4.8 Consensus and Controversy

The provision of moral autonomy to professional is the fascinating concept of professional ethics. When the modalities of ethical values are being implemented in practical terms, some consensus and controversial implications and issues arise. Literally consensus means agreement and controversy means disagreement. When an individual exercise moral autonomy, he may not able to attain the same results as other people to obtain in practicing their moral autonomy. This kind of controversies i.e., disagreements are inevitable.

In order to allow scope for disagreement, the tolerance is required among individuals with autonomous, reasonable and responsible thinking. According to the principle of tolerance, the objective, of teaching and studying professional ethics is to discover ways of promoting tolerance in the exercise of moral autonomy by professionals. Thus the goal of teaching professional ethics is not merely producing always a unanimous moral conformity; it is about finding the proper ways and means for promoting tolerance in the practical applications of moral autonomy by professionals.

Relationship between Autonomy and Authority:

1. Moral autonomy and respect for authority are compatible with each other exercising moral autonomy is based on the moral concern for other people and recognition of good moral reasons. Also moral autonomy emphasizes the capabilities and responsibilities of people. Authority provides the framework through which learning attitudes are encouraged.
2. Sometimes, conflict will arise between individuals need for autonomy and the need for consensus about authority. This situation can be reduced by having open and frank discussion regarding a moral issue with the help of authority.

4.9 professional and professionalism

Professional is a great profession which helps to realize anything and everything in the world. Professional gives jobs and homes to people and also it improves the standard of living.

The important and great liability of professional when compared to other professions is that the work of an engineer is open to all and all can see the works done by an engineer. He cannot hide his mistakes as doctors do he cannot argue like a lawyer. He cannot blame others for his mistakes like the politicians. If his work is wrong; only he will be condemned by others.

4.10 definition

The word 'professional' gets different meanings based on the context. In general 'professional' relates to any work that a person does for an occupation, especially work which requires a special skill or training. "Profession" means a type of job that requires special training and that brings a fairly high status, for example- work connected with medicine, law and education. Whatever may be one's profession one should show one's professionalism, i.e., qualities that are typical or expected of a person in that profession?

1. Knowledge

The job/work must include complicated skills, theoretical knowledge a clear judgment and caution. Preparation of a person to do a job requires some formal education, like technical studies as well as humanistic studies, etc.

2. Organization

Some special societies or organizations must be formed for the profession. These societies and organizations must be accepted by the public to set the standards for that profession, writing code of ethics of that profession and also these organizations have to represent that profession to the public. For example societies like ISTE, IEEE etc.

3. Public Good

The job/work must help the public by doing a favor to them quoted in its code of ethics. For example, medicine is for promoting health, law is for protecting the legal rights of the public and professional towards

improving the public's health, safety and welfare with the help of technological advancements.

To conclude, a job or a work or an occupation can be said to be a profession only when professionals have got all the above said criteria. Of late, only professional, medicine, law and business administration can be called professions. The sanitation work, driving, sports cannot be called professions as they are lack the above said criteria.

4.11 Roles to be played by a professional

Professional must practice their professions to promote public health, safety and welfare. But there are many roles to be played by an engineer while contributing to public good. Here some models or roles are given.

Savior: It is the generally believed technology and professional hold the key for any improvement in society. Therefore this group holds the engineer as savior, who will redeem the society of much ills-like poverty, low productivity, waste, inefficient and the hardships of manual labour.

Guardian: even people who are hesitant to allot the role of savior to an engineer, will certainly recognize that the engineer is certainly a developer. He knows the direction in which in which technology should improve and the speed at which it should move. His experience and expertise is certainly required to contribute to the society and maintain the developments already achieved.

1. **Bureaucrat:** Today corporate houses rule most aspects of mankind and professional are administering the corporation! He holds huge corporations in managerial positions playing the dual role of employer and employee, manager and managed and applied his knowledge and resources for the society's benefit.
2. **Social servant:** Any engineer should keep in mind that the society is his real master. He has the task of fulfilling society's requirements through all his actions.
3. **Social enabler and catalyst:** This is a variant of the previous role. The engineer's role does not stop with merely carrying out instructions. He anticipates changes in society's requirements and takes Atimely action to meet those needs. Sometimes, he even causes the change or provokes the change and takes the society to the next generation of technology.

4.12 Theories of right actions

The act utilitarianism concept was developed by John Stuart Mill (1806-1873). Act utilitarianism focuses mainly on individual's actions rather than general rules. It is understood the common rules of morality are don't lie, don't steal, don't harm others, keep promises etc are good guidelines to judge a human being, but according to mill, a person's action should be judged based on whether the good was achieved in a given situation. He also emphasized that even the general rules should be broken, if requires to achieve the good for enough number of people in the society.

4.13 Utilitarianism

The utilitarian ethical theory is founded on the ability to predict the consequences of an action. To a utilitarian, the choice that yields the greatest benefit to the most people is the choice that is ethically correct. One benefit of this ethical theory is that the utilitarian can compare similar predicted solutions and use a point system to determine which choice is more decision and allows a person to use it on a case-by-case context. There are two types of utilitarianism. They are: **Act utilitarianism & Rule utilitarianism**

4.13.1 Act Utilitarianism

The act utilitarianism concept was developed by John Stuart Mill (1806-1873). Act utilitarianism focuses mainly on individual's actions rather than general rules. It is understood the common rules of morality are don't lie, don't steal, don't harm others, keep promises etc are good guidelines to judge a human being, but according to mill, a person's action should be judged based on whether the good was achieved in a given situation. He also emphasized that even the general rules should be broken, if requires to achieve the good for enough number of people in the society.

According to mill, the term goodness represents two things.

a. **Intrinsic Good**: Intrinsic good is something good in itself or desirable for its own sake. He felt that happiness is the only intrinsic good.

b. **Instrumental Good:** Instrumental goods are other good things that provide means for happiness.

In his point of view, the pleasure derived through intellectual inquiry, creative accomplishment, appreciation of beauty, friendship and love are better than the bodily pleasure derived from eating, sex and exercise.

4.13.2 Rule Utilitarianism

Rule utilitarianism, however, takes into account the law and is concerned with fairness. A rule utilitarian seeks to benefit the most people but through the fairest and most just means available. Therefore, added benefits of rule utilitarianism are that it values justice and includes beneficence at the same time.

Richard Brandt proposed this rule utilitarianism. According to Brandt, though sticking to general moral rules such as don't lie, don't steal, be honest, don't harm others etc will ultimately guide to maximize good in all the situations. In his view, the rules should be considered in sets, known as moral codes, through which moral codes are justified when they maximize the public good.

Rule utilitarianism also contains a source of instability that inhibits its usefulness. In rule utilitarianism, there is the possibility of conflicting rules. Let us revisit the example of a person running late for his meeting. While a rule utilitarian who just happens to be a state governor may believe that it is ethically correct to arrive at important meetings on time because the members of the state government will benefit from this decision, he may encounter conflicting ideas about what is ethically correct.

Difficulties in implementing utilitarianism theory

There are several difficulties confronting the utilitarian perception. The following three are more important of them.

a. Sometimes it is difficult to judge the things, which are good for everyone in the society, will be bad for a particular individual or group of individuals.

b. The another problem with the utilitarian standard is that its implementation depends mainly on knowing what will lead to the most good, because it is impossible to calculate which actions actually produce the enough good for most of the people.

c. The next difficulty is it has ignored the needs of an individual.

4.14 Theory of duty ethics:

❖ The rights ethicists emphasize that any action that violates any moral right is considered as ethically unacceptable.

❖ This theory holds that those actions are good that respect the rights of the individual.

❖ In other words, rights ethics holds that people have fundamental rights that over people have a duty to respect

4.15 Two Versions of Rights Ethics are:

1) Locke's version of rights ethics
2) Melden's version of right ethics

4.15.1 Locke's Version of Rights Ethics

★ John Locke (1632-1704), a famous rights ethicist, argued that humans have human rights to life, liberty, and the property generated by one's labor.

★ His views of human rights ethics were considered as highly individualistic.

★ In Locke's view, rights are claims that prevent other people from interfering in one's life. These rights are referred as 'liberty rights' or 'negative rights' that place duties on other people not to interfere with one's life.

4.15.2 Melden's Version of Right Ethics

★ I .Melden (1910-1991) considered human rights as intimately related to communities of people.

★ According to Melden, moral rights require the capacity to show concern for others and to be accountable within a moral community.

★ Melden also defined welfare rights as rights to community benefits needed for living a minimum decent human life.

Similarities between Duty Ethics and Rights Ethics

✓ In fact, duty ethics and rights ethics are like two different sides of the same coin.

✓ Both the theories focus and achieve the same end result. The end result is that individual persons must be respected, and actions are ethical that maintain this respect for the individual.

✓ As per duty ethics, people have duties, a primary one of which is to protect the rights of others.

✓ But according to right ethics, people have fundamental rights that others have duties to protect.

Difficulties in Implementing Duty and Rights Ethics Theories

✓ The two principal difficulties with the duty and rights ethics theories are:

✓ It is sometimes very difficult to prioritize the rights of individuals or groups. Because the basic rights of another group.

✓ Since both the theories concern more about the good of an individual, therefore sometimes the overall good of society is not given much importance.

Which theory to use?

✓ It should be noted that while solving ethical problems, t is always not necessary to choose any one theory among these four theories. In fact, on can use al the theories study and analyze the given problem from different angles. Most often, the result will be the same even though the theories are very different.

✓ When the different theories give different answers for a particular problem, then a balanced judgment should be taken examining, comparing, and weighing the answers of all theories.

4.16 Uses of ethical theories

As could be interpreted directly and indirectly from the above ethical theories, they are very useful and important in many ways. The three most important uses are as follows:

1. Ethical theories are helpful in understanding and resolving moral dilemmas;
2. Ethical theories are useful in justifying professional obligations and ideals;
3. Also ethical theories are theories are useful in expressing everyday moral experience and justifying the professional morality.

4.17 SUMMARY OF ETHICAL THEORIES

THEORY	VERSION	UNDERLYING CONCEPT
Virtue ethics	Basic concept	It regards actions as right that manifests good character traits (virtues) and regards actions as bad that display bad character traits (vices)
	Aristotle's theory of 'Golden Mean'	Virtues are tendencies to find the 'Golden Mean' between of excess (i.e., too much) and deficiency (i.e., too little).
	MacIntyer's version of virtue theory	The virtues should be related with social practices i.e., corporate activities that are aimed at achieving public goods
Utilitarianism	Basic concept	It is concerned to promote, or at least protect the greatest good for the greatest number of people.
	Mill's Act utilitarianism	It focuses on individual actions rather than general rules.
	Brant's concept	It holds that moral rules are more important than an individual's action.
Duty ethics	Basic concept	It content that there are moral duties that should be performed regardless of whether these acts lead to the most good.
	Kant's version	According to him, those actions are right that equally respect each human person as a moral agent.
	John Rawls's version	According to him, valid principles of duty are those that would be voluntarily agreed upon by all rational persons in an imaginary 'contracting' situation.

4.18 Self interest, customs and religion

The next step is to contrast to ethical values with three other types of values, such as

a) Self-interest values
b) Values generated by customs
c) Religious values

Value of self-interest (ethical egoism)

We have already examined certain theories of ethics which emphasis on self-interest; For example, Duty ethics and virtue ethics emphasis on self-interest; Right ethics theory states that it is our right to right to take care of our interests whereas utilitarian theory states that we have to take care of our interests as well as others interest.

Two great authors Thomas Hobbes and Ayru Rand (the famous Novelist) came to the conclusion that morality must involve pursuit of self-interest only. This theory is called **"Ethical egoism".** This theory is also supported by Classical Economists like Adam Smith and Milton Friedman who believe if cooperation pursues the goal of maximization of profits, that itself is a great service to society. Ayru Rand has also expressed that in order to achieve self-happiness, over a long period, it should also involve taking care of others' interests.

However, this theory has got its limitations in short, this simply means we live for ourselves only to the exclusion of all others; even if we serve others, it is for our satisfaction only!! Such a theory is therefore very defective.

Self-interest and ethical egoism

- Self-interest simply means looking after one's own needs.
- The concept of ethical egoism means that every one of us should look into only those consequences that affect us. That is, each person should do things that are most beneficial to themselves (that is, their own self-interest).
- The concept of ethical egoism also tells that each person is the best judge of their own self-interest. Hence, each person is responsible for maximizing their own self-interest

❖ Hence ethical egoism concentrates only on an individual in satisfying his/her own self-interest. Thus it is clear the ethical egoism preaches one to be selfish. But morality concentrates on throwing away one's own self-interest for the benefit of others and preaches public interest in terms of safety, health and welfare.

❖ In the profession of professional, it is very important to note that professional and corporations should put limitations to their own self-interest and have moral concern when they act on a situation. Hence morality that we value and are concerned for the good of other people.

Everyone benefits if all pursue their own self-interest:

Society benefits most when

1) Individuals pursue their own self-interest.
2) Corporations (as expression of will of many individuals) pursue maximum profits in a free market environment.

-**Adam Smith** Ethical egoism does provide guidance for behavior, but it denies the more global notion of moral behavior.

Religion-Ethics

⧫ To say an action is right means it is commanded by God; a wrong action is forbidden by God; without God there is no morality.

⧫ But, Socrates asked, in effect, "Why does God make certain commands? Are the commands of God based on whim? Surely not, God is (morally) good.

⧫ Divine Command Ethics seems to have things backwards-instead of commands of God creating morality; moral reasons provide the foundation for the commands of God.

⧫ This discussion does not rely on questions of the existence or supremacy of God. Nor does it deny the importance or the purpose of religion, which is, in part, to motivate right (moral) action.

4.19 Customs and ethics

This is based on the concept of ethical pluralism which means there are many views of looking at ethical problems and it is difficult to peg own to one solution which is acceptable to all. Therefore the concept of "ethical relativism" introduced; According to this concept, what is morally correct is determined by the law or custom of the place. In other words any action is moral if it is within the frame work of law or

custom. While ethical egoism reduces morale issues to the level of self-interest, ethical relativism reduces moral issues to the level of laws and customs. The merits of the relativism concept are clear-cut and not ambiguous. But the demerit is that it is just not enough to measure ethical values with only legal standards.

There are others who argue that ethical values change based on culture of the country and society. This also is a limited argument.

Customs and Ethical Relativism:

- We have to agree that we live in a society that has different customs followed by different category of people. For each group of people their customs are right even though it may not agreed upon by other groups.
- Ethical relativism states that an action will be considered morally to be right if they are approved by customs or laws and they are considered morally to be wrong if they are violating customs or laws.
- Hence ethical relativism attempts to reduce moral values laws and customs of particular societies.
- Ethical relativism appears to be attractive due to the following reasons.
- Customs and laws appear to be tangable and clear-cut.
- It treats values as subjective at the cultural level encouraging the virtue to tolerate differences among societies.
- Because there are people who believe that moral judgement are to be made in relation to factors that may vary from situation to situation, thus making it impossible to have commonly acceptable rules that are absolute. It should be noted that in every profession, ethical relativism cannot be accepted. Beliefs/customs cannot be taken for granted as they are usually self certified ones. Even if they are used widely and has become customary, they cannot be accepted unless it is universally morally correct to be followed.

4.20 Self-respect

It is defined as valuing oneself in morally suitable ways. Self-respect includes (a) recognition, which means respect to others, their ideas, decisions, ability, and rights and (b) appraisal, which means properly valuing ourselves as to how well we face moral standards and our personal commitments (aims). An intensive but balanced feeling of

self-respect is sense of honor. This includes intense agony and guilt for wrong doings. Self-control is a virtue of maintaining personal discipline (self-respect).courage is a bye-product of self-respect, which makes a person face hardship in rational way.

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

4.21 Case study: choice of the theory

The choice of the ethical theory to study a problem is illustrated herein with an example. In talking 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 the same though we have applied various theories.

Case: A chemical plant near a small town is discharging hazardous wastes into the fields nearby. The ground water gets contaminated and significant health problems surface in the community.

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 outweigh 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.

Let Us Sum Up

In this unit we are able to understand about the Moral development in human being occurs over the years of age and their experience. From this unit different thoughts and theories regarding cognitive development were covered. It starts with the meaning, characteristics of life cognitive development. We discussed about the Kohlberg's and Gilligan theories of moral development. In the last section, we talked about the moral development with the help of relevant case studies.

Check your progress

1. Total number of stages of moral development proposed by carol Gilligan _____

a. Two
b. Three
c. Four
d. Five

2. On the basis of interview Kohlberg's ethical contemplation consist of how many stages.

a. Four
b. Two
c. Six
d. One

3. The Kohlberg's model of moral development has which of the following characteristics?

a. Stage of moral development are universal in nature

b. There is continuity in development of moral thinking

c. Moral development is not a orderly process; it is entirely dependent on environmental factors

d. Moral development is dependent primarily on cultural values.

4. Autonomous morality is Piaget's _____stage of morality in which children have a more flexible view of rules, believing that rules are self-chosen rather than simply imposed upon them.

a. First

b. Second

c. Third

d. None of the above

5. Gilligan's feminine model of moral reasoning, characterized by a desire to maintain relationship and a responsibility to avoid hurting others is called

a. Good orientation

b. Proper Orientation

c. Care Orientation

d. Justice Orientation

6. _____ **is the capacity to understand another person's emotions and concerns**.

a. Empathy

b. Discipline

c. Gratification

d. Stratification

7. According to Gilligan, the most mature forms of moral reasoning incorporate

a. Well-being and care concerns

b. Justice and care concerns

c. Justice and selfish concerns

d. Well-being and selfish concerns.

Glossaries

Conservation – It refers to the idea that a quantity remains the same despite changes in appearance.

Assimilation – Process of taking in new information into our previously existing schemas.

Schemas – Knowledge that help us to interpret and understand the world.

Accommodation – It is a cognitive process by which we develop or change a schema in order to deal with new object or situation.

Suggested Reading (References)

1. A.N. Tripathi (2006), Human Values, New Age International, New Delhi.
2. M.Govindrajan, S.Natarajan and V.S.Senthil Kumar(2011), Professional Ethics & Human Values, PHI Publication, New Delhi.
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10. Dr.Saroj Kumar & Prof.Sheenu Nayyer, Human Values and Professional Ethics, Thakur Publishers, Lucknow.

Answers for check your progress

1.A 2. C 3.A 4. B 5.C 6.A 7.B

Model Questions

Short answers:

1. What are the three levels of moral development of Kohlberg's theory?

2. When do Kohlberg call individuals as autonomous persons?

3. Bring out any two drawbacks in applying Kohlberg's theory to practical situations.

4. What does Gilligan's conventional level refer.

5. What is meant by utilitarianism?

6. What are the two versions of utilitarianism?

7. What is the basic concept of duty ethics theory?

8. What are the two versions of right ethics?

Long answers:

1. What does Kohlberg's theory of moral development say?

2. What is the basic concept on which Gilligan's theory of moral development has been developed?

3. What are the characteristics of a profession?

4. What are the various senses of responsibilities?

Unit 5

ETHICAL DILEMMA

Overview

An ethical dilemma is a conflict between alternatives where choosing any of them will compromise some ethical principle and lead to an ethical violation.

Engineer's needs to identify the dilemmas in engineering are the professional codes of ethics, as interpreted by the professional experience. They need to decide upon a final course of action, based on priority fixed or assumed.

Learning Objectives

After studying this unit, you can able to understand,

- What is ethical dilemma and types of complexities in dilemma?
- The various steps involved in solving the Ethical issues in the organization.

5.1 Ethical Dilemma

An ethical dilemma is a conflict between alternatives where choosing any of them will compromise some ethical principle and lead to an ethical violation. At sometimes, the situations occur where one cannot make immediate decisions as the moral reasons come into conflict. The moral reasons can be rights, duties, good or obligations which make the decision-making complex.

5.2 Types of Complexities:

The difficulties can be divided into the following three sections.

- Vagueness
- Conflicting reasons
- Disagreement

5.2.1 Vagueness:

It refers to the condition where the doubt lies in whether the action refers to a good or bad. It is just like having a thought that following rules is mandatory i.e., being loyal, having respect, maintaining confidentiality etc.

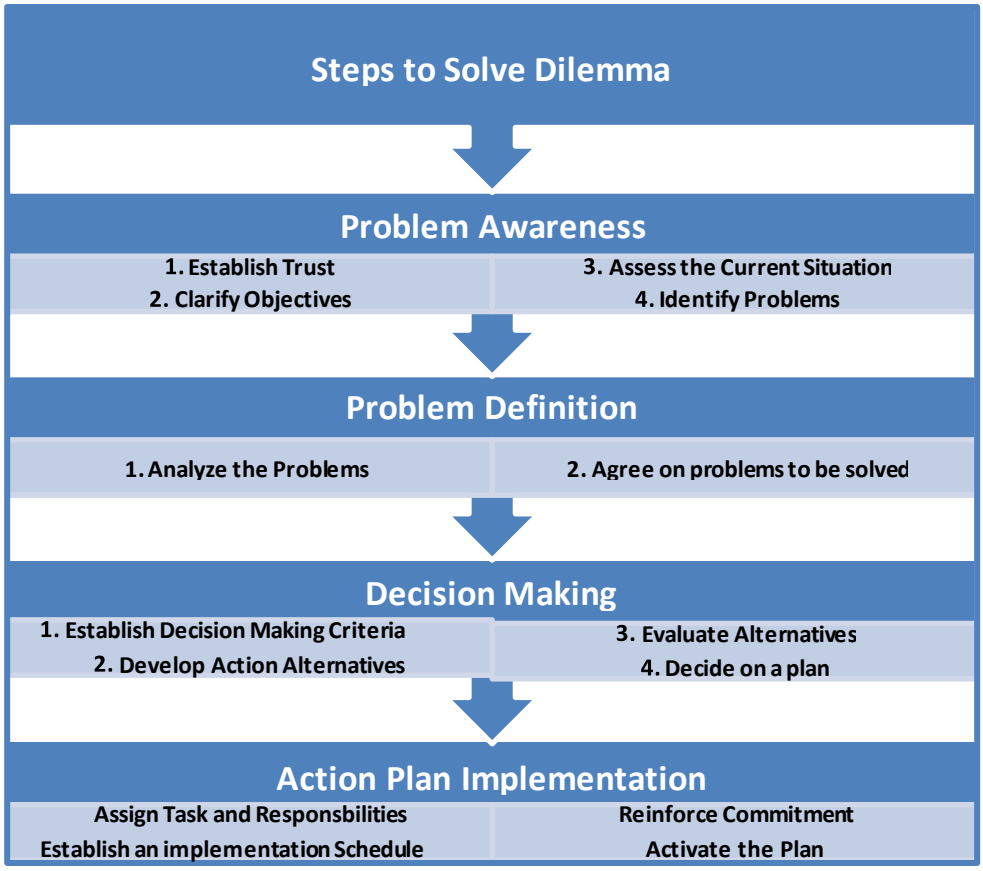
5.2.2 Conflicting Reasons:

When you know about the solutions you have, the making of better choice among the ones you have, will be the internal conflict. Fixing the priorities depends upon the knowledge and the moral values one has to be fulfilled. The reason why the particular choice is being made will make sense.

5.2.3 Disagreement:

When there are two or more solutions and none among them is mandatory, the final solution selected should be best suitable under existing and the most probable conditions. The interpretation

regarding the moral reasons behind the choice and analysis should be made keeping in mind whether this is the better or the worse solution in the probable aspects.



5.3 Steps to Solve Dilemma

The logical steps in confronting moral dilemma are as follows,

a. Identification of the moral factors and reasons: The clarity to identify the relevant moral values from among duties, rights, goods and obligations is obtained (conceptual inquiry).The most useful resource in identifying dilemmas in engineering is the professional codes of ethics, as interpreted by the professional experience. Another resource is talking with colleagues who can focus or narrow down the choice of values.

b. Collection of all information, data, and facts (factual inquiry) relevant to the situation.

c. Rank the moral options i.e., priority in application through value system, and also as obligatory, all right, acceptable, not acceptable, damaging, and most damaging etc. For example, in fulfilling responsibility, the codes give prime importance to public safety and protection of the environment, as compared to the individuals or the employers (conceptual inquiry).

d. Generate alternate courses of action to resolve the dilemma. Write down the main options and sub-options as a matrix or decision tree to ensure that all options are included.

e. Discuss with colleagues and obtain their perspectives, priorities, and suggestions on various alternatives.

f. Decide upon a final course of action, based on priority fixed or assumed. If there is no ideal solution, we arrive at a partially satisfactory or 'satisfying' solution.

5.4 Morality and Moral Issues

The word morality is concerned with:

- What morally ought or ought not to be given in a given situation;
- What is morally right or wrong an out the handling of the situation; and/or
- What is morally good or bad about the people, policies, and ideals involved in it?

According to the Oxford dictionary, morality means principles concerning right and wrong or good and bad behavior. Moral reasons are required to support an act (or an ideal) to be called as morally right act (or an ideal is moral).

5.5 Variety Of Moral Issues

The two different varieties of moral issues are a) Micro Ethics; b) Macro Ethics.

Micro-ethics: This approach addresses typical, everyday problems that the engineers face in their professional life. In other words, micro-ethics describes ethical issues that may affect an engineer's professional and personal life.

Macro-ethics: This approach deals with all societal problems that engineers encounter during their career. In other words, macro-ethics discusses ethical issues concerning all societal problems that engineers might encounter. There are many situations and moral issues that cause professional disagreements among engineers. The varieties of moral issues are:

Organization Oriented Issues

a. Being an employee to firm, the engineer has to work towards the achievement of the objectives of his/her organization.

b. Engineers have to give higher priority to the benefits of the organization than one‘s own benefits.

c. Engineers should be able to work collectively with colleagues and other members in order to achieve firm‘s goals.

Clients/Customers Oriented Issues

a. As we know, the purpose of any business is to reach and satisfy the end users. Therefore the customers ‘requirements should be met.

b. In this regard, engineers have a major role to play in identifying the customer voice and incorporating the voice of the customer into the product design and manufacture.

c. Apart from engineering technicality issues, engineers also should face other moral and ethical issues with clients/customers.

Competitors Oriented Issues

a. In order to withstand in a market, engineers should produce things better than their competitors by all means.

b. Professional Engineers should not practice cut-throat competition. They should follow certain professional behavior while facing their competitors.

c. Thus engineers should hold paramount the safety, health and welfare of the customers in the performance of their professional duties.

Law, Government and Public Agencies Oriented Issues

a. The engineers should obey and voluntarily comply with all the governmental rules and regulations related to them.

b. They should also respect and honestly practice all other similar laws, policies, and regulations.

Social and Environmental Oriented Issues

a. Since the works of engineers have a direct and vital impact on the quality of life for all people, the engineers should be dedicate to the protection of the public health, safety and welfare.

b. Engineers need to be aware their role as agents of experimenters. They should have a united commitment in protecting the environment.
c. They should not involve in any unethical environmental issues such as misusing scarce resources, and fouling environment.

5.6 Moral Autonomy

Moral autonomy is defined as, decisions and actions exercised on the basis of moral concern for other people and recognition of good moral reasons. Alternatively, moral autonomy means 'self determinant or independent'. The autonomous people hold moral beliefs and attitudes based on their critical reflection rather than on passive adoption of the conventions of the society or profession. Moral autonomy may also be defined as a skill and habit of thinking rationally about the ethical issues, on the basis of moral concern.

Periodical performance appraisals, tight-time schedules and fear of foreign competition threatens this autonomy. The attitude of the management should allow latitude in the judgments of their engineers on moral issues. If management views *profitability* is more important than consistent quality *and* retention of the customers that discourage the moral autonomy, engineers are compelled to seek the support from their professional societies and outside organizations for moral support. It appears that the blue-collar workers with the support of the union can adopt better autonomy than the employed professionals.

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

5.7 Relationship between Autonomy and Authority

1. Moral autonomy and respect for authority are compatible with each other. Exercising moral autonomy is based on the moral concern for other people and recognition of good moral reasons. Also moral autonomy emphasizes the capabilities and responsibilities of people. Authority provides the framework through which learning attitudes are encouraged.

2. Sometimes, conflicts will arise between individuals 'need for autonomy and the need for consensus about authority. This situation can be rescued by having open and frank discussion regarding a moral issue with the help of authority.

Illustration: Consider the relationship between autonomy and authority, with reference to a classroom. In the classroom, the teachers have authority over students. Authority of the teachers helps in maintaining the dignity and decorum of academic climate in a institution; also in restoring the confidence and respect between teachers and students.

As per the first point, there should be the acceptance of authority of authority by both the teachers and students, in order to conduct the classes in orderly ways. When the authority is misused, conflicts may arise between autonomy and authority. As per the second point, allowing open discussions between teachers and students can reduce the unhealthy academic atmosphere.

Let Us Sum Up

From this unit, we are able to understand about the ethical dilemma i.e., conflict between alternatives where choosing any one of them will compromise ethical principle and lead to an ethical violation. Along with that we also studied about types of complexities and steps to solve the dilemma. In the final we covered about the Morality, variety of moral issues and relationship between autonomy and authority.

Check Your Progress:

1. Which of these is a factor that affects ethical and unethical behavior?

a. Diversity

b. Ethical Dilemma

c. Open communication

d. Team Work

2. Resource Crunch, opportunities and attitudes relates to _____

a. Variety of moral issues

b. Variety of Legal issues

c. Variety of business issues

d. variety of technical issues

3. Moral Dilemmas are not

a. Conflicting obligation and duties

b. Conflicting duties and rights

c. Conflicting rights and ideals

d. Conflicting ideals and personal wishes

Glossaries

Micro Ethics – Coherence of individual actions with an agreed upon set of social rules, norms and guidelines.

Macro Ethics - Deals with large-scale issues or normative rules to guide action.

Moral Autonomy – Capacity to impose the moral law on oneself.

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1. A.N. Tripathi (2006), Human Values, New Age International, New Delhi.
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10. Dr.Saroj Kumar & Prof.Sheenu Nayyer, Human Values and Professional Ethics, Thakur Publishers, Lucknow.

Answers for check your progress

1.B 2. A 3.D

Model Questions

Short Answers:

1. What is Ethical Dilemma?

2. What do you mean by Micro ethics?

3. What do you mean by Macro ethics?

Long Answers:

1. Explain various steps to solve the Dilemma?

2. Discuss variety of moral issues in detailed manner?

Unit 6 RESPONSBILITY FOR SAFETY-1

Overview

Learning Objectives

6.1 Safety And Its Concept

6.2 Definition

6.3 Professional And Safety

6.4 Designing For Safety

6.5 Risk And Its Concept

6.6 Factors Influencing Risk

6.7 Acceptability Of Risk

6.8 Elements Of Risk Perception

6.9 Assessment Of Safety And Risk

6.10 Determination Of Risk

Overview

Safety has different connotations. A product or a project is safe, with respect to a person or a group at a given time, if its risks were fully known, and if the risks are judged to be acceptable, in the light of settled perspectives. When based on judgment safety, can be taken as objective. If the perspectives on values are taken then safety can be subjective as well. Awareness and maintenance of this situation is called 'safety'. The safety can be incorporated during design, pre-testing, operation, field applications, analog tests, and learning from the past or others. It is impossible to design any products to be completely risk free. The relationship of risk to safety is mostly very close.

Learning objectives

In this chapter, we shall explore the following

- What kind of responsibility should a professional hold to ensure the safety, health, and welfare of the public?
- How can the products be designed by the professional to minimize the risk to the user?
- How much risk is appropriate in an professional design?
- How to assess the safety and risk?
- How to do risk-benefit analyses?

6.1 Safety and its concept

Safety means the state of being safe. Safe means protected from danger and harm. The term 'safety' is always difficult to describe completely. What may be safe for one person may not be safe for another person. It is because different persons have different perceptions about what is safe. The American Heritage Dictionary defines safety as freedom from damage, injury, of risk. Absolute safety that satisfies all individuals or group under all conditions is neither attainable nor affordable.

6.2 Definition

- Safety was defined as the risk that is known and judged as acceptable. But, risk is a potential that something unwanted and harmful may occur. It is the result of an unsafe situation, sometimes unanticipated, during its use.

Probability of safety = 1- probability of risk

Risk = probability of occurrence x Consequence in magnitude

- The initial version of William W. Lowrence's definition for safety is as follows:
- "A thing is safe if its risk is judged to be acceptable'. It means, a thing is safe for a person if the perceived risk is less. Similarly a thing is unsafe if the perceived risk is high.

6.3 Professional and safety

It is universally accepted that safety should be an integral part of any professional design'. In order to ensure the safe design, the following criteria should be met:

A design should comply with the legal standards for product safety and other applicable laws. An acceptable design should meet the standard of 'accepted professional practice'. Alternative designs that are potentially safer should be explored. While designing any product, all possible misuses of the product by the consumer should be identified problems should be avoided by the professional.

Finally, the designed product should be tested using prototypes to determine:

i. Whether the product meets the specifications
ii. Whether the product is safe to use.

6.4 Designing for safety

Alan D. Wilcox has summarized the process of incorporating safety into the professional design as follows:

Step1. Define the problem. It includes the issues of safety in the product definition and Specification.
Step2. Generate multiple alternate design solutions.

Step3. Analyze each design solution. It evaluates the pros and cons of each solution.

Step4. Test the solutions.

Step5. Select the best solution.

Step6. Implement the chosen solution.

During steps 1 to 6 the safety and risk criteria should be given paramount importance than other issues.

6.5 Risk and its concept

✓ A risk is the potential that something unwanted and harmful may occur.

✓ The American Heritage Dictionary defines risk as the possibility of suffering harm or loss.

✓ Generally the term 'risk' is synonymously used with adverse effect or harm. The term 'harm' may be defined as an invasion or limitation of a person's freedom or well-being.

✓ The three most important types of well-being are physical well-being, psychological well-being, and economical well-being.

✓ It is experienced that professional risk affects mostly the physical and economic well-being. For example, faulty design of a chemical plant can cause accidents and economic disaster.

Effects of risk: It includes dangers of bodily harm, economic loss, and environmental degradation.

Causes of risk: Risks or harms are caused by delayed job completion, faulty products or system, and economically or environmentally injurious solutions to technological problems.

6.5.1 Risk will be defined as

- William W. Lowrence has defined risk as "a compound measure of the probability and magnitude of adverse effect".
- Mathematically,
- Risk = (Probability of the harm) x (Magnitude or consequence of the harm)
- In simple words, the risk is the product of the likelihood and the magnitude of the harm.

- A relatively slight harm having more probability of occurring might constitute a greater risk than a relatively large harm having lesser probability of occurring.

6.5.2 Natural Hazards and Disaster

- A natural hazard such as floods, earthquakes, droughts, volcanoes etc greatly threatens and damages the long lifelines of human populations.
- A disaster* is a serious disruptive event coincides with a state of insufficient preparation.
- In recent years, professional and technology have greatly reduced some of the ill effects of natural hazards and disasters.
- Thus professional should be aware of the ethical and professional issues regarding risk.

6.6 Factors influencing risk

Since the concept of risk is subjective in nature, it depends on many factors. They are:

1. Voluntary Vs Involuntary Risk

❖ If a person knowingly takes any risk, then he feels it safe. In contrast, if the same risk is forced to him, then he feels it unsafe.

❖ In simple terms, the voluntary risks are considered as unsafe (even if risks are really safe).

2. Short-term Vs Long-term Consequences

A thing, which causes short-lived illness or disability, seems safer than a thing that will result in permanent disability.

3. Delayed Vs Immediate Risk

An activity whose harm is delayed for many years will seem much less risky than something with an immediate effect.

4. Expected Probability

A relatively slight harm having more probability of occurring (say, 50:50 chance seems to e a greater/unacceptable risk than a

relatively a severe harm having lesser probability of occurring (say, 1 in 1, 00,000).

5. Reversible Effects

Something will seem less risky if the bad effects are ultimately reversible.

6. Threshold Levels For Risk

Something that is risky only at fairly high exposures will seem safer than something with a uniform exposure to risk.From the above factors, it is clearly understood that something is unsafe or risky to one person may seem very safe to someone else. This creates the great challenge for the professional to decide on the optimal safety level.

6.7 Acceptability of risk

According to D. Rowe, "A risk is acceptable when those affected are generally no longer (or not) apprehensive about it". Apprehensiveness (or doubtfulness) mainly depends on how the risk is perceived by the people.

6.8 Elements of risk perception

1. The risk perception is influenced by the factors such as:
2. Whether the risk is assumed voluntarily.
3. The effect of knowledge on how the probabilities of harm are perceived.
4. Job-related or other pressures that cause people to be aware of risks.
5. Whether the effect of a risky activity or situation are immediately noticeable.
6. Whether the potential victims are identifiable beforehand.

We shall discuss these elements of risk perception, in detail, in the following sections.

1. Voluntarism and Control

★ Voluntary risk: if people take risk knowingly, then their involvement of risk is known as voluntary risk.

★ Many people consider safer if they knowingly take on the risk. Also the people believe that they have 'full control' over their actions.

Examples for voluntary risk

★ Buying a flat/house near a chemical plant that emits low levels of a toxic waste into the air, because the property values are very low.

★ Participating in a potentially adventurous sport such as motorcycle racing, skiing, boxing, hand-gliding, bungee jumping, etc without much safety guards.

Controlled risk:

If the risk taken is within the control limit, which can be controlled by any means, then the risk is known as controlled risk.

Examples for controlled risk:

In practice, all the dangerous sports such as motorcycle racing, skiing, hang-gliding, bungee jumping, horseback riding, boxing etc are carried out under the assumed control of the participants. They use all safety guard to keep the risk under control.

2. Effect of information on Risk Assessments

❖ The information about a harm/danger should be presented in a systematic and appropriate manner. Because the manner in which the required information for decision-making is presented has a great influence on how risks are perceived.

❖ Many case studies and experiments have proved that the manner in which information about a danger is presented can lead to undesirable and wrong perceptions about danger.

❖ The threshold limit of individuals for information varies from person to person. Some would be comfortable only when they have information of deeper depth and quality, while others may be comfortable with minimal information.

❖ Many experiments have drawn the following two conclusions:

❖ Options perceived as yielding company gains will tend to be preferred over those from which gains are perceived as risky or only probable.

❖ People tend to be more willing to take risks in order to avoid perceived company losses than they are to win only possible gains.

3. Job – Related Risks

- The exposure of risk depends on the person's job and his work place.
- The nature of the job and the working environment will determine the risk level of a person.
- For example, people working in the coalmines, oil mines, shipyards, chemical plants, nuclear power plants, etc have more probability of being exposed to the high risk.
- Because of high competition for survival, the employees don't have any options other than undertaking high-risk jobs.
- Union, and occupational and safety regulations should regulate and enforce the employers, to facilitate the standard working environment.
- Most importantly, professional who design and equip workstations must take into account the various safety issues and the workers suggestions/complaints regarding their workplace.

4. Magnitude And Proximity

- Our reaction to risk is affected by the magnification and the personal identification or relationship we have with the victims.
- For instance, we feel very bad if one of our close relatives or friends are subjected t great harm by some accident that if might affect 20 strangers.
- Thus the magnitude of risk and the proximity (i.e. closeness) with the victims greatly influences the degree of reaction to the risk.

6.9 Assessment of safety and risk

It is always a great challenge to professional to balance quality and safety against cost. In general, professional's tendency is to design and produce high-quality products, but business managers tend to keep the cost down. Therefore it is necessary to understand the relationship between safety, risk, costs and price.

Why both low-risk and high risk products are costly?

- A product cost may have two elements:
  - Primacy cost of product
  - Secondary cost of product
- The primary cost of product (P) includes production cost and cost of safety measures involved.

❖ The secondary cost of product (S) includes costs associated with warranty expenses, loss of customer good will, litigation, possible downtime in the manufacturing process, etc.

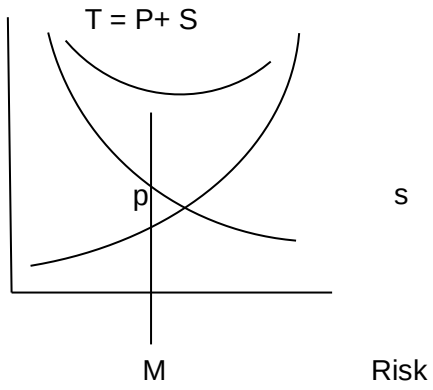
❖ Fig. illustrates relationship between risk and cost to manufacture.

Cost to manufacture

WHERE P = PRIMARY COST OF PRODUCT

S = SECONDARY COSTS,

T = TOTAL COST



LOW RISK, HIGH SAFETY HIGH RISK, SAFETY

As fig indicates, a stress on low risk and high safety leads to high primary costs and lower secondary costs, and vice versa.

The total cost is the sum of primary and secondary costs of product.

As shown in Fig, the total cost is minimum at point M, where the slopes of the primary and secondary cost curves are equal in magnitude but opposite in direction.

Therefore it is evident that both low-risk products are costly. The optimal total cost (M) occurs in between low-risk region.

6.10 Determination of risk

In order determine the risk; one should have knowledge about the following criterions.

6.10.1 Knowledge of Risk

✓ To assess a risk, an professional must first identify it. To identify a risk, an professional must first know the information about the safety of standard product.

✓ Though past experience and historical data provide good information about the safety of standard products, still it is insufficient to completely assess the risk of a product.

✓ The past experience and historical data are inadequate to access the risk, because of the following reasons:

★ The information is not freely shared among firms, and

★ There are always new applications of old technology that makes the available information less useful.

✓ Therefore in order to access the risk, professional and firms should share the information and knowledge about the safety of products freely.

6.10.2 Uncertainties in Design

✓ While designing a product, the design engineer must deal with many uncertainties. Many of the risks can be expressed as probabilities and as educated guesses.

✓ The uncertainties are in the form of application of the product, materials used for producing the product, changing economic conditions, unfavorable environment conditions, temperature, etc.

✓ Traditionally professional use 'factor of safety' while designing to cope with uncertainties about materials and actual operating conditions of the product. The factor of safety is proposed to account for unpredictably high loads or unaccountably weak construction material.

✓ A product is said to be safe if its capability exceeds its duty.

6.10.3 Testing For Safety

❖ Once the product is designed, both prototypes and finished devices must be thoroughly tested.

❖ The testing is not just to determine whether the product meets the specification. It should also involve testing to see if the product is safe.

❖ It is essential that in any professional design, all safety systems be tested to ensure that they work as planned.

Unit 7

RESPONSBILITY FOR SAFETY-2

7.1. Different approaches for testing risk analysis

7.1.1. Analytical Methods

Several analytical methods are adopted in testing for safety of a product/project.

7.1.2. Scenario Analysis

This is the most common method of analysis. Starting from an event, different consequences are studied. This is more a qualitative method. A scenario is a synopsis of events or conditions leading to an accident and subsequent loss. Scenarios may be specified informally, in the form of narrative, or formally using diagrams and flow charts. To assess the risk faced by the organization, the planner matches the probability and loss characteristics of various exposures to one's intuition of risk. This exposure analysis can be most effectively carried out using 'loss scenarios'.

Steps for Risk Assessment

What can go wrong that could lead to an outcome of hazard exposure? (identification and characterization of risk)

1. How likely is this to happen? (Quantification of risk, likelihood, and magnitude)

2. If it happens, what are the consequences? Scenarios are constructed and the ways and means of facing the consequences are designed. Using of scenario based risk analysis will provide the ways to reduce or eliminate the exposure of risk. Risk or loss control actions have the effect of reducing probability and the amount of risk or both. Scenario bases analysis helps to identify and prioritize the disaster as per their potential.

7.1.3. Failure Mode and Effect Analysis (FMEA)

In this method, various parts or components of the system and their modes i.e., patterns and nature of failure are studied. It is one of the qualitative tools, which support proactive quality strategies. Successful implementation of FMEA requires relevant knowledge and insight as well as professional judgment. This concept was introduced in 1960 by aerospace companies. Then the use of FMEA was extended to all other

types of industries understanding the value of this approach. FMEA is defined as a systematic tool to

(a) Identify possible failure modes in the products/process,
(b) To understand failure mechanism (process that leads to failure),
(c) Risk analysis, and
(d) Plan for action on elimination or reduction of failure modes

Important Steps in FMEA:

FMEA is a cross-functional team management. Throughout the product development cycles, changes and updates will be introduced to the product and process. These changes have to be reviewed because they can introduce new risks or failure modes. It is thus necessary to review and update changes.

1. Product/process and its function must be understood first. This is the most fundamental concept to be adopted in this methodology. This understanding helps the engineer to identify product/process function that fall with the intended and unintended users.

2. Block diagram of product/process is created and developed. The diagram shows the major components or process steps as blocks, identifies their relations namely, input, function and output of the design. The diagram shows logical relationship of components and establishes a structure for FMEA. The block diagram should always be included in the FMEA form.

3. Header on FMEA form is completed. FMEA form includes part/process name, model date, revision date, and responsibility.

4. The items/functions are listed logically in the FMEA form, based on the block diagram.

5. Then failure modes are identified. A failure mode is defined wherein a component, subsystem, system, and process could potentially fail to meet the design intent.

6. A failure mode in one component can cause failure in another. Each failure should be listed in technical terms. Listing should be done component- or process-wise.

7. Then the effects of each risk/failure mode are described. This is done as perceived by both internal and external customers. The examples of risk/failure effect may include injury to the user, environment, equipment,

and degraded performance. Then a numerical ranking is assigned to each risk or failure. It depends upon the severity of the effect. Commonly, in the scale, No.1 is used to represent no effect and 10 to indicate very severe failure, affecting system of operation and user. By this, the failures can be prioritized and real critical risks can be addressed first.

8. Then the causes of each failure mode have to be identified. A cause is defined as a design weakness that results in a failure. The potential causes for each failure mode are identified.

9. The probability factor indicating the frequency of occurrence is considered. A numerical weight age can be assigned to each cause depending upon the probability of occurrence. A standard scale is used, 1 is indicating 'not likely' and 10 is indicating 'Inevitable'.

10. Design or process mechanism to be identified, which can prevent the causes of failure or detect failure, before it reaches customer. Accordingly, the team has to identify tests, analysis, monitor the techniques to detect the risk or failure, so previously undetected or unidentified failures may appear when new process are introduced. Therefore FMEA should be updated and the required plans for the elimination of risks or failure have to be drawn.

11. Risk Priority Number (RPN) is calculated and reviewed.

RPN = Severity X Probability X Detection

It is used to prioritize failure modes and viewed as a relative measure of the design risk.

11. Revalidate each action by reassessing severity, probability and detection and review the revised RPN. FMEA has to be updated as and when the design or process is modified or changed.

7.1.4. STAGES OF FMEA:

The analysis can be executed in four stages as given below:

Stage 1: Identifying possibilities and defining the scope. It includes function, possible failure mode, causes and effects of failure mode and detection/prevention of failure mode.

Stage 2: Measuring the volume of risk involved from the failure modes are identified, which will helps to reduce the probability of occurrence and prevent it.

Stage 3: Various classification of severity of effects and the solution for the causes of high risk. Based on RPN, it prioritizes the work, indicates detailed action and assigns proper responsibility to the team.

Stage 4: Revalidation of the above procedure, after corrective and preventive actions are implemented. Check whether target data and work is met. Review RPN and decide if any further action is needed.

Fault-free Analysis: This approach proposes a system failure and then traces the events back to possible caused at component level.

Event-free Analysis: This is the reverse of the fault-free analysis. This analysis is very useful in identifying a potentially hazardous situation in the plant. Out of these several techniques, the fault-free analysis is most effective, because it explains the possible approaches for proper functioning and safety of a complex system.

7.2. Risks-benefit analysis

❖ Risk-benefit analysis is a technique, similar to cost-benefit analysis, used to analyze, used to analyze the risk in a project and to determine whether the project should be carried out or not.

❖ Risk-benefit analysis answers the following questions:

- What are the benefits of the project/product?
- Is the project/product?
- Do benefits outweigh the risks?

❖ It is understood that everyone is ready to certain levels of risk as long as the project/product/activity promises sufficient benefit or gain.

❖ In risk-benefit analysis, the risks and benefits of a project/product are assigned money values, and the most favorable ratio between risks and benefits is determined.

7.2.1. Conceptual Difficulties in Risk-Benefit Analysis

Risk-benefit analysis is a very difficult process, because of the following reasons:

➢ In risk-benefit analysis, both risk and benefits are very difficult to quantify. Because both lie in the future. That is, both risk and benefits are associate with uncertainties.

➢ It should be noticed that who takes the risks and who enjoys the benefits? Therefore it is important to ensure that those who have taken the risks are the beneficiaries of it.

➢ It is mostly difficult to express both risk and benefits in a common set of units. For example, when the risks can be expressed and measured in one set of units (say, accidents/deaths on the airways) and benefits in another (say, speed of travel), then very difficult to do risk-benefit analysis. In this case, risk-benefit analysis is used to judge the relative merits of different designs.

7.2.2. Ethical Implications on Risk-Benefit Analysis

While performing the risk-benefit analysis, one should keep in mind the following ethical question:

(a) Under what conditions, someone in society is entitled to impose a risk one someone else on behalf of a supposed benefit to others?

(b) How can we consider the worst-case scenarios of persons exposed to maximum risks while they are also obtaining only minimum benefits? Are their rights violated? Are they provided safer alternatives?

7.3. Personal risk

❖ If sufficient information is given to a person, then he can be able to decide whether to participate in a risky activity or not.

❖ Many experiments have concluded that individuals are more willing to face voluntary risks than involuntary risk, even when the voluntary risks are more harmful than the involuntary ones.

❖ Personal risks are difficult to assess especially if they are involuntary personal risks.

7.3.1. Examples for Personal Risks:

- A person living near a chemical plant voluntarily or involuntarily
- A person working in a nuclear power plant or oil refinery plant.

❖ The quantification in assessing personal safety and risk is very difficult to estimate.

❖ While assessing the personal risk, one should consider the following ethical questions:

- How to access the money value of an individual's life?
- On what basis, the compensation for a risk can be decided?
- Is the compensation for a risk by an amount based on the exposure tolerance of the average tolerance of the average person justifiable?
- What will be the compensation if the tolerance level of the person is below or above the average tolerance level?

❖ In order to minimize the above difficulties in assessing personal risk, the analysts employ all the available quantitative measures such as

- Making judgment on the basis of the amount of life insurance taken out by an individual
- Assessing a hazardous job by looking at the increased wages a worker demands to carry out the task.

7.3.2.PUBLIC RISK AND PUBLIC ACCEPTANCE

✓ Risks and benefits to the public at large can be more easily determined than the personal risks and benefits. Because individual differences tend to even out as large numbers of people are considered.

✓ Assessment studies relating to technological safety can be conducted in a better manner for public risk than for personal risk, as statistical parameters takes on greater significance.

ACCOUNTING PUBLICLY FOR BENEFITS AND RISKS

Public accountability for risk has been affected by the following problems:

✓ An expert or even groups of experts cannot be expected to know everything. Hence the public processes (which are designed to establish safeguards and regulations) suffer from incomplete professional knowledge.

✓ The uncertainty produced by scientists and regulars (who assure the public that there are no risks, but they know that the answers are not at hand) also infects the risk regulation. In other words, a refusal to face the hard questions created by lack of knowledge affects the risk regulation.

✓ Since the conceptions of risk vary depending on how the facts are presented, therefore special caution should be given when stating probabilities of rare events.

7.4. ROLE OF PROFESSIONAL TO SAFEGUARD THE PUBLIC FROM RISK

✓ The professional can provide background material to prove the fault positions.

✓ Professional should actively participate in the debates related to safety and risk.

✓ Professional should always insist on meaningful numbers and figures when assessing safety and risk.

✓ Professional should also recognize the previously mentioned difficulties with measuring risks and benefits in absolute terms.

✓ Professional should not be influenced by any influential lobby or trade organization.

✓ Professional need to be sensitive to various qualitative value judgments related with human and ethical values.

✓ Professional should be aware at the legal liabilities regarding risk.

7.5. Reducing risk

As we know, it is impossible to design and manufacture anything to be completely risk free. However, it is the responsibility of the professional to explore all the possible ways to reduce the risk given financial and time constraints.

✓ **Risk Management Defined:** Risk management may be defined as the eradication or minimization of the adverse effects of the pure risks to which an organization is exposed.

✓ **Elements Of A Risk Management Programme:** According to the recent health and safety legislation, the three important elements of a risk management programme are:

1) Risk identification
2) Risk evaluation
3) Risk control

7.5.1. Risk Identification

Risk can be identified by various techniques such as physical inspection, safety audit, job-safety analysis, management and worker discussions, and historical data analysis.

7.5.2.Risk Evaluation

✓ Risk can be measured on the basis of economic, social or legal considerations.

✓ Economic and social considerations include financial aspects, uninsured cost of accidents, insurance premium, overall effect on the profitability, and possible loss of production.

✓ Legal considerations include possible constraint from compliance with health and safety legislation, code of practice, guidance notes and accepted standards, fire prevention, pollutions and product liability.

7.5.3.Risk Control

It consists of four key areas such as: Risk Avoidance, Risk Retention, Risk Transfer and Risk Reduction.

✓ **Risk avoidance:** It refer to the conscious decision by the management to avoid completely a particular risk by discounting the operation producing the risk.

✓ **Risk retention:** It refers to retaining a particular risk for which any consequent loss is financed by the organization.

✓ **Risk transfer:** it refers to the legal assignment of the cost of certain potential losses from one party to another (example, by insurance).

✓ **Risk reduction:** It refers to the reduction or elimination of all aspect of accidental loss that lead to a wastage of an organization's assets.

7.6. Faulty assumptions and their realities about safety

There are many misconceptions about safety. Some of the popular fault assumptions and their realities about safety are given below:

1. **Assumption:** Producing a safe product always increases the cost.

Reality: Accidents are caused by dangerous conditions, which can be corrected.

2. **Assumption:** Producing a safe product always increases the costs.

Reality: If safety is incorporated in the design stage itself, the initial cost will be reduced. If there are any later design changes, it will increase the product cost.

3. **Assumption:** We learn about safety after a product has been completed and tested.

Reality: If safety is not built into the original design, people can be hurt during the testing stage. Unwillingness to change a design means compromising on safety.

4. **Assumption:** Warnings about harms are sufficient. Insurance coverage is cheaper than planning for safety.

Reality: Warnings can provide minimal protection against harmful events. Insurance rates are very high.

7.7. Case study of three mile island

In March 1979, an event occurred at the Three Mile Island Unit 2 that resulted in the first case of melted fuel in a full scale commercial nuclear power plant. There had been prior causes of small scale fuel melting, e.g., the Fermi 1 reactor near Monroe, Michigan. TMI-2 was a Babcock & Wilcox unit with a vertical once-through steam generator. In the event a valve in the secondary system closed and initiated the sequence of events. Two diagrams are being used to illustrate the events that occurred. The first shows the overall cycle for the pressurized water reactor design. The second focuses on the containment.

THE SEQUENCE OF EVENTS

1. A valve in the condensate system (between the condenser and the pump on the secondary side) failed closed, which reduced the amount of water being supplied to the steam generator; the main feed water pumps and the turbine tripped within seconds.
2. The design of the vertical one-through steam generator is such that there is not much water on the secondary (non- radioactive) outer side of the steam generator tubes that will boil to steam when the plant is at full power and the reactor continues to put out full power; thus all the water on the secondary side was rapidly converted to steam within minutes. The emergency feed water pumps, which started as expected, were unable to inject water into the steam generators because several valves in the system were closed.
3. The reactor continued to heat the reactor coolant. The reactor coolant pumps continued circulating the water to the steam generators,

however no heat could be removed by the secondary side since there was no water in the steam generators. The reactor coolant system started to heat up.

4. Pressure rose in the reactor cooling system until the reactor shutdown. A power operated relief valve opened in the line between the pressurize and the quench tank. This valve failed to reclose when it was supposed to-after pressure dropped below the set point for closure. This relief valve continued to discharge to the quench tank.

5. The fact that the valve was open allowed steam to continue discharging to the quench tank. Pressure dropped in the reactor cooling system because the valve was still open (however, due to poor control board design and failure to indicate the valve position properly, the operators did not know the valve was open). The quench tank has a rupture disc that opens at about 10-12 pounds per square inch. When this happened, the steam was released to the containment.

6. The pressurizer is normally at about 65*F. As pressure dropped in the reactor cooling system, eventually water in the upper-most area of the reactor (about 10-15 feet above the fuel) flashed to steam. The indicated water level in the pressurizer stayed high (the relationship between the pressurizer and the reactor was like a manometer).

7. The operators turned off the emergency water injection pumps because they thought there was still water in the pressurizer.

8. The operators turned off the reactor cooling pumps because they were concerned about damage due to potential excessive vibration. This resulted in a steam void forming in the reactor coolant loop. In addition, a steam bubble formed in the upper part of the reactor above the fuel. Eventually as the fuel heated, this void expanded. Eventually, the fuel cladding material overheated. It is likely that some hydrogen was produced by a chemical reaction between the zircaloy clad and the steam in the reactor. In addition, the hydrogen normally present in the reactor cooling system (used to reduce the presence of oxygen and subsequent corrosion in the system) was released to the containment through.

9. At one point, containment pressure rapidly spiked to 28 ponds per square inch; then rapidly dropped. This was most likely due to the chemical reaction of hydrogen with the oxygen in containment.

10. Water was added to the reactor cooling system and the level raised in the pressurizer until cooling of the reactor was assured.

- Reactor
- Once-through Vertical Steam Generator.
- Pressurizer.
- Quench Tank or Pressurizer Relief tank.

What was the maximum radiation exposure offsite?

Studies conducted indicate that the maximum potential offsite radiation exposure likely was 83 millirem. An actual individual located on a nearby island is believed to have received at most 37 millirem. Extensive studies y federal agencies led to these conclusions and to an estimate that one

excess cancer fatality due to the accident could be expected over a 30 year period.

What Good came from the TMI Event?

Several thorough investigations occurred- the most important was appointed by President Carter and resulted in a number of recommendations. Improvements were neede in the following areas:

- Operator training
- Emergency planning
- Dissemination of industry information
- Use of probabilistic safety assessment and analysis of more probable events.

The electric utilities recognized their responsibilities. An industry self-assessment group was formed- the Institute of Nuclear Power Operations. This organization, based in Atlanta, serves several functions:

- Evaluates events and practices within the US nuclear industry and disseminates recommendations.
- Conducts periodic assessments of each utility in the United States, including operations, maintenance, professional, training, radiation protection, chemistry, and corporate support; the results of these inspections factor into the insurance ratings of the utility.
- Provides highly specialized training programs for utility personnel, including plant managers.

All electric utilities expanded significantly the training conducted for personnel who work at and support nuclear plant operations. This included establishing the National Nuclear Academy which accredits the

plant training programs in 10 areas. Also, all utilities purchased simulators for training personnel who work in the main control room.

The NRC also took decisive action imposing a number of changes related to equipment, analysis, practices, and personnel. The NRC conducted their own self examination referred to as the Rogovin study. Two major documents were issued-NUREG-0696 and NUREG-0737. Equipment changes included monitoring instrumentation capable of withstanding severe accidents and hydrogen recombiners. Analysis involved small break loss of coolant events. Practices changed included upgrading of emergency operating procedures and development of emergency plants. Personnel-related changes involved upgrading of training and qualification requirements and a requirement to have a

degreed shift technical advisor assigned to each shift to evaluate abnormal conditions.

The Federal Emergency Management Agency, in conjunction with the NRC, developed criteria for classifying emergencies, emergency planning, and evacuation plans.

At **4:11 a.m.,** an alarm signaled high water in the containment building's sump, a clear indication of a leak or break in the system. The water, mixed with steam, had come from the open PORV, first falling to the drain tank on the containment building floor and finally filling the tank and flowing into the sump. At 4:15 a.m., a rupture disc on the drain tank burst as pressure in the tank rose.

Five minutes later, at 4:20 a.m., instruments measuring the neutrons inside the core showed a count higher than normal, another indication-unrecognized by the operators-that steam bubbles were present in the core and forcing cooling water away from the fuel rods. During this time, the temperature and pressure inside the containment building rose rapidly from the heat and steam escaping via the PORV and drain tank. The operators turned on the cooling equipment and fans inside the containment building. The fact that they failed t realize that these conditions resulted from a LOCA indicates a severe deficiency in their training to identify the symptoms of such an accident.

About this time, Edward Frederick took a call from the auxiliary building. He was told an instrument there indicated more than 6 feet of water in the containment building sump. Frederick queried the control room computer

and got the same answer. Frederick recommended shutting off the two sump pumps in the containment building. He did not know where the water was coming from and did not want to pump water of unknown origin, which might be radioactive, outside the containment building. Both sump pumps were stopped about 4:39 a.m. Before they were, however, as much as 8,000 gallons of slightly radioactive water may have been pumped into the auxiliary building.

George kunder, superintendent of technical support at TMI-2, arrived at the Island about 4:45 a.m., summoned by telephone. Kunder was duty officer that day, and he has been told TMI-2 had a turbine trip and reactor scram. What he found upon his arrival was not what he excepted. “I felt we were experiencing a very unusual situation, because I had never seen pressurizer level go high and peg in the high range, and at the same time, pressure being low,” he told the Commission.

“They have always performed consistently.” Kunder’s view was shared by the control room crew. Shortly after 5:00 a.m., TMI-2’s four reactor coolant pumps began vibrating severely. This resulted from pumping steam as well as water, and it was another indication that went unrecognized that the reactor’s water was boiling into steam. The operators feared the violent shaking might damage the pumps-which force water to circulate through the core-or the coolant piping.

Zee and his operators followed their training. At 5:14 a.m., two of the pumps were shut down. Twenty seven minutes later, operators turned off the two remaining pumps, stopping the forced flow of cooling water through the core.

There was already evidence by approximately 6:00 a.m. that at least a few of the reactor’s fuel rod cladding had ruptured from high gas pressures inside them, allowing some of the radioactive gases within the rods to escape into the coolant water. The early warning came from radiation alarms inside the containment building. With coolant continuing to stream out the open PORV and little water being added, the top of the core became uncovered and heated to the point where the zirconium alloy of the fuel rod cladding reacted with steam to produce hydrogen. Some of this hydrogen escaped into the containment building through the open PORV and drain tank; some of it remained within the reactor. This hydrogen and possibly hydrogen produced later in the day, caused the explosion in the containment building on Wednesday afternoon and

formed the gas bubble that produced such great concern a few days later.

Other TMI officials now were arriving in the TMI-2 control room. They included Richard Dubiel, a health physicist who served as supervisor of radiation protection and chemistry; Joseph Logan, superintendent of TMI-2; and Michael Rose, supervisor of operations for TMI-1.

Shortly after 6:00 a.m., George Kunder participated in a telephone conference call with John Herbein, Met Ed's vice president for generation; Gary Miller, TMI station manager and Met Ed's senior executive stationed at the nuclear facility; and Leland Rogers, the Babcock & Wilcox site representative at TMI. The four men discussed the situation at the plant. In his deposition, Rogers recalled a significant question he posed during that call: He asked if the block valve between the pressurizer and the PROV, a backup valve that could be closed if the PROV stuck open, had been shut. In retrospect, Thursday seemed a day of calm. A sense of betterment, if not well-being, was the spirit for much of the day. Radiation levels remained high at points within the auxiliary building, but off-site readings indicated no problems. The log book kept by the Dauphin County Office of Emergency Preparedness reflects this mood of a crisis passing:

5:45 a.m. Called Pennsylvania Emergency Management Agency-Blaisdale, reactor remains under control more stable than yesterday, not back to normal, monitoring Continues by Met Ed, Radiological Health, and Nuclear Regulatory Commission.

7:55 a.m. Pennsylvania Emergency Management Agency- no danger to public.

11:25 a.m. Pennsylvania Emergency management Agency advised situation same.

3:30 p.m. Situation is improving.

6:12 p.m. No change-not cold yet, continues to improve, slow rate, off-site release controlled.

7:00-9:00 p.m. Pennsylvania Emergency Management says Island getting better.

9:55 p.m. no real measureable reading off-side –no health risk off-sit, no emergency, bringing reactor to cold shut down. Radiation monitoring

continued. Mid-morning readings shown 5 to 10 millirems an hour on-site and 1to 3 millirems per hour across the Susquehanna River to the west. No radioactive iodine was detected in the air. The U.S Food and Drug Administration began monitoring food, milk, and water in the area for radiation contamination.

Thursday was a day of questioning. NRC Chairman Joseph Hendrie and several key aides journeyed to Capitol Hill to brief the House Subcommittee on Energy and the Environment and other members of Congress on the accident. Lieutenant Governor Scranton spent several hours in the early afternoon at Three Mile Island, touring the TMI-2 control room and auxiliary building, wearing a radiation suit and respirator during part of his inspection. That same afternoon, Met Ed officials and NRC inspectors briefed several visiting members of Congress, including Rep. Allen Ertel (D-Pa.), whose district includes Three Mile Island, and Sen. John Heinz (R-Pa.). Later in the day, a second Congressional delegation that included Sen. Richard Schweiker (R-Pa.) and Rep. William Goodling (R-Pa.), whose district includes York, Adams, and Cumberland counties, received a briefing.

Thursday was also a day of disquieting discussions and discoveries. Thursday afternoon, a telephone conversation took place between two old acquaintances, Gordon MacLeod, Pennsylvania's Secretary of Health, and Anthony Robbins, director of the National Institute for Occupational Safety and Health. One important point of that conversation remains in dispute.

MacLeod recalls that Robbins urged him to recommend an evacuation of people living around Three Mile Island. Robbins denies discussing or suggesting such an evacuation.

Up to this point, Macleod-who had taken office only 12 days before the accident-had offered no recommendations since his department had no direct responsibility for radiological health matters. Now, however, he arranged a conference telephone call with Organ Henderson, director of the Pennsylvania Emergency Management Agency; Thomas Gerusky, director of the Bureau of Radiation Protection; and John Pierce, an aide to Lieutenant Governor Scranton. Macleod told them Robbins has strongly recommended evacuation. The others rejected the idea, although they agreed it should be reconsidered if it might be wise to have

pregnant women and children under age 2 leave the area around the nuclear plant. This, too, was rejected Thursday afternoon.

At **2:10 p.m.**, a helicopter over TMI-2 detected a brief burst of radiation that measured 3,000 millirems per hour 15 feet above the plant's vent. This information was relayed to NRC headquarters, where it created no great concern.

But another release that afternoon, one within NRC limits for radiation releases, did cause considerable consternation. Soon after the accident began Wednesday, Met Ed stopped discharging wastewater from such sources as toilets, showers, laundry facilities, and leakage in the turbine and control and service buildings into the Susquehanna River. Normally, this water Contains little or no radioactivity, but as a result of the accident, Some radioactive gases had contaminated it. The radiation levels, however, were within the limits set by the NRC. By Thursday afternoon nearly 400,000 gallon of this slightly radioactive water had accumulated and the tanks were now close to overflowing. Two NRC officials-Charles Gallina one site and George Smith at the Region I office told Met Ed they had no objections to releasing the water so long as it was within NRC specifications. Met Ed notified the Bureau of Radiation Protection and began dumping the wastewater. No communities downstream from the plant were informed, not was the press. When NRC Chairman Hendrie learned of the release, he ordered it stopped. Hendrie did not know the water's source, and he was concerned about the impact on the public of the release of know the water's source, and he was concerned about the impact on the public of the release of any radiation, no matter how slight.

Some 40,000 gallons had entered the river when the dumping ceased around **6:00 p.m.** Both NRC officials on-site and the Governor's aides realized that authorizing release of the wastewater would be unpopular, and neither was eager to do so. Yet the tanks still were close to overflowing. After hours of discussion, agreement was reached on wording of a press release that the state's Department of Environmental Resources issued, which said DER "reluctantly agrees that the action must be taken." Release of the wastewater resumed shortly after midnight.

Late Thursday afternoon, Governor Thornburgh had held a press conference. At it, the NRCs Charles Gallina told reporters the danger was

over for people off the Island. Thornburgh distrusted the statement at the time, and events soon confirmed his suspicion. At **6:30 p.m.,** Gallina and James Higgins, an NRC reactor inspector, received the results of an analysis of the reactor's coolant water. It showed that core damage was for more substantial than either has anticipated. At **10:00 p.m.,** Higgins telephoned the Governor's office with the new information and indicate that a greater possibility of radiation releases existed. Nothing has changed inside the plant, only NRC's awareness of the seriousness of the damage. Yet Higgins' call foretold events only hours away.

The great concern about a potential hydrogen explosion inside the TMI-2 reactor came with the weekend. That it was a groundless fear, an unfortunate error, never penetrated the public consciousness afterward, partly because the NRC made no effort to inform the public it had erred.

Around **9:30 P.m.** Friday night, the NRC chairman asked Roger Mattson to explore the rate at which oxygen was being generated inside the TMI-2 reactor system and the risk of a hydrogen explosion. "He said he had done calculations," Mattson said in his deposition. "He was concerned with the answers." Mattson is director of the Division of Systems Safety within the Office of Nuclear Reactor Regulation (NRR), which is headed by Denton, and had spent part of Thursday and Friday working on how to remove a gas bubble from the reactor. Following Denton's departure for TMI, Mattson served variously as NRR's representative or deputy representative at the Incident Response Center.

Hydrogen had been produced in the reactor as a result of high-temperature reaction that occurred between hot steam and the zirconium cladding of the fuel rods. For this hydrogen to explode or burn- a less dangerous possibility-enough oxygen would have to enter the system to form an explosive mixture. There were fears this would happen as the result of

radiolysis. In this process, radiation breaks apart water molecules, which contain hydrogen and oxygen.

Two NRC teams worked throughout the weekend on the problem, and both sought help from laboratories and scientists outside the NRC. One groups addressed the rate at which radiolysis would generate oxygen at TMI-2. The second analyzed the potential for hydrogen combustion. Robert Budnitz of the NRC also asked experts about possible chemicals that might remove the hydrogen.

At noon, Hendrie talked by telephone with Denton and expressed his Concern that oxygen feed by radiolysis was building up in the reactor. Earlier, Hendrie had told Victor Stello Jr., Denton's second-in –command at TMI, the same thing. The NRC chairman told Denton that Governor Thornburgh should be made aware of the potential danger. Denton promised to speak with Thornburgh.

Shortly after 1:00 p.m., Mattson got some preliminary answers regarding the potential for a hydrogen explosion. An hour later, Mattson got more replies. "I had an estimate there was oxygen being generated, from four independent sources, all with known credentials in this field," he said in his deposition. "The estimate of how much oxygen varied, but all estimates said there was considerable time, a matter of several days, before there was a potential combustible mixture in the reactor coolant system."

At a Commission hearing, Mattson Later admitted in response to questions from Commissioner Pigford that the NRC could have determined from the information available at that time than no excess oxygen was being generated and there was no real danger of explosion. But when Mattson met with the NRC commissioners at **3:27 p.m.,** Saturday. "the bottom line of that conversation was there were several days required to reach the flammability limit, although there was oxygen being generated," Mattson recalled in his deposition. "And I expressed confidence that we were not underestimating g the reactor coolant system explosion potential; that is, the estimate of 2 to 3 days before reaching the flammability limit was a conservative estimate. By Saturday nigh, however, Mattson would be told by his consultants that their calculations indicated that the oxygen percentage of the bubble was on the threshold of the flammability limit.

Around **6:45 p.m.,** Mattson talked with Vincent Noonan, the man within NRC most knowledgeable about what might result from an

explosion inside a reactor. One NRC consultant had predicted that a hydrogen blast would produce pressures of 20,000 pounds per square inch within the TMI-2 REACTOR. B&W, designer of the reactor, however, had considered the dampening effects of water vapor on an explosion and those of an enriched hydrogen environment and calculated a total pressure of 3,000 to 4,000 psi. That was encouraging.

Late Saturday evening, James Taylor of B&W engineer's conclusion first relayed to the NRC Thursday night-that no excess oxygen was being generated. That information, Mattson stated in his deposition, never reached him.

Saturday at **2:45 p.m.,** Hendrie met with reporters in Bethesda. He said then that a precautionary evacuation out to 10 or 20 miles from the Island might be necessary if engineers attempted to force the bubble out of the reactor. NRC had concluded such an attempt might cause further damage to the or, Hendrie said, and touch off an explosion of the bubble.

Stan Benjamin, a reporter with the Washington bureau of the Associated Press, followed up Hendrie's press conference by interviewing two NRC Officials: Edson Case, Denton's deputy in the Office of Nuclear Reactor Regulation, and Frank Ingram, a public information spokeman. From them, and an NRC source he refused to name, Benjamin learned of the concern within the Incident Response Center that the bubble could become a potentially explosive mixture within a matter of days, perhaps as few as two. Benjamin checked his story with Case and Ingram, reading much of it to them word by word, before releasing the article. Case and Ingram agreed it was accurate. The report-first transmitted as an editor's note at **8:23 p.m.**- was the first notice to the public that some NRC Officials feared the bubble might possibly explode spontaneously.

But there was disagreement, and Denton wanted it resolved. President Carter has announced earlier in the evening he would visit TMI the following day. Denton told Stello to explore the oxygen-hydrogen issue further with outside experts. Stello realized the concern in Washington. He had received a telephone call shortly after **9:00 p.m.** from Eugene Eidenberg, a Presidential aide, inquiring about the AP story. Stello told the White House that he did not share the concern felt at NRC headquarters.

Saturday, the NRC wrestled with managing the accident and the envisioned danger of the hydrogen bubble, officials of the Department of Health, Education, and Welfare struggled with their own concerns. That morning, senior HEW health officials gathered and continued the previous

day's discussion of the possibility of an evacuation; for the first time, they debated how large an area should be evacuated. But the discussions led

ultimately to a recommendation to consider immediate evacuation if the NRC could not provide assurances that the reactor was cooling safety.

Later in the day, HEW health officials attended an interagency meeting at the White House, convened by Watson, and repeated the HEW recommendation to consider evacuation. Richard Cotton, a key Califano aide, raised another Califano recommendation that NRC Officials consult with HEW and Environmental Protection Agency experts regarding the potential health effects of the efforts to control TMI-2.

Let Us Sum Up

In this unit, we studied about safety is an integral part of any professional design, so the professional need to ensure whether the product meets the expectations and safety for the people. We also covered about the various process of incorporating safety into the professional design. We studied various types of risk engaged and how professional need to tackle them. Assessment of safety and risk is foremost important for every professional. In the final, we covered failure mode and effect analysis along with relevant case studies.

Check Your Progress

1. _____was defined as the risk that is known and judged as acceptable.

a. Safety

b. Risk

c. Uncertainty

d. Reducing Risk

2. In this approach, testing is done till the component fails.

a. Prototype testing

b. Simulation testing

c. Destructive testing

d. System testing

3. A _____is a potential that something unwanted and harmful may occur.

a. Possibility of harm

b. Risk

c. Unsafe

d. None of the above

4. It is the right given to the employees to exercise power, to complete the task and force them to achieve their goals.

a. Autonomy

b. Authority

c. Line manager

d. None of the above.

Glossaries

Safety – Condition for being protected from any danger.

Risk – Exposure to danger

Personal Risk – Potential for losses that impact an individual

Risk Perception – Assessment of the potential harm

Suggested Reading (References)

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Answers for check your progress

1.A 2. B 3.C 4. B

Model Questions

SHORT ANSWERS:

1. State the definition of safety.
2. What is meant by risk?
3. Define risk?
4. What are the elements of risk perception?
5. What do you mean by voluntary risks?
6. What is meant by risk benefit analysis?
7. What do you mean by risk reduction?
8. State any three faulty assumptions about safety?

LONG ANSWERS:

1. How do you evaluate risk?
2. What are the various testing approaches for safety?
3. What are the conceptual difficulties in applying risk benefit analysis?
4. What are the methods by which one can reduce the risks?

Block 3

Unit - 8 Responsibility of Professionals-1

Unit - 9 Responsibility of Professionals-2

Unit - 10 Rights of Professionals-1

Unit 8

THE RESPONSBILITY OF PROFESSIONALS-1

Overview

Engineering is a key profession in the burgeoning knowledge age, where to apply new knowledge in the development of technology. Responsibility of engineer could be defined as "The application of our engineering education, training and experience to provided excellent sustainable engineering solution for the benefit of our employers and clients toward the improvement of the quality of life of all in the community.

The future success of corporations will depend heavily on engineer's willingness to accept the responsibilities in directing the course of technology. Responsibility to the community is of paramount

importance in all fields of engineering whether it be civil works, structural design or a design of anything in general.

Learning Objectives

After completing this unit, you can able to understand,

- The responsibility of an engineer as a designer adhering to the statutory codes and regulations.
- Engineer responsibility to the client to provide the services as they expect from them.
- Responsibility to the community in providing the safety and welfare to the society.

8.1. internal responsibilities

In today's competitive world, the success of any organization relies on its team-play. Especially it is evident from the software companies such as Infosys, Wipro, IBM, etc that success of a project is mainly based on the ethics of team-play among professional.

Term-play involves virtues of:

i. Collegiality
ii. Loyalty
iii. Respect for authority
iv. Collective bargaining

8.1.1. Collegiality

In general, collegiality is the tendency to support and cooperate with the colleagues.

According to National Society of Professional Engineers (NSPE) code, the collegiality should include the following three characteristics:

1. Professional should not attempt to injure, unkindly or falsely, directly or indirectly, the professional reputation, prospects practice or employment of other engineers.
2. Professional should not untruthfully criticize other professional's work.
3. Professional should bring unethical or illegal practice of other engineers to the proper authority for action.

Definition

Craig Ihara defines collegiality as “a kind a connectedness grounded in respect for professional expertise and in a commitment to the goals and values of the profession”.

Elements of Collegiality

From the above definition, it is clear that the central elements of collegiality are:

1. Respect
2. Commitment
3. Connectedness

Respect

- In general, respect means valuing one’s colleague for their professional expertise and their devotion to the social goods promoted by the profession.
- For professional, respect means affirming the worth of other professional engaged in producing socially useful and safe products.

Collegial respect Vs Friendship: collegial respect is reciprocal like friendship but collegial respect not necessarily develops personal affection as that of friendship.

Commitment

- Commitment means sharing a devotion to the moral ideals inherent in the practice of professional.
- Even when there is cut-throat competition among the professional, there should be a feeling that all professional shares a concern for the overall good to the society. The underlying values are beyond winning.

Connectedness

- Connectedness is an awareness of being part of a cooperative undertaking created by shared commitments and expertise.
- It means the sense of unity among professional that induces cooperation and mutual support.

Collegiality a Virtue

Collegiality should be encouraged among engineers and other professionals because of the following two reasons:

1. From the point of view of society, collegiality is an influential value to promote the aims of professions. Since collegiality supports the

personal efforts to act responsibly with colleagues, therefore it strengthens and professional's motivation to live up to professional standards.

2. When view from the perspective of professionals, collegiality is more valuable as many individuals jointly working for the goodness of the public and society.

Negative Aspects of Collegiality

The negative aspects of collegiality are given below:

3. Collegiality may be misused and distorted. For example, colleagues appeal to be silent about corporate corruption and shielding irresponsible conducts.

4. Collegiality may degenerate more groups of self-interest, rather than groups of shared devotion to the public good.

5. Because of touch competition among professional, collegiality may focus on the corporate goal of maximizing profit at the expense of the public good.

8.1.2. Loyalty

8.1.2.1. The oxford dictionary defines loyalty as the quality of being true and faithful in one's support.

8.1.2.2. Loyalty's base is not merely legal and position. It is more a function of attitudes, emotions and a sense of identity.

8.1.2.3. An appeal to loyalty to an organization is not always unlawful. It could be seen that many professional codes insist professionals to be 'faithful agents or trustees' of their employers i.e., to be loyal.

TWO SENSES OF LOYALTY

The two sense of loyalty are (i) Agency loyalty, (ii)Identification loyalty.

Agency loyalty

8.1.2.4. Agency loyalty is to fulfill one's contractual duties to an employer. The contractual duties may include particular tasks for which one is paid, general activities of cooperating with colleagues, and following lawful authority within the organization.

8.1.2.5. As its name suggests, agency loyalty is concerned a matter of actions, whatever it motives. Agency loyalty is motivated by identification with the group to which one is loyal.

8.1.2.6. **Example:** People may not like the job they do and hate their employer, but still they would perform their duty as long as they are employers. this sense of loyalty is known as agency loyalty.

Identification Loyalty

8.1.2.7. In contrast to agency loyalty, identification loyalty is much concerned with attitudes, emotions, and a sense of personal identity as it does with actions.

8.1.2.8. It implies that an employee should meet his moral duties to the organization willingly with personal attachment and affirmation.

8.1.2.9. Some of the specific duties of loyal employees

- are: To avoid conflicts of interest
- To inform employers of any possible conflicts of interest
- To protect confidential information
- To be honest in making estimates
- To admit one's errors.

Loyalty obligatory

Agency loyalty to employers is an obligation, within proper limits. According to John H. Fielder, identification loyalty is also obligatory, only when the following two conditions are met:

1. Employees must see that their goals are achieved by and through a group in which they participate.
2. Employees must be treated fairly. They should be given their share of benefits and burdens.

- In general, identification loyalty is not strictly an obligation like the agency loyalty, it is often only a virtue.
- Identification loyalty is reciprocal in nature. That is, employees can be expected to be loyal to employers only when employers show strong commitments to them.

Professionalism and Loyalty

The relationship between professional responsibility and loyalty to employers can summarize the following conclusions:

- Performing duties on professional commitments to the public should be the most effective way to serve the organization than simply following the organization orders.
- Loyalty to organizations or employers should not be equated with merely obeying one's immediate boss.

- An professional should have professional obligations to both an employer and to the public. Also obligations to one's employer and to the public should be focused on the same direction.
- Both agency and identification loyalties are virtues depending on the specific group, organization, or cause involved, and on circumstances in which they are displayed. Hence the loyalty is said to be a 'dependent virtue'.

8.1.3. RESPECT FOR AUTHORITY

- ✓ Authority is the right to make decisions, the right to direct the work of others, and the right to give orders.
- ✓ It is a crucial factor in organization since engineers and employees must be authorized to carry out the jobs assigned to them.
- ✓ Authority defined: Authority can be defined as the right to command action by other s and to enforce compliance.
- ✓ Authority provides a way for identifying the areas of person's responsibility and accountability.

Sources of Authority

Authority derives from several sources. They are the person's position or rank, and the personal attributes such as charisma, knowledge and expertise.

Institutional Authority

Definition:

- ❖ Institutional authority can be defined as the institutional right given to a person to exercise power based on the resources of institution.
- ❖ It is authority given by the institution to the qualified individuals in order to meet their institutional objectives.
- ❖ This authority is exercised by making policy decisions allocating resources, issuing orders, carrying out the actions, giving recommendations, etc.
- ❖ **Limits of Institutional authority:** In a company, the institutional authority is given by the owners or stockholders of the company. In practice, sometimes the owners of the company delegate the institutional authority to ineffective and incompetent individuals those individuals unable to exercise their authorities effectively in order to meet company's objectives.

Expert Authority

❖ Apart from institutional authority, there is an authority because of the knowledge and expertise.

❖ Expert authority is the possession of special knowledge, skill, or competence to perform some task or to give sound advice.

❖ It is proved that the leaders with expertise can more effectively guide and motivate others than the conventional leaders. This concept is referred as 'authority of leadership'.

❖ In today's organization set-up, the staff engineers, advisors, and consultants are given expert authority, while institutional authority is assigned to the lines managers.

Authority Vs Power

The different between institution authority and power are presented in table

S.No	Authority	Power
1.	It is the legal right of a superior, which compel his subordinates to perform certain acts.	It is the ability of the person to influence other to perform an act. It may not have legal sanction.
2.		
3.	It is delegated to an individual by his superior.	It is earned by an individual through his own efforts.
4.	It lies in the position held and the authority change with change in position.	It rests in the individual. Even when the position has changed, his power remains with him.
	It is mostly well defined and finite.	It is undefined and infinite.

Moral Justified Authority

❖ The institutional authority (i.e., institutional and rights and duties) assigned to employee may ensure in achieving the institutional objectives. But those institutional rights and duties should necessarily be morally justified institutional rights and duties.

❖ The institutional authority is said to be morally justified, only when:

❖ The goals of the institution are morally permissible or morally desirable, and

- ❖ The way of implementation should not violate moral duties.
- ❖ Therefore professional should have moral obligations to perform only morally permissible institutional duties, when they accept employment.

Accepting Authority

- ❖ Employees' accept/recognize their employers' authority by accepting the guidance and obeying the directives issued by the employer. Rarely employees disobey an order on moral grounds.
- ❖ According to Herber Simon, a subordinate is whenever he permits his behavior to be guided by the decision of a superior, without independently examining the merits of that decision.
- ❖ Simon also noted that all employees have limits on 'zone of acceptance' in which they are willing to accept authority.
- ❖ Generally employees are not interested to make an issue of every incident of questionable morality, because of fear of losing their job/position.
- ❖ Therefore the 'zone of acceptance' can be used as a measure of the lack of individual moral integrity.

Paramount obligations

- ➢ The codes of ethics of the professional societies state that an professional's paramount obligation is to protect the public health, safety, and welfare, rather than the obligations of loyalty and faithful service to employers.
- ➢ As professionals, professional have obligations to accept their employers' institutional authority. But this does not mean that they have to obey obligations blindly. Therefore the basic moral task of professional is to be aware of their obligations to obey employers on the one hand and to protect and serve the public and clients on the other hand.
- ➢ Engineers must weigh their obligations to the public, their employers, their colleagues, and other when conflicts between such obligations rise.

8.1.4. COLLECTIVE BARGAINING

- ➢ International Labor Organization (ILO) has defined collective bargaining as "negotiation about working conditions and terms of employment between an employer and one or more representative employee's with a view to reaching agreement".

- The process is collective in the sense that the issue relating to terms and conditions of employment are solved by representatives of employees and employers rather than individuals.
- The term bargaining refers to evolving an agreement using methods like negotiation, discussion, exchange of facts and ideas rather than confrontation.

Process of collective bargaining

The process of collective bargaining can be summarized in the following three steps:

- Presenting the character of demands by the union on behalf of the constituent elements.
- Negotiations at the bargaining table.
- Reaching an agreement.

Unionism and professionalism

Collective bargaining assumes 'unionism'. Legally, any organization employing more than 20 employees could have a union. In organizations, more than one union is also permitted.

The employers form unions to safeguard the interests of employees and to prevent exploitations of employee. Many professional managers have argued that the ethical aspects of professionalism in engineering are inconsistent with union ideology and practice.

According to John Kemper, the unionism and professionalism are conflicting with each other. Professionalism offers paramount importance to the interests of society and of the employer. But unions, also known as collective bargaining agents, consider the economic interests of the members ahead of the interests of their employer. Also, a number of professional societies have emphasized that loyalty to employers and the public is not possible with any form of collective bargaining.

Even many professional societies indirectly instruct the professional that they should not become member of the unions. For example, the NSPE code of ethics states that engineers shall not actively participate in strikes, picket lines, or other collective coercive action.

Thus professional societies oppose unionization because of the issue of conflicting loyalties and on the grounds that it is unprofessional.

In a nutshell, the general view is that it is impossible for an professional to belong to a union and at the same time to maintain the standards of his profession.

Conclusion:

For the above discussions, the following conclusions can be made: We can observe whether collective bargaining and its tactics are ethical or unethical, only on the basic of the given situation. Though unions often have misused their power and irresponsibly disregarded the public good, the formation of engineering unions should not be considered always unprofessional. The moral assessment of unions is complex. Many morally relevant facts and factors should be considered while judging about any union.

8.2. Arguments over Unions

There are two arguments in favor of and against unions.

- Arguments in favor of unions
- Arguments against unions

Arguments in Favor of Unions

Unions play a vital role in achieving high salaries and improved standard of living of employees. Unions give employees a greater sense of participation in organization decision-making .Unions ensure job security and protection against arbitrary treatment to the employees. Unions have the ability to resist any orders from employers to perform unethical acts. Unions maintain stability by providing an effective grievance procedure for employees complaints. Unions can act as a counterforce to any radical political movements that exploit the employees.

Arguments against Unions

Unions shatter the economy of the country be placing distorting influence on efficient uses of labor. Unions remove person-to-person negotiations between employers and employees. Thus an individual is not given much importance in the process of collective bargaining. Unions encourage unrest and strained relations between employees and employee. Unions encourage the unhealthy concept of job promotion, salary hike, etc on the basis of seniority. Unions prevent employer from rewarding individuals for their personal achievements.

Unit 9

THE RESPONSBILITY OF PROFESSIONALS-2

9.1. External Responsibilities of Professional

External responsibilities refer to the responsibilities of the professional to the outside world. The responsibilities to the outside world include:

- Confidentiality
- Conflict of interest
- Occupational crimes.

We shall discuss those external responsibilities, in detail, in the following sections.

9.1.1. Confidentiality

It is widely accepted that the professional have an obligation to keep certain information of the employer/client secret or confidential. Just as with lawyers and medical physicians, professional also require the confidentiality principle in their profession. For example, lawyers, doctors, and counselors keep information of their client/patients confidential. In the same way, professional have an obligation to keep proprietary

information of their employer/client confidential.

Confidentiality is highly emphasized in most professional codes of ethics. For example, the NSPE states that professional shall not reveal facts, data, or information obtained in a professional capacity without the prior consent of the employer or client except as authorized by law or this code.

Meaning of Confidential Information

Confidential information is information deemed desirable to keep secret. According to the codes of ethics of ABET ." professional shall treat confidential information coming to them in the course of their assignments as confidential".

The most commonly considered criterion on the confidential information is as follows: Confidential information is any information that the employee/client would like to keep secret in order to compete effectively against business rivals. In general, confidentiality covers both sensitive information given by the employer/client and information gained by the professional in work paid for by the employer/client. Terms related to confidential information are as follows,

Privileged Information

It refers information that is available only on the basis of special privilege. That is, information available to an employee who is working on a special assignment. It includes information that has not yet become to public or known within an organization. It includes information that has not yet become to public or known within an organization. This term is often used as synonyms for confidential information.

Proprietary Information:

It is the information that is owned by a company. It refers to a new knowledge established within the organizations that can be legally protected from use by others. This term is often used as a synonym for 'property' and 'ownership'.

Trade secrets

A trade secret can be any type of information that has not become public and which an employer has taken steps to keep secret. These trade secrets may be about designs, technical processes, plant facilities, quality control systems, business plans, marketing strategies and so on. Trade secrets are given limited legal protection against employee or contractor abuse. In the sense, an employer can sue employees or contractors for leaking trade secrets, or even for planning to do so.

Patents

Patent legally protect specific products from being manufactured and sold by competitors without the permission of the patent holder.

Patents vs. Trade Secrets: A patent holder has legally protected monopoly power. But in case of trade secrets, the legal protection is limited to keeping relationships of confidentiality and trust. Why must some professional information be kept confidential?

Many information such as privileged information, proprietary information, and trade secrets are very important for a company to compete in the market. If such information are leaked to competitors may gain competitive edge and may capture the market. Therefore it is in the company's best interest to keep such information confidential as much as possible. Some of the types of information that should be kept confidential are:

- Information about the unreleased products.
- Test results and data about the products.
- Design or formulas for products.
- Data about technical processes.
- Organization of plant facilities.
- Quality control procedures.

The obligation of confidentiality can be justified at two levels.

First level: It focuses on three moral considerations – respect for autonomy, respect for promises, and regard for public well – during.

Second level: It focuses on the major ethical theories. It includes justification of confidentiality by right ethicists, duty ethicists, and utilitarians.

We shall discuss the above considerations in the following sections

First level of justification of the confidentiality obligation:

Respect for Autonomy

It refers to respect the autonomy freedom and self- determination of individuals and companies in order to recognize their legitimate control over some information. Without the legitimate control, the individual and companies cannot maintain their privacy and protect their self-interest.

Respect for Promises

It refers t respect the promises (in the form of signing contracts) made by employees to the employer. It is the duty of the employee to respect the promises made to the employer.

Respect for Public Well-Being

There are public benefits in recognizing confidentiality relationships within professional context. The economic benefits of competitiveness to the public can be promoted only when companies maintain some degree of confidentiality concerning their products.

Second level of justification of the confidentiality obligation

Justification by Right Ethicists

The right ethicists justify employee's obligations of confidentiality by appealing to basic human rights. These ethicists argue that the rights of employers, to establish what information should be treated as

confidential, should be limited by other basic human rights. For instance, no employer should be given a right to safeguard proprietary information by preventing professional from whistle blowing in cases where those leaked information would save human lives and their rights.

Justification by Duty Ethicists

The duty ethicists insist on the basic duties of both employers and employees to maintain the trust and to commit themselves to an employment agreement they have made.They also emphasize that nobody should abuse the property of others.

Justification by Utilitarian's:

View of rule-utilitarians: Rule – utilitarians view rules governing confidentiality as justified to the extent that such rules protect the most good for the greatest number of people.

View of act – utilitarians focus on each situation when an employer decides on some information to be considered as confidential information.

Changing jobs and confidentiality

The obligation of protecting confidential information is not over when employees change jobs. Legally, a Professional is expected to keep information confidential even after the employee has moved to a new employer. Management policies for maintaining confidentiality

Some general management policies for maintaining confidentiality are as follow:

Approach 1: To use employment contracts that place special restrictions on future employment. This type of agreement violates the right of individuals to proceed their careers freely.

Approach 2: To use an employment contract that offers positive benefits in exchange for the restrictions it places on future employment.

Approach 3: To offer an employee a special post- employment annual consulting fee for several years on the condition that he will not work for a direct competitor during that period.

Approach 4: To tighten the security controls on the internal flow of information by restricting access to trade secrets. This may create an unhealthy working atmosphere of distrust.

Approach 5: To have unwritten and informal agreements among competing companies not to hire one another's more important employees.

However, a better feasible solution is that the employers have to create a sense of professional responsibility among their staffs that reaches beyond merely following the employment agreement.

9.1.2. CONFLICTS OF INTEREST

In general, conflict of interest means an individual has two or more desires that all interests cannot be satisfied given the circumstances. Professional conflicts of interest are situations where professionals have

an interest, if pursued, could keep them from meeting one of their obligations to their employers.

Examples:

An employee working in a company depositing a substantial investment in a competitor's company. An employee working in company serving as a consultant for a competitor's company.

Difference between general conflicts of interest and professional conflicts of interest:

In general conflicts of interest satisfying all desires/interests of a person cannot be possible because of physical or economical or other problems. By contrast, the professional conflicts of interest cannot be pursued only because of moral or ethical problems (not because of physical or economical problem.).

9.1.3.OCCUPATIONAL CRIMES:

- Occupational crimes are illegal acts committed through a person's lawful employment.
- It is the secretive violation of laws regarding work activities.
- When professionals or office workers commit the occupational crimes, it is referred as 'white collar crime'.
- Most of the occupational crimes are special instances of conflicts of interest. These crimes are motivated by personal geed, corporate ambition, misguided company loyalty, and many other motives.
- Even crimes that are aimed at promoting the interests of one's employer rather than oneself also considered a occupational

crimes.

- ❖ Occupational crimes impinge on various aspects such as professionalism, loyalty, conflicts of interest, and confidentiality.

Examples of Occupational Crimes

Three cases of occupational crimes that are commonly observed are:

1. Price fixing
2. Endangering lives
3. Industrial espionage i. e industrial spying.

Occupational crime of price fixing

- ❖ While fixing a price for any commodity /product/service, sometimes all competitors come together and jointly set the prices to be charged. These are called as pricing cartels.
- ❖ The above price fixation is unfair and unethical practice. This leads to restraint the free trade and open competition. Thus the above kind of price fixing is an example of occupational crime.
- ❖ Case Illustration: in 1983, in American state of Washington, six large electrical contractors along with eight company presidents and vice presidents were indicted on charges of fixing bids (contracts) for building public power plants. This is evident instance of occupational crime.
- ❖ In order to avoid the above kind of occupational crimes, the laws are enforced which forbids companies from jointly fixing prices.

9.2. Conflicts of Interest

Conflicts of Interest and Accepting Gifts and Bribes

Mostly professional find themselves in actual, potential, or apparent conflicts of interest are those involving accepting gifts.

What is bribe?

A bribe is something, such as money or a favor, offered or given to someone in a position of trust in order to induce him to act dishonestly. It is something offered to influence or persuade.

What are the ethical reasons for not tolerating bribery?

Bribes are illegal and immoral because of the following three reasons:

2. Bribery corrupts free-market economic system and is anticompetitive.

3. Bribery corrupts justice and public policy by allowing rich people to make all the rules. In today's business, it is understood that only large and powerful companies will survive, since they are capable of providing bribes.

4. Bribery treats people as commodities that can be bought and sold. This practice degrades the human beings and corrupts both the buyer and the seller.

The term 'kickbacks':

- Kickbacks re another form of bribing.
- Prearranged payments made by contractors to companies or their representatives in exchange for contracts actually granted are called 'kickback'.

When is a gift bribe?

❖ Gifts are not bribes as long as they are gratuities of smaller amounts. But bribes are illegal and immoral because they are worth of substantial amounts.

❖ Gift may play a legitimate role in the normal conduct of business, whereas a bribe influences the judgment.

❖ In olden day, the following thumb rule was applied:

"A gift is a bribe if one can't eat, drink or some it in a day".

❖ Today a more appropriate thumb rule says:

"If you think that your offer (or acceptance) of a particular gift would have grave or merely embarrassing consequences for your company if made public, then the gift should be considered a bribe".

What is moonlighting? Does it create conflict of interest?

The term 'moonlighting' is used when an employee of a company works for another company during his spare time.

Moonlighting creates conflicts of interest only in special circumstances, such as working for competitors, suppliers, or customers.

Different Ways to Avoid Conflicts Of Interest

It is understood that all conflicts of interest, whether actual, potential, or apparent, should be avoided in all possible ways. Some of the

effective ways to avoid conflicts of interest are as follows:

- To follow the guidance of company policy.
- In the absence of company policy, one can go for a second opinion from a coworker or manager.
- In the absence of above two options, it is better to examine one's own motives and use ethical problem-solving techniques.
- Finally, one can follow the statements in the professional code of ethics. Some of the ethics codes have given clear statements to identify whether the given situation is a conflict of interest or not.

9.3. TYPES OF CONFLICTS OF INTEREST

The three important types of conflicts of interest are:

- Actual conflicts of interest
- Potential conflicts of interest
- Apparent conflicts of interest
- Actual Conflicts of Interest:

The actual conflicts of interest arises when an employee compromise objective professional judgment. It refers to the loss of objectivity in decision – making and inability to faithfully discharge professional duties to employer.

Example: A mechanical professional working in the purchase department of a automobile industry might have his personal influence while offering the contract for supply of raw materials to a vendor. In this case, pursuing his financial interest with the vendor might lead him not to objectively and faithfully discharge his professional duties to his industry.

Thus actual conflicts of interest can corrupt professional judgment.

The potential conflicts of interest may corrupt professional judgment in the future, if not in the present. Although potential conflicts of interest may not harm the interest of the employer initially, there, is a threat that potential conflicts of interest will become actual conflict of interest at later stage.

Example: A professional becoming a friend with a supplier for his company. In this case, the engineer may not have conflicts of interest initially. However, in future he may favor his friend, as in the case of actual conflicts of interest.

Apparent Conflicts of Interest:

❖ There are situations in which there is the appearance of a conflict of interest. This type is referred as apparent conflicts of interest. Apparent conflicts of interest actually not corrupting the professional judgment. However it decreases the confidence of the employer and the public in the objectivity and trustworthiness of professional service. Thus it harms both the professional and public.

❖ Example: Consider a situation, where a design professional is paid based on a percentage of the cost of the design and there is no incentive for him to reduce the costs down. In this context, it may appear that the professional will make the design more expensive in order to earn more commission for himself. This appearance of conflict of interest may cause the distrust on the engineer's ability to perform his professional duties.

Some of professional codes that address conflicts of interest are given below:

1) Fundamental canons of the NSPE code(National Society of Professional Engineers)

2) Fundamental canons of ethics of ABET(Accreditation Board of Engineering and Technology)

1. Fundamental canons of the NSPE(National Society of Professional Engineers) code says:

- ✓ "Professional shall not be influenced in their professional duties by conflicting interests".
- ✓ "Professional shall not accept financial or other considerations, including free professional designs, from material or equipment suppliers for specifying their product".
- ✓ Professional shall not accept commissions or allowances, directly or indirectly, from contractors or other parties dealing with clients or employers for the professional in connection with work for which the professional is responsible".

2. Fundamental canons of ethics of ABET((Accreditation Board of Engineering and Technology) says:

- ✓ "Professional shall not solicit nor accept gratuities, directly or indirectly, from contactors, their agents, or other parties dealing with their clients or employers in connection with work for which they are responsible".

Endangering lives

- ❖ Endangering the lives of employees is another kind of occupational crime.
- ❖ Some companies employ workers without disclosing them the harmful health effects and safety hazards about the working environment and the product to be manufactured. In this case, the employers are guilty of involved in an occupational crime.
- ❖ Case Illustration: Manville Corporation, the largest producer of asbestos in U.S, knew that asbestos dust was harmful for their employees' health. It could cause a lung disease named 'asbestosis' and an incurable cancer named 'mesothelioma'. The company kept this information secret from the employees and the public. During 1940-1979, over 27 million workers were exposed to asbestos and more than 1,00,000 workers have died. Many victims and their families have successfully filed civil suits to claim damages.
- ❖ The above shocking case study is the typical illustration of an occupational rime committed by the Manville Corporation.

Industrial Espionage

- Industrial espionage means industrial spying. Espionage refer secret gathering of information in order to influence relationships between two entities.
- Keeping information secret is a right. But acquisition of others secret to one's advantage is espionage. The espionage is one of the most unethical and lawless activities.
- The vital information are secretly gathered/theft through espionage agents (also called spies).
- Industrial or corporate espionage is the theft of trade secrets for economic gains. The trade secret may be any of the intellectual properties such as designs, prototypes, formulas, software codes, passwords, manufacturing processes, marketing plans, supplier/contractor details, etc.
- From the above discussion, it is clear that the industrial espionage is also a typical occupational crime existing in our society.

Let Us Sum Up

In this unit, we studied about responsibility of a professional in completing the projects. We looked into for the successful completion of project every professional requires a team play and its virtues. We can observe whether collective bargaining and its tactics are ethical or unethical, only on the basic of the given situation. Though unions often have misused their power and irresponsibly disregarded the public good, the formation of engineering unions should not be considered always unprofessional. Many morally relevant facts and factors should be considered while judging about any union. In final, we studied about the conflicts of interest arises when an employee compromise objective professional judgment.

Check Your Progress

1. _____ is to fulfill one's contractual duties to an employer.

a. Loyalty

b. Agency Loyalty

c. Identification Loyalty

d. Collegiality

2. _____means sharing a devotion to the moral ideas inherent in the practice of professional.

a. Connectedness

b. Collegial respect

c. Commitment

d. Respect

3. The Success of any organization relies on its _____

a. Professional

b. Authority

c.Collective bargaining

d.Team-play

4. The term _____ refers to evolving an agreement using methods like negotiation, discussion, exchange of ideas rather than confrontation

a. Bargaining
b. Paramount obligations
c. c.Morality
d. d.Unionism

Glossaries

Collegiality – Cooperation between colleagues who shares responsibility

Conflict of interest – It means an individual has two or more desires that all interests cannot be satisfied given the circumstances.

Industrial Espionage – Discovering the secrets of a rival manufacturer.

Occupational Crimes - Criminal activities committed by individuals in the course of their employment.

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Answers for check your progress

1.B 2. C 3.D 4. A

Model Questions

SHORT ANSWERS:

1. Define Collegiality and loyalty.

2. What is meant by expert authority?

3. What are the two main senses of Loyalty?

4. What is known as Trade Mark?

5. Define discrimination.

6. Define Intellectual property.

7. What is meant by professional rights of an engineer?

8. What is meant by occupational crime?

9. What is the role of collective bargaining?

10. What is meant by Confidentiality?

LONG ANSWERS:

1. Discuss the use of collective actions by i) Unions ii) Professional societies.

2. Explain the responsibility of engineer in design of the product.

Unit 10

THE RIGHTS OF PROFESSIONALS-1

Overview

Engineering is a key profession in the burgeoning knowledge age, where to apply new knowledge in the development of technology. Responsibility of engineer could be defined as "The application of our engineering education, training and experience to provided excellent sustainable engineering solution for the benefit of our employers and clients toward the improvement of the quality of life of all in the community. In the previous chapter, the various responsibilities of professionals were discussed. Professionals not only have many responsibilities; they also have rights to do along with these responsibilities. In fact, rights and responsibilities are two sides of the same coin.

Learning Objectives

After completing this unit, you can able to understand,

a. The concept of rights and responsibilities of a professional
b. The meaning of whistle blowing, types and conditions for whistle blowing effect.
c. Moral Guidelines for whistle blowing.

10.1 TYPES OF RIGHTS

The concept of rights can be categorized into the following three types:

- Human rights.
- Employee rights
- Contractual rights
- Non-contractual rights.

10.1.1. Human rights:

Human rights are the rights possessed by virtue of being people or moral agents. The fundamental human rights adopted by the United Nation's International Bill of Human Rights are listed in

1. Rights to life.
2. Right to liberty.
3. Right to security of person
4. Right not to be held in slavery.

5. Right not be tortured or subjected to inhuman or degrading punishment.
6. Right to recognition before the law.
7. Right to impartial trial and protection from arbitrary arrest.
8. Right to freedom of movement.
9. Right to marriage
10. Right not to marry without free consent.
11. Right to property ownership
12. Right to freedom of thought.
13. Right to peaceful assembly and participation in government.
14. Right to social security and work.
15. Right to education.
16. Right to participate in and form trade unions.
17. Right to nondiscrimination
18. Right to a minimal standard of living.
19. Thus professional, as human beings, have human rights to live and freely practice their legitimate interests.

10.1.2. EMPLOYEE RIGHTS:

Employee rights are the rights that apply or refer to the status or position of employee

Types of Employee Rights:

- Contractual Employee Rights
- Non- Contractual Employee Rights

10.1.3. Contractual Employee Rights

These employee rights are institutional rights that arise only due to specific agreements in the employment contact.

Examples: The contractual employee rights include

- Right to receive a salary of a certain amount
- Right to receive other company benefits such as bonuses, salary increments, etc.

10.1.4. Non- Contractual Employee Rights

- These are rights existing even if not formally recognized in the specific contracts or company policies
- **Examples:** the non- Contractual employee rights employee rights include

- ❖ Right to choose outside activities
- ❖ Right to privacy and employer confidentiality
- ❖ Right to due process from employer confidentiality
- ❖ Right to due process from employer
- ❖ Right to nondiscrimination and absence of sexual harassment at the workplace.

10.2. Professional Rights

- ➢ Professional rights are the rights possessed by virtue of being professionals having special moral responsibilities.
- ➢ **Example:** the professional rights include
- ❖ Right to exercise one's professional judgment on the basis of his conscience
- ❖ Right to refuse to involve in unethical activities
- ❖ Right to warm the public about harms and dangers
- ❖ Right to express one's professional judgment, including his right to disagree
- ❖ Right to fair recognition and remuneration for professional services

Some of the various aspects of professional rights are as follows:

Rights of professional conscience

- ❖ It is one of the most fundamental rights of professional
- ❖ The right of professional conscience refers to the moral right to exercise responsible professional judgment in discharging one's professional responsibilities.
- ❖ In simple words, it is the right to do what everyone agrees it is obligatory for the professional engineer to do.
- ❖ The right of professional conscience is a 'negative' right. Because it places an obligation on other people not to interfere with its exercise.
- ❖ In order to exercise the rights of professional conscience, engineers require special resources and support from others. So this right is also considered as a 'positive' right, as it is placing on other people an obligation to do more merely not interfering.

10.3. Specific rights

The right of professional conscience is most general professional rights. It consists of many other specific rights. Two of the important specific rights are :

- Right of conscientious refusal
- Right to recognition.

Right of conscientious refusal

The right of conscientious refusal is the right to engage in unethical behavior. According to these rights, no employer can force or pressure an employee to do something that the employee considers unethical and unacceptable.

This conscientious refusal arises under two situations,

1. Where there is widely shared agreement in the profession regarding ethical and unethical acts; and
2. Where there is a possibility for disagreement among the people over unethical acts.

Thus the professional should have a moral right to refuse in participating unethical activities. The examples of unethical activities are forging documents, lying, giving or taking bribery, selling the company secrets to others etc. The employers also have a moral right not to force or pressurize the employee to participate in any unethical activities. Employers should not use any revenge techniques against the employee in this regard.

Right to Recognition

The right to recognition refers to the right to professional recognition for their work and accomplishments. The recognition or rewards may be any one of the following types:

a. **Extrinsic Rewards:** These are related to monetary remunerations such as increased salaries, commissions, cash bonus, gain sharing etc.
b. **Intrinsic Rewards:** These are related to non-monetary remunerations such as acknowledging achievements by issuing appreciation letters, certificates and oral praises etc.

The right to fair remuneration should be worked out cooperatively between employers and employees. The remuneration depends on the resources of the company and the bargaining power of the employees.

10.4. Foundation of Professional Rights:

The basic professional rights discuss can be justified by the ethical theories as below:

a. Right Ethics:

Right ethics emphasizes that all should have moral rights and any action that violates these rights is unethical. Right ethics justify the basic right of professional conscience by referring to human moral rights.

b. Duty Ethics

Duty ethics emphasizes that duties should be performed without considering much about the moral rights. Example: If an individual has a right to do something, it is only because other has duties or obligations to support him to do so. In this view, the basic professional right is justified by reference to others duties to support or not interfere with the work-related exercise of professional's conscience.

c. Utilitarianism:

Utilitarian theory argues that good is promoted among the professionals by allowing them to practice their obligations. Utilitarian theory justifies the right of professional conscience by referring to the basic goal of producing the most good for the huge number of people.

10.5. Whistle blowing

Whistle blowing is the act by an employee informing the public or higher management about the unethical or illegal behavior by an employer or supervisor. It is the act of reporting unethical conduct within an organization to someone outside of the organization in an effort to discourage the organization from continuing the activity.

According to the code of ethics, every professional have the right to disclose any wrong doing within their organization and expect to take appropriate actions. Thus in a way whistle blowing is also one of the essential rights of a professional. On the other hand, companies view

whistle blowing as a bad exercise, because it can lead to distrust, disharmony and inability of employees to work together.

Example: Through the social media and media persons blow the whistle on politicians to bring out their corruption by publishing meme's, articles or informing to regulatory authorities.

Definition:

- Whistle blowing occurs when an employee or former employee conveys information about a significant moral problem of an organization to the outsiders, to take action on the problems.
- In general it can be defined as, Whistle blowing is alerting relevant persons about to take legal actions, against the person carrying on or doing unethical practices in an organization.

Types:

1. **Internal whistle blowing**: Internal whistle blowing occurs when the information is conveyed to someone within the organization.
2. **External whistle blowing:** External whistle blowing occurs when the information is passed outside the organization.
3. **Open whistle blowing:** Open whistle blowing; also known as acknowledged whistle blowing, it will occur when the persons openly reveal their identity to convey the information.
4. **Anonymous whistle blowing:** Anonymous whistle blowing occurs when the person who is blowing the whistle refuses to reveal his name when making allegations.

10.6.Conditions for Whistle Blowing:

Whistle blowing should be attempted only under the following four conditions are met:

1. Need

The whistle blower should be very clear about the problems to be conveyed examples of important problems are criminal offence, unethical polices or practices, injustices to the employees, threats to public safety, and threats to public safety, and threats to the environment.

2. Proximity

The whistle-blower should be in a very clear position to report the problem. The whistle-blower should have the expertise and firsthand knowledge about the problems.

3. Capability

The whistle-blower should have a reasonable chance of success in carrying out the whistle blowing. The whistle-blower should be able to take care the financial security of their family.

4. Last Resort

Whistle blowing should be attempted only for extremely rare emergencies. First one should try to work out the problem through proper formal and informal organization channels.

10.7. Moral Guidelines

A criterion's on Whistle Blowing Morally Permissible:

Richard Degeorge has provided a set of criteria that must be satisfied before whistle blowing can be morally justified. Degeorge believes that whistle blowing is morally permissible when the following three criteria are met:

1. If the harm that will be done by the product to the public is serious and considerable\if the employees report their superiors
2. If the employees report their concern to their superiors
3. If getting no satisfaction from their immediate superiors, they tire out the channels available within the organization.

Situations were whistle-blowing morally Obligatory:

Degeorge believes that whistle blowing is morally obligatory when the following two criteria are met:

1. If the employee has documented evidence that would convince a responsible, impartial observer that his view of the situation is correct and company policy is wrong
2. If the employee has strong evidence that making the information public will in fact prevent the threatened serious harm.

10.8. Preventing the Whistle Blowing

In order to solve the whistle blowing problem within a company, any one of the following four methods can be used, such as

1. The company should create a strong ethics culture. There should be clear commitment to ethical behavior from both employers and employees.
2. The organizations should remove rigid channels of communication. Instead, they should encourage free and open communication system within the organization.
3. The companies can create an ethics review committee with real freedom to investigate complaints and make independent recommendations to top management.
4. There should be willingness on the part of management to admit mistakes, if necessary. This attitude will set an atmosphere for employees' ethical behavior.

Block 4

Unit - 11 Right of Professionals-2

Unit – 12 Multinational Corporations

Unit - 13 Environment Corporations

Unit – 14 Computer Ethics

Unit 11

THE RIGHTS OF PROFESSIONALS-2

11.1. Employee Rights

❖ Employee rights are any rights, moral or legal, that involve the status of being an employee.

❖ Infact, the professional rights are also employee rights. For example, the professional rights such as the right to go against the unethical instructions and the rights to express dissent about company policies are also evidently employee rights.

❖ Employee rights also include fundamental human rights relevant to the employment situation.

❖ As stated already, employee rights are of two types:

1. Contractual employee rights
2. Non-contractual employee rights.

11.2. Right to Outside Activities

❖ As per the basic human rights, all employees have the right to practice outside activities of their own interest without any interference from employers. However, the rights of employees to practice outside activities should not violate the duties and responsibilities of their jobs.

❖ Also, employers have the right to take action when outside activities create a conflict of interest. In addition, employees have no right to damage their employers' interests even during non-working hours.

11.3. Rights to Privacy

❖ The right to personal privacy means the right to have a private life off the job. In other words, the right to privacy refers the right to control access to and use of information about oneself.

❖ The right to privacy is also limited by the legitimate exercise of employers' rights. The employers can obtain and use information of employees for their effective management of the company. However this personal information should not be given to outsiders.

11.4. Rights to Due Process

❖ The rights to due process means right to fair procedures safeguarding/protecting the exercise of other rights. It also extends to fair procedures in firing, demotion, and other disciplinary actions.

❖ In order to implement the right of due process, the following two

general procedures can be used, such as

1. Written explanations, specifying the reasons, should be given to employees who are penalized in any ways.
2. An appeals procedure should be established so that an employee can appeal against their penalties if he believes his rights have been violated.

11.5. Intellectual Property Rights

11.5.A. Intellectual property (IP) is a property that results from mental labor. The intellectual property is originating mainly from the activities of the human intellect. Intellectual property is the information and original expression that derives its original value from creative ideas with a commercial value.

11.5.B. In the legal sense, intellectual property is a patented invention, a trade secret, or copyrighted material. Like other properties, intellectual property is also an asset, which can be bought or sold, licensed and exchanged.

The legal rights built up on the intellectual property created are known as intellectual property rights (IPRSs) These rights are approved and regulated by the law on IPR of the country. IPR allows the people to independently own their innovations and creativity, which is similar to legal protection of any other properties.

According to the Trade Related Intellectual Property Rights System (TRIPS), all the members of World Trade Organization (WTO) have to comply with the enforcement of intellectual property right protection laws. The IPRs safeguard and encourage the innovations in the various sectors for the benefit of the society.

11.6. Elements of Intellectual Property Rights

The WTO has established seven elements of IPRs, which were agreed by TRIPS. They are:

1. Patents
2. Industrial designs
3. Trade marks
4. Copy rights
5. Trade secrets
6. Design of integrated circuits
7. Geographical indications.

Patents

- Patents are the legal rights approved for new inventions involving scientific and technical knowledge. Patent means an official document giving the holder the sole right to make, use or sell an invention and preventing others from copying it. To be patent, the invention must be useful, original, new, unusual and hardly noticeable.
- An invention may be a product, method, apparatus, design, composition of matters, etc. but one cannot patent 'a way of doing business' or anything that occurs in nature.
- The validity period of most of the patents are 20 years from the date of filing. However for the design patents such as new design for a product, the patent validity is 14 years.

Industrial Designs

- It is the right to safeguard one's industrial designs.
- As stated by TRIPS, a design is an idea or conception as to the features of shape, configuration pattern, ornament of composition of lines or colors applied to any article, two or three dimensional or both by any industrial process or means which in the finished article appeals to and is judged solely by the eye or product.

Trademarks

❖ Trademarks are words, phrases, sounds or symbols associated with goods or services. Trademark means a registered design or name used to identify a company's goods. It is used to indicate the public the origin of manufacture of the goods affixed with that mark.

❖ **Examples:** Pepsi is a registered trademark in soft drinks; Thomson in electronic good; and Nestle in food products.

Copyrights

❖ Copyright means the legal right, held for a certain number of years, to print, publish, sell, broadcast, perform, film or record an original work or any part of it. The copyrights protect the expression of the idea, not the idea themselves. The copyright expires fifty years after the death of the author.

❖ **Example:** Poems, paintings, script of movies, and computer programs.

Trade Secrets

❖ Trade secret means a device or technique used by a company in manufacturing its products, etc and kept secret from other companies or the general public. Trade secrets such as formulas, patterns, methods, and data compilations are kept secret in order to gain a competitive advantage over competitors. Though the trade secrets cannot be registered like other intellectual properties, thefts of trade secrets are legally considered as a crime.

❖ **Examples:** the formula of Fanta soft drink, and the formulas for making drugs.

Design of Integrated Circuits

✓ It is the right granted to the inventor to prevent anybody making use of the design of integrated circuits, semiconductor devices, and other electronic devices.

✓ **Example:** Invention of a new microprocessor chip.

Geographical Indications

❖ Geographical indications identify goods as originating in the territory of a country, an origin or a locality in that territory, where a specific quality, reputations or other characteristics of the goods is essentially attributed to their geographical origin.

❖ **Examples:** Tirunelveli halwa, Dindugal locks, Sivakasi crackers, Kancheepuram sarees.

Benefits of Intellectual Property Rights

Some of the benefits of implementing IPRs are given below:

❖ IPRs promote technological, industrial, and economical developments of a country.

❖ IPRs provide incentives for the inventions and ensure adequate returns on commercialization of the invention.

❖ IPRs prevent the competitors from using one's invention.

❖ IPRs are useful in identifying unprotected areas to avoid violation.

❖ IPRs grant exclusive rights to the inventors.

❖ IPRs provide use the invention for the public purpose.

❖ IPRs are useful in identifying unexplored areas for undertaking research so as to become a leader in that area.

11.7. Discrimination

Discrimination is the unequal treatment of an individual intentionally on unintentionally.

Discrimination refers to treating people unfairly because of one's sex, race, skin color, age, or religious outlook.

Discrimination based on these aspects of biological makeup and basic convection is disgraceful.

Discrimination violates the fundamental human rights of fair and equal treatment humans.

Discrimination may be defined as "It is a morally unjustified treatment of people on arbitrary or irrelevant grounds".

Preferential Treatments

➢ Preferential treatments mean giving an advantage to a member of a group that in the past was denied equal treatment, in particular, women and minorities.

➢ The preferential treatments are also referred as reverse preferential treatments, as it 'reverses' the historical order of preferences.

Two Kinds of Preferential Treatment

1. **Weak Preferential Treatment:** In involves giving an advantage to members of traditionally discriminated-against groups over equally qualified applicants who are members of other group.
2. **Strong Preferential Treatment:** In involves giving preference to minority applicants or women over better-qualified applicants from other groups.

Arguments over Preferential Treatment

1. Arguments Favoring Preferential Treatment

❖ A rights-ethics who favor preferential treatment emphasizes on the principle of compensatory justice. According to them, past violations of rights must be compensated. So preference should be given on the basis of membership in a group that has been disadvantaged in the past. The utilitarians who favor preferential treatment argue that the women and minorities should be integrated into the economic and social mainstream.

2. Arguments Against Preferential Treatment

❖ It can be argued that preferential treatment is a straightforward violation of other people's rights to equal opportunity. It is also argued that there is economic harm that results from a policy of not consistently recruiting the best-qualified persons.

❖ The reverse discrimination is unfair in the present, similar to the unfair discrimination made against disadvantaged groups in the past.

Thus in the present scenario, it is very important to find a way to balance these for and against arguments over preferential treatment, in order to achieve social integration.

11.8. Sexual Harassment

Sexual harassment is a particular undesirable, objectionable form of sex discrimination.

Definitions of sexual harassments:

1. "Sexual harassment is any sexual oriented practice that endangers a woman's job that undermines her job performance and threatens her economic livelihood".

- Sexual harassment is the unwanted imposition of the sexual requirements in the context of a relationship of unequal power". Sexual harassment can be in many forms such as threats of penalties, offers of rewards, assaults, and annoyance. All ethicists unanimously condemn the sexual harassment as it violates the basic human right to pursue one's work free from the pressures, fears, penalties, and insults.

Let Us Sum Up

From this unit, we came to know about the various rights of professional. We studied about the foundation of professional rights. We also covered what is the meaning of whistle blowing and types of whistle blowing in the organization. We also looked into the Intellectual property rights and its elements such as patents, trademarks, copyrights and trade secrets. Finally, in this unit we covered about the sexual harassment taken place in the organization.

Check Your Progress

1. The concept of rights can be categorized into _____types

a. Two
b. Three
c. Four
d. None of the above Ans:B

2. _____are the rights possessed by virtue of being people or moral agents.

a. Human rights
b. Employee rights
c. Rights to life
d. Contractual rights Ans:A

3. _____are the institutional rights that arise only due to specific agreement in the employment contract.

a. Employee rights
b. Non-Contractual rights
c. Contractual rights
d. Personal rights Ans: C

4. _____theory argues that good is promoted among the professionals by allowing them to practice their obligations.

a. Right ethics
b. Duty ethics
c. Professional rights
d. Utilitarianism Ans:D

5. It is also known as acknowledged whistle blowing

a. Internal whistle blowing
b. External whistle blowing
c. Open whistle blowing
d. Anonymous whistle blowing Ans:C

Glossaries

Discrimination - Unequal treatment of an individual intentionally on unintentionally.

Sexual harassment - undesirable, objectionable form of sex discrimination.

Trade secret – It means a device or technique used by a company in manufacturing its products

Whistle blowing - It is the act by an employee informing the public or higher management about the unethical or illegal behavior by an employer or supervisor.

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Answers for check your progress

1.B 2. A 3.C 4.D 5.C

Model Questions

SHORT ANSWERS:

1. Write short notes on rights of professional conscience?

2. What does whistle blowing mean? When one can attempt whistle blowing?

3. What is an intellectual property?

4. Discuss briefly about the following:

a. Patents

b. Trademarks

c. Copyrights

d. Trade secrets

e. Geographical Indicators

5. Define sexual harassment

6. What is meant by discrimination?

7. Is it necessary to protect intellectual properties? Why?

LONG ANSWERS:

1. Discuss, in detail the various rights of the professional.

2. Write an essay about the employee rights.

3. When is the whistle blowing morally permissible and obligatory?

4. Discuss how to solve the whistle blowing problem within a company.

5. Discuss in details the various elements of intellectual property rights.

Unit 12

MULTINATIONAL CORPORATIONS

Overview

Globalization means integration of countries through commerce, transfer of technology and exchange of information. By this way they can act together and interact with other economies through trade, investment, development schemes and capital across the countries. This interdependence has increased the tensions and ruptures among the nations. For the software engineers, the issues such as multinational organizations, computer, internet functions and environmental ethics have assumed greater importance for their very sustenance and progress.

Learning Objectives:

After studying this unit, you can able to understand,

- Globalization and its impact on the economy
- Multinational corporations and their role in developing countries like India.
- International human rights and responsibilities of MNC in the host countries.

12.1. Business Ethics

If ethics is the systematic study of right conduct then business ethics is ethics applied to the context of business. Business ethics includes exploration of:

- • The underlying values of business, including those of any particular professions in business, such as accountants or managers.
- How values might be embodied in the corporation. This includes the development of codes of ethics.
- Particular policies in areas such as corporate governance or workplace relationships.
- The wider responsibilities of business, to the local community and the environment and in global issues.
- Underlying ethical theories. The two most popular, as already described, have been that ethics should be based on core general principles (ontological theory) and that ethics should be based on maximizing the good for the greatest number (utilitarian theory).

Increasingly, ethical theory is being based in the idea of character and the qualities that make up that character (virtue ethics).

For many companies business ethics and CSR are seen as one and the same. They involve various ethical problems that can arise in a business setting and any special duties or obligations that apply to persons who are engaged in commerce. While there are some exceptions, business ethics are usually less concerned with the foundations of ethics or with justifying the most basic ethical principles, and more concerned with practical problems and applications, and any specific duties that might apply to business relationships. This can be applicable at many levels to a number of situations within the construction industry such as bidding, tendering and contractual issues.

An ethical policy, code of conduct or a set of business principles can be used as a management tool for establishing and articulating the corporate values, responsibilities, obligations and ethical ambitions of an organization that dictates the way it functions. It provides guidance to employees on how to handle situations that pose a dilemma between alternative right courses of action, or when faced with pressure to consider right and wrong.

The purpose of business ethics policies is to communicate a company's values and standards of ethical business conduct to employees and, beyond, to the community. It must also establish a companywide process to assist employees in obtaining guidance and resolving questions regarding compliance with the company's standards of conduct and values as well as establishing criteria for ethics education and awareness.

It must ensure that all facets of a business will be conducted fairly, impartially, in an ethical and proper manner, in accordance with the values and code of conduct and in full compliance with all laws and regulations. In the course of business, integrity must underlie all relationships, including those with customers, suppliers and the community amongst employees. The highest standards of ethical business conduct and compliance is required of all employees in the performance of company responsibilities.

12.2. Importance of Business Ethics:

Ethics plays an important part in business today, and the public interest and accountability in this sector are continually increasing.

In the 1960s and the 1970s business came under increased scrutiny in the areas of equal opportunities and health and safety at work. This led to the establishment of legal standards, which have been a continuing feature of the defining of business ethics. Several other elements which lead to increase the concern for business ethics are as follows:

GLOBALIZATION: Globalization has seen the growth of multinational business such that it is estimated that over a half of the biggest economies in the world are corporations. Where such companies could act with apparent defense at one time, their power and the fact of having to relate closely to different governments worldwide has led to increased sense of accountability for their actions.

INFORMATION AND COMMUNICATION TECHNOLOGY (ICT): It has led to increased global transparency, with instant access to immediate information and judgments' from many different sources. The result is that companies find it less and less easy to hide what might be a more controversial aspect of their business.

GROWING IMPORTANCE OF INTANGIBLE VALUES: In the beginning of twenty first centuries, high profile ethical disasters which leads the public and business community to pay attention on the need of ethical standards and behavior.

12.3. Global issues

INTRODUCTION

In the recent past, professional and technology have 'shrunk' the world and society. Our lives are increasingly dependent upon the goods/services produced over the world and are influenced by the business from around all the corners of the world. In general, world has become a global village and have a global economy. As workers and/or consumer, we live in this global market place. Moreover, a country's economy well-being, national security, political stability, and biological existence are interdependent on other countries.

The increasing international flow of capital, technology, trade, and people have had the effects of changing the nature of local organization, governments and people of countries, and have led to social changes and developments.

For our contest, the word 'global' means to both the international context of professional and the increasingly pervasive social and environmental dimensions of work of professional. Thus, professional as social experimenters, they should have the awareness about global issues in order to deal with various aspects of professional interactions. Especially, professional require the wider perspective on their endeavors as employees of multinational companies, and in dealing with the environment, computer, and weapons development.

12.4.Multinational corporations (mncs)

- Large corporations having investment and business in a number of countries are known as the 'multinational' or 'transnational' corporation.
- For example, Smith Kline Beecham, Unilever, Ford, Toyata, Sony, LG, P&G, Hindustan lever, Johnson & Johnson, ITC, Ponds, etc., are MNCs.

When a corporation to be called as a MNC?

A corporation can be called as a MNC, only when the following five criteria are met.

1. Operations are spread in many countries, which are at different levels of development.
2. Its local subsidiaries are managed by nationals.
3. It maintains industrial organizations including R&D and manufacturing facilities in several countries.
4. It has a multinational central management.
5. It has a multinational stock ownership.

The benefits to MNCs of doing their business in underdeveloped and developing countries are:

i. Cheap labor;
ii. Availability of natural resources;
iii. Flexible and favorable tax arrangements and

iv. New marks for their products.
v. The benefits to the participant countries are:
vi. New job opportunities;
vii. Jobs with higher pay and grater challenge;
viii. Increase of national income;
ix. Transfer of advanced technology; and
x. Other social benefits from sharing wealth.

Besides business and social complication, there are several moral and ethics problems arise because of these multinational corporations. Some of the questions explaining the moral difficulties involved are:

- Was this legal MNC business morally permissible?
- Who benefits more and who loses more, when MNC does 'outsourcing'?
- Are the host countries lose their resource, control over its own trade, and political independence? In what ways? And how much?
- Which standards should professional follow when working in foreign countries?
- What are the moral responsibilities of professional MNCs doing business in under developed and developing countries?
- What are the moral responsibilities of professional working foreign countries?

MULTINATIONAL CORPORATIONS (MNC)

If a company does extensive business in more than one country, it is called as Multinational Corporation.

Example: Union Carbide, Wipro, Microsoft, Ford.

Multinational corporations play an important role in providing jobs, boosting the economy and raising the overall standard of living in the countries in which they operate. Their success is dependent on local societal acceptance and trust. The sensitivity of society regarding fundamental principles of social justice is increasing daily. Since 1990, multinational companies (MNC) have been under global scrutiny for their role or perceived role in the negative social and environmental implications of major foreign investment in developing countries. Currently, no formal governmental or nongovernmental laws govern codes of ethics for MNCs. As a result many MNCs have been examining their own ethical behavior, including the fundamental responsibilities to

the societies in which they operate. The development of voluntary social code of conduct has become increasingly common especially for large-scale Fortune 500 companies. The development of an effective, measurable and enforceable code requires a delicate mix of unbiased observation, genuine ability to identify cultural norms, understanding of cultures' fear and uncertainty, and the ability to bridge the gap between theory and application.

Who better to accept this responsibility than professional management consultants who understand the importance of ethics and have the skills, knowledge and experience to work in complex environments with multiple stakeholders?

In general, MNC hold 51% or more of the shares and allow the host country to hold the remaining.

The benefit of a company having its branches in some other economically developing country as follows:

- Availability of natural resources
- Availability of low paid labour
- Tax benefit

Benefits to the host country are listed below:

- More jobs along with higher pay
- Jobs which are challenging
- Better technology.

12.5. Need for Codes-MNC

Governments, MNCs and Non-Governmental Organizations (NGOs) have investigated international codes of corporate conduct, for several decades. The efforts have been driven by the continued neglect shown by a minority of companies to labor condition, human rights and the environment. The actions of some, however, taint the image of all MNCs. In today's globally connected world, international businesses are being held to higher standards. More and more individuals are educated to some of the past impacts MNCs have had on developing countries in which they live.

Negative issues for the host countries include:

- Disrespect for the laws and regulations of the country.

- Employment of restrictive business practices.

Lack of adaptation to or compliance with the traditions, customs, morals, ethics and values of the home country; Application of environmental controls less tight than at home; an inadequate disclosure to government entities of the polluting impacts of production processes and product use: Production and marketing practices which do not protect the consumer; Tax evasion through price transfer: Provisions in technology agreements that stifle opportunities for the recipient; Unwillingness to renegotiate contracts which were found inequitable; Interference in domestic political affairs.

Use of corrupt business practices-especially bribery of public officials to provide favors in compliance or non-enforcement of regulations or re-directing purchase. Inadequate respect for human rights and individual freedoms leading to discrimination based on race, color, sex, religion, language, social, national, or ethnic origin, or political or other opinion: Inadequate contribution to the economic and social goals of the host country; Inadequate protection or use of products, but especially on operation and financial policies and practices of the company; and Restraints on the development of local R&D in host countries.

Obviously these issues are complex and sometimes impenetrable. However if such behavior of MNCs is publicized in their home country, it can result in negative reaction from the public. This results in decreased shareholder value. Progressive companies realize the benefits or leading the way to create a set of standards. Some brush as other MNCs who neglect their social responsibilities. For others it has been due to external pressure. Whatever the reason, over the last few years, voluntary codes have gained increasing importance.

What the Codes should Include-MNC

Each MNC should make its own decisions as of what to include, but the process should be inclusive of all stakeholders. Voluntary codes should cover, at minimum, guidelines encompassing employment conditions, technology transfers to local companies and local investment. The international Labor Organization's (ILO) core labor standards serve as the foundation.

The requirements should encourage companies to undertake disclosure of information on the structure, activities, and policies of the enterprise as whole-so that governments can ensure compliance with policies and regulations concerning taxes, competition, and environmental standards. Comply with host countries' regulations concerning restrictive business practices and refrain from abusing dominant market positions, exercising predatory behavior, anti-competitive mergers or abuse of industry property rights, and discriminatory pricing. Assist in the development of host country policies on science and technology, to diffuse technologies as rapidly as feasible, and not to restrict the use of technologies transferred.

"The code of conduct institutionalizes the social responsibility of the enterprise, making a permanent and stable part of the company's overall policy. Developing and adhering of a code must be the result of a company's careful analysis of an option with far-reaching effects."

In general, voluntary codes of conduct must encourage MNCs to respect the societies in which they operate, to obey laws, and to keep their priorities in line with social development practices of the host country. The publication of a code usually raises the profile of that company especially if that company is a recognizable brand. At the same time the code increases the

MNCs level of accountability; the public can now measure its performance. The end result can be consumer trust and good will.

Developing a workable code, taking into account various stakeholder interests, can be aided by professional management consultants. Once developed, adherence to a voluntary code, in tactical terms would require the development of employee training programs, wage structure development and job analysis to address working conditions and safety audits. The development of such business practices to support newly crafted standards could also be aided by management consultants.

12.6. Role of Management Consultants

Management consultants are already well established globally. Most moved abroad following their clients who were setting up shop in new areas including developing counties. Some consulting firms may already be assisting MNCs in the development and monitoring of

voluntary social codes of codes of conduct. There are several reasons why the certified Canadian Management Consultant (CMC) and the MNCs' ever-evolving need for social codes of conduct is a natural fit. First, the symbolic relationship of both MNCs and Management Consultants to ethics serves as a foundation on which to intervene with the host country. A CMC in general is dedicated to the uniform code of professional conduct, which identifies his/her obligations to protect the public and the client. Similarly, although not sanctioned to do so by law, MNCs realize the importance of protecting the general public and the consumer. To succeed as a consultant and as a MNC, the society in which you do business must trust you and believe that you are working in their best interest. The globally connected audience must also trust you. In a globally connected worked a breach of trust can almost instantaneously translate into lost global markets and consulting opportunities. Secondly, the development of a voluntary code of conduct requires a collaborative approach between all stakeholders including the MNC, its supplier, the society at large and local government officials. Building rapport within a complex web of stakeholders where responsibilities extend beyond the bricks and mortar of the business and into the social setting is the key to success. A CMC understands the steps needed to build trust and collaboration. The management consultant recognizes that collaboration maximizes the use of people's resources and spreads the responsibility for success or failure. In addition an effective code of conduct is audited regularly and problems

proactively averted ad norms and trend change. A certified management consultant required by their own code of business conduct in tune with the ever-changing nature of the business and cultural environments in which the work. To solve problems effectively and retain their client's trust a CMC must stay abreast the changes. Success for a MNC is dependent on their commitment to be authentic to the ho country. An MNC does not need to be seen as intelligent, just genuine. The challenge through this process is reducing the perceived inherent risk of change. MNCs operate in a competitive world where market leadership is influenced by the smallest change in basic strategy. Engage change is an art and can be more smoothly achieved when looking at change from a third-price perspective. The development of voluntary code requires attention to functional business.

12.7.Three senses of 'relative' values

12.7.1. ETHICAL RELATIVISM

Ethical relativism says that actions are morally right when (and because)they are approved by law or custom; they are wrong when they violate laws or customs.

This view is considered false, because it implies absurdities. Also it justifies genocide and other ridiculous behaviors.

12.7.2. DESCRIPTIVE RELATIVISM

Descriptive relativism states that beliefs about values differ from culture to culture

This view is obviously true, but it does not establish the various differences between the moral beliefs and attitudes of various cultures.

12.7.3. MORAL RELATIVISM

Moral relativism views that moral judgment should be made in relation to factors that may vary from case because formulating simple and absolute rules involving moral judgment is impossible. In other words moral judgments are contextual in nature.

This view is also obviously true. It emphasis that the customs of cultures require us to adjust moral judgments and conduct.

12.8. ETHICAL PLURALISM

According to this view, there may be alternative moral perspectives that are reasonable; but no one of which must be accepted completely by all rational and morally concerned persons.

Therefore it is evident that relativism is essential in MNC, as MNCs involves/requires different cultural conventions. But relativisim only says that foreign customs are mostly morally relevant. But the ethical relativism says that foreign customs are self-authoritative in determining what should be done. Above all, the ethical pluralism is very much relevant to the working nature of MNCs. Because in MNCs, there may be a number of morally permissible variations in formulating, and understanding and applying basic moral principles.

12.9. INTERNATIONAL RIGHTS

The multinational corporations should recognize and strictly adhere to the international rights. The MNCs, operating their business at foreign countries should understand the necessity and the importance of these rights.

International rights are human rights". But international Business', has listed ten international rights. They are:

1. The right to freedom of physical movement.
2. The right to ownership of property.
3. The right to freedom from torture.
4. The right to a fait trial.
5. The right to nondiscriminatory treatment i.e., freedom from discrimination on the basis of characteristics such as race or sex.
6. The right to physical security.
7. The right to freedom of speech and association.
8. The right to minimal education.
9. The right to political participation.
10. The right to subsistence.

The MNCs and their employers have to obey the above human rights while exercising their business without fail, even when the host countries' laws and customs do not recognize those rights.

At some situations, those rights need not to be applied contextually by taking into consideration the economy, laws, and customs of host countries.

12.10. Ways to promote moral measures

According to Richard t. De Gerge, MNCs should promote morally just measures even though the host countries standards might be lower, especially when developed countries do business in developing and

developed countries. He also emphasized that a situational, case-by-case approach is required in applying human rights; principles and promoting the benefit of the host counting.

Some of the ways to promote morally justifiable measures are given below.

✓ MNCs should respect the basic rights of people of the host countries.

✓ The activities of MNCs should provide the most good for the most people of the host countries. That is, MNCs should accomplish more overall good than bad to the host countries.

✓ The MNCs should help the host countries' overall economy and their employees.

✓ The MNCs should also make sure that their products does not cause any harms to the customers.

✓ The MNCs should respect the laws and culture of the host countries without violating the basic moral rights.

✓ The MNCs should have more concern for the welfare of their of their employers, especially to the employees of the host country. The fair ways and working conditions are essential for the employers. Also MNCs should pay employees for the extra risk they undertake.

12.11. Technology transfer

- Technology transfer is the process of moving technology to a quite new set of conditions and implementing it there.
- Technology consists of hardware such as machines and installations and technique such as technical, organization, and managerial skills and procedures.
- The transfer of technology may be conducted by a variety of agents such as governments, universities, volunteer service organizations, consulting companies, and MNCs.

12.12. Appropriate technology

- Appropriate technology is a generic concept that applies under social aspects when transferring technologies.
- Appropriate technology refers identification, transfer, and implementation of the most suitable technology for a new set of conditions.
- Appropriate should be examined from scale, materials, physical environment, capital costs and above all human values.
- Appropriate technology also emphasizes that the technology should contribute to sustainable development of the host country.

12.13. Intermediate technology

- Intermediate technology is a typical appropriate technology, which is found in between advanced and primitive technologies.
- The applications of intermediated technologies are more meaningful and beneficial than that of the most advanced technologies. Because the most advanced technologies may cause certain undesirable side effects such as mass migration from rural areas to urban cities where companies level locate.

Thus appropriate and intermediate technologies reinforce and amplify view of professional as social experimentation.

12.14. Case study of the Bhopal disaster

Abstract

In 1969 a US company called Union Carbide set up a plant, Union Carbide India Limited (UCIL), 3-4 miles outside Bhopal, to manufacture pesticides. The pesticides were considered necessary for agricultural self-sufficiency. In 1979, the Bhopal plant was chosen to produce SEVIN, a common pesticide. One of the reagents used to make SEVIN was methyl isocyanate (MIC, isocyanic acid, methyl ester and methyl carbylamines),a particularly dangerous and poorly understood chemical. Late on Sunday evening December 2, 1984, the Union Carbide plant was going through routine maintenance of the MIC tanks, when a large quantity of water entered one of the 60-ton storage tanks (tank 610).None of the safety systems were operating, and this triggered a reaction resulting in a tremendous increase of temperature and pressure. Just before midnight, a deadly mixture of MIC, hydrogen cyanide, monomethyl-amine and other chemicals were carbide by northerly wind o the neighboring communities. Over the next couple of hours, close to 37,000 kg of the chemicals spread over the city of about one million people.

Let Us Sum Up

In this unit, first we studied about the business ethics and its importance. In addition, we are able to understand the emergence of multinational corporations and need for codes for the MNC. We also covered about the role of management consultants. Finally, we covered the transfer to technologies by MNC and role of variety of agents in regulating it with the help of appropriate case study. (Bhopal Disaster for the reference)

Check Your Progress

1. Business across several countries with some decentralization of management decision making to subsidiaries is

a. Global business

b. Multinational business

c. Transnational business

d. Multi-regional business Ans: B

2. Removing barriers or restrictions set by government is called

a. Liberalization

b. Investment

c. Favorable Trade

d. Free Trade Ans:A

3. _____is the application knowledge which redefines the boundaries of global business.

a. Cultural values

b. Society

c. Technology

d. Economy Ans:C

4. Which legislation relates to the concept of business ethics?

a. Freedom of Information Act

b. Food Act

c. Building regulation

d. All of these Ans:A

5. Most companies begin the process of establishing organizational ethics programs by developing

a. Ethical Training program

b. Codes of conduct

c. Ethics Enforcement Mechanisms

d. Hidden Agendas Ans: B

Glossaries

Business Ethics – Implementing appropriate business policies & practices in controversial subjects.

Multinational Corporation – A company with operations in at least one country outside of its home country.

Suggested Reading

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Answers for check your progress

1.B 2. A 3.C 4. A 5.B

Model Questions

SHORT ANSWERS:

1. What do you mean by business ethics?

2. What is Global Issue?

3. What are Multinational corporations (MNCs)?

4. What are the ethical issues that may arise in MNC's?

5. What are the three senses of relative values?

6. What is mean by technology transfer?

7. What do you understand on appropriate technology?

LONG ANSWERS:

8. What are the merits and demerits of MNC's doing their business in developing countries?

9. Discuss the different forms of relativism with respect to MNC?

10. List out the international rights suggested by Donaldson.

11. What are the various ways of promoting morally justifiable measures for a MNC?

12. What is technology transfer and appropriate technology?

Unit 13

ENVIRONMENTAL ETHICS

Overview

Environmental ethics is the study of moral issues concerning the environment and moral perspectives or beliefs concerning those issues. Engineers in the past are known for the negligence of environment, in their activities but now they need to design eco-friendly tools, machines, products and projects which are essential to protect the environment and slow down the exploitation of natural resources.

Learning Objectives:

After studying this unit, you can able to understand,

- The essential of providing protection of environment and prevent the degradation of environment.
- The effect of technology which results in polluting the lands, water, air and even space.
- To educate the people on environmental practices, issues and possible remedies.

13.1. Introduction to environmental ethics

Most of us are aware of the importance of the environment for our own well-being. Much of our life is spent coping with it, enjoying it, or escaping from it. Until recently, most of us have not bothered about the impact of our behavior on the environment. It seems that we have been content to assume that the environment could and would look after itself. Therefore the negative impact of our lifestyles on the world around us could be safely ignored or escaped by simply moving on.

The short listed character of this approach is now becoming inescapably obvious. Acid rain is beginning to have a devastating impact on forests, agriculture, and water resources. The Great Lakes basin has become a repository for many of the deadliest chemicals known. Our energy resources are being depleted. Nuclear power, once seen as a future source of unlimited, inexpensive energy, has become a source of serious concern on a number counts: the threats of leaks accidents, the as-yet-unsolved problem of storing nuclear wastes, the long-term hazards of uranium mine tailings, and so on. Our forests and soils, too, are being severely depleted. Many species of animal life are extinct or

endangered, and our treatment of animals generally has come under increasing critical scrutiny. The list can be extended in definitely

In the following sections, we shall discuss various issues in environmental ethics and the role of professional concerning environment.

13.2. Environmental ethics

Environmental ethics means conscious efforts to protect an environment and to maintain its stability from the hazardous pollutants.

Environmental ethic is the study to explore the ethical roots of the environmental movement and to understand what ethics tells us about our responsibility to the environment.

Whatever ethics can do for us when applied to non-environmental concerns, environmental ethics can do for you when applied to environmental concerns.

13.3. Professional and the environment

It is evident that professional are usually creators of technology that contributes to environmental degradation as well as environmental improvement; therefore, they should have a professional obligation to protect the environment. Also, as agents of change and experimenters, professional have a vital role to play in protecting the environment.

13.4. Types of Concern for Environment

There are two types of concern for the environment. They are:

13.4.1. **Health-related concern:** Professional can be concerned for the environment when environmental pollution poses a direct and clear threat to human health. This is called as a health-related concern for the environment.

13.4.2. **Non-health-related concern:** Professional can also be concerned for the environment even when human wealth is not directly affected. This concern is termed as non-health-related concern for the environment.

13.5.Professional Concern for Environment

While choosing a career or when taking up a new assignment/job, every professional should ask himself the following ethical questions associated with the environment:

- ✓ How does and to what extent a particular industry affect the environment?
- ✓ How far such ill effects can be controlled physical and/or politically?
- ✓ What is the reasonable protective measure available for immediate implementation?
- ✓ In what way, I can be effective as a professional in ensuring safe and clear environment?
- ✓ What are my responsibilities in this regard?
- ✓ Should preserving the environment and its non-human inhabitants be regarded as of value for its own sake?
- ✓ Do I have obligation for the future?
- ✓ How are my obligations to be balanced against my obligations to the present?
- ✓ Do I belong to nature, or does nature belong to me?
- ✓ If animals can suffer and feel pain like humans, should I have moral standing?

13.6. Professional Codes of Ethics Say about the Environment

Our old traditions teach us to live in peace and harmonies with nature and to conserve it, we all are creatures of a creator and we don't have any right to harm the other living beings In our article 48A every state shall endeavor to protect and improve environment and to safeguard forest and wildlife of the country. It has become important now that every professional need to design eco-friendly products, processes and projects. Some of the professional codes of ethics regarding the environment are given below

1. The codes of the American Society of Civil Professional (ASCE) states

"Professional should be committed to improving the environment by adherence to the principles of sustainable development so as to enhance the quality of life of the general public".

2. **The codes of the Institute of Electrical and Electronics Professional (IEEE) STATES:** “Professional have to accept responsibility in making professional decisions consistent with the safety, health and welfare of the public, and to disclose promptly factors that might endanger the public or the environment”.

3. **The codes of the American Society of Mechanical Professional (ASME) states:** “Professional shall consider environmental impact in the performance of their professional duties”.

13.7. Disasters

13.7.1. Plastic Waste Disposal

In our country, several crores of plastic bottles are used as containers for water and oil, and plastic bags are used to pack different materials ranging from vegetables to gold ornaments. Hardly any of these are recycled. They end up in gutters, roadsides, and agricultural fields. In all these destinations, they created havoc. The worse still is the burning of plastic materials in streets and camphor along with plastic cover in temples, since they release toxic fumes and threaten seriously the air quality. Cities and local administration have to act on this, collect and arrange for recycling through industries.

13.7.2. e-Waste Disposal

The parts of computers and electronic devices which have served its useful life present a major environmental issue for all the developing countries including India. This scrap contains highly toxic elements such as lead, cadmium, and mercury.

Even the radioactive waste will lose 89% of its toxicity after 200 years, by which time it will be no more toxic than some natural minerals in the ground. It will lose 99% of its remaining toxicity over the next 30,000 years. The toxic chemical agents such as mercury, arsenic, and cadmium retain toxicity undiminished forever, but these scraps are illegally imported by unscrupulous agencies to salvage some commercially valuable inputs. Instead of spending and managing on the scrap, unethical organizations sell them to countries such as India. This is strictly in violation of the Basel Convention of the United Nations Environment Program, which has banned the movement of hazardous waste.

Indian Government expressed its concern through a technical guide on environmental management for IT Industry in December, 2004. It is yet to ratify the ban on movement of hazardous waste according to the Basel Convention. A foreign news agency exposed a few years back, the existence of a thriving e-waste disposal hub in a suburb of New Delhi, operating in appallingly dangerous conditions. Our country needs regulations to define waste, measures to stop illegal imports, and institutional structures to handle safe disposal of domestic industrial scrap.

13.7.3. Industrial Waste Disposal

A lot of complaints through the media, on (a) against the Sterlite Copper Smelting Plant in Thoothukudi (1997) against its pollution, and (b) when Indian companies imported the discarded French Warship Clemenceau for disposal, the poisonous asbestos compounds were expected to pollute the atmosphere besides exposing the labor to a great risk, during the disposal. The government did not act immediately. Fortunately for Indians, the French Government intervened and withdrew the ship, and the serious threat was averted.

13.7.4. Global Warming

The U.S. administration has accepted the reality of global climate change, which has been associated with stronger hurricanes, severe droughts, intense heat waves and the melting of polar ice. Greenhouse gases, notably carbon dioxide emitted by motor vehicles and coal-fired power plants, trap heat like the glass walls of a greenhouse, cause the Earth to warm up. Delegates from the six countries — Australia, China, India, Japan, South Korea and US met in California in April 2006 for the first working session of the Asia-Pacific Partnership on Clean Development and Climate. These six countries account for about half of the world's emissions of climate-heating greenhouse gases.

About 190 nations met in Germany in the middle of May 2006 and tried to bridge vast policy gaps between the United States and its main allies over how to combat climate change amid growing evidence that the world is warming that could wreak havoc by stoking more droughts, heat waves, floods, more powerful storms and raise global sea levels by almost a meter by 2100.

13.7.5. Depletion of Ozone Layer

The ozone layer protects the entire planet from the ill-effects of ultraviolet radiation and is vital for all living organisms in this world. But it is eaten away by the Chloro-fluro-carbons (CFC) such as Freon emanating from the refrigerators, air conditioners, and aerosol can spray. This has caused also skin cancer to sun-bathers in the Western countries. Further NO and NO2 gases were also found to react with the ozone. Apart from professional, the organizations, laws of the country and local administration and market mechanisms are required to take up concerted efforts to protect the environment.

13.8. Approaches to resolve environmental problems

The two important approaches that can be applied to resole environmental problem are:

- Cost-oblivious approach ; and
- Approach based on cost-benefit analysis.

13.8.1. Cost-oblivious Approach

13.8.1.1. In this approach, priority is given to the protection of environment than the cost of the products designed by the professional.

13.8.1.2. This approach does not accept/tolerate any environmental degradation.

13.8.1.3. Also this approach satisfies the concept of eights and duty ethics.

Drawback: This approach is difficult to sustain and enforce in a modem urbanized society.

13.8.2. Approach based on Cost-benefit Analysis

13.8.2.1. In this approach, the problem is analyzed in terms of the benefits derived by reducing the pollution and the costs required to solve the problem. In fact, this approach is derived from the concept of utilitarianism.

13.8.2.2. In other words, the objective is not to achieve a completely clean environment, but to achieve an economically beneficial balance of pollution with health or environmental considerations.

13.8.2.3. Drawbacks: it is very difficult to determine the true cost of a human life or the loss of a species; and also it is very difficult accurately assess costs and benefits.

13.9. Internalizing costs of environmental degradation

As we know, the cost of any product usually includes direct labor cost, direct materials cost, direct expenses, factory expenses, and selling and distribution expenses. Here, other costs incurred due to numerous indirect factors such as the effects of pollution, the depletion of energy and raw materials, and social costs are not considered. But in order to determine the 'true' cost of the product, all those costs should be internalized i.e., added to he price.

Along with the economists, the scientists, the lawyers, and the politicians, professional have to play an important role in finding

acceptable mechanisms for pricing and releasing products. It should be realized that the good professional design process can provide the answers to protect the environment without any addition of real cost.

13.10. Technology assessment

Technology assessment refers to the studies on the social environmental effects of technology in various areas. The areas include nuclear war, health care, cashless trading via bank-card, and pollution.

In the view of the economist Robert Theobald, professional sometimes tend to find the right answers to the wrong questions. He also emphasized that the university curriculum should be based on the finding right answers to the right question.

When the professional professionals and scientists conduct experiments, they should distill the information collected through normative, conceptual, and factual inquiries, as depicted in Fig. 8.1.

As shown in Fig. 8.1, professional should use the funnel for distilling and applying knowledge to design and build the professional projects.

The difficulty in technology assessment is to explore the extent of the effects and to prioritize the possible adverse effects.

Thus it should be noted that professional as social experimenters should do continuous monitoring even after implementing the project so that to ensure safe and clean environment.

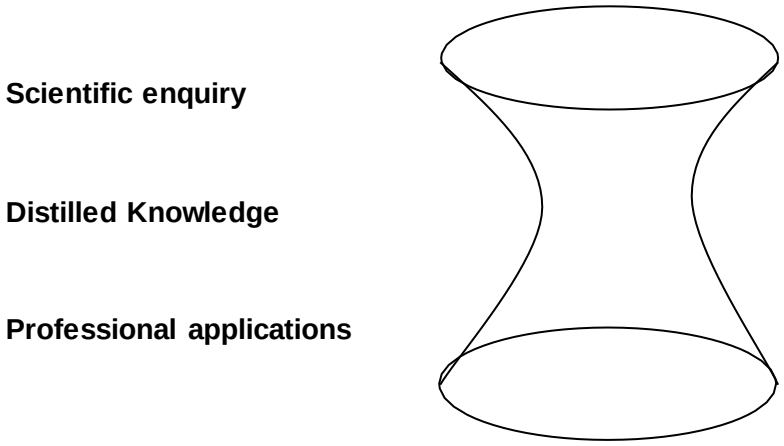

Fig.13.1. TECHOLOGY ASSESSMENT

13.11. philosophical views of nature

Though there are various views on environment, now we shall brief four important views of it.

1. Sentient-Centered Ethics

✓ This view acknowledges the inherent worth of all sentient animals sentient animals are those that feel pain and pleasure and have desires.

✓ Peter Singer, in his book Animal Liberation, emphasizes that moral judgments must take into account the effects of our actions on sentient animals. For example, while constructing a dam or a plant professional should consider the impact on animals living there.

✓ According to Tom Regan, conscious creatures have inherent worth not only because they can feel pleasure and pain, but also because they are subjects of experiences who form beliefs, memories, intentions, preferences, and can act purposefully.

✓ Both Singer and Regan felt that the sentient animals need not to be treated in the identical way we treat humans, but their interest should be weighed equally with human interests in making decisions.

2. Biocentric Ethics

✓ This life-centered ethics recognizes that all living organisms as having inherent worth.

✓ According to Albert Schweitzer, all organisms have the 'reverence for life' to survive and to develop.

3. Ecocentric Ethics

✓ In contrast to the individualistic approaches of sentient-centered and biocentered ethics, ecocentered ethics emphasizes inherent value in ecological systems.

✓ According to the naturalist Aldo Leopold, a thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community.

4. Human-Centered Environment Ethics

✓ Human-centered ethics environment ethics extends traditional ethical theories in the aspect of the threats to human beings presented by the destruction of nature.

✓ 'Virtue ethics' draws attention to humility, appreciation of beauty, love, and affection and gratitude towards the world of nature.

✓ 'Right ethics' stresses that the fundamental right to life enforces a right for livable environment in a particular period of time, when pollution and depletion of resources has reached a dangerous proportion.

✓ 'Duty ethics' urges that the respect for human life implies more concern for nature than has been traditionally recognized.

✓ 'Utilitarianism' stresses that human pleasures and self-interests are linked to nature in so many ways apart from the stage the professional products are produced from natural resources.

Let Us Sum Up

In this unit, we studied about impact of our behavior on the environment. Most of the energy resources are depleted and it's negative impacts on our lifestyle. We are also looked into responsibility of professional in protecting the environment. We covered various types of concerns due to environment and various professional codes around the world for the protection of environment.

Check Your Progress

1. Depletion of ozone layer is damaging to human health. Negative effects include

a. Skin Cancers
b. Osteoporosis
c. Dyspepsia
d. None of the above

2. _____ is an organism used to gauge the quality of an ecosystem.

a. Decomposers
b. Predator
c. Bio-remediator
d. Bioindicator

3. Which of the following facts is incorrect?

a. Global warming is the rise in the average temperature of the earth's climate system
b. Eutrophication is observed in water bodies
c. The greenhouse effect is a natural phenomenon
d. Ozone is harmless to breathe

4. Environmental ethics belongs to which part?

a. Environmental science
b. Environmental chemistry
c. Environmental Philosophy
d. Environmental studies

5. What is the main reason for environmental destruction?

a. Due to consumption of the poor
d. Due to consumption of the rich
c. Due to no consumption
d. Due to consumption in certain interval of times

Glossaries

Environment Ethics – Branch of philosophy study the moral relationship between humans and the environment

Ozone Depletion – Reduction in the concentration of ozone in the ozone layer.

Environment Degradation – Deterioration of the environment through depletion of resources.

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10. Dr.Saroj Kumar & Prof.Sheenu Nayyer, Human Values and Professional Ethics, Thakur Publishers, Lucknow.

Answers for check your progress

1.A 2. D 3.D 4. C 5.B

Model Questions

SHORT ANSWERS:

1. Write short notes on environmental ethics.

2. What does professional code of ethics says about the environment?

3. Write briefly about the cost-oblivious approach.

4. How do you internalize the cost of environmental degradation?

5. What is technology assessment?

6. Write short notes on eco centric ethics

7. Write short notes on Human- centered environmental ethics.

LONG ANSWERS:

8. What are the various environmental concerns, explain in detail?

9. Describe the different approaches used to resolve environmental problems.

10. What are the ethical issues that may arise in environmental protection?

11. What are the four types of ethics under environmental degradation?

12. Contrast sentient- centered ethics with Biocentric ethics.

Unit 14

COMPUTER ETHICS

Overview

Computer ethics is a study and analysis of social impact on the computer technology and formulation of policies for ethical use of computers. Nowadays this subject is more relevant to the professionals such as designers of computers, programmers, system analysts and operators. The use of computer ethics has raised a host of moral concerns such as free speech, privacy, intellectual property rights and physical as well as mental harm to the people. No conceptual framework available on computer ethics, so by understanding and resolve the problems in computer technology.

Learning Objectives

After studying this unit, you can able to understand,

- The usage of computers which replaces various job positions.
- Different types of problems faced through the computer.
- Essentials of cyber laws to protect the data breach and to deter the criminals and punish them.

14.1. Introduction

The computer is considered one of the most important technological advances of the twentieth century. As the general public increasingly 'computer literate,' the gap between technology and peoples' intellect notably shrinks. The readily available computers, software, and assorted output devices have enlightened many. It is becoming increasingly important, as computers become the technological backbone of modern society. But, in turn, they have increased the using of computers for unethical activities, privacy invasion and illegal purposes leading to serious ethical issues. Some of the issues arise due to the computer abuse are: hacking, cyber crimes, computer virus, software piracy, cyber squatting, and internet defamation.

Legal sanctions against abusive use of computers are a reactive approach. A proactive approach is to teach professional student about computer ethics in classrooms. It is anticipated that through this study of computer ethics, student will personalize the need for developing ethical standards of behavior as computer users. Therefore they will develop their code of ethical behavior. Also as designers, programmers, managers, and system analysts, the professional should have the moral responsibility to help promote the ethical use of computers. It is therefore important for computer professionals, professional, policy makers, leaders, teachers, and social thinkers to get involved in the social and ethical impacts of this communication technology.

14.2. Computer ethics

✓ Computer ethics is the study of ethical issues that are associated primarily with computing machines and the computing profession.

✓ It is the field of applied professional ethics dealing with ethical problems aggravated, transformed, or created by computer technology.

✓ Cyber ethics is the field of applied ethics that examines moral, legal, and social issues in the development and use of cyber technology.

✓ Cyber technology refers to a broad range of technologies from stand-alone computers to the cluster of networked computing, information and communication technologies.

14.3. Categories of Computer Ethics Problem

The three board categories of computer ethical problems are as follows

1. Those ethical problems for which the computer is the instrument of the unethical act. For example, the use o f a computer to defraud the bank.
2. Those problems for which the computer is the object of the unethical act. For example, stealing computer software and installing it on one's own computer to access others' information.
3. Those problems associated with the autonomous nature of computers.

14.4. Computers as the instrument of unethical behavior

Computers are sometimes used as an instrument for carrying out some unethical activities. The two important unethical acts under this category are:

- Bank Robbery
- Privacy

14.4.1. Bank Robbery

14.4.1.1. Computers can be used to steal from an employer; outsiders can get into a system and steal from an institution such as a bank. In the same way, a company can use the computer to steal from its clients and customers.

14.4.1.2. Computers are used more efficiently to steal money in a bank. The robber simply sits at a computer terminal, invades the bank's

computer system and directs some of the banks assets be placed in a location accessible to him. The use of computer makes the crime impersonal. The criminal never comes face to face with the victims.

14.4.2. Privacy

14.4.2.1. Privacy means the basic right of an individual to control access to and o information about him. Computers make privacy more Difficult to protect, since large amounts of data on individuals and corporations are centrally stored on computers where an increasing number of individuals can access it.

14.4.2.2. Invasions of privacy can be harmful to an individual in two ways, as given below:

1. The leaking of privacy can be harmful to an individual being harassed or blackmailed.
2. Personal information can also be considered personal properly. Any unauthorized use of considered personal properly. Any unauthorized use of this information is theft.

14.5.COMPUTERS AS THE OBJECT OF UNETHICAL ACTS

When the Computers are used as the object of unethical acts, ethical issues may arise. This act is prevalently known as 'hacking'.

Meaning of Hacking

Hacking is nothing but gaining unauthorized access to a database, implanting false information in a database or altering existing information, and disseminating viruses over the internet.

- ✓ In other words, hacking is a crime in which a person cracks a system and gains unauthorized access to the data stored in them.
- ✓ Accessing private information violates the private rights of individuals and corporations.
- ✓ Hacking has thrown a challenging threat to the internal security of a nation when hackers develop illegal access to the secret military information.
- ✓ Computer viruses: viruses are programs introduced deliberately for destroying or altering the operating systems and database of computer.
- ✓ Transmission of computer viruses leads to the complete destruction of files and data stored in the computers. This type of

destruction frequently occurs in the records of financial institution, corporations, government offices, and taxpayers.

Autonomous Computers

Autonomous nature of computers creates other ethical problems.

✓ **Computer autonomy** refers to the ability of computer to make decisions without the intervention of humans. This autonomous function of computers creates a lot of negative implication.

✓ **Example illustrating negative implication of computer autonomy:** An autonomous computer, responsible for running a spaceship, wrongly directed the spaceship against the human designed it, instead of heading towards Jupiter.

✓ **Example illustrating positive implication of computer autonomy:** Autonomous computers are valuable for automatic monitoring of certain manufacturing processes.

✓ However, the autonomous computer application creates unethical activities in most cases. For example, autonomous computers are used in trading of some major stock market exchanges. Some brokers and institutional investors utilize computers to sell stocks automatically for their favor.

✓ Autonomous computer systems also create problems when they have been used in military weapons. Many of the weapons used by military sources depend greatly on computer sensors and computer controls. Sometimes the instability of computer sensors and controls may create an unstable situation, which may lead to the serious conflicts.

✓ Thus although autonomous computers are productive and more efficient in more areas, eventually there should be some human control over them in order to prevent disaster.

14.6. Computer code of ethics

Many organizations have developed codes of ethics for computer use. In order to overcome the various ethical issues of computer ethics, the Computer Society of India has developed the 'Ten Commandments' of computer ethics.

Ten Commandments of computer ethics are:

1. Don't use a computer to harm other people.
2. Don't interfere with other people's computer work.
3. Don't snoop around in other people's computer files.
4. Don't use a computer to steal.
5. Don't use a computer to bear false witness.
6. Don't copy or use proprietary software for which you have paid.
7. Don't use other people's computer resources without authorization or proper compensation.
8. Don't appropriate other people's intellectual output.
9. Think about the social consequences of the program you are writing or the system you are designing.
10. Use a computer in ways that insure consideration and respect for your fellow humans.

14.7. Weapons development

Military activities including the world wars have stimulated the growth of technology. The growth of Internet amply illustrates this fact. The development of warfare and the involvement of professionals bring out many ethical issues concerned with professional, such as the issue of integrity in experiments as well as expenditure in defense research and development, issue of personal commitment and conscience, and the issues of social justice and social health.

Professional involve in weapons development because of the following reasons:

1. It gives one job with high salary.

2. One takes pride and honor in participating in the activities towards the defense of the nation (patriotic fervor).

3. One believes the he fights a war on terrorism and thereby contribute to peace and stability of the country. Ironically, the wars have never won peace, only peace can win peace!

4. By research and development, the engineer is reducing or eliminating the risk from enemy weapons, and saving one's country from disaster.

5. By building-up arsenals and show of force, a country can force the rogue country, towards regulation. Professionals can participate effectively in arms control negotiations for surrender or peace, e.g.,

bombing of Nagasaki and Hiroshima led to surrender by the Japanese in1945.

14.8. Professionals as expert witness

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

Duties of Expert Witness:

1. The expert-witness is required to exhibit the responsibility of confidentiality just as they do in the consulting roles. They can not divulge the findings of the investigation to the opposite side, unless it is required by the court of law.

2. More important is that as witness they are not required to volunteer evidence favorable to the opponent. They must answer questions truthfully, need not elaborate, and remain neutral until the details are asked for further.

3. They should be objective to discover the truth and communicate them honestly.

4. The stand of the experts depends on the shared understanding created within the society. The legal system should be respected and at the same time, they should act in conformance with the professional standards as obtained from the code of ethics.

5. The experts should earnestly be impartial in identifying and interpreting the observed data, recorded data, and the industrial standards. They should not distort the truth, even under pressure. Although they are hired by the lawyers, they do not serve the lawyers or their clients. They serve the justice. Many a time, their objective judgments will help the lawyer to put up the best defense for their clients.

PROFESSIONAL AS ADVISORS IN PLANNING AND POLICY MAKING

Advisors

Professionals are required to give their view on the future such as in planning, policy-making, which involves the technology. For example, should India expand nuclear power options or support traditional energy sources such as fossil fuels or alternative forms like solar and wind energy. In the recent past, this topic has created lot of fireworks, in the national media. Various issues and requirements for professionals who act as advisors are:

Objectivity

Professionals should study the cost and benefits of all possible alternative means in objective manner, within the specified conditions and assumptions.

Study All Aspects

They have to study the economic viability (effectiveness), technical feasibility (efficiency), operational feasibility (skills) and social acceptability, which include environmental and ethical aspects, before formulating the policy.

Values

Professionals have to posses the qualities, such as (*a*) honesty, (*b*) competence (skills and expertise), (*c*) diligence (careful and alert) (*d*) loyalty in serving the interests of the clients and maintaining confidentiality, and (*e*) public trust, and respect for the common good, rather than serving only the interests of the clients or the political interests.

Technical Complexity

The arbitrary, unrealistic, and controversial assumptions made during the future planning that are overlooked or not verified, will lead to moral complexity. The study on future is full of uncertainties than the investigations on the past events. On the study of energy options, for example, assumptions on population increase, life style, urbanization, availability of local fossil resources, projected costs of generating alternative forms of energy, world political scenario, world military tensions and pressures from world organizations such as World Trade

Organization (W.T.O.) and European Union (EU) may increase the complexity in judgment on future.

National Security

The proposed options should be aimed to strengthen the economy and security of the nation, besides safeguarding the natural resources and the environment from exploitation and degradation.

14.9. Moral leadership

Professionals provide many types of leadership in the development and implementation of technology, as managers, entrepreneurs, consultants, academics and officials of the government. Moral leadership is not merely the dominance by a group. It means adopting reasonable means to motivate the groups to achieve morally desirable goals. This leadership presents many challenges to their moral principles.

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

1. It is leading a group of people towards the achievement of global and objectives. The goals as well as the means are to be moral.
2. The leadership shall direct and motivate the group to move through morally desirable ways.
3. They lead by thinking ahead in time, and morally creative towards new applications, extension and putting values into practice. 'Morally creative' means the identification of the most important values as applicable to the situation, bringing clarity within the groups through proper communication, and putting those values into practice.
4. They sustain professional interest, among social diversity and cross-disciplinary complexity. They contribute to the professional societies, their professions, and to their communities. The moral leadership in professional is manifested in leadership within the professional societies. The professional societies provide a forum for communication, and canvassing for change within and by groups.
5. Another important avenue for providing moral leadership within communities, by the professionals is to promote services without fee or at reduced fees to the needy groups. The professional societies can also promote such activities among themselves. This type of voluntarism (or philanthropy) has been in practice in the fields of medicine, law and

education. But many of the professional are not self-employed as in the case of physicians

The Codes of Ethics promote and sustain the ethical environment and assist in achieving the ethical goals in the following manner:

1. It creates an environment in a profession, where ethical behavior is the basic criterion.

2. It guides and reminds the person as to how to act, in any given situation.

3. It provides support to the individual, who is being pressurized or tortured by a superior or employer, to behave unethically.

4. Apart from professional societies, companies and universities have framed their own codes of ethics, based on the individual circumstances and specific mission of the organizations. These codes of conduct help in employees' awareness of ethical issues, establish, and nurture a strong corporate ethical culture.

Let Us Sum Up

In this unit, we studied about the computer ethics which is primarily required in this digital world. We looked into various categories of problem arises due to computer ethics. computers are acting as the object of unethical codes such as hacking, so we looked into the importance of computer code of ethics and ten commandments. Finally in this unit we studied the requirement of professionals as advisors in planning and policy making.

Check Your Progress

1. Computer ethics has its root in the work of _____during world war II.

a. Hermen Horllerith

b. Norbert Wiener

c. Blaise Pascal

d. Charles Babbage

2. _____refers to software setups that permit only authorized access to the system.

a. Personnel security

b. Physical security

c. Personal security

d. None of these

3. General guidelines of computer ethics are needed for _____

a. Cracking

b. Computer crime

c. Protection of personal data

d. All the above

4. _____is the illegal access to the network or computer system.

a. Security

b. Cracking

c. Virus

d. Piracy

5. Running other software on idle computer without the knowledge of the organization is called theft of _____

a. Software

b. Computer

c. Computer time

d. Use

6. We use which among the following technique in business organization and firms for protecting the IT assets?

a. Ethical hacking

b. Fixing bugs

c. Unethical hacking

d. Internet-data breach

Glossaries

Hacking - Unlawful intrusion into computer or a network.

Malware – Malicious software created to impair a computer system.

Anonymity – Keeping user's identity masked through various applications.

Cracking – Way of breaking into a system by getting past the security features of the system.

Data Protection – Process of safeguarding the data

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Answers for check your progress

1. B 2. C 3. D 4.B 5.C 6.A

Model Questions

SHORT ANSWERS:

1. What is meant by computer ethics?
2. What does autonomous computer mean?
3. Write short notes on
   a. Computer privacy
   b. Hacking
   c. Computer viruses
4. Computers as the objects of unethical acts – Discuss.
5. Write some commandments of computer ethics.
6. What do you understand on weapons development?

LONG ANSWERS:

7. What are the different categories of problems that exist in computer ethics?

8. Explain how the computers can be used as the instrument in unethical behavior?

9. How does autonomous computer create negative implications?

10. Explain how weapons development in military technology could be considered as an important global issue.

11. What are the problems faced by the defense industry in the development of weapons?

12. "Professional should examine both his individual conscience and the social and political issues of weapons technology, before involving in the weapons development- Discuss.

Document Information

Analyzed document	Professional Ethics - balkiedit.pdf (D166832697)
Submitted	2023-05-13 12:04:00
Submitted by	kalaiarasi
Submitter email	kalaiarasidr@gmail.com
Similarity	19%
Analysis address	kalaiarasidr.tnou@analysis.urkund.com

Sources included in the report

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યુનિવર્સિટી ગીત

સ્વાધ્યાયઃ પરમં તપઃ
સ્વાધ્યાયઃ પરમં તપઃ
સ્વાધ્યાયઃ પરમં તપઃ

શિક્ષણ, સંસ્કૃતિ, સદ્‌ભાવ, દિવ્યબોધનું ધામ
ડૉ. બાબાસાહેબ આંબેડકર ઓપન યુનિવર્સિટી નામ;
સૌને સૌની પાંખ મળે, ને સૌને સૌનું આભ,
દશે દિશામાં સ્મિત વહે હો દશે દિશે શુભ-લાભ.

અભણ રહી અજ્ઞાનના શાને, અંધકારને પીવો ?
કહે બુદ્ધ આંબેડકર કહે, તું થા તારો દીવો;
શારદીય અજવાળા પહોંચ્યાં ગુર્જર ગામે ગામ
ધ્રુવ તારકની જેમ ઝળહળે એકલવ્યની શાન.

સરસ્વતીના મયૂર તમારે ફળિયે આવી ગહેકે
અંધકારને હડસેલીને ઉજાસના ફૂલ મહેંકે;
બંધન નહીં કો સ્થાન સમયના જવું ન ઘરથી દૂર
ઘર આવી મા હરે શારદા દૈન્ય તિમિરના પૂર.

સંસ્કારોની સુગંધ મહેંકે, મન મંદિરને ધામે
સુખની ટપાલ પહોંચે સૌને પોતાને સરનામે;
સમાજ કેરે દરિયે હાંકી શિક્ષણ કેરું વહાણ,
આવો કરીયે આપણ સૌ
ભવ્ય રાષ્ટ્ર નિર્માણ...
દિવ્ય રાષ્ટ્ર નિર્માણ...
ભવ્ય રાષ્ટ્ર નિર્માણ

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