

Unit - 5

Q1. Engineering Ethics

- Engineering is the process of developing efficient mechanisms which quickens and eases the work using limited resources, with the help of technology.
- Ethics are the principles accepted by society, which also equate to the moral standards of human beings.
- Hence the study of engineering ethics, where an engineer implements such ethics, is necessary for ~~society~~ the good of society.
An engineer with ethics can help the society in a better way
- Thus engineering ethics is the study of decisions, policies and values that are morally desirable in engineering practice and research.
- Ethics are the set of principles that are generally considered as standards of good or bad, or right or wrong. These are usually imposed by an external group or society. (Morals are not imposed by anyone on the other hand; it is what you personally think is good or bad)
- An engineer, whether he works individually or for a company, has to go through some ethical issues, under conditions such as conceptualization of a product, issues arising in designing and testing departments, and issues in manufacturing, sales and services. Questions related to morality may arise during supervision and team work.

- Not only engineers, everyone has to follow a set of morals in order to keep away from getting morally degraded.
Our behaviour should include →
 - Respecting others and ourselves
 - Respecting the rights of others
 - Keeping promises
 - Avoiding unnecessary problems to others
 - Avoiding cheating and dishonesty
 - Showing gratitude towards others and encouraging them to work.
- Whenever there occurs an issue, one must possess a few skills in order to sort out the problem.
The issues that engineers face must be dealt with patience and a few moral goals must be kept in mind while dealing with such issues. They are as follows →
 - Moral awareness: One should be able to recognise the moral problems and issues that occur in engineering.
Analysis of the problem is necessary to differentiate and judge according to ethics or according to the rules to follow.

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- Moral Reasoning: In order to come to a conclusion on the issue, the argument has to be assessed and comprehended.
The argument on both sides must be considered, and the argument should be logical and moral.
 - Moral Coherence: After having gone through all the logical and moral facts, consistent and comprehensive view points are to be formed based on consideration of relevant facts.
 - Moral Imagination: Moral issues and practical issues must be dealt with separately. Alternative responses must be found while dealing with moral issues, creative solutions must be found out for practical issues.
 - Moral Communication: The language to communicate one's moral views must be precise and clear, the expressions or words should not alter the original meaning.

- Engineers as responsible experimenters →

engineering
while exercising ^{engineering} duties, engineers should display the virtues of being a morally responsible person.

The general features of a morally responsible engineer are as follows →

1. Conscientiousness -

- It means the commitment to live according to certain values.
- Engineers have to be sensitive to a range of moral values and responsibilities which are relevant in a given situation.
- Open eyes, open mind are required to evaluate a given situation.
- It is the primary duty of morally responsible engineers to protect the safety of human beings and respect their rights of consent.

2. Relevant Information -

- Conscientiousness is impossible without relevant factual information.
- Engineers have to show the commitment to properly obtain and gauge all the information related to meeting one's moral obligations.

3. Moral autonomy -

- It is the ability to think critically and independently on moral issues and apply this moral thinking to situations that arise during the professional engineering process.
- The magnitude of moral autonomy to be experienced by engineers is highly dependant on the attitude of company's management.

4. Accountability →

- Accountability means being responsible, liable or answerable
- It is the willingness to submit one's actions to any type of moral scrutiny and to be responsive to other's assessment
- It is the willingness to give morally convincing reasons for one's actions and conduct.

Q3. Environmental ethics

- In 1950 the world's population was 2.5 billion
- It is expected to grow to 9-10 billion by 2050
- During this time of dramatic population growth, human impact on the planet has increased significantly, not only because of increase in our numbers, but also because of new technical power to dig deeper, cut faster, build larger, traverse great distances by automobiles, trucks and planes quicker.
- As a result, serious new environmental issues have emerged on a global scale
- Few environmental concerns and issues include -
 - global climate change
 - higher average global precipitation, with some parts of the earth becoming dryer while others become wetter
 - Increase in intensity and severity of tropical storms
 - A rise in sea level
 - Changes in regional climate and vegetation
 - Worldwide loss of biodiversity, forests and wetlands
 - Changes in productivity of agricultural land
 - Long range transport of toxic substances
 - decline in coastal ~~set~~ ocean quality
 - degradation of the world's freshwater and ecological systems.

- Environmental ethics is a field of study that aims to understand human's moral obligations to protect and preserve the environment
- It is a branch of ethics that recognizes the intrinsic value of nature, the interconnectedness of all living things and the responsibility of humans to act in accordance with ethical principles.

- Example of environmental Ethics →

One example of environmental ethics ^{in action} is the usage of renewable energy sources

Renewable energy sources are the sources of energy that are naturally replenished and can be used without depleting natural resources

Examples of renewable energy sources include solar, wind, and hydropower.

Renewable energy sources are seen as an ethical choice as they do not cause pollution or deplete finite ^{re}sources

- Principles of Environmental Ethics →

1. Respect for intrinsic value of nature:

Nature should not be treated as a commodity to be exploited and discarded.

2. Interdependence of species and ecosystems:

Humans depend on nature and natural systems. We must recognize our role in protecting and preserving the environment.

3. Ecological sustainability:

We must strive to use resources responsibly and take care to preserve ecosystems and biodiversity.

4. Human responsibility:

We are responsible for our own actions and decisions and their consequences on the environment.

5. Human equity:

We must strive for a ^{just} world where the rights and needs of humans, animals and plants are respected and protected.

6. Precautionary principles:

We should take precautions against environmental harm, even when the scientific evidence is inconclusive.

7. Right to know:

Individuals have the right to access information about environmental issues.

8. Right to participate :

Citizens have the right to participate in environmental decision making processes

Importance of Environmental Ethics :

- Essential for protecting environment, resources and species
- Promotes sustainable practices
- Emphasizes on interconnectedness of all living things
- Helps build better relationships with nature
- Encourages to think beyond immediate needs and consider the long term implications of our actions
- Encourages better public policies and laws that help ensure that our environment is properly cared for.

Q2. Workplace Ethics →

- Workplace Ethics are the codes of conduct that influence the development of an ethical culture within the workplace.
- Going beyond what is considered legal in the area where the business operates, workplace ethics inspire communication between employees, allow for respect to be extended to each person within the organisation and promote customer relationships that are based on honesty and integrity
- Workplace ethics are the set of values, morals, principles and standards that need to be followed by both employers and employees in the workplace.
- It is the set of rules and regulations that need to be followed by all the staff of the workplace.

Examples of Ethical Behaviours in Workplace →

Some examples of ethical behaviours of employees and employers in the workplace are listed below →

- Obey the company's rules and regulations
- Communicate effectively
- Develop Professional relationships

- Take Responsibility
- Be Accountable
- Trust
- Respect your colleagues

Examples of Unethical Behaviours in Workplace →

Following are some examples of unethical behaviours in the workplace that should be avoided →

- Lies
- Taking Credit for other's Hard work
- Verbal Harassment / Abuse
- Violence
- Non-office related work
- Extended breaks
- Theft
- Corrupt practices

How to solve Unethical issues at the workplace?

- Have Rules
- Accept Feedback / Complaints
- List Consequences for unethical behaviours
- Disciplinary action.

Characteristics of a Good Work Ethic →

- A good ethical framework can help guide your company through the times of increased growth or organizational change, and it decreases your company's susceptibility to misconduct
- Reliability
- Dedication
- Productivity
- Cooperation.

Code of Conduct →

- A code of conduct is an official document that clearly defines how a company's employees should behave in the workplace on a day to day basis

The difference between code of ethics and code of conduct is that code of ethics is an aspirational document issued by the top-level management containing the ethical values and principles of an organisation. It is general, wide and is publically disclosed.

Meanwhile code of conduct is a directional document ^{on actions} that contains compliances and rules, that ~~is~~ are followed or restricted by the organisation. It is specific, narrow and is disclosed to employees only.

Advantages of having a business code of conduct →

- It enhances the company's core values and beliefs, and sets the right culture
- Helps to reach the vision and mission of the company
- It builds a reputation of the company in the market
- It keeps the company and its employees from violating laws and regulations
- It creates an environment of trust and ethical behaviour

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Ethical managers in a workplace follow these behaviours →

- Remain committed to honesty, fairness and excellent work ethics
- Value employees as individuals as well as workers.
- Knowing that how the objectives are met is as important as meeting the objectives
- Modeling ethical behaviour such as not shifting the blame, not playing favourites and not trying to outdo the deeds of others
- Looking out for others and always taking their interests and needs into account.