

GE8076
GE6105

Professional Ethics In Engineering.

Unit - V

- ① Discuss in detail about the moral and ethical issues involved in use of computer technology.

* Computer ethics is defined as

- a) Study and analysis of nature and social impact of computer technology
- b) formulation and justification of policies, for ethical use of computers. This subject has become relevant to the professionals such as designers of computers, programmers, system analysts, system managers and operators.

Types of Issues :

1. Computer as the Instrument of Unethical Acts :

- a) usage of computer replaces the job positions.
- b) Breaking privacy.
- c) Defraud a bank or a client.

2. Computers as the objects of Unethical Act :

- a) Hacking
- b) spreading virus.
- c) Health hazard

3. Problems Related to the Autonomous Nature

of computer :

- a) security risk
- b) Loss of human lives
- c) Inflexible manufacturing systems.

Computer in work place :

- 1) Elimination of routine and manual jobs.
- 2) Health and safety.
- 3) Computer failure.

Property issues :

- 1) Computer have been to extort money through anonymous telephone calls.
- 2) Computer are used to cheat and steal by current as well as previous employees.
- 3) cheating of and stealing from the customers and clients.
- 4) Violation of contracts on computer sales and services.
- 5) Conspiracy as a group
- 6) Violation of property rights.

Computer crime :

- 1) physical security
- 2) logical security

Privacy And Anonymity

1. Records of Evidence
 2. Hacking
 3. Legal Response
- Professional Responsibility.

2. Explain the significance of environmental ethics for an Engineer by giving an examples of environmental issues.

* Environmental ethics is the study of
 a) moral issues concerning the environment,
 b) moral perspectives, beliefs or attitudes concerning those issues.

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

1. Environmental impact assessment:

* One major but sure and unintended effect of technology is wastage and the resulting pollution of land, water, air and over space.

* Study how the industry and technology affects the environment.

2. Establish standards:

* Study and to fix the tolerable and actual pollution levels.

3. Counter measures:

* Study what the protective or elimination measures are available for immediate implementation?

*

A. Environmental awareness:

* Study on how to educate the people on environmental practices, issues and possible remedies -

* There are many ethical decisions that human beings make with respect to the environment.

Example:

- Should we continue to clear cut forests for the sake of human composition?
- Should we continue to propagate?
- Should we continue to make gasoline powered vehicles?
- What environmental obligations do we need to keep for four generations?
- Is it right for humans to knowingly cause the extinction of a species for the convenience of humanity?

3. Discuss the ethical role engineers as
 (i) Consultants and Advisors (ii) Expert witnesses.

(i) Consultants:

* The consulting engineers work in private. There is no salary from the employers. But they

have more freedom to decide on their projects. Still they have no absolute freedom, because they need to earn for their living.

* The consulting engineers have ethical responsibility different from the Salaried engineers as follows.

① Advertising: They are directly responsible for advertising their service, even if they employ other consultants to assist them.

* They are allowed to advertise but to avoid deceptive ones.

② Competitive Bidding: means offering a price, and get something in return for the service offered. The organizations have a pool of engineers.

* The expertise can be shared and the bidding is made more realistic.

* But the individual consultants have to develop creative designs and build their reputation steadily and carefully, over a period of time.

③ Contingency fee:

* This is the fee or commission paid to the consultant, when the one is successful in saving the expenses for the client.

* A sense of honesty and fairness is

required in fixing this fee.

i) Safety and Client's needs:

* These engineers in decision making on safety aspects and difficulties concerning the thoroughness are the matters to be given attention.

Eg: In design only projects, the consulting engineers may design something and have (been attention) no role in the construction.

Engineers as advisors:

* They are required to give their view on the future such as in planning, policy-making, which involves the technology.

Eg: India should expand nuclear power options or support traditional energy sources such as fossil fuel or alternatively forms like solar and wind energy.

ii) Engineer as expert witness.

→ Give expert view on the facts in their area of their expertise.

→ Interprets the facts, in terms of the cause and effect relationship.

→ Comments on the view of the opposite side
 → Reports on the professional standards especially on the precautions when the product is made or the service is provided.

① Hired Guns: Mostly lawyers hire engineers to serve the interest of their clients.

② Money Bias: Consultants may be influenced or pressured for monetary considerations, gain reputation and make a fortune.

③ Ego Bias: The assumption that the own side is innocent and the other side is guilty, is responsible for this behavior.

④ Sympathy Bias: It is for the victim on the opposite side may upset the ~~testing~~ The integrity of the consultants will keep these ~~biases~~ biases away from the justice.

4. Discusses the ethical role engineers in weapon development with suitable examples.

* 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 engineers bring out many ethical issues concerned with engineers, such as.

- The issue of integrity in experiments as well as expenditure in defence research and development.

- Issue of personal commitment and conscience

- The issue of social justice and social health.

Engineers involve the weapon 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 defence of the nation
3. One believes that he fights a war on terrorism and thereby contribute to peace and stability of the country.
4. By research the development the engineer is reducing or eliminating the risk from enemy weapons and saving one country from disaster.

5. By building-up arsenals and show of force, a country can force the rogue country towards regulation.

5. Explain the role of engineers as a managers -

The characteristics of engineers as managers are :

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

Managing Conflicts :

- a) conflicts based on schedules :
- b) conflicts arising out of ~~fixing~~ fixing the priority to different projects or department.
- c) conflict based on the availability of personnel.
- d) conflict over technical, economic and time factors.

e) conflict arising in administration such as authority .

f) conflict of personality human psychology and ego problems

g) conflicts over expenditure and its deviations .

*Most of the conflicts can be resolved by following the principle listed here :

① people

② interests

③ options

④ Evaluation .

⑥ Explain in detail about Multinational Corporation also discuss about ethics and codes of business conduct in MNC . Mention its advantages and disadvantages .

*Multinational Corporations are large corporations having investment and business in a number of countries are known as the 'multinational' or 'transnational' corporations.

*For examples, Smith Kline Beecham, Unilever, Ford, Toyota, Sony, LG, P&G, Hindustan Lever

- 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 level of development.
 2. It's local subsidiaries are managed by nationals.
 3. It maintains industrial organizations including R&D and manufacturing facilities in several countries.
 4. It has multinational central management.
 5. It has multinational stock ownership.

The ~~importance~~ issues in MNC

- ① Was this legal MNC business morally permissible?
- ② Who benefits more and who loses more?
- ③ Which standard should engineer follow when working in foreign countries?
- ④ What are the moral responsibility of engineering MNC doing business in under developed and developing countries?

* The benefits to the host countries are as follows

- ① New jobs are generated
- ② Job with higher pay and greater challenge.
- ③ Transfer of advanced technology
- ④ Array of social benefits from wealth.

⑦

write a short note on (i) Globalization

ii) Moral Leadership iii) sample code of conduct.

(i) Globalization: means integration of countries through commerce, transfer of technologies, and exchange of information and culture.

* In a way, it includes acting together and interacting economies through trade, investment loan, development schemes and capital across countries -

* In a different sense, these flows include knowledge, science, technology and out-sourcing.

* This interdependence has ↑sed free

Complex tensions and ruptures among the nations .

* For the engineer, the issues such as multi national organizations, computer, internet functions military developments and environmental ethics have assumed greater importance for their very sustenance and progress -

ii) Moral leadership:

* 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 the engineers with many challenges to their moral principles.

Two main qualification

- ① voluntarism
- ② community service .

iii) Sample code of conduct

* The following are some ethical codes of conduct defined for engineers, which they should follow in their profession. The various society, organizations, and forms of different disciplines of engineering, has formulated these codes of ethical conducts for engineers

to act in an ethical way