

II/IV B.TECH REGULAR DEGREE EXAMINATIONS

April 2018

SCHEME OF VALUATION

14CE402

PROFESSIONAL ETHICS AND HUMAN VALUES

SCHEME

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II/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION

April, 2018

Fourth Semester

Time: Three Hours

*Answer Question No.1 compulsorily.**Answer ONE question from each unit.*

1. Answer all questions

- a) Define Engineering ethics.
- b) What do you mean by privacy in profession?
- c) Why is environmental awareness necessary for individuals?
- d) Mention three types of ethics.
- e) Why should an individual have the sense of responsibility?
- f) What is meant by Kohlberg's theory?
- g) What is meant by voluntary risk?
- h) How to make the environment suitable to live?
- i) What are the types of responsibilities?
- j) What is engineer's experimentation?
- k) Define the concept of moral leadership.
- l) What is the full form of "IEEE"?

Civil Engineering

Professional Ethics and Human Values

Maximum : 60 Marks

(1X12 = 12 Marks)

(4X12=48 Marks)

(1X12=12 Marks)

UNIT I

2. Explain the following:

a. Values and ethics b. work ethics c. honesty d. spirituality

(OR)

12M

3. Explain Kohlberg's theory in detail

12M

UNIT II

4. Explain types of risk, safety and 'Risk-Benefit analysis.

(OR)

12M

5. Explain balanced out look law.

12M

UNIT III

6. a) Explain employee rights.

6M

b) Explain intellectual property rights.

6M

(OR)

7. Explain aspects of projects realization and decision makers.

12M

UNIT IV

8. Explain importance of codes of ethics.

6M

(OR)

9. Explain ACM code of ethics and professional conduct.

12M

- a. **Define Engineering ethics:** Engineering ethics is defined by the codes and standards of conduct endorsed by engineering (professional) societies with respect to the particular set of beliefs, attitudes and habits displayed by the individual or group.
- b. **Privacy in profession:** Privacy is the ability of an individual or group to seclude themselves, or information about themselves, and thereby express themselves selectively.
- c. **Environmental awareness necessary for individuals:** Engineers in the past are known for their negligence of environment, in their activities. It has become important now that engineers design eco-friendly tools, machines, sustainable products, processes, and projects.
These are essential now to (a) ensure protection (safety) of environment (b) prevent the degradation of environment, and (c) slow down the exploitation of the natural resources, so that the future generation can survive.
- d. **Three types of ethics**
 - 1. Common morality: is the set of moral beliefs shared by all. It is the basis of other types of morality.
Personal morality: personal ethics or personal morality is the set of moral beliefs that a person holds.
 - 3. Professional ethics (role morality): professional ethics is the set of standards adopted by professionals. Every profession has its professional ethics: medicine, law, pharmacy etc..
- e. **Sense of Responsibility**
There are difference senses of responsibility, such as
 - 1. Characterstic quality
 - 2. Obligations
 - 3. General moral capacity
 - 4. Liability and accountability
 - 5. praiseworthiness/blameworthiness
- f. **Kohlberg Theory:** moral development in human being occurs overage and experience Kohlberg suggested there are three levels of moral development, namely pre-conventional, conventional, and post-conventional, based on the type of reasoning and motivation of the individuals in response to moral questions.
Is based on the study of men. Men give importance to rule. Ethics of rules and rights.
- g. **Voluntary Risk:** voluntary risk is the involvement of people in risky actions willingly, although they know that these actions are unsafe.
- h. **Environmental suitable life:** Engineers as experimenters have certain duties towards environmental ethics, namely:
 - 1. Environmental impact assessment: One major but sure and unintended effect of technology is wastage and the resulting pollution of land, water, air and even space. Study how the industry and technology affects the environment.
 - 2. Establish standards: Study and to fix the tolerable and actual pollution levels.
 - 3. Counter measures: Study what the protective or eliminating measures are available for immediate implementation
 - 4. Environmental awareness: Study on how to educate the people on environmental practices, issues, and possible remedies.
- i. **Types of Responsibility**
 - 1. Moral responsibility: as applied to a professional.
 - 2. Casual responsibility: it is being a cause of some event.
 - 3. Job responsibility: it consists of assigned task at the place of employment and achieving the objectives.

4. Legal responsibility: it is the response required by law and includes legal obligations and accountability to meet them.
- j. **Engineer's Experimentation:** engineering as experimentation before manufacturing a product or providing a project, we make several assumptions and trails, design and redesign and test several times till the product is observed to be functioning satisfactorily.:
- a. **Moral Leadership:** Moral Leadership 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.
- k. **IEEE:** The **Institute of Electrical and Electronics Engineers.**

UNIT 1

2. Explain the following:

A.VALUES AND ETHICS

- Moral codes are the rules that establish the boundaries of generally accepted behavior.
- Morality refers to social conventions about right and wrong human conduct.
- Ethics are beliefs regarding right and wrong behavior.
- Virtues are habits that incline us to do what is acceptable.
- Vices are habits that incline us to do what is unacceptable.
- Value System is the complex scheme of moral values that we choose to live by.

B.WORK ETHICS

- Work ethic is a set of values based on hard work and diligence. It is also a belief in the moral benefit of work and its ability to enhance character. A work ethic may include being reliable, having initiative, or pursuing new skills.
- Workers exhibiting a good work ethic in theory should be selected for better positions, more responsibility and ultimately promotion.
- Workers who fail to exhibit a good work ethic may be regarded as failing to provide fair value for the wage the employer is paying them and should not be promoted or placed in positions of greater responsibility.
- Work ethic is not just hard work but also a set of accompanying virtues, whose crucial role in the development and sustaining of free markets.

C.HONESTY

- Honesty refers to a facet of moral character and connotes positive and virtuous attributes such as integrity, truthfulness, straightforwardness, including straightforwardness of conduct, along with the absence of lying, cheating, theft, etc.
- Furthermore, honesty means being trustworthy, loyal, fair, and sincere.
- Honesty is valued in many ethnic and religious cultures .
- "Honesty is the best policy" is a proverb of Benjamin Franklin;
- "Honesty is the first chapter in the book of wisdom" proverb of Thomas Jefferson.

D.SPIRITUALITY

- Spirituality is the concept of an ultimate or an alleged immaterial reality, an inner path enabling a person to discover the essence of his/her being; or the "deepest values and meanings by which people live.
- Spiritual practices, including meditation, prayer and contemplation, are intended to develop an individual's inner life. S
- Spiritual experiences can include being connected to a larger reality, yielding a more comprehensive self; joining with other individuals or the human community; with nature or the cosmos; or with the divine realm.
- Spirituality is often experienced as a source of inspiration or orientation in life. It can encompass belief in immaterial realities or experiences of the immanent or transcendent nature of the world.

OR

3. Explain Kohlberg's theory in detail

- Moral development in human being occurs over age and experience. Kohlberg suggested there are three levels of moral development, namely pre-conventional, conventional, and post-conventional, based on the type of reasoning and motivation of the individuals in response to moral questions.
- In the pre-conventional level, right conduct for an individual is regarded as whatever directly benefits oneself. At this level, individuals are motivated by obedience or the desire to avoid punishment or to satisfy their own needs or by the influence by power on them. All young children exhibit this tendency.
- At the conventional level, people respect the law and authority. Rules and norms of one's family or group or society is accepted, as the standard of morality. Individuals in this level want to please or satisfy, and get approval by others and to meet the expectations of the society, rather than their self interest (e.g., good boy, good girl). Loyalty is regarded as most important. Many adults do not go beyond this level.
- At the post-conventional level, people are called autonomous.
- They think originally and want to live by universally good principles and welfare of others. They have no self-interest.
- They live by principled conscience. They follow the golden rule, 'Do unto others as you would have them do unto you'.
- They maintain moral integrity, self-respect and respect for others. Kohlberg believed that individuals could only progress through these stages, one stage at a time.
- He believed that most of the moral development occurs through social interactions.

Kohlberg's Theory

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

Characteristics

1. Justice
2. Factual
3. Right or wrong
4. Logic only
5. Logic and rule-based
6. Less of caring
7. Matter of fact (practical)
8. Present focus
9. Strict rules
10. Independence
11. Rigid
12. Taking a commanding role
13. Transactional approach

UNIT II

4. Explain types of risk, safety and Risk-Benefit analysis.

Types of Risks:

- Voluntary and Involuntary Risks
- Personal Risk
- Public Risk
- Short Term VS Long Term Consequences
- Delayed VS Immediate Risk

- Inherent Risk VS Residual Risk

Safety and Risk-Benefit Analysis

1. Safety was defined as the risk that is known and judged as acceptable.
2. But, risk is a potential that something unwanted and harmful may occur.
3. It is the result of an unsafe situation, sometimes unanticipated, during its use.
4. Probability of safety = 1 – Probability of risk
5. Risk = Probability of occurrence × Consequence in magnitude

Risk- benefit analysis is a method that helps the engineers to analyze the risk in a project and to determine whether a project should be implemented or not. It is very much closer to cost-benefit analysis.

Risk – benefit analysis is being conducted for finding out answers for the following questions:

- Is the product worth applying the risk-benefit analysis?
- What are the benefits?
- Do they over weigh the risks?

The major reasons for the analysis of the risk benefit are:

- To know risks and benefits and weigh them each
- To decide on designs, advisability of product/project
- To suggest and modify the design so that the risks are eliminated or reduced

(OR)

5. Explain balanced outlook law.

- The ‘balanced outlook on law’ in engineering practice stresses the necessity of laws and regulations and also their limitations in directing and controlling the engineering practice.
- Laws are necessary because, people are not fully responsible by themselves and because of the competitive nature of the free enterprise, which does not encourage moral initiatives. Laws are needed to provide a minimum level of compliance.
- The following codes are typical examples of how they were enforced in the past:

Code for Builders by Hammurabi

- Hammurabi the king of Babylon in 1758 framed the following code for the builders:
- “If a builder has built a house for a man and has not made his work sound and the house which he has built has fallen down and caused the death of the householder, that builder shall be put to death.
- If it causes the death of the householder’s son, they shall put that builder’s son to death. If it causes the death of the householder’s slave, he shall give slave for slave to the householder. If it destroys property, he shall replace anything it has destroyed; and because he has not made the house sound which he has built and it has fallen down, he shall rebuild the house which has fallen down from his own property.

- If a builder has built a house for a man and does not make his work perfect and the wall bulges, that builder shall put that wall in sound condition at his own cost” This code was expected to put in self-regulation seriously in those years

Steam Boat Code in USA

- Whenever there is crisis we claim that there ought to be law to control this. Whenever there is a fire accident in a factory or fire cracker’s store house or boat capsizes we make this claim, and soon forget. Laws are meant to be interpreted for minimal compliance. On the other hand, laws when amended or updated continuously would be counterproductive. Laws will always lag behind the technological development. The regulatory or inspection agencies such as Environmental authority of India can play a major role by framing rules and enforcing compliance.
- In the early 19th century, a law was passed in USA to provide for inspection of the safety of boilers and engines in ships. It was amended many times and now the standards formulated by the American Society of Mechanical Engineers are followed.

UNIT III

6. a) Explain employee rights

- Right to Privacy
- Right to Choose Outside Activities
- Right to Due Process from Employer
- Right to Equal Opportunity—Non-discrimination
- Right to Equal Opportunity—Sexual Harassment in the Workplace
- Right to Equal Opportunity—Affirmative Action or Preferential Treatment

b) Explain intellectual property rights

- Intellectual property rights (IPRs) are the protections granted to the creators of IP, and include trademarks, copyright, patents, industrial design rights, and in some jurisdictions trade secrets.
- IP permits people to have fully independent ownership for their innovation and creativity, like that of own physical property.
- This encourages the IP owners towards innovation and benefit to the society. It is an asset that can be bought or sold, licensed, and exchanged. It is intangible i.e., it cannot be identified by specific parameters.

Patents

- Patent is a contract between the individual (inventor) and the society (all others). Patents protect legally the specific products from being manufactured or sold by others, without permission of the patent holder. Patent holder has the legally-protected monopoly power as one’s own property. The validity is 20 years from the date filing the application for the patent. It is a territorial right and needs registration. The Patent (Amendment) Act 2002 guarantees such provisions.

Copyright

The copyright is a specific and exclusive right, describing rights given to creators for their literary and artistic works.

- This protects literary material, aesthetic material, music, film, sound recording, broadcasting, software, multimedia, paintings, sculptures, and drawings including maps, diagrams, engravings or photographs.
- Copyright is effective in (a) preventing others from copying or reproducing or storing the work, (b) publishing and selling the copies, (c) performing the work in public, commercially (d) to make film (e) to make translation of the work, and (f) to make any adaptation of the work. Copying the idea is called 'plagiarism' and it is dealt with separately.

Trademark

- Trademark is a wide identity of specific good and services, permitting differences to be made among different trades. It is a territorial right, which needs registration. Registration is valid initially for 10 years, and renewable. The trademark or service mark may be registered in the form of a device, a heading, a label, a ticket, a letter, a word or words, a numeral or any combination of these, logos, designs, sounds, and symbols. Trademark should not be mistaken for a design, e.g., the shape of a bottle in which a product is marketed, cannot be registered as a trademark.
- Trademarks Act 1999 made in compliance with TRIPS agreement, provides further details. There are three functions of trademark:

Trade secret

- A trade secret is a formula, practice, process, design, instrument, pattern, commercial method, or compilation of information not generally known or reasonably ascertainable by others by which a business can obtain an economic advantage over competitors or customers.

(OR)

7. Project Realization and Decision Makers

Advisors

The engineers 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 engineers who act as advisors are:

1. *Objectivity*

The engineers should study the cost and benefits of all possible alternative means in objective manner, within the specified conditions and assumptions.

2. *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.

3. *Values*

Engineers have to possess 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.

4. *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 Organisation (W.T.O.) and European Union (EU) may increase the complexity in judgment on future.

5. *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. For the advisors on policy making or planning, a shared understanding on balancing the conflicting responsibilities, both to the clients and to the public, can be effected by the following roles or models:

1. *Hired Gun*

The prime obligation is shown to the clients. The data and facts favorable to the clients are highlighted, and unfavorable aspects are hidden or treated as insignificant. The minimal level of interest is shown for public welfare.

2. *Value-neutral Analysts*

This assumes an impartial engineer. They exhibit conscientious decisions, impartiality i.e., without bias, fear or favor, and absence of advocacy.

3. *Value-guided Advocates*

The consulting engineers remain honest (frank in stating all the relevant facts and truthful in interpretation of the facts) and autonomous (independent) in judgement and show paramount importance to the public (as different from the hired guns).

UNIT IV

8. Explain importance of codes of ethics

A code of ethics is a guide of principles designed to help professionals conduct business honestly and with integrity. A code of ethics document may outline the mission and values of the business or organization, how professionals are supposed to approach problems, the ethical principles based on the organization's core values and the standards to which the professional is held. A code of ethics, also referred to as an "ethical code," may encompass areas such as business ethics, a code of professional practice and an employee code of conduct.

Compliance-Based Code of Ethics

For all businesses, laws regulate issues such as hiring and safety standards. Compliance-based codes of ethics not only set guidelines for conduct, but also determine penalties for violations.

In some industries, including banking, specific laws govern business conduct. These industries formulate compliance-based codes of ethics to enforce laws and regulations. Employees usually undergo formal training to learn the rules of conduct. Because noncompliance can create legal issues for the company as a whole, individual workers within a firm may face penalties for failing to follow guidelines.

To ensure that the aims and principles of the code of ethics are followed, some companies appoint a compliance officer. This individual is tasked with keeping up to date on changes in regulation codes and monitoring employee conduct to encourage conformity.

This type of code of ethics is based on clear-cut rules and well defined consequences rather than individual monitoring of personal behavior. Therefore, despite strict adherence to the law, some compliance-based codes of conduct do not promote a climate of moral responsibility within the company.

Value-Based Code of Ethics

A value-based code of ethics addresses a company's core value system. It may outline standards of responsible conduct as they relate to the larger public good and the environment. Value-based ethical codes may require a greater degree of self-regulation than compliance-based codes.

Some codes of conduct contain language that addresses both compliance and values. For example, a grocery store chain might create a code of conduct that espouses the company's commitment to health and safety regulations above financial gain. That grocery chain might also include a statement about refusing to contract with suppliers that feed hormones to livestock or raise animals in inhumane living conditions.

(OR)

9. The Association for Computing Machinery (ACM)

ACM Code of Ethics and Conduct

- Contribute to society and human well-being.
- Avoid harm to others.
- Be honest and trustworthy.
- Be fair and take action not to discriminate.
- Honor property rights including copyrights and patent.
- Give proper credit for intellectual property.
- Respect the privacy of others.
- Honor confidentiality.

MORE SPECIFIC PROFESSIONAL RESPONSIBILITIES

As an ACM computing professional I will...

- Strive to achieve the highest quality, effectiveness and dignity in both the process and products of professional work.
- Acquire and maintain professional competence.
- Know and respect existing laws pertaining to professional work.
- Accept and provide appropriate professional review.
- Give comprehensive and thorough evaluations of computer systems and their impacts, including analysis of possible risks.
- Honor contracts, agreements, and assigned responsibilities.
- Improve public understanding of computing and its consequences.

- Access computing and communication resources only when authorized to do so.

ORGANIZATIONAL LEADERSHIP IMPERATIVES.

- **BACKGROUND NOTE:** This section draws extensively from the draft of IFIP (International Federation for Information Processing) Code of Ethics, especially its sections on organizational ethics and international concerns. The ethical obligations of organizations tend to be neglected in most codes of professional conduct, perhaps because these codes are written from the perspective of the individual member. This dilemma is addressed by stating these imperatives from the perspective of the organizational leader. In this context "leader" is viewed as any organizational member who has leadership or educational responsibilities. These imperatives generally may apply to organizations as well as their leaders. In this context "organizations" are corporations, government agencies, and other "employers," as well as volunteer professional organizations. (emphasis added)

As an ACM member and an organizational leader, I will

- Articulate social responsibilities of members of an organizational unit and encourage full acceptance of those responsibilities.
- Manage personnel and resources to design and build information systems that enhance the quality of working life.
- Acknowledge and support proper and authorized uses of an organization's computing and communication resources.
- Ensure that users and those who will be affected by a system have their needs clearly articulated during the assessment and design of requirements; later the system must be validated to meet requirements.
- Articulate and support policies that protect the dignity of users and others affected by a computing system.
- Create opportunities for members of the organization to learn the principles and limitations of computer systems.

COMPLIANCE WITH THE CODE.

As an ACM member I will

- Uphold and promote the principles of this Code.
- Treat violations of this code as inconsistent with membership in the ACM.