K.S.R. COLLEGE OF ENGINEERING: TIRUCHENGODE – 637 215.
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
COURSE / LESSON PLAN SCHEDULE

NAME : P.SIVASANKAR RAJAMANI CLASS: FINAL ECE A &B
SUBJECT: 16HS1701/ PROFESSIONAL ETHICS

A. REFERENCES:

1. Mike Martin and Roland Schinzinger, "Ethics in Engineering", McGraw Hill, 3rd Edition, 2011.
2. Govindarajan M, Natarajan S, Senthil Kumar V.S, "Engineering Ethics", Prentice Hall of India, 2nd Edition, 2012.
3. Charles D Fleddermann, "Engineering Ethics", Prentice Education/Prentice Hall, New Jersey, 4th Edition, 2009.
4. Charles E Harris, Michael S Pritchard and Michael J Rabins, "Engineering Ethics –Concepts and Cases", Thompson Learning, 4th Edition, 2011.
5. John R Boatright, "Ethics and the Conduct of Business", Pearson Education, 5th Edition, 2009.
6. Edmund G Seebauer and Robert L Barry, "Fundamentals of Ethics for Scientists and Engineers", Oxford University Press,Oxford, 2nd Edition, 2001.
7. V.Jayakumar –"Professional Ethics and Human Values"Lakshmi Publications 2007.

B. LEGEND:

L	-	Lecture	BB	-	Black Board
PPT	-	Power Point Projector	Tx	-	Text
Rx	-	Reference	pp	-	Pages

Sl.No.	Lecture Hour	Topic(s) to be covered	Teaching Aid Required	Book No. / Page No.
UNIT-1 ENGINEERING ETHICS				
1.	L1	Senses of Engineering Ethics, Variety of moral issues	B.B	Rx7 pp 1.5 – 1.7, Rx1 pp 3-5
2.	L2	Types of Inquiry, Moral Dilemmas	B.B	Rx7 pp 1.9 – 1.13 Rx1 pp 9-10,15-16
3.	L3	Moral Autonomy	B.B	Rx7 pp 1.13 – 1.14 Rx1 pp 16-18
4.	L4	Kohlbergs Theory	PPT	Rx7 pp 1.15 – 1.17 Rx1 pp 18 - 19
5.	L5	Gilligans Theory	PPT	Rx7 pp 1.17 – 1.18 Rx1 pp 19-21
6.	L6	Consensus and controversy	B.B	Rx7 pp 1.18 – 1.19 Rx1 pp 22-23
7.	L7	Models of Professional Roles	B.B	Rx7 pp 1.23 – 1.24 Rx1 pp 24-33
8.	L8	Professional Ideals and Virtues	B.B	Rx7 pp 2.2 Rx1 pp 40-49
9.	L9	Uses of Ethical Theories, **Theory of Duty Ethics**	B.B	Rx7 pp 2.13 – 2.15 Rx7 pp 2.10 – 2.11 Rx1 pp 70-76 Rx1 pp 55-58
UNIT II ENGINEERING AS SOCIAL EXPERIMENTATION				
10.	L10	Engineering as Experimentation	B.B	Rx7 pp 3.1 – 3.8 Rx1 pp 81-94
11.	L11 L12	Engineers as Responsible Experimenters	B.B	
12.	L13	Code of Ethics	B.B	Rx7 pp 3.8 -3.11 Rx1 pp 105-111
13.	L14 L15	Industrial Standards	B.B	Rx7 pp 3.13 - 3.15 Rx1 pp 117-118
14.	L16	Balanced Outlook on law	B.B	Rx7 pp 3.12- 3.16 Rx1 pp 113-121
15.	L17	The Challenger Case Study	PPT	Rx7 pp A.1-A.8 Rx1 pp 96-104

16.	L18	**Proposals for Promoting Ethics**	B.B	Rx7 pp 3.11-3.12
UNIT- III ENGINEER'S RESPONSIBILITY FOR SAFETY				
17.	L19 L20	Safety and Risk	B.B	Rx7 pp 4.1 - 4.7 Rx1 pp 129-138
18.	L21	Assessment of Safety and Risk	B.B	Rx7 pp 4.10-4.11 Rx1 pp 141-151
19.	L22	Risk Benefit Analysis	B.B	Rx1 pp 153-164
20.	L23	Reducing Risk, liability	B.B	Rx7 pp 4.13 -4.16
21.	L24 L25	Chernobyl Case Studies	PPT	Rx7 pp A.18 - A.34 Rx1 pp 173-177,299-302 Rx7 pp 1.2
22.	L26 L27	Bhopal Case Studies, **Disciplines of Ethics**		
UNIT IV RESPONSIBILITIES AND RIGHTS				
23.	L28	Collegiality and Loyalty	B.B	Rx7 pp 5.2 -5.5 Rx1 pp 189-195
24.	L29	Respect for Authority	B.B	Rx7 pp 5.5 -5.7 Rx1 pp 196-200
25.	L30	Collective Bargaining	B.B	Rx7 pp 5.8 -5.10 Rx1 pp 202-207
26.	L31	Confidentiality	PPT	Rx7 pp 5.10 -5.14 Rx1 pp 208-214
27.	L32	Conflicts of Interest	B.B	Rx7 pp 5.14 -5.18 Rx1 pp 216-223
28.	L33	Occupational Crime	B.B	Rx7 pp 5.18 -5.19 Rx1 pp 224-229
29.	L34	Professional Rights	B.B	Rx7 pp 6.3 - 6.5 Rx1 pp 237-244
30.	L35	Employee Rights	B.B	Rx7 pp 6.7 – 6.8 Rx1 pp 264-272
31.	L36	Intellectual Property Rights (IPR) – Discrimination, **Business Ethics**	B.B	Rx7 pp 6.8 -6.13 Rx1 pp 273-283, Rx1 pp 10-11
UNIT- V GLOBAL ISSUES				
32.	L37	Multinational Corporations	B.B	Rx7 pp 7.1-7.3 Rx1 pp 291-302
33.	L38	Environmental Ethics	B.B	Rx7 pp 7.6 – 7.11
34.	L39	Computer Ethics	PPT	Rx7 pp 7.11 – 7.15
35.	L40	Weapons Development	B.B	Rx7 pp 7.15 Rx1 pp 332-341
36.	L41	Engineers as Managers	B.B	Rx7 pp 8.1-8.5 Rx1 pp 350-357
37.	L42	Consulting Engineers	B.B	Rx7 pp 8.5-8.7 Rx1 pp 359-365
38.	L43	Engineers as Expert Witnesses and Advisors	PPT	Rx7 pp 8.7, Rx7 pp 8.11 Rx1 pp 367-374
39.	L44	Honesty, Moral Leadership	B.B	Rx7 pp 8.11-8.14 Rx1 pp 375-382
40.	L45	Sample Code of Conduct, **CSI**	PPT	Rx7 pp C1-C4 Rx1 pp 397-408 Rx7 pp C.14

UNIT- I ENGINEERING ETHICS (CO1)

1. **Define Micro and Macro Ethics**. **(CO1)**(Remembering)**(Dec-2010)**

Micro: It addresses typical, everyday problems that the engineers face in their professional life. It describes ethical issues that may affect an engineer's professional and personal life.

Macro: It deals with all social problems that engineers encounter during their career. In other words, it discusses ethical issues concerning all social problems that engineers might encounter.

2. **What do you understand by the term values? (CO1)**Remembering**(Dec 2016)**
   Value is defined as beliefs about what is right and wrong and what is important in life.
3. **Define the term service learning. (CO1) R**emembering **(Dec 2016)**
   Service learning is a teaching and learning strategy that integrates meaningful community service with instruction and reflection to enrich the learning experience, teach civic responsibility and strengthen communities.
4. **Classify the types of inquiry**. (**CO1) Understanding DEC 2017**
   Normative, Conceptual and factual inquiries.
5. **What are Normative Inquiry? CO1**(Remembering) **(May/June 2012)**

Normative inquiry is used to identify the values that guide the individuals and groups in taking a decision.

6. **What is moral dilemma? List out its causes.** (Remembering) **(May/June 2009, May 2019)**

Moral dilemmas are situations in which tow or more moral obligations, duties, rights, goods, or ideals come into conflict with each other. **Causes:** Problem of vagueness, problem of conflicting reasons, problem of disagreement.

7. **What do you meant by conflicting reasons? CO1**(Remembering)

This is a situation where two or more 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.

8. **What are the steps required in confronting moral dilemma? CO1** (Remembering) **(Dec-2010) (May/June 2009)**

1. Identifying the relevant moral factors and reasons. 2. Collecting all the available moral considerations, which are relevant to the moral factors involved. 3. Ranking the above collected moral considerations on the basis of importance as applicable to the particular situation. 4. Marking factual inquiries. 5. Inviting discussions, suggestions from colleagues, friends and other involved persons to critically examine the moral dilemmas. 6. Taking the final decision.

6. What is moral autonomy? CO1 (Remembering) **(Nov/Dec 2013) (Dec 2014)**

It means the skill and habit of thinking rationally on ethical issues based on moral concern.

9. 7. What are the factors that are influencing the moral concern? CO1 (Remembering)

Atmosphere in which the person is brought up in his childhood, ones relationship with friends and relatives, ones interaction with his neighbors, ones family structure and the family economy, influence of religious institutions such as temple, churches, mosques etc, influence of educations institutions such as school, college etc.

8. Summarize the skills required for improving moral autonomy of engineers. CO1 **(Understanding)**

Proficiency in recognizing moral problems and issues in engineering, skill in comprehending, clarifying and critically assessing the arguments that is against the moral issues, the ability to form consistent and comprehensive viewpoints on the basis of relevant facts, the ability to make imaginative and creative alternative solutions under difficult situations.

9. What are the three levels of moral development? CO1 (Remembering)

Pre conventional, Conventional, Post conventional levels.

10. What are the drawbacks of Kohlberg's theory?CO1 (Remembering) **(May/June 2012)**

Its is difficult to judge, whether an individual belongs to first, or second, or third level and what is the exact stage to specify moral development or growth?

11. List out the differences between Kohlberg's and Gilligan's theory. CO1 (Analyzing)

Kohlberg gives greater emphasis to recognizing rights and abstract universal rules, whereas Gilligan stresses the importance of maintaining personal relationships based on mutual caring.

12. What is the basic concept of Gilligan theory of moral development? CO1 (Remembering)

According to him, males have tendency to override the importance of moral rules and convictions while resolving moral dilemmas; whereas females have tendency to try hard to preserve personal relationships with all people involved in a situation.

13. What is the relationship between moral autonomy and respect for autonomy?CO1 (Remembering)
Both are compatible with each other. Moral autonomy highlights the capabilities and responsibilities of people. Authority provides the framework through which learning attitudes are encouraged. Sometimes, conflicts will arise between individuals need for authority and the need for consensus about authority.

14. What is meant by professionalism? CO1 (Remembering)
Profession is occupations requiring sophisticated knowledge, group commitment to some public good, and a significant degree of self regulation. **Professionalism** refers to the qualities, competencies and skills of professionals. It has behavioral connotations and refers to the manifestations of a professional.

15. What are the professional roles to be played by an engineer? (Or)
What are the models of professional roles? CO1 (Dec 2014) (Remembering)
Engineers as saviors, as guardians, as Bureaucratic servants, as social servants, as social enablers and catalyst and as game player.

16. What is meant by utilitarianism? And give its versions.CO1 (Remembering)
It seeks to produce the most utility. In other words, utilitarianism holds that those actions are rights that produce the most good for the most people. **Versions:** Act utilitarianism and rule utilitarianism.

17. Distinguish between act and rule utilitarian. CO1 (Analyzing)
Act utilitarianism focuses on individual actions rather than on general rules, rule utilitarianism differs from act utilitarianism in holding that moral rules are more important than individual action.

18. What are the practical difficulties in implementing utilitarian theory? CO1 (Remembering)
Sometimes it is difficult to judge the things, which are good for everyone in the society. Because what is good for everyone may be bad for a particular individual or group of individuals. The second problem with the utilitarian standard is that its implementation depends mainly on knowing what will lead to the most good.

19. What are the uses of ethical theories? CO1 (**Remembering) (may2019)**
It's helpful in understanding and resolving moral dilemmas, it is useful in justifying professional obligations and ideals and useful in expressing everyday moral experience and justifying the professional morality.

20. What is meant by ethical egoism and ethical pluralism? CO1 (Remembering)
Egoism: is an excessive concern to satisfy one's own interests, even at the possible expense of others. This is popularly characterized as looking out for no.1. **Pluralism:** is the view that there may be alternative moral perspective that is reasonable but none of them can be accepted completely by all the rational and the morally concerned persons.

21. Define ethical relativism.CO1 (Remembering)
It states that actions are morally right when law or custom approves them and they are said to be wrong when they violate laws or customs.

22. What is the concept of descriptive relativism? CO1 (Remembering)
It treats values as subjective at the cultural level. It also states that moral standards vary dramatically from one culture to another.

23. What is the role of code of ethics in organizations? CO1 (Remembering) **(Nov/Dec 2011)**
1. Inspiration 2.Guidence 3.Support for responsible conduct 4.Education and promotion of Mutual understanding

24. What are the senses of engineering ethics? CO1 (Remembering) **(May/June 2009)(May/June 2013)**
Ethics have widely accepted codes and standards of conduct, which are to be followed by the group of engineers and engineering societies.
Engineering ethics is concerned with the set of justified moral principles of onligation, rights and ideals that are to be followed by the engineers.

25. List out the factors involved in the appraisal of self respect. CO1 (Remembering) **(May/June 2009)**
A sense of honor, self control, Courage, good judgment.

26. Define engineering ethics CO1 (Remembering) **(Dec 2015)**
Engineering ethics is a study of moral issues and decisions confronting the engineers organizations in engineering. Also it is a study of related questions about the moral ideal, character, policies and relationships between the people and corporations, involved in technical activities.

27. Explain the meaning of virtue ethics? CO1 (Understanding) **(Dec 2015)**
Virtue Ethics (or Virtue Theory) is an approach to Ethics that emphasizes an individual's character as the key element of ethical thinking, rather than rules about the acts themselves (Deontology) or their consequences (Consequentialism).

28. Distinguish between moral and ethics. CO1 (Dec 2016)

Moral is concerned with the judgement of goodness or badness of human action and character.

Ethics deals with what is what is right or wrong or with moral duty and obligation.

16 Mark Questions.

1. Explain three levels of moral development with respect to Kohlberg and Gilligan views. **CO1**(Understanding)(Dec-2010, 2011) (May 2019) (May/June 2015) (May/June 2018)
2. Discuss briefly on Ethical Theory of Right Action. Differentiate Act and Rule Utilitarian. **CO1** (Creating)(Dec-2017)
3. What is Moral Dilemma? Explain the various causes of moral dilemma. **CO1**(Remembering) (Nov/Dec 2013)
4. Define Morality. Explain the various moral issues. CO1 (Remembering)
5. Define moral Autonomy. Explain the steps that confronting moral dilemma with its causes. CO1 (Remembering)
6. Discuss different models of professional roles and explain about the consensus and controversy. CO1 (Creating)
7. Define spirituality and discuss the role of spirituality in commercial organizations. CO1 (Remembering) (Nov/Dec 2011)
8. Discuss the models of professional roles.CO1 (Creating)(May/June 2009) (Dec 2018, MAY2019)
9. Explain the scopes of engineering ethics. CO1 (Understanding) (May/June 2017)(Dec 2016)
10. Discuss the importance of duty ethics and virtues in engineering profession. CO1 (Creating)(May/June 2013)
11. Detail about the senses or dimension of engineering ethics.CO1 (Dec 2015)
12. Summarize the types of inquiries. CO1 (Understanding) (Dec 2014)(Dec 2016)
13. What is consensus and controversy? Brief the importance of consensus while considering moral autonomy in engineering ethics. Bring out the relationship between moral autonomy and respect for autonomy. CO1 (Remembering)
14. Explain in detail about profession and professionalism. CO1 (Understanding)
15. Explain the various types of specific virtues. Write notes on professional ideals. CO1 (Understanding)
16. How did Gilligan view the three levels of moral development initiated by Kohlberg? CO1 (Remembering) (Dec 2014)
17. What are the uses of ethical theories? CO1 (Dec 2016)(Remembering)
18. Explain the skills needed to handle problems about moral issues in engineering ethics.CO1 (Understanding) (Dec 2014)
18. Differentiate ethical relativism and ethical egoism. CO1 (Understanding) (Dec 2015)
19. Differentiate moral and ethics. CO1 (Understanding) (Dec 2015)
20. Explain about Work ethics, honesty, civic virtue, empathy, commitment, integrity. CO1 (Dec 2016) (Understanding)
21. What is moral autonomy? What are the skills to be possessed to become morally autonomous? CO1 (Remembering) (Dec 2016)
22. Discuss the criteria to be met, to call a job or occupation as profession.CO1 (Dec 2016) (Remembering)

UNIT- II ENGINEERING AS SOCIAL EXPERIMENTATION (CO2)

1. What are the aspects of engineering that make it appropriate to view engineering as experiments? CO2 (Remembering)

Engineering projects, like the standard experiments, are carried out in partial uncertainties, the final outcomes of engineering projects are also generally uncertain like those of other experiments, similar to standard experiments; engineering experiments also require thorough knowledge about the products at the pre production and post production stages.

2. In what ways engineering experiments differ from standard experiments? CO2 (Analyzing)

The engineering experiments involve human beings as experimental subjects. In fact clients and customers have more control, as they own the authority of that project, so here the experimental subjects say clients or end user are out of the engineering experimenter's control, unlike standard experiments.

3. What is meant by conscientious in terms of engineers as responsible experimenters? CO2 (Remembering)

Conscientiousness means commitment to live according to certain values. It implies consciousness. Engineers have to be sensitive to a range of moral values and responsibilities, which are relevant in a given situation.

4. What is the role played by experimentation in the design process? CO2 (Remembering)(DEC 2018)

During the design process, engineers need to apply various experimentations. Preliminary tests or simulations are conducted to convert a new engineering concept into its first rough design. Then many formal experimental techniques are employed to try out different materials and processes. Since design process is iterative in nature, therefore many trial design experiments are carried out before the final tests.

5. What does control group mean? CO2 (May 2018) (Remembering)

In standard experiments, experimental control involves selecting members for two different groups randomly. The first group members are given the special, experimental treatment, whereas the members of other group are not given that special treatment. Even both the groups are subjected to the same environment; the group that was not given the special treatment is called as the control group.

6. What are the elements of informed consent? CO2 (Nov/Dec 2017) (Remembering)

Knowledge, voluntariness

7. What are the characteristics of valid consent? CO2 (Remembering)

The consent should be given voluntarily and not by any force, the consent should be based on all the information needed for a rational person to make a reasonable decision. Moreover the information should be presented in a clear and easily understandable manner; the consenter should be competent enough to process the information and to make rational decisions.

8. What are the general responsibilities of engineers to society? CO2 (Remembering)(DEC 2017)

Engineers are considered as social enablers rather than being sole experimenters, their responsibility is shared with management, the public and others, while excising duties, the engineers should display the virtue of being morally responsible persons.

9. What are the requirements for the engineers to act as responsible agents? CO2 **(Remembering)(may 2019)**

The responsible agents require

- Imaginative forecasting of possible bad side effects.
- The development of an attitude of 'defensive engineering' and 'preventive technology'.
- Careful monitoring of projects
- Respect for people's right to give informed consent.

10. What are the general features of morally responsible engineers? CO2 (Remembering)**(Dec 2015)**

A Conscientious commitment to live by moral values, a comprehensive perspective, autonomy, accountability.

11. What is code of ethics? CO2 **(Dec 2015)** (Remembering)

The primary aspect of code of ethics is to provide the basic framework for ethical judgment for a professional, the code of ethics, also referred as code of conduct, express the commitment to the ethical conduct shared by members of a profession. In other words, these codes furnish common, agreed upon standards for professional conduct.

12. What are the different roles and functions of codes of ethics? CO2 (Remembering)

Inspiration, guidance, support for responsible conduct, deterring and discipline unethical professional conduct, education and promotion of mutual understanding, contributing to a positive public image of the profession, protecting the status quo and suppressing dissent within the profession, and promoting business interests through restraint of trades.

13. What are the limitations of code of ethics? CO2 (Dec-2010) (May/June 2019) (Dec 2015)(Dec 2014) (Remembering)

Code of ethics is broad guidelines, restricted to general and vague wordings/phrases. The codes cannot be applied directly to all situations; engineering codes often have internal conflicts, which may result in moral dilemmas. The codes cannot serve as the final moral authority for professional conduct, the proliferation of codes of ethics for different branches of engineering gives a feeling that ethical codes are relative.

14. List some of the engineering societies that have published codes of ethics? CO2 (Analyzing)

- American Society of Mechanical Engineers (ASME)
- American Society of Civil Engineers (ASCE)
- Institute of Electrical and Electronics Engineers (IEEE)

- The Institution of Engineers (India)

15. What are industrial standards? CO2 (**Remembering)(Dec 2018)**
Standards frame by companies for their in house use, sometimes standards are also prescribed as parts of laws and official regulation.

16. Give a brief account of learning from the past, mentioning an example.**CO2 (Dec 2016**)(Applying)
Engineers should learn not only from their own earlier design and operating results, but also from those of other engineers. Engineers cannot rely on engineering handbooks. They demand updated detailed information at every stage of a projects history. **Example:** The titanic lacked a sufficient number of life boats. After many years because of the same problem the steamship arctic had suffered.

17. List out some of the positive roles of Code of Ethics. CO2 (Analyzing)
Inspiration, guidance, support for responsible conduct, deterring and discipline unethical professional conduct, education and promotion of mutual understanding, contributing to a positive public image of the profession, protecting the status quo and suppressing dissent within the profession, and promoting business interests through restraint of trades.

18. Summarize about accountability.CO2 **(May/June 2012)** (Understanding)
Responsible people accept moral responsibility for their action. It refers to the general disposition of being willing to submit ones actions to moral scrutinee and be open and responsive to assessments of others.

19. What is meant by standardization? CO2 (**May/June 2012)** (Remembering)
Standardization setting a standards are measuring sticks by which extend, quality, quantity, value performance are service may be gauged are determined

20. State any two ethical problems faced by engineers during experimentation. CO2 (Nov/Dec 2013) (Remembering)

21. What are the features of engineering experimentation? CO2 (May/June 2009) (Dec 2014) (Remembering)

- Engineering projects like the standard experiments are carried out in partial uncertainties.
- The final outcome of engineering projects is also generally uncertain.
- Engineering experiment also require thorough knowledge about the product at the pre-production and post-production stage.

22. What do you understand by 'A balanced outlook on Law'? CO2 (May/June 2013) (Dec 2016) (R)
It emphasizes the necessity of laws and regulations and their limitations in governing engineering practice.

16 Mark Questions.

1. What are the moral and ethical lessons learnt from the space shuttle challenger study. CO2 (May/June 2012), (Nov/Dec 2013) (Remembering)
2. Explain the role of engineering projects as the experiments. CO2 (Dec 2016)(Understanding)
3. What is code of ethics? What are the positive roles of code of ethics and specify its limitation. CO2 (Dec-2010) (Dec 2015) (Remembering)
4. Compare and contrast engineering experiments with standard experiments. CO2 (Dec 2019)(Evaluating)
5. Discuss engineers as responsible experimenters. CO2 (Dec-2010) (May/June 2013)(Dec 2016)(Creating)
6. Explain how moral leadership and ethical work culture influence the ethical behavior of commercial organizations (Nov/Dec 2019) (Understanding)
7. Explain as to how far there is congruence between the professional and environmental ethics. CO2 (Nov/Dec 2011) (Understanding)
8. Describe the internal and external responsibility of engineers.CO2 (Dec 2015)(May/June 2012) (Understanding)
9. Discuss the limitations of codes from engineering experimentation point of view.CO2 (Nov/Dec 2013) (Creating)
10. Compare and contrast moral values. What are the three types of values? State and explain the various attempts to reduce morality to those types of values with examples.CO2 (May/June 2019) (Analyzing)
11. What are the greater details applied to engineer project as conceived as social experiment? Given the codes play all the roles which function are the most valuable and which should be emphasized and encouraged. Why? CO2 (May/June 2009)
12. Given an account of the challenger disaster and examine how the principal actors in this tragedy behaved as responsible experimenters within the framework of the engineering as experimentation model.CO2 (May/June 2009) (Dec 2014) (Remembering)
13. Write on industrial standards. CO2 (May/June 2013) (Remembering)

14. "The moral responsibility of engineers should go beyond merely following the laws". Discuss. CO2 (Analyzing)
15. Discuss on the roles played by the codes of ethics set by professional societies. CO2 (Dec 2014) (Creating)
16. Explain some universally accepted ethical principles?CO2 (Understanding) (Dec 2015)

UNIT- III ENGINEER'S RESPONSIBILITY FOR SAFETY (CO3)

1. State the Lowrence definition of safety? CO3 (Dec-2010, May 2019) (Remembering)

Lowrence has defined safety as "A thing is safe (to a certain degree)with respect to a given person or group at a given time, if its risks fully known, if those risks would be judged acceptable(to that certain degree, in light of settled value principles".

2. What is relative safety? CO3 (Remembering)

Safety is expressed frequently in terms of degree and comparisons. We often use words such as 'fairly safe' or 'relative safe'. The relative safety expresses the safety of a thing in comparison with safety of similar things.

3. What are the testing approaches to safety? CO3 (Remembering)

i) Destructive testing, ii) Scenario analysis iii) Failure modes and effects analysis
iv) fault-tree analysis v) event-tree analysis

4. What is meant by risk? CO3 (Remembering)

A risk is a potential that something unwanted and harmful may occur. The American Heritage dictionary defines risk as the plausibility at suffering harm or loss.

5. Define the term risk.CO3 (Dec 2014) (Remembering)

William W.Lowrence has defined risk as a compound measure of the probability and magnitude of adverse effect. Mathematically, risk= (probability of harm) x (Magnitude or consequence of the harm)

6. What is meant by acceptable risk? CO3 (Remembering)

According to D.Rowe, "A risk is acceptable when those affected are generally no longer (or not) apprehensive about it".

7. What do u meant by voluntary risks? CO3 (Remembering)

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 people believe that they have full control over their actions.

8. What is meant by controlled risk? CO3 (Remembering)

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

9. How do you identify risks? CO3 (Remembering)

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

10. What are job-related risks? CO3 (Nov/Dec 2013) (Remembering)

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.

11. What are the elements of risk? CO3 (Remembering)

The risk perception is influenced by the factors such as:

1. Whether the risk is assumed voluntarily;
2. The effect of knowledge on how the probabilities of harm are perceived;
3. Job-related or other pressure that cause people to be aware of risks;
4. Whether the effects of a risky activity or situation are immediately noticeable; and
5. Whether the potential victims are identifiable beforehand.

12. What does risk benefit value graph depicts? CO3 (Remembering)

The risk benefit value graph depicts that the risk and benefits are based on the perception of probable gain and probable loss.

13. What are the possible uncertainties encountered in a design process? CO3 (Remembering) **(Dec 2015)**

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

14. What is meant by risk benefit analysis? CO3 (Remembering)(May2019)

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

15. What are the difficulties implementing Risk benefit analysis? CO3 (Dec-2010) (Remembering)

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

1. In risk benefit analysis, both risks and benefits are very difficult to quantity. Because both lie in the future.
2. 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.

3. It is mostly difficult to express both risk and benefits in a common set of units.

16. Define risk management. CO3 (Remembering)

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

17. How do you evaluate risk? CO3 (Remembering)

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

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

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

18. What does risk retention refer? CO3 (Remembering)

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

19. What does risk transfer mean? CO3 (Remembering)

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

20. What are the ways in which risk can be reduced? CO3 (Remembering)

Risk control can be reduced by any one of the following four methods: risk avoidance, risk retention, risk transfer and risk reduction.

21. What is risk reduction? CO3 (Remembering)

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

22. State any three faulty assumptions about safety. **CO3 (May/June 2009)** (Remembering)

1. The principle causes of all accidents are operator error and negligence.
2. Producing a safe product always increases the costs.
3. We learn about safety after a product has been completed and tested.

23. State the criteria to ensure safe design. CO3 (May/June 2012) (Remembering)

A Design should comply with the legal standards for product safety and other applicable laws.

An Acceptable design should meet the standard of accepted engineering practice

24. State the reasons that may cause risk. CO3 (May/June 2009) (May/June 2013) (Remembering)

25. List the methods that can be applied when testing is inappropriate. (Dec 2014) (Analyzing)

Scenario analysis, FMEA-Failure Mode & Effect Analysis, Fault tree analysis, Event tree analysis etc.

26. What are the three conditions referred as safe exit? CO3 **(Dec 2015)**(Remembering)

Assure when a product fails, it will fail safely, assure that the product can be abandoned safely, and assure that the user can safely escape the product.

16 Mark Questions.

1. Explain Risk Benefit analysis and Risk Management. CO3 (Dec-2010) (Dec 2014) (Dec 2015) (Understanding)(DEC 2019)
2. What are the factors that caused Chernobyl accident and discuss the concept of safety exist in the chernobyl case studies. CO3 (May/June 2013) (Dec 2014) (Remembering)
3. Give a detailed discussion on safety and risk, cost and price. CO3 Dec 2015)(Remembering)
4. What are the factors that cause the nuclear accident of Three Mile Island? CO3 (Remembering)
5. Explain the role of corporate culture in ethical decision making CO3 (Nov/Dec 2011) (Understanding)
6. Explain the role of ethics and values in developing software. CO3 (Nov/Dec 2011) (Understanding)

7. When no judgments about Risks are made? Explain the assessment of Risk and Safety method. CO3 (May/June 2012) (May/June 2013)(Dec 2015) (Analyzing)
8. Explain the personal risk and public risk with examples. Suggest suitable safety precautions based on the three miles case study. CO3 (May/June 2009) (Understanding)
9. How shall be the government regulator's approach to risk? CO3 (May/June 2013) (Remembering)
10. Explain in detail the effect of information on risk assessment with an example. CO3 (Dec 2014) (Understanding)
11. Discuss in detail about the Bhopal disaster case study. CO3 (Analyzing)

UNIT IV RESPONSIBILITIES AND RIGHTS (CO4)

1. Define collegiality. CO4 **(Dec 2015)** (Remembering)

Raig thara defines collegiality as a "a kind of connectedness grounded in respect for professional expertise and in a commitment to the goals and values of the profession"

2. What are the elements of collegiality? CO4 (Remembering)

The central elements of collegiality are:

1. Respect, 2.Commitment and 3.Connectedness.

3. Differentiate between collegial respect and friendship.CO4 (Analyzing)

Collegial respect is reciprocal like friendship but collegial respect not necessarily develops personal affection as that friendship

4. Give any two negative aspects of collegiality. CO4 (Dec 2016) (Remembering)

The negative aspects of collegiality are given below:

- Collegiality may be misused and distorted. For example, Colleagues appeal to be silent about corporate corruption and shielding irresponsible conducts.
- Collegiality may degenerate more groups of self interest, rather than groups of chared devotion to the public good.

5. Under what conditions, an identification loyalty is said as an obligation? CO4 (Analyzing)

Identification loyalty is also obligatory only when the following two conditions are met:

Employees must see that their goals are achieved by and through a group in which they participate.

Employees must be treated fairly. They should be given their share of benefits and burdens

6.What do you infer from the term commitment and connectedness? CO4 (Remembering)

Commitment means sharing a devotion to the moral ideals inherent in the practice of engineering.

Connectedness is an awareness of being part of a cooperative undertaking created by shared communities and expertise.

7. Why is collegiality a virtue? CO4 (Remembering)

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

- From the point of view of society, collegiality is an instrument value to promote the aims of professions. Since collegiality supports the personal efforts to act responsibility with collegiality, therefore it strengthens an engineer's motivation to live up to professional standards.
- When view from the perspective of professionals, collegiality is more valuable as many individuals jointly working for goodness of the public and society.

8. What is loyalty? CO4 (Remembering)

Loyalty means the quality of being true and faithful in one's support.

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

9. What are the senses of loyalty? CO4 (Dec-2010) (Dec 2015,May 2019) (Remembering)

Two senses of loyalty are

Agency loyalty: 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 legitimate authority within the organization.

Identification loyalty: In contrast to agent loyalty, identification loyalty is much concerned with altitude, emotions, and a sense of personal identity as it does with actions.

10. What is meant by authority? CO4 (Remembering)

- Authority is the right action to make decisions, the right to direct the work of others, and the right to give orders.
- Authority can defined as the legal right to command action by others and to enforce compliance.

11. What does institutional loyalty refer to? CO4 (Remembering)

- It 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 objects

12. What is meant by expert authority? CO4 (Remembering)

The authority because of the knowledge and expertise is known as an expert authority.

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

13. When an institutional authority is said to be morally justified? CO4 (Remembering)

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 implementing should not violate basic moral duties.

14. What is collective bargaining? CO4 (Remembering)

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'.

15. Compare authority and power. **CO4 (May/June 2013)**(Understanding)

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

16. State arguments against unions and unionism. CO4 (Remembering)

Unions shatter the economy of a country by placing distorting influences 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.

17. Give any three arguments in favor of unions and unionism. CO4 (Remembering)

- Unions play a vital role in achieving high salaries and improve 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

18. What is confidentiality? CO4 (Dec-2010) (Remembering)

Confidential information is information deemed desirable to keep secret.

The most commonly considered criterion on the confidential information is as follows: Confidential information is any information that the employer/client would like to keep secret in order to complete effectively against business rivals.

19. What does privileged information refer? CO4 (Remembering)

Privileged information 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.

20. What is proprietary information? (Remembering)

- It is the information owned by the company.
- It is refers to a new knowledge established within the organization that can be legally protected from use by others.

21. What are trade secrets? CO4 (Remembering)

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 strategy and so on.

22. What are patents and how do patents differ from trade secrets? CO4 (Remembering)

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

A patent holder has legally protected monopoly power. But in case of trade secrets, the legal protection is limited to keeping relationships of confidentially and trust.

23. What is the type of information that has to be kept confidential? CO4 (Remembering)

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.
Business information such as the number of employees working on projects, the suppliers' list, marketing strategies, production costs, and production yields.

24. Why must some engineering information be kept confidential? CO4 (Remembering)

Many information such as privileged information, proprietry information, and trade secrets are by important for a company to compete in the market. In such information are leaked to competitors, then the 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.

25. What does respect for autonomy refer? CO4 (Remembering)

Respect for autonomy refers to respect the autonomy freedom and self-determination of individuals and companies in order to recognize their legitimate control over some information.

26. What does respect for promises refer?CO4 (Remembering)

- Respect for promises refers to respect 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

27. What are the management policies for maintaining confidentiality in an organization? CO4 (Remembering)

Approach 1: To use employment contracts that place special restriction on future employment

Approach 2: To use an employment contract that offers positive benefits in exchanges for the restrictions if place on future employment

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

28. What is conflict of interest? CO4 (Remembering)

In general, conflicts of interest means an individual has two or more desires that all interest 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.

29. Give any two examples illustrating the situation of a conflict of interests. CO4 (Remembering)

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

30. Difference between general conflicts of interest and professional conflicts of interest. (Analyzing)

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 problems)

31. What does actual conflict of interest refer? CO4 (Remembering)

The actual conflicts of interest arises when an employee compromise objective engineering judgment

It refers to the loss of objectivity in decision-making and inability to faithfully discharge professional duties to employer.

32. What does actual conflicts of interest refers? CO4 (Remembering)

The actual conflicts of interest arises when an employee compromise objective engineering judgment.

It refers to the loss of objectivity in design making and inability to faithfully discharge professional duties to employer.

33. What is meant by potential conflicts of interest? CO4 (Remembering)

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 at interest will become actual conflicts of interest at later stage.

34. What are the types of conflicts of interest? CO4 (Remembering)

The three important types of conflicts of interest are:

Actual conflicts of interest. Potential conflicts of interest.

Apparent conflicts of interest.

35. What do you mean by apparent conflicts of interest? CO4 (Remembering)

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 services. Thus it harms both the profession and the public.

36. What is bribe? (Remembering)

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.

37. Compare bribe and gift.(when is a gift a bribe?) CO4 (Dec 2014) (Analyzing)

Gift 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

38. What are ethical reasons for not tolerating bribery? CO4 (Remembering)

Bribery corrupts tree-market economic system and is anticompetitive.

Bribery corrupts justice and public policy by allowing rich people to make all companies will service, since they are capable of providing bribes.

39. What is meant by kickbacks? CO4 (Remembering)

Kickbacks are another form of bribing.

Prearranged payments made by contractors to companies or their representatives in exchange for contracts actually granted and called kickbacks.

40. Define moonlighting. CO4 (Dec 2016) (Remembering)

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

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

41. What is occupational crime? CO4 (May/June 2012) (Remembering)

Occupational crimes are illegal acts committed through a person's lawful employment.

It is the secretive violation of laws regarding work activities.

Most of the occupational crimes are special instances of conflicts of interest. These crimes are motivated by personal greed, corporate ambition, misguided company loyalty, and many other motives.

42. What is industrial espionage?CO4 (Remembering)

Industrial espionage means industrial spying, espionage refers secret gathering of information in order to influence relationships between two entities.

Keeping information secret is a right. But acquisition of other's secret to one's advantage is espionage. The espionage is one of the most unethical and lawless activities.

43. What are the possible ways of avoiding the conflicts of interest?CO4 (Remembering)

To follow the guidance of company policy.

In the absence of company policy, one can go for 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 statement to identify whether the given situation is a conflict or not.

44. List out common conflict of interest. CO4 (Remembering)

Conflicts over schedulers, Conflicts over resources available for the business;

Conflicts over technical issues; Conflicts over administration procedures;

Conflicts of personality; Conflicts over cost; and Conflicts over projects and departments those are valid to the corporate organization.

45. What are employee rights? CO4 (Remembering)

Employee rights are the rights that apply or refer to the status or position of employee.

47. Contrast between contractual and non contractual employee rights. CO4 (Understanding)

Contractual employee rights are institutional rights that arise only due to specific agreements in the employment contact.

Non-contractual employee rights are rights existing even if not formally recognized in the specific contracts or company policies.

46. Give any two examples for contractual employee rights. CO4 (Remembering)

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.

47. Give any two examples for non-contractual employee rights. CO4 (Remembering)

- Right to choose outside activities
- Right to privacy and employer confidentiality
- Right to due process from employer

48. What is an intellectual property right? CO4 (Remembering)

Intellectual property (IP) is a property that results from mental labor. The intellectual property is the originating mainly from the activities of the human intellect.

Intellectual property is the information and original expression that derives it original value from creative ideas with a commercial value.

49. List out the elements of IPR. CO4 (Remembering)

The WTO has established the following seven elements of IPRs:

Patents. Industrial designs; Trademarks; Copy rights; Trade secretes; Design of integrated circuits; and Geographical indications.

50. What are the benefits of IPR? CO4 (Remembering)(DEC 2018)

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.

51. What is discrimination? CO4 (Remembering)

Discrimination is the unequal treatment of the individual intentionally or unintentionally

Discrimination refers to treating people unfairly because of one's sex, race, skin color, age, or religious outlook.

52. Define sexual harassment. CO4 (Remembering)

Sexual harassment is any sexual oriented practice that endangers the women's job that undermines her job performance and threatens her economic livelihood.

53. What are rights of professional conscience? CO4 (Remembering)

The rights of professional conscience refer 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.

54. What is right of conscientious refusal? CO4 (Remembering)

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.

55. What does right to recognition refer? CO4 (Remembering)

The right to recognition refers to the engineers' right to professional recognition for their work and accomplishments.

56. What does right to privacy mean? CO4 (Remembering)

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.

57. What does a right to due process mean? CO4 (Remembering)

The rights to due process means right to fair procedures safeguarding the exercise of other rights. This right also extends to fair procedures in firing, demotion and other disciplinary actions.

58. Differentiate copyright and patent. CO4 (Analyzing)

A copyright is the right to copy and make use of literary, dramatic, musical, artistic works, cinematographic films, records and broad casts. The copyrights protect the expression of the idea, not the idea themselves. Patents are the legal rights approved for new inventions involving scientific and technical knowledge.

59. What do preferential treatments mean? (Remembering)

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. It is also referred as reverse preferential treatments as it reverses the historical order of preferences.

60. Distinguish between weak and strong preferential treatments. CO4 (Analyzing)

Weak preferential treatment involves giving an advantage to members of traditionally discriminated against groups over equally qualified applicants who are members of other group. Strong preferential treatment involves giving preference to minority applicants or women over better qualified applicants from other groups.

61. What is misguided loyalty? CO4 (Nov/Dec 2013) (Remembering)

Misguided loyalty is loyalty placed in other persons or organizations where that loyalty is not acknowledged or respected; is betrayed or taken advantage of. It can also mean loyalty to a malignant or misguided cause.

62. What does whistle Blowing mean? CO4 (Dec 2014) (Dec 2016) (Remembering)

Whistle blowing is the act by an employee of informing the public or higher management of unethical or illegal behavior by an employee or supervisor. It is the act of reporting on unethical conduct within an organization to someone outside of the organization in an effort to discourage the organization from continuing the activity.

63. what is the prime objective of intellectual property rights legislation? CO4 (MAY 2019) (Remembering)

- Conclude agreements that seek to protect and enforce IP rights covering new and upcoming technologies and new transmission and distribution methods.
- Eliminate or prevent discrimination in matters that affect the availability, scope, acquisition, use, maintenance, and enforcement of IP rights.
- Enable U.S. citizens who need IP protection to gain fair and equitable market access opportunities.
- Play an active role in developing the IP regime of the World Trade Organization (WTO) to make sure that it is consistent with other U.S. objectives.
- Help the World Intellectual Property Organization (WIPO) build a cooperative relationship with the WTO.

16 Mark Questions.

1. Discuss on collegiality and loyalty.CO4 (Dec 2014)(Understanding)
2. What is meant by loyalty? What are the two senses of loyalty? Is loyalty obligatory? Explain the relationship between professional responsibility and loyalty to employers. CO4 (May/June2012) (Remembering)
3. Discuss human rights and professional rights in an engineering field. CO4 (Dec 2014)(Analyzing)
4. Explain with case studies the four widely applicable principles of conflict resolution. CO4 (Nov/Dec 2013)
5. How far the respect for authority be recognized by salaried professionals as being morally justified? Discuss.CO4 (Nov/Dec 2013) (Remembering)
6. Explain the collective bargaining with its roles and occupational crime. CO4 (Dec-2010) (May/June 2013) (Dec 2019)(Understanding)
7. How will you apply confidentiality for avoiding harmful conflicts of interests in work place? CO4 (May/June 2018) (Remembering)
8. What are the terms associated with confidentiality? CO4 (Dec 2017) (Remembering)
9. Summarize on IPR. CO4 (May/June 2013) (Understanding)
10. What is a conflict of interest? Explain the different types of conflicts of interest with suitable examples. CO4 (Remembering) (Dec 2017) (Remembering)
11. What is meant by respect for authority? Describe in detail how institutional authority differs from expert authority.CO4 (Remembering)(DEC 2018)
12. What is meant by discrimination? Discuss your experience of some situation where you are discriminated. CO4 (Remembering)

13. Discuss in detail the various basic rights of an engineer. CO4 (Remembering)DEC 2019
14. Write in detail about the employee rights.CO4 (Remembering)DEC 2017
15. What is Intellectual Property Rights? Explain various elements of IPR in detail. CO4 (Dec 2016) (Dec 2018) (Dec 2019) (Remembering)

UNIT- V GLOBAL ISSUES (CO5)

1. What are multinational corporations? CO5 (Remembering)
Large corporations having investment and business in a number of countries are known as multinational or transnational corporations.

2. What are the senses of relative values? CO5 (Remembering)
Ethical relativism, Descriptive relativism and moral relativism (or contextualism)

3. How do you contrast ethical relativism and descriptive relativism? CO5 (Remembering)
Ethical relativism says that actions are morally right when they are approved by law or custom; they are wrong when they violate laws and customs. Descriptive relativism states that beliefs about values differ from culture to culture.

4. What is meant by contextualism? CO5 (Dec 2016) (Remembering)
Contextualism views that moral judgement should be made in relation to factors that may vary from case to case, because formulating simple and absolute rules involving moral judgement is impossible. In other words moral judgements are contextual in nature.

5. What is environmental ethics? CO5 (Remembering)
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.

6. What are the approaches that can be applied to resolve environmental problems? CO5 (Remembering)
Cost-oblivious approach and Approach based on cost-benefit analysis.

7. What is cost-oblivious approach? CO5 (Remembering)
In the cost-oblivious approach, priority is given to the protection of environment than the cost of the products designed by the engineers.

8. What does technology assessment refer? CO5 (Remembering)
Technology assessment refers to the studies on the social and environmental effects of technology in various areas. The areas include nuclear war, health care, cashless trading via bank-card and pollution.

9. What is sentient-centered ethics? CO5 (Remembering)
The sentient-centered ethics acknowledges the inherent worth of all sentient animals. Sentient animals are those that feel pain and pleasure and have desires.

10. What is meant by biocentric ethics? CO5 (Remembering)
This life centered ethics recognizes that all living organisms as having inherent worth.

11. What is ecocentric ethics? CO5 (Remembering)
It emphasizes inherent value in ecological systems.

12. What are human-centered environmental ethics? CO5 (May/June 2017) (Remembering)
Human centered environmental ethics extends traditional ethical theories in the aspect of the threats to human beings presented by the destruction of nature.

13. What is computer ethics? CO5 (Remembering)
Computer ethics is the study of ethical issues that are associated primarily with computing machines and the computing profession.

14. What are the different categories of problems that exist in computer ethics? CO5 (Remembering)
Those ethical problems for which the computer is the instrument of the unethical act. For example, the use of a computer to defraus the bank.
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.
Those problems associated with the autonomous nature of computers.

15. What does computer privacy mean? CO5 (Remembering)
Privacy means the basic right of an individual to control access to and use of information about himself.

16. What does hacking mean? CO5 (May/June 2012) (Dec 2015) (Remembering)
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.

17. What are computer viruses? CO5 (Remembering)

Viruses are programs introduced deliberately for destroying or altering the operating systems and databases of computer.

18. What is computer autonomy? CO5 (Remembering)

It is the ability of the computer to make decisions without the intervention of humans. This autonomous function of computers creates a lot of negative implication.

19. What is embezzlement? CO5 (Remembering)

The process of committing computer crimes such as stealing or cheating clients or customers and conspiracy in the fraudulent uses of computer networks is called embezzlement.

20. What is meant by globalization? CO5 (Remembering)(DEC 2018)

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. The increasing international flow of capital, technology, trade, and people have had the effects of changing the nature of local organizations, governments and people of countries and have led to social changes and developments. This is the concept of globalization.

21. What are the defining features of an ethical corporate climate? CO5 (Remembering)

The use of proper ethical language like code of ethics should be recognized as a legitimate part of the company.

The top management should accomplish a moral voice in both words and policies, and also by personal example. In other words the top level management has to enhance confidence that the company is more serious about ethics.

There should be some procedures for confronting and resolving conflicts.

22. Give any three principles of conflict resolution. CO5 (Remembering)

People: Separate the people from the problem

Interests: Focus on interests; not positions

Options: Generate a variety of possibilities before deciding what to do.

23. Mention some responsibilities of consulting engineers. CO5 (Remembering)

Advertising, Competitive bidding, Contingency fees, Safety and client needs and Provisions for resolution of disputes.

24. What does competitive bidding mean? CO5 (Remembering)

Competitive bidding means the process of offering of prices at an auction or in business to achieve something. In other words, it is the process of competing for projects on the basis of submitting priced proposals.

25. What does forensic engineering mean? CO5 (Remembering)

Forensic engineering means the application of engineering skills and knowledge in criminal investigation to aid judicial system.

26. Differentiate eye witnesses and expert witnesses.CO5 (Analyzing)

According to the legal system, as an eyewitness, engineers have to present the evidences in the court about what they have seen actually. But as an expert witness, engineers are given greater freedom to present evidences on facts in their areas of expertise, on explaining facts, in communicating on the views of the expert witness of the opposite side and also in reporting on the professional standards.

27. What are the various abuses that engineers face as expert witnesses? CO5 (Remembering)

Financial biases, ego biases and Sympathy biases.

28. What are the various normative models that engineers can use when faced with conflicts as an advisor? CO5 (Remembering)

Hired guns, Value-neutral analysts and Value-guided advocates.

29. What are the virtues of an engineer should have to act as expert advisors? CO5 (Remembering)

- Honesty- the quality of being honest; truthfulness
- Competence- the thorough knowledge of the work they undertake to do.
- Diligence- to carry out the given tasks carefully and promptly.
- Loyalty- the quality of being true and faithful in one's support.

30. What does hacking mean? CO5 (Dec-2018) (Remembering)

Hacking is nothing but gaining unauthorized access to a database, implanting false information in a database or allotting existing information, and disseminating viruses over the internet.

31. What is computer virus? CO5 (Remembering)

Viruses are programs introduced deliberately for destroying or alerting the operating systems and database of computer.

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33. Why does much corporate management prefer engineers as managers?CO5 (Remembering)

Many corporate management prefer engineers as their managers. Because they believe that to manage technological corporation, the technical understanding is necessary; and the engineers the potential of understanding the business techniques of any corporate bodies than any non-engineers. Also it is comparatively easier to teach the business techniques than to teach non-engineers the engineering techniques.

Engineers are attracted by various corporate incentives such as higher pay, greater authority, wider responsibility and increased prestige and recognition.

34. What are the responsibilities of engineer – managers? CO5 **(Dec 2015)(May 2018)** (Remembering)

The two important responsibilities of engineer-mangers are:

Promoting an ethical climate; and Resolving conflicts.

35. What is ethical climate? CO5 (Dec-2010) (Remembering)

A favorable working atmosphere required to achieve a morally responsible conduct is called 'an ethical climate'.

36. What is deceptive advertisement? CO5(Remembering)

Deceptive advertising happens when products/services are made to look better than they actually are. This misleading advertising can be achieved by many ways. They are openly telling lies; telling half-truths; making wrong references or suggestions; through exaggeration; and through the confusion deliberately created by ambiguity or vagueness.

37. What is hired gun? CO5 (Remembering)

The hired gun violates the standards of honesty and also due care in conducting investigations.

38. Explain the meaning of moral leadership? CO5 (May/June 2013) (Dec 2014)

When the leader's goals are not only permissible but also morally valuable, then it is known as moral leadership.

In other words, moral leadership means employing morally permissible means to simulate groups to move toward morally desirable ends.

39. Who are moral leaders? CO5 (Remembering)

Moral leaders are those who direct, motivate, organize, manage, or in other ways take groups toward morally valuable goals.

40. Mention four MNC of Indian origin.CO5 (Nov/Dec 2013) (Analyzing)

Infosys, Reliance, Tata, Wipro

41. What is decommissioning of weapons? CO5 (Nov/Dec 2018) (Remembering)

Disarmament is the act of reducing, limiting, or abolishing weapons. Disarmament generally refers to a country's military or specific type of weaponry. Disarmament is often taken to mean total elimination of weapons of mass destruction, such as nuclear arms.

42. What are the benefits of MNC doing business in a less developed country? CO5 (May/June 2018) (Remembering)

(1) Probably the strongest argument in favour of MNCs is that their presence is essential for Less Developed Countries (LDCs) to achieve the desired level of investment. Most of the LDCs, the argument goes, face a gap between national savings and the desired level of investment.

(2) Technology is the mainspring of economic development. Technology requires a lot of investment in research and development (R&D). LDCs, however, are deficient in both funds and skills necessary for R&D.

(3) MNCs also introduce the host country with superior management philosophies and skills. The higher the number of local people employed in managerial positions in MNCs' subsidiaries, the more pronounced is the effect.

43. Outline the importance of computer ethics. CO5 (May/June 2009)(Understanding)

Computer ethics are important because they regulate online privacy and also address piracy, plagiarism and identity theft. Computer ethics is also important because it prevents copyright infringement since legal recourse can be given when this happens.

44. What are the International rights listed by Donaldson? CO5 (Dec 2014) (Dec 2016) (Remembering)
The right to freedom of physical movement, The right to ownership of property, The right to freedom from torture, The right to a fair trial, etc.,

45. How is corporate social responsibility practiced? Give examples CO5 (Understanding)(may 2019)
Corporate social responsibility (CSR) is how companies manage their business processes to produce an overall positive impact on society. It covers sustainability, social impact and ethics, and done correctly should be about core business - how companies make their money - not just add-on extras such as philanthropy.

46. What is code of conduct and mention its significance.CO5 (MAY2019) (Remembering)
A code of conduct can be an important part in establishing an inclusive culture, but it is not a comprehensive solution on its own. An ethical culture is created by the organization's leaders who manifest their ethics in their attitudes and behavior. Studies of codes of conduct in the private sector show that their effective implementation must be part of a learning process that requires training, consistent enforcement, and continuous measurement/improvement. Simply requiring members to read the code is not enough to ensure that they understand it and will remember its contents.[1]

16 Mark Questions.

1. Explain the code of ethics specified by IEEE and ASCE. CO5 (May/June 2013)(Understanding)
2. Discuss on computer, business and environmental ethics? CO5(Dec-2010) (Dec 2014) (Creating)
3. Discuss an engineer's involvement in weapons work.CO5 (May/June 2013) (Dec 2014) (Creating)
4. Explain the code of ethics specified by ASME and IETE. CO5 (Understanding)(DEC 2019)
5. Explain the process of creating an ethical organization.(Nov/Dec 2011) (Understanding)
6. Discuss the role of media in promoting ethical practices among business.CO5 (Nov/Dec 2011) (Creating)
7. Define Technology transfer. Why engineers to study computer ethics? CO5 Explain the customer relation to computer ethics and the importance of computer ethics. CO5 (May/June 2012) (Dec 2015) (Understanding)
8. Define the following concepts. i) Biocentric ethics ii) eucentric ethics iii) sentient centre ethics. CO5 (May/June 2012) (Remembering)
9. State an illustrative case study that touches upon some fundamental issues in environmental ethics. CO5 (Nov/Dec 2013) (Remembering)
10. Do engineers have a moral right to carry out what they consider to be unethical activity? Explain in detail with a case study.CO5 (Nov/Dec 2013) (Analyzing)
11. What do environmental ethics deal with? Discuss the holistic approach of environmental ethics. Write a note on acid rain. CO5 (May/June 2009) (Dec 2015) (Remembering)
12. What are the reasons for selecting engineers as managers? How to maintain the ethical climate in organization? List the principles for conflict resolution and how to solve the conflicts through the managerial approach. CO5 (May/June 2009) (Dec 2014) (Remembering)
13. Discuss the ethical issues related to computer and internet.CO5 (May/June 2013) (Dec 2014) (Creating)
14. Differentiate honesty and moral leadership. CO5 (Dec 2015) (May/June 2018)
15. Discuss the different forms of relativism with respect to MNCs. CO5 (Creating)
16. Explain the role of engineers as consultant. CO5 (Understanding)(MAY 2019)
17. Discuss the role of engineers as expert witness and advisors.CO5 (Dec 2018) (Creating)
18. What is the basic ethical and moral responsibility of a manager-engineer? CO5 (Dec 2017) (Understanding)