MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution)

(Approved by AICTE, New Delhi, Accredited by NAAC & Affiliated to Anna University)

Rasipuram - 637 408, Namakkal Dist., Tamil Nadu

MUST KNOW CONCEPTS

MKC

BME

2021-2022

Subject	19HSS08 PROFESSIONAL ETHICS AND HUMAN VALUES			
UNIT 1 – HUMAN VALUES				
S.No	**Term**	**Notation (Symbol)**	**Concept/Definition/Meaning/Units/Equation/Expression**	**Units**
1.	Moral values	-	Moral values are morally good or bad human acts and morally good or bad persons.	-
2.	Values	-	Some professional organizations may define their ethical approach in terms of a number of discrete components.	-
3.	Ethics	-	A moral philosophy or code of morals practiced by a person or group of people.	-
4.	Integrity	-	Itmeans following your moral or ethical convictions and doing the right thing in all circumstances, even if no one is watching you.	-
5.	Work ethics	-	The work ethic is a cultural norm that advocates being personally accountable and responsible for the work that one does and is based on a belief that work has intrinsic value.	-
6.	Service learning	-	It is a teaching method that enriches learning by engaging students in meaningful to their schools.	-
7.	Civic virtue	-	Civic virtue is the harvesting of habits important for the success of the community.	-
8.	Respect for others	-	Respect means that you accept somebody for who they are, even when they're different from you or you don't agree with them.	-

9.	Living peacefully	-	Living in peace is about living harmoniously with yourself, others, and all sentient beings around you.	-
10.	Caring	-	The term ethics of care refers to ideas concerning both the nature of morality and normative ethical theory.	-
11.	Sharing	-	Sharing means sharing of feelings, ideas thoughts, resources and profits. Sharing morally acceptable feelings, resources and materials is a value.	-
12.	Honesty	-	Honesty is a facet of moral character that connotes positive and virtuous attributes such as integrity, truthfulness, along with the absence of lying,etc.	-
13.	Courage	-	Courage is the tendency to accept and face risks and difficult tasks in rational ways.	-
14.	Valuing time	-	A first step in good time management is to understand the value of your time.	-
15.	Cooperation	-	The participation of one agent in the activity of another agent to produce a particular effect or share in a joint activity.	-
16.	Commitment	-	It is a deeply held belief that, once you have agreed to do something, you must do it until it is finished or completed.	-
17.	Empathy	-	It is one's ability to recognize and understand the emotion of another.	-
18.	Self confidence	-	It means you accept and trust yourself and have a sense of control in your life. You know your strengths and weakness well, and have a positive view of yourself.	-
19.	Character	-	It is established by conscientious adherence to moral values, not by lofty rhetoric or good intentions. It is ethics in action.	-
20.	Spirituality	-	It refers to the way of living. It emphasizes a constant awareness of the spiritual dimension of nature.	-
21.	Yoga	-	It is primarily a practice aimed at uninterrupted self-awareness,	-

			contentedness and peace.	
22.	Meditation	-	It is a habitual process of training your mind to focus and redirect your thoughts.	-
23.	Professional excellence	-	It means being recognized for your skills as a communicator and serving as a role model to others.	-
24.	Stress management	-	Stress management is a wide spectrum of techniques and psychotherapies aimed at controlling a person's level of stress,	-
25.	List the factors that enhance the self confidence in a person	-	• Self confident people trust their own abilities. • Self confident people have a general sense of control in their lives • Self confident people able to do what they wish, plan and expect	-
UNITII –ENGINEERING ETHICS				
26.	Senses of engineering ethics	-	The word ethics has different meanings but they are correspondingly related to each other. In connection with that, Engineering ethics has also various senses which are related to one another.	-
27.	Variety of moral issues	-	Moral issue is a working definition of an issue of moral concern is presented as any issue with the potential to help or harm anyone, including Oneself.	-
28.	Types of inquiry	-	• Normative Inquiries • Conceptual Inquiries • Factual or Descriptive Inquiries	-
29.	Moral dilemmas	-	A situation in which a difficult choice has to be made between two courses of action, either of which entails transgressing a moral principle.	-
30.	Moral autonomy	-	The moral autonomy relates to the individual ideas whether right or wrong conduct which is Independent of ethical issues.	-
31.	Kohlberg's theory	-	Lawrence Kohlberg expanded on the earlier work of cognitive	-

			theorist Jean Piaget to explain the moral development of children, which he believed follows a series of stages.	
32.	Gilligan's theory	-	Gilligan's theory is based on the two main ideas, the care- based morality and the justice-based morality	-
33.	Consensus and controversy	-	Consensus means agreement" and controversy" means disagreement. The consensus and the controversies and playing the vital roles while considering the moral autonomy.	-
34.	Models of professional roles	-	Promotion of public good is the primary concern of the Professional engineers.	-
35.	Theories about right action	-	To provide a variety of theories as to matters morally According to this philosophy, an action is morally right if its consequences lead to happiness of people and wrong if they lead to their unhappiness.	-
36.	Self interest	-	Self-interest refers to actions that elicits personal benefit.	-
37.	Customs and religion	-	Custom (also called a tradition) . It is something that many people do, and have done for a long time. Usually, the people come from the same country, culture, or religion	-
38.	Used of ethical theories	-	• Understanding moral dilemmas. • Justifying professional obligations and ideas and • Relating ordinary and professional morality	-
39.	Ethical pluralism	-	Ethical pluralism is the view that there may be alternative moral perspectives that are reasonable, but no one of which must be accepted completely by all rational and morally concerned persons..	-
40.	Moral integrity	-	Moral integrity is the unity of character based on the moral concern and honesty. Integrity is a bridge that	-

			links the responsibilities between one's personal life and professional life..	
41.	Business Ethics	-	Business Ethics is concerned with the rules by which and individual lives his or her personal life.	-
42.	Micro-Ethics.	-	This term stresses more about some typical and everyday problems, which play an important role in the field of engineering and in the profession of an engineer.	-
43.	Macro-Ethics	-	This term deals with all the social problems which are unknown and suddenly burst out on a regional or national level	-
44.	Virtues	-	The moral ideals in which a profession is dedicated to specify the Virtues. Virtues are the desirable features of character, which related to other individuals, group, or organizations. .	-
45.	Models of Professional Roles	-	Models of Professional Roles are Savior, Guardians, Bureaucratic Servant, and Social Servants, Social enabler and catalyst and Game Players	-
46.	Engineers as Bureaucrat	-	The role of engineers is to be a servant who receives and translates the directives of management into concrete achievement.	-
47.	Engineers as Saviors	-	Some people taught that a philosopher king is required to create a ideal society and other group believed that engineers hold the key in creating a utopian society .	-
48.	Engineers as Guardians	-	Engineers know the best direction in which the technology should develop. Accordingly, they give position basis on the experience, so that they can guard the society by doing things that is involved for the best of the society.	-
49.	Engineers as Social Servants	-	The role of engineers is obedient service to the management but their true master is the society. .	-
50.	Engineers as Game	-	Engineers are neither servants nor	-

	Players		masters of anyone. Instead they play by the economics game rules that happens to be effective at a given times. .	

UNIT III – ENGINEERING AS SOCIAL EXPERIMENTATION

51.	Code	-	Code is a set of standards and laws.	-
52.	Limitations of codes	-	• Codes are restricted to general and vague wording. • Codes can't give a solution or method for solving the internal conflicts.	-
53.	Roles of codes	-	• Inspiration and Guidance • Support • Deterrence and Discipline • Education and Mutual Understanding.	-
54.	Types of standards	-	• Accuracy in measurement, interchangeability, ease of handling. • Prevention of injury, death and loss of income or property. • Fair value of price	-
55.	Morally responsible engineers	-	• Conscientiousness. • Comprehensive perspective. • Autonomy. • Accountability .	-
56.	Valid consent	-	• The consent was given voluntarily • The consenter was competent to process the information and make rational decisions .	-
57.	Informed consent	-	• Knowledge [Subjects should be given not only the information they	-

			request, but all the information needed to make a reasonable decision]. • Voluntariness [Subjects must enter into the experiment without being subjected to force, fraud, or deception]. .	
58.	Problems with the law in engineering	-	• Minimal compliance • Many laws are without enforceable sanctions	-
59.	Engineering projects as experiments	-	• Any project is carried out in partial ignorance. • The final outcomes of engineering projects, like those of experiments, are generally uncertain .	-
60.	Scientific experiments	-	Scientific experiments are conducted to gain new knowledge	-
61.	Engineering projects	-	Engineering projects are experiments that are not necessarily designed to produce very much knowledge.	-
62.	Model designs uncertainties	-	• Model used for the design calculations. □ • Exact characteristics of the materials purchased	-
63.	Ethical Conventionalism	-	Ethical conventionalism is the view that a particular set of conventions, customs, or laws is self-certifying and not to be questioned as long as it is the set in force at a given time or for a given place.	-
64.	Babylon's Building Code	-	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 so 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 the builder's son to death.	-
65.	Ethical principles	-	• Honesty • Integrity • Fulfilling commitments	-

66.	Conscientiousness	-	Which means the sense of awareness. Every engineer is expected to have some moral standards irrespective of the role he is performing	-
67.	Accountability	-	Accountability can be understood as the moral responsibility that we have towards our actions. It means a tendency to be willing to openly accept the moral examinations towards one's actions and being responsive to the assessment of others.	-
68.	Guidance	-	Codes are written in brief yet prove effective in offering general guidance to the engineers. More specific directions may be given in supplementary statements or guidelines, which tell how to apply the code.	-
69.	Inspiration	-	Codes of ethics, which specify a collective commitment towards a profession, help in motivating the engineers towards ethical conduct. .	-
70.	Shared Standards	-	The standards established should be applicable to all individuals, in their particular professions. With the codes of ethics, the public is assured of engineers with minimum standard of excellence and the professionals are provided a fair way to compete	-
71.	Experimentation	-	Main aspect of designing process. An engineer who is ought to design the parts of a car, will be able to understand the result only when it is tested practically..	-
72.	Responsibility in Experimentation	-	• To maintain the safety of human beings. • To procure their rights of consent. • To keep them aware regarding the experimental nature of the project.	-
73.	Deterrence and Discipline	-	The professionals who fail to follow the codes exhibit unethical conduct, which is evident from the disobedience towards their profession..	-
74.	Education and Mutual understanding	-	Codes which are widely circulated and officially approved by professional societies, promote a shared understanding among professionals, the public and government organizations about the moral responsibilities of engineers.	-

75.	Serving and protecting the public	-	Engineers are in a responsible position where trust and trustworthiness, both are essential. A code of ethics functions as a commitment by the profession as a whole that engineers will serve the public health, safety and welfare	-
UNIT IV-ENGINEER'S RESPONSIBILITY FOR SAFETY AND RISK				
76.	Safety and Risk	-	Safety was defined as the risk that is known and judged as a acceptable.But risk is a potential that something unwanted and harmful may occur.	-
77.	Testing for safety	-	• Destructive testing • Prototype testing • Simulation testing	-
78.	Accessibility of risk	-	William D.Rowe says "A risk is acceptable when those affected are generally no longer(or not)apprehensive about it.	-
79.	Accessibility of risk influenced by factors	-	• Voluntarism an control • Effect of information on risk assessments • Job-related risks/Job-related pressures • Magnitude and proximity	-
80.	Knowledge of risks	-	It is the data in designing a product. Though past experience and historical data give better information about the safety of products designing, it is still inadequate.	-
81.	Analytical methods	-	Several analytical methods are adopted in testing for safety of a product/project. • Scenario analysis • Failure mode and effect analysis	-
82.	Scenario analysis	-	This is the most common method of analysis. Starting from an event, different consequences are studied. This is more a qualitative method.	-
83.	Failure mode and effect analysis		In this method various parts and components of the system and their modes of failure are studied.	-
84.	Conditions referred to as "safe exit"	-	• The product, when it fails, should fail safely. • The product, when it fails, can be abandoned safely. • The user can safely escape the product.	-
85.	Risk-Benefit analysis	-	Risk-benefit analysis is a method that helps the risk in a project and to determine whether a project should be implemented or not.	-

86.	Respect for Authority	-	The authority fixes the personal responsibility and accountability uniquely on each person. This is necessary to ensure program in action.	-
87.	Institutional Authority	-	It is the authority exercised within the organization .It is the right given to the employees to exercise power, to complete the task and force them to achieve their goals.	-
88.	Expert Authority	-	• The possession of special knowledge, skills and competence to perform a job thoroughly(expertise), • The advice on jobs ,and • Is a staff function	-
89.	Collective bargaining	-	It is the bargain by the trade union for improving the economic interests of the worker members.	-
90.	The process of collective bargaining	-	• Negotiation • Threatening verbally and • Declaration of "strike".	-
91.	Confidentiality	-	Confidentiality means keeping the information on the employer and clients, as secrets. It is one of the important aspects of team work.	-
92.	Moral principles of concept of confidentiality	-	• Respect for autonomy • Respect for promises • Trustworthiness • Respect for public welfare	-
93.	Types of confidentiality	-	• Privileged information • Proprietary information	-
94.	COI –Conflict Of Intersts	-	COI is a situation in which a person or organization is involved in multiple interests, financial or otherwise ,one of which could possibly corrupt the motivation or decision making of that individual or organization.	-
95.	Occupational crime	-	Occupational crime is crime that is committed through opportunity created in the course of legal occupation.	-
96.	Human rights	-	Human rights are defined as moral entitlements that place obligations on other people to treat one with dignity and respect.	-
97.	Intellectual Property Rights(IPRs)	-	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.	-

98.	Patent	-	Patent is a contract between the individual (inventor) and the society all others).	-
99.	Copyright	-	The copyright is a specific and exclusive right, describing rights given to creators for their literary and artistic works.	-
100.	Trademark	-	Trademark is a wide identity of specific good and services, permitting differences to be made among different trades.	-
UNIT V-ENGINEER'S RESPONSIBILITIES AND RIGHTS				
101.	Global issues	-	The concept of globalization increases with the integration of nations through trade, investment, transfer of technology and exchange of ideas and culture.	-
102.	Multinational corporations	-	Multinational Corporations, also called Transnational Companies • Main branch - home country. • Other branch- host countries.	-
103.	Business ethics	-	Business ethics are related to the aspects of business dealing with all employees in an ethical manner.	-
104.	The general business ethics include	-	1. The safety precautions and maintenance of the organization are to be taken care of. 2. The work and the skills of the employees are to be identified and encouraged for the development of the organization.	-
105.	Environmental ethics	-	Globalization and industrialization have impacted the environment on a very large scale.	-
106.	Environmental ethics include	-	• The study of moral issues concerning the environment. • Moral perspectives, beliefs and attitudes concerning those issues.	-
107.	Computer ethics	-	Computers with Internet raise a host of difficult moral issues many of them connected with free speech, privacy, and respect for property, informed consent and harm.	-
108.	Role of computers in technological development	-	The limitations of Internet usage and free speech are to be known clearly by every native.	-
109.	Computer abuse cases	-	• The stealing or cheating by employees at work.	-

			• The stealing by non-employees or former employees. • The stealing from or cheating clients and consumers.	
110.	Privacy factors	-	The misuse of Internet also influences privacy factors. The illegal attackers or hackers get access to restricted data which is a security threat.	-
111.	Weapon development	-	Based on the size of expenditures, direct or indirect involvement of engineers and innovative developments.	-
112.	Engineers as managers	-	An engineer, whether he works individually or works for a company, has to go through some ethical issues.	-
113.	Engineer's ethics	-	An Engineer is responsible in promoting ethics in an organization, through framing organizational policies, responsibilities and by personal attitudes and obligations.	-
114.	Managing conflicts	-	A conflict is a result of differences in opinions. Conflicts generally arise where the work is shared among more than one member.	-
115.	Conflicts that generally occurs:	-	1. Conflict of human psychology and ego problems. 2. Conflict over expenditure and its deviations.	-
116.	Consulting engineers	-	The consulting engineers differ from the salaried engineers of an organization.	-
117.	Role of consultant	-	They function as advisors, fixers, bosses, generalists, stabilizers, listeners, advisors, specialists, catalysts, managers or quasi-employees.	-
118.	Engineers as advisors	-	Engineers may accept an assignment requiring education and/or experience outside of their own fields of competence.	-
119.	Advisor's duty	-	• Study the costs • Study economic viability, • Technical feasibility,	-

			• Operational feasibility and • Social acceptability.	
120.	Value neutral analysts	-	This model expresses the idea of being neutral and the avoidance of any form of advocacy towards anyone.	-
121.	Moral values	-	Moral values are the product of centuries and millennia of gradual development.	-
122.	Moral creativity	-	Moral creativity is achieving success through new ways of thinking with standard moral values.	-
123.	Leadership in communities	-	In communities and groups, the issues that bother and that are important should be informed to everyone.	-
124.	Ideals of voluntary service	-	• The leadership should have substantial involvement in professional societies. • Moral leadership does not consist of moral elitism and dominance.	-
125.	Code of conduct	-	NSPE, IEEE, ASCE, ASME etc. These societies proposed different codes of ethics.	-
PLACEMENT QUESTION AND ANSWERS				
126.	Ethics	-	o Study of right or wrong. o Good and evil. o Obligations and rights.	-
127.	Engineering Ethics	-	o Study of the moral issues and decisions confronting individuals and organizations engaged in engineering / profession. o Study of related questions - about the moral ideals, character, policies and relationships of people and corporations involved in technological activity	-
128.	Need For Authority	-	Authority provides the framework in which learning can take place.	-
129.	Criteria Required For A Profession	-	o Knowledge o Organization o Public Good	-

130.	Integrity	-	.Integrity is the bridge between responsibility in private and professional life.	-
131.	Compromise	-	In a negative sense it means to undetermined integrity by violating one's fundamental moral principles. In a positive sense, however, it means to settle differences by mutual concessions or to reconcile conflicts through adjustments in attitude and conduct.	-
132.	Two Aspects Of Honesty	-	Truthfulness – meeting responsibilities concerning truth-telling. Trustworthiness – Meeting responsibilities concerning trust.	-
133.	Self-respect	-	It is a moral concept; refers to the virtue properly valuing oneself.	-
134.	Self-esteem	-	It is a psychological concept; means having a positive attitude toward oneself, even if the attitude is excessive or otherwise unwarranted.	-
135.	Two Forms Of Self-respect	-	Recognition self-respect Appraisal self-respect	-
136.	Drawback Of Duty Ethics	-	Duty ethics does not always lead to a solution which maximizes the public good.	-
137.	Ethical egoism	-	The view that right action consist in producing one's own good	-
138.	Ethical relativism	-	The view that right action is merely what the law and customs of one's society require.	-
139.	Uses Of Ethical Theories	-	o In understanding moral dilemmas. o Justifying professional obligations and ideals. o Relating ordinary and professional morality.	-
140.	Religion	-	A religion is any set of articles of faith together with the observances, attitudes, obligations and feelings tied up therewith, which, in so far as it is influential in a person, tends to	-

			perform two functions, one social and the other personal.	
141.	Code	-	Code is a set of standards and laws.	-
142.	Risk	-	A risk is the potential that something unwanted and harmful may occur. Risk = Probability X Consequences.	-
143.	Disaster	-	A DISASTER = A seriously disruptive event + A state of unpreparedness.	-
144.	Scientific Experiments	-	Scientific experiments are conducted to gain new knowledge	-
145.	Engineering Projects	-	Engineering projects are experiments that are not necessarily designed to produce very much knowledge	
146.	Factors For Safety And Risk	-	○ Voluntary and Involuntary risk ○ Short-term and Long-term risk ○ Expected probability ○ Reversible effects	-
147.	Drawbacks In The Definition Of Lawrence	-	○ Underestimation of risks ○ Overestimation of risks ○ No estimation of risks	-
148.	Problems With The Law In Engineering	-	○ Minimal compliance. ○ Many laws are without enforceable sanctions.	-
149.	Informed Consent	-	○ Knowledge ○ Voluntariness	-

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HoD