SCHEME OF COURSE WORK

Course Details:

Course Title	**Professional Ethics**		
Course Code	**15HM11PE**	**L T P C**	**: 2 0 0 0**
Program:	**B.Tech**		
Specialization:	**Common to all Branches**		
Semester	**VIII**		
Prerequisites	**Nil**		

Course Outcomes (COs):

At the end of the course the student will be able to

1	Explain how to deal with complex situations arising out of interaction with people. (Parents, friends and Co-professionals) in making the work environment congenial, encouraging and loving.
2	Discriminate when he is forced through certain undesirable and ambiguous situations either in his day to day life as a student and as a professional in his career.
3	Identify the basic tenets of leadership and to become a worthy professional.
4	Relate codes of different professional bodies.
5	Understand job satisfaction.

Program Outcomes (POs):

1. Graduates will be able to apply the knowledge of mathematics, science, engineering fundamentals to solve complex Chemical Engineering problems.

2. Graduates will attain the capability to identify, formulate and analyze problems related to Chemical Engineering and substantiate the conclusions

3. Graduates will be in a position to design solutions for Chemical Engineering problems and design system components and processes that meet the specified needs with appropriate consideration to public health and safety.

4. Graduates will be able to perform analysis and interpretation of data by using research methods such as design of experiments to synthesize the information and to provide valid conclusions.

5. Graduates will be able to select and apply appropriate techniques from the available resources and modern Chemical Engineering and software tools, and will be able to predict and model complex engineering activities with an understanding of the practical limitations.

6. Graduates will be able to carry out their professional practice in Chemical Engineering by appropriately considering and weighing the issues related to society and culture and the consequent responsibilities.

7. Graduates will be able to understand the impact of the professional engineering solutions on environmental safety and legal issues.

8. Graduates will transform into responsible citizens by resorting to professional ethics and norms of the engineering practice.

9. Graduates will be able to function effectively in individual capacity as well as a member in diverse teams and in multidisciplinary streams.

10. Graduates will be able to communicate fluently on complex engineering activities with the engineering community and society, and will be able to prepare reports and make presentations effectively.

11. Graduates will be able to demonstrate knowledge and understanding of the engineering and management principles and apply the same while managing projects in multidisciplinary environments.

12. Graduates will engage themselves in independent and life-long learning in the broadest context of technological change while continuing professional practice in their specialized areas of Chemical Engineering.

Course Outcome versus **Program Outcomes:**

Course outcomes	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1		S			M			S				
CO2		S				S		S				
CO3										S		
CO4										S	S	
CO5					S	S		M	S			

S - Strongly correlated, *M - Moderately* correlated, *Blank - No correlation*

Assessment Methods:	**End Exam**

Teaching-Learning and Evaluation

Week	**Topic / Contents**	**Course Outcomes**	**Sample Questions**	**Teaching-Learning Strategy**
1	**UNIT-I:BASIC HUMAN VALUES:** „„Be a Human First and then one can become a good Professional"; so the basic Human Values-Truth, Right Conduct (Righteousness), Love, Non-violence and Peace, Humility and character.	CO1,2	1) What are the differences between ethics and values? 2) Explain any one Human value as practiced in the Indian societal context-past and present.	Lecture & Discussion
2	What is ethics? Core areas of ethics: Social ethics, personal ethics Integrity and Trustworthiness, Honesty, Loyalty, Courage, Prudence, Confidence, Confidentiality.	CO1,2	1) Explain Honesty and Loyalty. 2) Explain about confidentiality.	Lecture & Discussion
3	Spirit of Nationalism and Patriotism with examples from „struggle for Freedom" (Case studies in the lives of Mahatma Gandhi & His team who strived for Freedom from the British, Scientists and Engineers like Bhaha, Sarabhai, Dhavan, Abdul J Kalam, and Benjamin Franklin, Martin Luther King, or any renowned personalities) Self study and debate.	CO1,2	1) Explain about any one freedom fighter. 2) What are the values to be maintained to become a good professional? Explain 5D"s.	Lecture & Discussion
4	What is a profession? Who is a Professional? Special criteria to meet the definition of professional, criteria to be a professional engineer (Pages 24-36) of Mike W Martin and Roland Schinzinger)	CO1,2	1) What is a profession? Who is a Professional?	Lecture & Discussion

5	Personal ethics-Social ethics and professional ethics – are they different- How would you distinguish? –A debate General and Applied ethics, Relationship between these two in dayto-day functioning of an Engineering Professional- (Pages 10-12 of Mike W Martin and Roland Schinzinger)	CO1,2	1) What are Personnel ethics? 2) Distinguish between social and professional ethics.	Lecture & Discussion
6	General and Applied ethics, Relationship between these two in dayto-day functioning of an Engineering Professional- (Pages 10-12 of Mike W Martin and Roland Schinzinger)	CO1,2	1) Compare general and appliedethics.	Lecture & Discussion
7	**UNIT-II:** PROFESSIONAL AND ENGINEERING ETHICS: Why Engineering ethics? Moral issues encountered by professional engineers during their day-to-day operations both at home and office/ workplace- Moral problems that frequently arise in ones Profession, (case studies from Chapter 1 pages 2-9, analysis of the case studies on pages 13 &14)	CO1,2	1) Why Engineering ethics are required at the workplace? 2) What are the Moral problems that frequently arise in one‟s Profession?	Lecture & Discussion
8	**MORAL AUTONOMY:** Moral integrity and social and professional behavior. Different theories proposed under moral autonomy-Kohlberg‟s and Gilligan‟s Theory. Heinz‟s Dilemma- Motive behind aggression	CO1,2	1) Explain Kohlberg‟s theory. 2) Explain Heinz‟ Dilemma.	Lecture & Discussion
9	**THEORY ABOUT MORALITY**: Virtue ethics, Utilitarianism, Duty ethics, Right ethics based on the concepts of Virtues and vices, most good for most people, Duties to respect for persons, Human rights respectively (pages 53-61, Study Questions for analysis and discussion on pages 60 &61)	CO1,2	1) Explain characteristics of a leader. 2) Explain Utilitarianism.	Lecture & Discussion
10	**THEORY ABOUT MORALITY:** Responsibility and accountability while dealing with public issues such as safety, risk, hazards, Risk Analysis and assessment-a brief discussion (risk assessment problem on Page (Chapter 4, specified topics and Case studies)	CO1,2	1) Write short notes on Risk Analysis and assessment.	Lecture & Discussion
11	(Present the case studies on Challenger space shuttle(97), Chernobyl (173), Bhopal tragedy (299), Titanic disaster (p 83), SLV-3, the Indian Space Shuttle (Wings of Fire) recent nuclear holocaust in Japan recent floods and other man- made and natural calamities or accidents we come across frequently in our society)	CO1,2	1) Explain Bhopal Gas tragedy. 2) Explain the Titanic Disaster.	Lecture & Discussion
12	Environmental ethics (304-308) & Computer ethics 319-323328-330) (All Pages from Mike W Martin and Roland Schinzinger)	CO1,2	1) What are environmental ethics? 2) Enlist the Do‟s and Don‟ts while using a computer.	Lecture & Discussion

13	**UNIT-III:** **RESPONSIBILITIES AND RIGHTS OF ENGINEERS:** Collegiality (Ones attitude) towards other engineers working in the same Organization or outside) and Loyalty (to the Employer), obligation of Loyalty and misguided loyalty, Respect for authority and its limitations	CO2,3	1) Explain Loyalty. 2) Explain Collegiality.	Lecture & Discussion
14	Convictions (APJ Abdul Kalam‟s “Wings of Fire”) Confidentiality while changing jobs, Conflicts of interests, Gifts, bribes, kickbacks -case studies related, Occupational Crime and industrial espionage Whistleblowing and moral guidelines	CO2,3	1) Explain the guidelines given in “wings of Fire” in changing the 2) job. Explain occupational crime.	Lecture & Discussion
15	Discrimination, preferential treatment and harassment Rights of Engineers Selected topics from Ch 5 and 6 and case studies on pages 200-201,	CO2,3	1) Explain any one case study regarding preferential treatment and harassment Rights of Engineers.	Lecture & Discussion
16	Engineers as Managers and leaders promoting ethical climate (350-358)– Ethics in Engineering by Mike W Martin and Roland Schinzinger) Why a code of Ethics for professional Engineers? („A code of ethics is not something you post on the Bulletin board; it is something you live every day in your life and career)	CO5	1) Explain how Engineers can become good managers. 2) Explain, Why a code of Ethics required for professional Engineers?	Lecture & Discussion
17	Code of ethics for Engineers, Organizational Culture, and Guidelines for use with the Fundamental canons of ethics; (pages 142-162 Indian Culture and Professional Ethics by P S R Murty and 399-414 0f Mike W Martin and Roland Schinzinger)	CO4, 5	1) Explain code of ethics. 2) Explain Organizational Culture.	Lecture & Discussion
18	**PROFESSIONAL BODIES:** IEEE, IETE, IE, ASME, ASCE, ABET, NSPE, ISTE Etc… {** Any topic can be discussed and debated with known live examples and illustrations we find in our day-to-day -living circumstances.}	CO4, 5	1) Explain about 2) IEEE. Explain about ASCE.	Lecture & Discussion
	END EXAM			