Course Name: SOCIAL RESPONSIBILITY AND PROFESSIONAL ETHICS IN ENGINEERING

Course Code : **BA 401** **3-0-0**

Abstract: This course surveys the different facet of ethical behaviour so that the students would be able to appreciate the socio-cultural responsibility of their profession. The main aim of the paper is to motivate students by a clear understanding of engineering as a profession and conduct themselves ethically and in a professional manner at all times.

Objective: The primary purpose of this course is to

- Teach students code of ethics useful for decision making in their noble profession.
- Give students the skills and the knowledge set necessary to ethically manage their profession and identify the major ethical issues related to their profession.
- To make the students understand the types of roles they are expected to play in the society as practitioners.

Prerequisites of the course: It is expected from the students of the course that s/he must have basic understanding of the business organisations/ engineering profession.

Content: (3-0-0) 3

Unit 1: Engineering and Society: What is Engineering ? The Engineering View, The Engineering Image; The Engineer's Challenge: Cost, Deadlines, and Safety; Cases : Challenger Disaster, Hyatt Regency Walkway Collapse, The Pfizer Heart Valve Case, The Therac-25 Case etc

Unit 2: Professional Ethics – Definition of Ethics, Professional Ethics, Business Ethics, Corporate Ethics, Engineering Ethics, Personal Ethics; Code of Ethics as defined as per Institution of Engineers (India); Thoughts on Ethics; Profession, Professionalism, Professional Responsibility, Professional Ethics; Conflict of Interest, Gift Vs Bribery, Environmental breaches, Negligence, Deficiencies in state-of-the-art; Vigil Mechanism.

Unit 3: Frameworks for Engineering Ethics: Moral Dilemmas in Engineering, Moral Thinking and Moral Theories, Codes of Engineering Ethics, Support for Ethical Engineers, Solving ethical conflicts, Analysis of issues in Ethical problems, Aids in analysis of ethical issues.

Unit 4: Engineering Ethics: Global issues: Risk Assessment: Safety and Risk, Types of Risks: Voluntary vs Involuntary Risk, Short term vs Long term, Delayed vs immediate Risk, Risk benefit Analysis; Product Liability: concept, types of Product liability, types of product liability claims: Manufacturing defect, Design defect, Failure to warn (also known as marketing defects); Engineering and Sustainable Development.

Unit 5: Intellectual property: Foundations of intellectual property, Copyrights, patents, and trade secrets, Law relating to Copyright in India including Historical evolution of Copy Rights Act, 1957, Law relating to Patents under Patents Act, 1970 ; Cyber ethics and Software piracy, Software patents, Transnational issues concerning intellectual property.

Unit 6: Ethics Audit: Need of Ethics Audit, Ethics profile of the organization, Ethics standard and benchmarking, Consideration for Ethics Audit, Procedure, Ethics Auditors, Ethics Audit Report, The audit statement, The Audit reviews Ethics Indices: Good Corporation Standard, Dow Fones Sustainability Index, Ethisphere Institute.

Suggested reading:

1. Text Book:

- Subramanian,R; Professional Ethics. Oxford Higher Education, New Delhi,2017.
- Govindarajan,M, Natarajan,S, & Senthilkumar,V.S; Engineering Ethics, Prentice Hall, NewDelhi,2013.
- Martin, W, Mike; Schinzinger,Ronald ; Ethics in Engineering, McGraw Hill Haryana,2022.

2. Other Books for Reading :

- Harris; Rabins; Engineering Ethics. Cengage Learning, New Delhi,2013
- Ramappa,T ; Intellectual Property Rights Law in India, Asia Law House, 2010

Expected outcome: Towards the end of the course the student would be able to

- Know the code of ethics and standards associated with their profession.

- Identify the role and responsibility of an engineer towards human civilization and the environment.
- Identify the various challenges associated with their future profession and how to mitigate them ethically and professionally.