



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

KAKINADA–533003, Andhra Pradesh, India

DEPARTMENT OF MECHANICAL ENGINEERING

III Year - I Semester		L	T	P	C
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PROFESSIONAL ETHICS AND HUMAN VALUES					

Course objective:

- 1) To understand the concepts of human values.
- 2) To gain knowledge about the principles of engineering ethics.
- 3) To interpret engineering as social experimentation.
- 4) To understand engineers' responsibility for safety and risk.
- 5)

UNIT– I:

HUMAN VALUES: Morals, Values and Ethics – Integrity – Work Ethics – Service Learning – Civic Virtue – Respect for others – Living Peacefully – Caring – Sharing –Honesty –Courage – Value time – Co-operation – Commitment – Empathy –Self-confidence Spirituality- Character.

UNIT– II:

ENGINEERING ETHICS:

The History of Ethics-Purposes for Engineering Ethics-Engineering Ethics-Consensus and Controversy –Professional and Professionalism –Professional Roles to be played by an Engineer – Self Interest, Customs and Religion-Uses of Ethical Theories-Professional Ethics-Types of Inquiry – Engineering and Ethics-Kohlberg's Theory – Gilligan's Argument –

UNIT– III:

ENGINEERING AS SOCIAL EXPERIMENTATION:

Comparison with Standard Experiments – Knowledge gained –Conscientiousness – Relevant Information – Learning from the Past – Engineers as Managers, Consultants, and Leaders – Accountability – Role of Codes Codes and Experimental Nature of Engineering.

UNIT– IV:

ENGINEERS' RESPONSIBILITY FOR SAFETY AND RISK:

Safety and Risk, Concept of Safety – Types of Risks – Voluntary v/s Involuntary Risk- Short term v/s Long term Consequences- Expected Probability- Reversible Effects- Threshold Levels for Risk-Delayed v/s Immediate Risk- Safety and the Engineer – Designing for Safety – Risk-Benefit Analysis-Accidents.



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UNIT- V:

ENGINEERS' RESPONSIBILITIES AND RIGHTS:

Collegiality-Techniques for Achieving Collegiality –Two Senses of Loyalty-obligations of Loyalty-misguided Loyalty – professionalism and Loyalty-Professional Rights –Professional Responsibilities – confidential and proprietary information-Conflict of Interest-solving conflict problems – Self-interest, Customs and Religion- Ethical egoism-Collective bargaining-Confidentiality-Acceptance of Bribes/Gifts-when is a Gift and a Bribe-examples of Gifts v/s Bribes-problem solving-interests in other companies-Occupational Crimes-industrial espionage-price fixing-endangering lives-Whistle Blowing-types of whistle blowing-when should it be attempted-preventing whistle blowing.

TEXT BOOKS:

- 1) Engineering Ethics and Human Values by M.Govindarajan, S.Natarajan and V.S.SenthilKumar- PHI Learning Pvt. Ltd-2009.
- 2) Professional Ethics and Morals by Prof.A.R.Aryasri, Dharanikota, Suyodhana-Maruthi Publications.

REFERENCE BOOKS:

- 1) Professional Ethics and Human Values by A.Alavudeen, R.Kalil Rahman and M.Jayakumaran-Laxmi Publications.
- 2) Professional Ethics and Human Values by Prof. D. R. Kiran, TMH.
- 3) Indian Culture, Values and Professional Ethics by P.S.R. Murthy-BS Publication.
- 4) Ethics in Engineering by Mike W. Martin and Roland Schinzinger– Tata McGraw-Hill – 2003.
- 5) Engineering Ethics by Harris, Pritchard and Robins, CENGAGE Learning, Indian Edition, 2009.

Course outcomes: At the end of the course, student will be able to

CO1: Judge the concepts of human values.

CO2: Justify knowledge about the principles of engineering ethics.

CO3: Interpret engineering as social experimentation.

CO4: Realize engineers' responsibility for safety and risk.

CO5: Learn about the engineers' rights and responsibilities.