IV Year B.Tech. Biotechnology VII - Semester	L	T	P	To	C
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(BT435) BIOETHICS, SAFETY AND INTELLECTUAL PROPERTY RIGHTS

Objectives of the Course :

*This course helps to adhere to the ethical practices appropriate to the discipline at all times and to adopt safe*working practices relevant to the bio industries & field of research. The course also enhances awareness about Intellectual Property.

Rights (IPRs) to take measure for the protecting their ideas and business strategies, and assist them in technology upgradation and enhancing competitiveness.

UNIT I: ENGINEERING ETHICS & BIOETHICS:

Senses of "Engineering Ethics"' - variety of moral issued - types of inquiry - moral dilemmas - moral autonomy - Kohlberg's theory - Gilligan's theory - consensus and controversy – Models of Professional Roles - theories about right action - Self-interest - customs and religion - uses of ethical theories. Introduction to Bioethics. Social and ethical issues in Biotechnology Definition of Biosafety. Biosafety for human health and environment. Social and ethical issues. Use of genetically modified organisms and their release in to the environment. Special procedures for r-DNA based products, Transgenic plants and Animals.

UNIT II : REGULATORY AFFAIRS:

Regulation, national and international guidelines of Biosafety, r-DNA guidelines, Regulatory requirements for drugs and Biologics GLP and GMP

UNIT III : INTELLECTUAL PROPERTY RIGHTS :

Intellectual property rights and protection, patents and methods of application of patents, Trade Secrets copyrights, Trade Marks, legal implications, farmer's rights, plant breeder's rights. International and National conventions on biotechnology and related areas, WTO guidelines.

UNIT IV : SAFETY, RESPONSIBILITIES AND RIGHTS:

Safety and risk - assessment of safety and risk - risk benefit analysis and reducing risk – the three mile island and case studies. Collegiality and loyalty - respect for authority - collective bargaining - confidentiality - conflicts of interest - occupational crime - professional rights - employee rights.

UNIT V : GLOBAL ISSUES:

Multinational corporations - Environmental ethics - computer ethics - weapons development and bioterrorisms - engineers as managers-consulting engineers-engineers as expert witnesses and advisors - moral leadership-sample code of Ethics.

TEXT BOOKS:

1. Mike Martin and Roland Schinzinger, "Ethics in Engineering", McGraw-Hill, New York 1996.
2. Govindarajan M, Natarajan S, Senthil Kumar V. S, " Engineering Ethics", Prentice Hall of India, New Delhi, 2004.
3. H.K.Das, Text Book of Biotechnology - Wiley India, (P) Ltd. New Delhi, 5th edition, 2007.

REFERENCE BOOKS:

1. Sasson A, Biotechnologies and Development, UNESCO Publications, 1988.
2. Sasson A. Biotechnologies in developing countries present and future, UNESCO publishers, 1993. 7. John R Boatright, "Ethics and the Conduct of Business", Pearson Education, New
3. Edmund G Seebauer and Robert L Barry, "Fundamentals of Ethics for Scientists and Engineers", Oxford University Press, Oxford, 2001. 9. Singh K. "Intellectual Property Rights on Biotechnology", BCIL, New Delhi

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