

BIOSAFETY, IPR & ETHICS

Semester	Subject Code	Category	Lecture		Theory		P	C
IV	21CPBT4B	Elective IV	5hrs per week	75	5hrs per week	75	0	3

COURSE OBJECTIVE:

To provide basic concepts and importance of bioethics and biosafety and IPR .

COURSE OUTCOMES:

On the successful completion of the course, students will be able to

CO NUMBER	CO STATEMENT	KNOWLEDGE LEVEL (K1-K4)
CO1	Describe the Bio safety levels of microbes, plants and animals	K2
CO2	Illustrate the IPR	K3
CO3	Illustrate about trademark	K3
CO4	Describe and apply the concepts of Plant breeding and its rights for protection	K2 & K5
CO5	Evaluate and analyze Ethics and Ethical issues in GMO's	K4 & K6

Knowledge level: K1- Remember; K2- Understand; K3- Apply; K4- Analyze; K5- Synthesize; K6- Evaluate

MAPPING WITH PROGRAMME OUTCOMES:

COS	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	M	S	M	M	M
CO2	S	M	S	M	M	M
CO3	M	S	M	M	M	S
CO4	M	M	S	M	M	M
CO5	M	M	S	S	S	S

S-strong; M- medium; L-Low

UNIT I BIOSAFETY**15 Hours**

Bio safety guidelines in India and international level, physical and biological containment, bio safety levels for microbes, plants and animals, risk assessment and management of laboratory research, risk assessment of biotechnological products, field trials with genetically modified plants, planned introduction of genetically engineered microbes.

UNIT II IPR AND PATENT RIGHTS**15 Hours**

Intellectual property rights- protection of biotechnological inventions, patents- patenting of genes, biological organisms, plants, animals, microbes and transgenic organisms, trade secrets, copyright.

UNIT III TRADEMARKS**15 Hours**

Functions, Significance and Types of Trademarks, Distinctiveness and Deceptive Similarity, Registration Procedure, Trademark Registry, Grounds for Refusal of Registration of Trademarks. World Intellectual Property Rights organization

UNIT IV IPR FOR PLANT BREEDING-PLANT VARIETY PROTECTION IN INDIA**15 Hours**

IPR for plant breeding-plant variety protection in India, plant breeder's rights, farmer's rights, protection & implementation of plant varieties, farmer's rights act, national gene fund, Benefits of PBR, mechanism involved in terminator technology for seed protection, technology for pure lines & hybrid seed protection, traitor technology.

UNIT V ETHICAL ISSUES IN BIOTECHNOLOGY**15 Hours**

Moral Development and Its Applicability to Engineers. Bioethics in plant and animal genetic engineering and transgenics- Ethics of genetically modified microbes, ethics in genetically modified food, ethical issues in human biotechnology and Nano biotechnology, ethics in stem cell research, gene therapy and bio warfare.

Distribution of Marks: Theory 80% and Problems 20%

TEACHING METHODOLOGY

- Class room teaching
- Assignments
- Discussions
- Home work
- PPT presentations
- Seminars
- Models/Charts

TEXT BOOKS:

S.NO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	Radhakrishnan R and Balasubramanian.	Intellectual Property Rights.	S. Excel Books, I ed.,	2008
2.	Sree Krishna, V	Bioethics and Biosafety in Biotechnology	New Age International Publishers	2007
3.	Deepa Goel and Shomini Parashar	IPR, Biosafety and Bioethics	Pearson Education India	2013
4.	Rajmohan Joshi	Biosafety and Bioethics	Gyan Publishing House	2006
5.	Sateesh.M.K	Biosafety and Bioethics	I.K. International Pvt Ltd	2008

REFERENCE BOOKS:

S.NO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	Subbaram N. R	Handbook of Indian Patent Law and Practice,	Viswanathan Printers and Publishers Pvt. Ltd.,	1998
2.	Martin. M.W. and Schinzinger. R. III Edition	Ethics in engineering	Tata McGraw-Hill, New Delhi.	2003
3.	Ashok Kumar	Intellectual Property Rights.	Allied Publishers	1994
4.	Rajagopalan Radhakrishnan	Intellectual Property Rights.	Excel Books India	2008
5.	William Rodolph Cornish	Intellectual Property	Sweet & Maxwell	2003

Web Sources:

1. https://www.youtube.com/watch?v=Z_u2Z7F8-bg
2. https://www.youtube.com/watch?v=HsTi3vD_Usw
3. <https://www.youtube.com/watch?v=k1a2larfMIA>
4. <https://www.youtube.com/watch?v=GKqOWCK71K4>
5. https://books.google.co.in/books/about/Intellectual_property.html?id

Syllabus Designer:

- Mrs.M.Malathi
Assistant Professor