

Subject Code: 2SC2000205	Subject Title: BIOETHICS, BIOSAFETY, PATENTING AND INTELLECTUAL PROPERTY RIGHTS
COURSE TYPE: CORE COURSE	

Course Objective: The course details on the social responsibility of the researchers and the bioethics. Students will also be learning biosafety guidelines with special emphasis on individuals, institutions and the society. It is now mandatory to learn about Intellectual Property Rights and Patenting for all the students of Microbiology and Biotechnology. So, these topics are covered in great detail in this course.

Teaching scheme (hours) per week		Credit			Theory Marks		Practical Marks		Total
Theory	Practical	Theory	Practical	Total	Uni. Assessment	Cont. Assessment	Uni. Assessment	Cont. Assessment	
4		4		4	60	40			100

Unit	Content	Lectures	Weightage
1	Bioethics: ✓ Benefits and ELSI of Biotechnology ✓ R DNA Products, GM Food and Bioethics ✓ Release of GMO ✓ Applications of human genetic research ✓ Stem cell research and Cloning	8	15%
2	Biosafety: ✓ Introduction, History ✓ Definitions, Objectives ✓ Risk Assessment ✓ Containment ✓ Planned introduction of GMO ✓ Biosafety during Industrial Production using GMO ✓ Guideline in India	8	15%
3	Intellectual Property Rights: ✓ Introduction to IPR ✓ IPR, forms of IPR and Intellectual property protection ✓ Interaction and Harmonization of Patent Laws ✓ Protection of Biotechnological Inventions ✓ Plant Breeder's Right ✓ Management, Benefits, Problems of IPR ✓ Concept of property with respect to intellectual creativity, Tangible and Intangible property. ✓ Introduction to WTO, TRIP, WIPO, EPO	20	32%
4	Patenting: ✓ Concept related to patents novelty, non-obviousness, utility, anticipation, prior art, novelty search report preparation patent drafting, patent prosecution and filing, Commercialization and licensing, etc. ✓ Type of patents. ➤ Indian Patent Law ➤ Industrial design act ➤ Trademark act ➤ Copyright act	24	38%

	➤ Geographical Indications ➤ IC circuit designs and plant variety		
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Learning Outcome:

Students will learn the fundamental aspects of Biosafety guidelines, bioethics, patenting and Intellectual Property Rights by offering this course. Not only will the course make them aware about such topics but will also empower them with great knowledge of the same in great detail.

Reference Books:

1. Fleming, D.A., Hunt, D.L., (2000). Biotechnology and Safety Assessment (3rd Ed) Academic press. ISBN-1555811804, 9781555811808.
2. Thomas, J.A., Fuch, R.L. (1999). Biotechnology and safety assessment (3rd Ed). CRC press, Washington. ISBN: 1560327219, 9781560327219
3. Law and Strategy of biotechnological patents by Sibley. Butterworth publication. (2007) ISBN: 075069440, 9780750694445.
4. Intellectual property rights- Ganguli-Tat McGrawhill. (2001) ISBN-10: 0074638602,
5. Intellectual Property Right- Wattal- Oxford Publication House. (1997) ISBN: 0195905024.
6. Biotechnology - A comprehensive treatise (Vol. 12). Legal economic and ethical dimensions VCH. (2nd ed) ISBN-10 3527304320.
7. Encyclopedia of Bioethics 5 vol set, (2003) ISBN-10: 0028657748.
8. Thomas, J.A., Fuch, R.L. (2002). Biotechnology and safety Assessment (3rd Ed) Academic press.
9. B.D. Singh. Biotechnology expanding horizons.
10. H.K. Das. Text book of biotechnology 3rd edition.
11. Biotechnology by U Satyanarayana and U. Chakrapani
12. Biotechnology by B. D. Singh

List of Experiments for PAPER : (1SC2000302) BIOETHICS, PATENTING AND INTELLECTUAL PROPERTY RIGHTS:

1. Learning the core objectives of IPR
2. To Access and Downloads the Patents online
3. To Understand the basic concepts related to patenting
4. To understand the Biosafety guideline with laboratory and industry perspective