FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF MICROBIOLOGY
COURSE CURRICULUM

PART – A: Introduction			
Program: Bachelor in Life Science (Honors/ Honors with Research)		**Semester - VIII**	**Session: 2024-25**
1	**Course Code**	**MBSE-12 T**	
2	**Course Title**	**Biosafety and Intellectual Property Rights**	
3	**Course Type**	**Discipline Specific Elective (DSE)**	
4	**Prerequisite (If Any)**	**As per Program**	
5	**Course Learning Outcomes (CLO)**	**At the end of this course, the students will be able to –** ➢ define biosafety and discuss its importance ➢ explain the guidelines regarding GMO ➢ assess the risk of release of GMO and study its management ➢ identify the basic concepts related to IPR ➢ relate the knowledge of patent filing and examine case studies of IPR	
6	**Credit Value**	**03 Credits**	**Credit = 15 Hours - Learning & Observation**
7	**Total Marks**	**Max. Marks: 100**	**Minimum Passing marks: 40**

PART – B: Content of the Course

Total No. of Teaching-Learning Periods (01 Hr. per period) - 45 Periods (45 Hours)

Unit	**Topics (Course contents)**	**No. of Period**
I	**Introduction to Biosafety:** Biosafety issues in biotechnology; Biosafety Cabinets &their types; Biosafety Levels of Specific Microorganisms, AERB/RSD/RES guidelines for using radioisotopes in laboratories and precautions.	**12**
II	**Biosafety Guidelines:** Biosafety guidelines and regulations (National and International); GMOs/LMOs- Concerns and Challenges; Role of Institutional Biosafety Committees (IBSC), RCGM, GEAC etc. for GMO, applications in food and agriculture; Environmental release of GMOs; Risk Analysis; Risk assessment; Risk management and communication.	**11**
III	**Introduction to Intellectual Property:** Patents, Types, Trademarks, Copyright & Related Rights, Industrial Design and Rights, Traditional Knowledge, Geographical Indications-importance of IPR – patentable and non -patentable, patenting life, legal protection of biotechnological inventions, World Intellectual Property Rights Organization (WIPO), Plagiarism: Types and academic punishments	**11**
IV	**Grant of Patent and Patenting Authorities:** Types of patent applications: Ordinary, PCT, Conventional, Divisional and Patent of Addition; introduction to Patent Filing Procedures; Patent licensing and agreement; Rights and Duties of patent owner, GATT, TRIPS Agreements; Budapest Treaty on international recognition of the deposit of microorganisms; Indian Patent Act 1970 & recent amendments.	**11**
Key Words	**Biosafety, GMO, Intellectual Property, Patent, Indian Patent Act**	

Name and Signature of Convener and Members of CBoS

10/6/24 10.6.24 10.6.24 10.6.24 Dr. Nelson Xess

Part – C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

1. Bioethics and Biosafety; M K Sateesh, Kindle Edition
2. IPR, Biosafety and Bioethics; Shomini Parashar, Deepa Goel Pearson India 2013

Reference Books:

1. Private Power, Public Law: The Globalization of Intellectual Property Rights; Susan K. Sell Cambridge University Press, 2000
2. Essentials of Intellectual Property: Law, Economics, and Strategy; Alexander I. Poltorak; Paul J. Lerner Wiley, 2011 (2nd edition
3. Biological Safety: Principles and Practices; Diane O. Fleming, Debra L. Hunt, 4th Edition. ASM 2006

Online Resources – e-Resources/ e-Books and e- learning portals

- https://www.cdc.gov/labs/pdf/CDC-BiosafetymicrobiologicalBiomedicalLaboratories-2009-P.pdf
- https://sist.sathyabama.ac.in/sist_coursematerial/uploads/SBT1401.pdf
- https://iris.who.int/bitstream/handle/10665/337956/9789240011311-eng.pdf?sequence=1
- https://www.aphl.org/programs/preparedness/Smallpox/pdf/the-1-2-3s-of-biosafety-levels.pdf
- https://sist.sathyabama.ac.in/sist_coursematerial/uploads/SBB1615.pdf
- https://www.wipo.int/edocs/pubdocs/en/intproperty/932/wipo_pub_b932ipb.pdf
- https://www.wipo.int/edocs/pubdocs/en/wipo_pub_450_2020.pdf
- https://www.rgmcet.edu.in/assets/img/departments/CIVIL/materials/R15/3-2/PESS/unit-6.pdf

Part – D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: **100 Marks**

Continuous Internal Assessment (CIA): **30 Marks**

End Semester Exam (ESE): **70 Marks**

Continuous Internal Assessment (CIA): **(By Course Teacher)**	Internal Test / Quiz – **(2): 20+20** Assignment/ Seminar – **10** Total Marks – **30**	Better marks out of the two Test/ Quiz + obtained marks in Assignment shall be considered against **30** Marks
End Semester Exam (ESE):	**Two Section – A & B** Section A: **Q1.** Objective **10 X 1 = 10 Mark**; **Q2.** Short answer type – **5X4= 20 Marks** Section B: Descriptive answer type qts., **1 out of 2** from each unit – **4X10 = 40 Marks**	

Name and Signature of Convener and Members of CBoS

10.6.24 10.6.24 10.6.24 Dr. K-K Pattar

10-6-24 Dr. Nelson Kers

10/6/24 10/6/24 10/6/24

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF MICROBIOLOGY
COURSE CURRICULUM

PART – A: Introduction			
Program: Bachelor in Life Science (Honors/ Honors with Research)		**Semester -VIII**	**Session: 2024-25**
1	**Course Code**	**MBSE-12 P**	
2	**Course Title**	**Lab. Course - MBSE-12**	
3	**Course Type**	**Laboratory Course**	
4	**Prerequisite (If Any)**	**As per Program**	
5	**Course Learning Outcomes (CLO)**	**At the end of this course, the students will be able to –** ➢ relate the working in a microbiology laboratory taking all safety measures ➢ develop skill to handle live cultures, disposal of infectious waste, care of the equipment and safety audit ➢ identify GMO and discuss their applications ➢ discuss case study reports	
6	**Credit Value**	**1 Credit**	***Credit = 30 Hours. Laboratory or Field learning/ Training***
7	**Total Marks**	**Max. Marks: 50**	**Min. Passing marks: 20**

PART: B CONTENT OF THE COURSE

Total No. of Teaching-Learning Periods: 30Hours

Module	**Topics (Course contents)**	**No. of Period**
Lab./ Field Training/ Experiment contents of Course	1. Study of components and design of a BSL-III laboratory 2. Study the examples of GMO and Indian contributions on GMO 3. Filing applications for approval from biosafety committee Filing primary applications for patents 4. Study the steps of patenting process 5. Case study on IPR	**30**
Key Words	**BSL, GMO, Patent, Case study**	

PART – C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

1. Biological Safety: Principles and Practices; Diane O. Fleming, Debra L. Hunt, 4th Edition. ASM 2006
2. IPR, Biosafety and Bioethics; Shomini Parashar, Deepa Goel Pearson India 2013

Online Resources:

- https://iris.who.int/bitstream/handle/10665/337956/9789240011311-eng.pdf?sequence=1
- https://www.aphl.org/programs/preparedness/Smallpox/pdf/the-1-2-3s-of-biosafety-levels.pdf
- https://www.wipo.int/edocs/pubdocs/en/intproperty/932/wipo_pub_b932ipb.pdf
- https://www.annauniv.edu/ipr/files/downloadable/Overview%20of%20IPR.pdf

PART – D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:
Maximum Marks: 50 Marks
Continuous Internal Assessment (CIA): 15 Marks
End Semester Exam (ESE): 35 Marks

Continuous Internal Assessment (CIA): (By Course Teacher)	**Internal Test/ Quiz – (2): 10 & 10** **Assignment/ Seminar + Attendance: 05** **Total Marks: 15**	Better Marks out of the two Test/ Quiz + obtained marks in Assignment shall be considered against **15** Marks
End Semester Exam (ESE):	**Laboratory/ Field Skill Performance: On spot Assessment** **A. Performed the Task based on lab. work – 20 Marks** **B. Spotting based on tools & technology (written) - 10 Marks** **C. Viva-voce (based on principle/ technology) – 05 Marks**	**Managed by course teacher as per lab. status**

Name and Signature of Convener and Members of CBoS

10/6/24 10/6/24 10-6-24 10-6-24 10.6.24 10-6-24 DR K.K. Patel