

**Four Year Undergraduate Program (2024-28)**  
**Department of Biotechnology**  
**Course Curriculum**

<b>Part A: Introduction</b>		
Program: Bachelor in Life Sciences (Certificate/Diploma/Degree/Honors)		Semester: II Sem
Session: 2024-2025		
1	Course Code	BTSC-02-P
2	Course Title	<b>Microbiology and Molecular Biology</b>
3	Course Type	Discipline Specific Course (DSC) - Practical
4	Pre-requisite (if any)	As per program
5	Course Learning Outcomes (CLO)	After completing this practical course, the students will be able to - <ul style="list-style-type: none"> <li>• Maintenance of microbes.</li> <li>• Identification of microbes.</li> <li>• Isolation of nucleic acid from microbes.</li> <li>• Elucidations of nucleic acids of microbes.</li> </ul>
6	Credit Value	01 Credits Credit = 30 Hours Laboratory or Field learning/Training
7	Total Marks	Max. Marks: 50      Min Passing Marks: 20

**Part B: Content of Course**

**Total No. of learning-Training/performance Periods: 30 Periods (30 Hours)**

Module	Topic (Course content)	No. of Period
Lab./Field Training/ Experiment Contents of Course	1. Various techniques for sterilization. 2. Preparation of microbial media. 3. Isolation and culture of microbes from air, soil, and water. 4. Determination of Gram-positive and Gram-negative bacteria. 5. Streak plate method for culturing of microbes. 6. Pour plate method for culturing of microbes. 7. Spread plate method for culturing of microbes. 8. Broth culture method for culturing of microbes. 9. Determination of bacterial growth curve. 10. Isolation of DNA from bacteria. 11. Estimation of DNA. 12. Estimation of RNA. 13. Elucidation of DNA bands by electrophoresis.	30
Keywords	Microbes, sterilization, RNA, DNA.	

• **Part C - Learning Resource**

**Text Books, Reference Books, Other Resources -**

**Text Books-**

- Textbook of Microbiology- A K Kushwaha.
- Microbiology – Dr. Preeti Sharma.
- Introduction To Medical Microbiology- Ananthnarayana's
- Cell and Molecular Biology- P K Gupta

**Reference Book-**

- Molecular Biology; Watson.
- Gene VIII; Benjamin Lewin.