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

Part A: Introduction			
Program: Bachelor in Life Sciences (Certificate/Diploma/Degree/Honors)		Semester: **II Sem**	Session:**2024-2025**
1	Course Code	**BTSEC-01**	
2	Course Title	**Biopesticides and Biofertilizer**	
3	Course Type	Skill Enhancement Course (SEC)	
4	Pre-requisite (if any)	As per requirement.	
5	Course Learning Outcomes (CLO)	After completing this course, the students will be able to - • Understand the basic concept of biofertilizers and biopesticides. • Understand the significance and applications of biofertilizers and biopesticides. • Develop skills for the production and application of biofertilizers. • Develop skills for the production and application of biopesticides.	
6	Credit Value	02 credits (1C + 1C) Credit=15 hours- Theoretical learning and = 30 hours laboratory or field learning/ training.	
7	Total Marks	Max. Marks: 50	Min Passing Marks: 20

Part B: Content of Course (Theory)		
Total No. of Teaching–learning Periods Theory- 15 Periods (15 Hrs) and Lab or Field learning/Training30 periods (30 Hours)		
Module	Topic (Course content)	No. of Period
Theory Contents	**Concept of biofertilizers and biopesticides** 1. Biofertilizers: classification and applications. 2. Symbiotic and asymbiotic process for nitrogen fixation. 3. Methods for production of biofertilizers. 4. Study of VA-mycorrhiza and its application. 5. Biopesticides: classification and applications. 6. Process of production of biopesticides. 7. Importance of *Trichoderma, Pseudomonas, and Bacillus* species as biocontrol agents. 8. Factors responsible for the effectiveness of bioagents against seed-borne and soil-borne pathogens.	15
Lab/Field Training Contents	1. Media preparation to culture microorganisms. 2. Collection and isolation of agriculturally important microorganisms. 3. Identification and characterization of microorganisms. 4. Screening of superior strains using in vitro techniques. 5. Inoculum development. 6. Preparation of carrier. 7. Mixing of inoculum and carrier. 8. Efficiency check of developed inoculant by using pot experiments.	30
Keywords	Biofertilisers, biopesticides, bioagents.	

• Part C - **Learning Resource**
Text Books, Reference Books, Other Resources -
Text Book- Biofertilisers and biopesticides – K Acharya, S Sen, M Rai • S. Kannaiyan- Biofertiliser Technology-Scientific Publishers. • Environmental Biotechnology- Himalaya Publishing House.
Reference Book- • Dr. Himadri Panda- The Complete Technology Book on Biofertilizer and Organic Farming- NPCS.
Online resources- https://archive.nptel.ac.in/courses/126/105/126105024/ https://archive.nptel.ac.in/courses/102/105/102105058/