



SEMESTER – V

BRANCH	Subject	Subject Code
B.Sc. (Biotechnology)	Applied Biotechnology	BTDSE1-151

Course Objective:-The Main Objective of the course will be to build the basic foundation for studying Biotechnology. The Demand for Trained workforce in Biotechnology is ever growing in Fundamental Research and Industry Sector. Academic and Research Sectors also require Interdisciplinary trained manpower to foster the Biotechnology Revolution. The restructured syllabus combines basic principles of Chemical and Biological sciences in light of advancements in technology. The curriculum aims to impart basic knowledge with emphasis on its applications to make the students ready for industries and research work in concerned field.

Course learning outcomes (CLO):-

This course can be opted as an elective by the students/Open for all On completion of this course, students should be able to:

1. Students can depict about design, types of fermentor. Recent development in fermentation process & various optimization strategic of fermentation.
2. Learners can get inside of biofertilizer and biopesticide, global environmental problem agrobiolgy techniques regulation and application.
3. Students depict about concept of environment principal technique and pollution as well as bioremediation, biodiversity, conservation and management.
4. They may creat interest in the bioinformatics tools and their application computational tools and method. Rational for and against IPR and patent and trade and entrepreneurship.

Unit – I

Environmental Pollution awareness, public assessment water quality, treatment of waste water. biopesticide-bacterial and fungal, microbial leaching, biodegradation modern fuels.

Unit – II

National & International strategies of organic farming, organic food, quality & human health. Strategies for controlling pathogen transfer, integrated pest management, biofertilizers genetically modified crops.

Unit – III

Fermentation technology, basic principle of bioprocess technology, primary & secondary screening, strain improvement, inoculum development, industrial sterilization process, scale up & product recovery. Types of fermentation, factor affecting, fermentation design.



Unit – IV

Bioinformatics & Biostatistics History of bioinformatics, computer organization. Computer in biology, computer in biological data & their types, introduction to measurement of dispersion & central tendency, their types & application, data types & presentation modes.

Unit – V

IPR forms & scope, types, international organization like, WTO, TRIPS, & GATT. Biotechnology & IPR- plant variety protection, act. Animal breeder's, rights, patenting microbes organism and genes potential markers & variants

List of Experiments/Exercise Group A Paper 1 (Practicals)

1. Prepare a marksheet of class subjects.
2. Prepare a bar chart, pie chart for analysis of election results.
3. Problem based on probability and standard deviation.
4. Retrieval of biological data resources & data.
5. Use M.S. Word to insert a table in to document.
6. Demonstration of fermentor.
7. Demonstration of PCR.
8. Production of ethanol by yeast.
9. Isolation of Agrobacter, Rhizobium and Cyanobacteria from soil.
10. Isolation of microorganism from polluted site/ industrial waste.
11. Degradation of 2,4-D by bacteria.
12. Immobilization of microbial cells by Ca alginate.
13. Isolation of microorganism from rhizosphere. . Study of policies and incentives of organic production. 14
13. Study of air borne microorganism by agar plate techniques.
16. Understanding the use of NCBI phylogenetic analysis.
17. Proxy filling of Indian product patent.