

B.Tech. Biotechnology: Semester-III BBT 303: MICROBIOLOGY	
Teaching Scheme	Examination Scheme
Lectures: 3 hrs/Week	Class Test -12 Marks
Tutorials: 1 hr/Week	Teachers Assessment – 6 Marks
Credits: 4	Attendance – 12 Marks
	End Semester Exam – 70 marks

Course Objective

To provide fundamental understanding of the microbial world, basic structure and functions of microbes, metabolism, nutrition, their diversity, physiology and relationship to environment and human health. To impart practical skills of isolation and manipulating conditions for their propagation.

Course Learning Outcomes

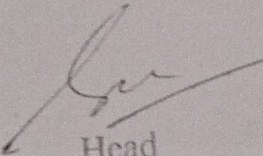
After completing the course, the student shall be able to:

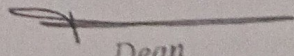
- CO1: Define the science of microbiology, its development and importance in human welfare.
- CO2: Describe historical concept of spontaneous generation and the experiments performed to disprove.
- CO3: Describe some of the general methods used in the study of microorganisms
- CO4: Recognize and compare structure and function of microbes and factors affecting microbial growth.
- CO5: Demonstrate aseptic microbiological techniques in the laboratory and check sources of microbial contamination and their control

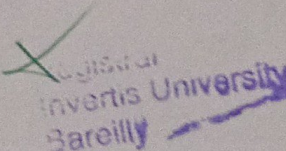
Unit 1: Fundamentals of Microbiology

The Microbial World and Chemical Principles, Observing Microorganisms through Microscope, Functional Anatomy of Prokaryotic and Eukaryotic Cells, Microbial Metabolism, Microbial Growth, The Control of Microbial Growth, Microbial Genetics, Recombinant microbes.

Unit 2: A Survey of the Microbial World


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Classification of Microorganisms, The Prokaryotes: Domains Bacteria and Archaea, The Eukaryotes: Fungi, Algae, Protozoa, and Helminths, Viruses, Viroids, and Prions.

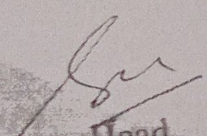
Unit 3: Interaction between Microbe and Host

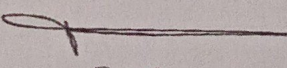
Principles of Disease and Epidemiology, Microbial Mechanisms of Pathogenicity, Antimicrobial Drugs.

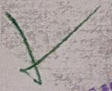
Microorganisms and Human Disease: Microbial Diseases of the Skin & Eyes, Respiratory System and Reproductive Systems.

Suggested Readings

- Pelczar MJ Jr., Chan ECS and Kreig NR., Microbiology, 5th Edition, Tata McGraw Hill, 1993.
- Maloy SR, Cronan JE Jr., and Freifelder D, Microbial Genetics, Jones Bartlett Publishers, Sudbury, Massachusetts, 2006.
- Crueger and A Crueger, (English Ed., TDW Brock); Biotechnology: A textbook of Industrial Microbiology, Sinaeur Associates, 1990.
- G Reed, Prescott and Dunn's, Industrial Microbiology, 4th Edition, CBS Publishers, 1987


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