

Objective: Students should gain basic understanding of History of microbiology and scope of microbiology.

Credits Earned: 5 Credits

Course Outcomes: After completion of this course, student will be able to

- Acquire, articulate, retain and apply specialized language and knowledge relevant to microbiology.
- Understands with the latest information in scientific microbiological methods
- Understands the Classification of different types of microorganism
- Acquire and demonstrate competency in laboratory safety and in routine and specialized microbiological laboratory skills applicable to microbiological research or clinical methods, including accurately reporting observations and analysis.

Teaching and Examination Scheme

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
Theory	Tutorial	Practical		ESE (E)	Mid Sem (M)	Internal (I)	Viva (V)	Term work (TW)	
4	0	2	5	50	30	20	25	25	150

Contents:

Unit	Topics	Contact Hours
1	History of Microbiology Biogenesis and abiogenesis Contributions of Redi, Spallanzani, Needham, Pasteur, Tyndal, Joseph Lister, Koch [Germ Theory], Edward Jenner and Flemming [Penicillin]	10
2	Classification, systematic and ultra structure Systems of classification: Binomial Nomenclature, Whittaker's five kingdom and Carl Woese's three kingdom classification systems. Difference between prokaryotic and eukaryotic microorganism	10
3	Microbial diversity Introduction to groups of organisms: Algae, Bacteria, Fungi, Protozoa & viruses	08
4	Scope of Microbiology Scope of Microbiology in medicine, agriculture, food science, ecology, environmental sciences, genetics and biochemistry.	08
Total Hours		36

Recommended Textbooks:

1. Pelczar MJ, Chan ECS and Krieg NR. (1993). Microbiology 5th edition. McGraw Hill Book Company.

Suggested Theory distribution:

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create

20%	20%	30%	15%	10%	5%
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Instructional Method:

- a. The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.
- b. The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory and class-room.
- c. Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.
- d. Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory