

**Shri Guru Buddhiswami Shikshan Prasarak Sanstha's**  
**Shri Guru Buddhiswami Mahavidyalaya,**  
Purna (Jn.), Dist. Parbhani-431511. (M.S.)

**DEPARTMENT OF MICROBIOLOGY**

**B. Sc. First Year**

**Outline and Salient Feature:**

B. Sc. Microbiology syllabus is crafted to serve the need of choice based credit system course structure to orient and practically train students in the field of Microbiology. The course is specifically bringing core courses, skilled enhanced and discipline elective courses together dealing additional domain of knowledge in this field of study where in Core Course includes Introductory and basic microbiology, microbial physiology and biochemistry, applied microbiology, immunology and medical microbiology.

Skill enhanced courses includes public health, diagnostic microbiology, medical laboratory technology and microbial biofertilizers, and also on enzyme, bioprocess technology, GMP and molecular biology techniques is well suited to understand application of scientific and engineering skills to the processing of materials by microorganisms.

DSE course based on microbial genetics and molecular biology is concerned with genes, mutation, recombination, DNA replication, transcription, translation, associated phenomena and their manipulation and techniques of such manipulation. Another DSE course (with choice) provide an option to learn diverse metabolic events occurring in view of the particular microorganisms and its environment and agriculture and to relate this information to a biology as a whole.

This course is giving emphasis on enzymology, microbial metabolism, nitrogen metabolism and also offer industrial microbiology or pharmaceutical Microbiology as DSE courses is an area of applied microbiology which deals production of various useful endproducts on large scale.

**Utility:**

The syllabus of B. Sc. microbiology course will orient and train the students in view of general microbiology, medical microbiology and laboratory technology, microbial genetics and molecular biology, occurrence of metabolic events and its relation to environment and agriculture, Industrial and Pharmaceutical Microbiology to understand and apply this knowledge for carrier

orientation. SE Course will provide additional opportunity for a student to develop skills of interest in this field of study.

**Learning Objectives:**

The learning or training objectives of SEC has been mentioned below the skill of the course.

**Prerequisite:**

The course is offered for a student registered for undergraduate programme in the faculty of Science and technology who had primary training in the field of biology at higher secondary school level evident in terms of certificate by CBSC/ ICSC/ HSC for entry level core courses in microbiology optional subject. Whereas for SEC and DSE courses, student preferably needs training in microbial sciences and also likes to gain additional advanced knowledge in this field of science.

**B. Sc. First Year (Semester – I)**

**Subject: Microbiology**

**Paper Name: Introductory Microbiology (P-I) CCMB I (Section A)**

**Paper Number: I**

**Learning Objectives**

1. To study and impart knowledge about the Scope of microbiology, types of microorganisms, beneficial and harmful role of microorganism.
2. To understand the historical development in microbiology.
3. To have knowledge about the general characteristic of microorganism.
4. To have knowledge of classifying and naming of bacteria by using taxonomic roles of classification.

**Learning outcomes:**

The students will:

1. Understand Scope of microbiology, types of microorganisms, beneficial and harmful role of microorganism
2. Understand the historical development in microbiology.
3. Understand the general characteristic of microorganism.
4. Understand classifying and naming of bacteria by using taxonomic roles of classification

**B. Sc. First Year (Semester – I)**

**Subject: Microbiology**

**Paper Name: Fundamentals of Microbiology (P – II) CCMB I (Section B)**

**Paper Number: II**

**Learning Objectives:**

1. Get acquainted with bioinstrumentations and sterilization techniques used in microbiology.
2. Get acquainted with ultra-structure of bacterial cell and also with microbial nutrition.

**Learning outcomes:**

1. Able to handle bio instruments and use sterilization techniques.
2. Able understand basis ultra-structure of bacterial cell and also get acquainted with requirements for growth of microorganism.

**B. Sc. First Year (Semester – II)**

**Subject: Microbiology**

**Paper Name: Basic Microbiology & Biomolecules (P-III) CCMB II (Section A)**

**Paper Number: III**

**Learning Objectives:**

1. To study the different microbial staining techniques to observe microorganism.
2. To understand basis structure and distribution of viruses.
3. To understand basis biomolecules, informational and functional biomolecules.

**Learning outcomes:**

1. Get used to perform different staining techniques to observe the microorganisms
2. Understand the basis biomolecules, informational and functional biomolecules.

**Subject: Microbiology**

**B. Sc. First Year (Semester – II)**

**Paper Name: Microbial Physiology (P-IV) CCMB II (Section B)**

**Paper Number: IV**

**Learning Objectives:**

1. To study the bacterial cultivation technique and maintenances methods
2. To understand permeation, reproduction, growth of bacteriaand sporulation of bacteria.

**Learning Outcomes:**

1. Get acquainted with bacterial cultivation and maintenance techniques.
2. Understand the permeation, reproduction, growth of bacteriaand sporulation of bacteria.

**Subject: Microbiology**  
**B. Sc. First Year (Semester – II)**  
**Paper Name: Microbial Physiology (P-IV) CCMB II (Section B)**  
**Paper Number: IV**

**Learning Objectives:**

1. To study the bacterial cultivation technique and maintenances methods
2. To understand permeation, reproduction, growth of bacteria and sporulation of bacteria.

**Learning Outcomes:**

1. Get acquainted with bacterial cultivation and maintenance techniques.
2. Understand the permeation, reproduction, growth of bacteria and sporulation of bacteria.



**PRINCIPAL**  
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