

## COURSE OBJECTIVES AND COURSE OUTCOMES

### S. Y. B. Sc. SEMESTER - III

### MICROBIOLOGY PAPER - I

### SUBJECT: BIOMOLECULES AND MICROBIAL TAXONOMY (USMB301)

| Sr. No. | Course Objectives   | Course Outcomes  |
|---------|---|--|
| 1)      | To investigate macromolecules and their basic structures.   | The students will understand the structure and significance of macromolecules  |
| 2)      | To estimate important elements and macromolecules in living cells using various laboratory reagents and apparatus.              | Important laboratory estimation protocols included here will help students in their preliminary screening of microorganisms in their research activity                           |
| 3)      | To assess the basic structure of Nucleic acids and changes in them associated with chemical and physical environmental mutagens | Fundamentals of Nucleic acid structure and function will help students understand advanced molecular biology techniques which form the backbone of current diagnostic techniques |
| 4)      | To justify the use of classical and modern methods to identify new isolates from various environments                           | Students will become familiar with taxonomic groups of bacteria, will be able to identify the more reliable techniques for confirming the identity of a new isolate              |
| 5)      | To analyze the different methods of classification of bacteria  | Taxonomy which is an important branch of Biological Sciences will help to identify new isolates, an important aspect of research and development                                 |
| 6)      | To explain recent advances in molecular microbial identification techniques through Microbial Taxonomy                          | Modern tools and methods used in molecular biological techniques will improve career prospects for students in the field of Bioinformatics                                       |

## COURSE OBJECTIVES AND COURSE OUTCOMES

### S. Y. B. Sc. SEMESTER - IV

### MICROBIOLOGY PAPER - I

### SUBJECT: METABOLISM & BASIC ANALYTICAL TECHNIQUES (USMB401)

| Sr. No. | Course Objectives  | Course Outcomes   |
|---------|--|---|
| 1)      | To prioritize the basics of metabolism through examples of general reactions of organic compounds so that the bond cleavage and new bond formation are understood                                | Students will get an insight to biochemical reactions in the cell   |
| 2)      | To analyze the use of experimental approaches used to study metabolic reactions  | Experimental approaches used by biochemists will help students understand some aspects of research in this field  |
| 3)      | To compare and contrast between equilibrium thermodynamics in closed systems, and non-equilibrium thermodynamics in living cells and explain the concept of energy conservation by ATP synthesis | The concept of energy conservation by ATP synthesis in living cells gives an opportunity to understand many metabolic processes in living cells   |
| 4)      | To justify Electron transport process through concept of redox reactions   | Redox reactions will help comprehend electron transport processes taking place in the cell  |
| 5)      | Enzymology aims to classify enzymes and evaluate their kinetics  | Studying the kinetics of enzymes will help students understand how a biological system behaves under different environmental conditions   |
| 6)      | To practically evaluate the principles of analytical techniques of chromatography, centrifugation and electrophoresis to help students use these techniques                                      | Studying analytical techniques will help students work in an analytical laboratory at ease, help them troubleshoot and also take proper precautions when working with these instruments |