

## **COURSE OBJECTIVES AND COURSE OUTCOMES**

**T. Y. B. Sc. SEMESTER - V**

**MICROBIOLOGY PAPER - III**

**SUBJECT: MICROBIAL BIOCHEMISTRY - I (USMB503)**

| <b>Sr. No.</b> | <b>Course Objectives</b>  | <b>Course Outcomes</b>   |
|----------------|---|--|
| 1)             | To explain Microbial Physiology through Biochemistry  | Students will be able to comprehend microbial physiology logically   |
| 2)             | To evaluate the various Nutrient uptake mechanisms  | They will have an in-depth understanding of various modes of nutrient uptake in microorganisms   |
| 3)             | To investigate the universal mechanisms of energy generation through Electron transport systems and principles of bioenergetics in different physiological groups | Students will be able to apply the knowledge about energy generation mechanisms in different microorganisms if they plan to do research in Microbiology                                  |
| 4)             | To discuss bioluminescence as an adaptive mechanism, its biochemistry and applications.   | Students can apply bioluminescence knowledge that they gained in research and development  |
| 5)             | To evaluate intermediary metabolism with the help of biochemical pathways   | Study of metabolic pathways will sharpen their logical skills to analyse problems and work out solutions in this field. They can also apply these to develop rapid tests for diagnostics |
| 6)             | To analyze catabolic and anabolic carbohydrate metabolism   | Students will be able to apply the concepts of energetics and catabolism in biodegradation of various recalcitrant compounds   |

## **COURSE OBJECTIVES AND COURSE OUTCOMES**

### **T. Y. B. Sc. SEMESTER - VI**

### **MICROBIOLOGY PAPER - III**

### **SUBJECT: MICROBIAL BIOCHEMISTRY - II (USMB603)**

| <b>Sr. No.</b> | <b>Course Objectives</b>  | <b>Course Outcomes</b>  |
|----------------|---|---|
| 1)             | To assess catabolism and biosynthesis of macromolecules such as lipids, proteins and nucleic acids        | Students will be able to gain an extensive knowledge of biochemical reactions and pathways in lipid, protein and nucleic acid degradation as well as their biosynthesis |
| 2)             | To justify the regulatory mechanisms in cells for catabolic and anabolic pathways                         | They will understand the importance of regulation of metabolic pathways and mechanisms of regulation at the molecular level   |
| 3)             | To compare and contrast between photosynthetic reactions in eucaryotes and procaryotes                    | Students will be enabled to understand the key differences between procaryotic and eucaryotic photosynthesis and apply it in their future studies                       |
| 4)             | To investigate the functions of various enzymes in hydrocarbon degradation                                | Students will be equipped with theoretical aspects to solve real-life problems like oil spills in aquatic habitats  |
| 5)             | To assess inorganic metabolism in microorganisms, lithotrophy and dissimilatory inorganic metabolism      | They will be able to comprehend lithotrophy and the mechanism of inorganic assimilatory and dissimilatory pathways  |
| 6)             | To create a logical sense of understanding in students so as to prepare them for future competitive exams | The course will help students prepare logically for competitive exams   |