Y.A GOVERNMENT DEGREE COLLEGE FOR WOMEN'S

CHIRALA

DEPARTMENT OF MICROBIOLOGY

COURSE OUTCOMES

- Understand the historical significance of Microbiology and the contributions of key scientists.
- Recognize the classification of Microorganisms and their place in the living world.
- Comprehended the scope and applications of Microbiology, including the origin of microbial life and the distinction between eukaryotic and prokaryotic cells.
- They can describe the characteristics of Bacteria, Archaea, Fungi, Algae and Protozoa.
- They can describe viruses, including their nature, composition and diversity in structure.
- Develop practical skills in Aseptic techniques, growth media preparation, isolation methods and the identification of bacteria and fungi.
- Understand the classification of carbohydrates and including monosaccharides, disaccharides, polysaccharides,
- and sugar derivatives.
- Gain knowledge of lipids and fatty acids, including their classification, structures, functions and their role in cell signaling and Metabolism.
- Comprehended the structure and functions of amino acids and proteins, including their primary, secondary, tertiary and quaternary structures.
- Learn about the structure and functions of nucleic acids, including DNA and RNA, as well as the concept of base composition and nucleic acids - protein interactions. They will also be introduced to the role of vitamins in Metabolism.
- Understand the structure of enzymes, enzyme classification and Mechanism of action. They will also learn about the factors influencing enzyme activity and various types of enzymes inhibition.
- Understand the nature of genetic material, it’s organization in prokaryotes and eukaryotes, and the role of DNA and RNA.
- Explain the process of DNA replication in prokaryotes and the involvement of enzymes and factors.

- Recognize the characteristics, types, and applications of extra chromosomal genetic elements such as plasmids and transposons.
- Differentiate between classical and modern concept of genes, understand gene structure and the process of transcription.
- Comprehended the genetic code, translation process and regulation of gene expression in bacteria.
- Define and classify mutations, understand their molecular basis and gain knowledge of DNA repair mechanism.
- Understand the nutritional requirements of Microorganisms and the different methods of nutrients uptake. They will also gain knowledge of different nutritional groups and types of growth media used for Microbial cultivation.
- Gain knowledge of thermodynamics in biological systems, including concepts of Free energy, enthalpy and entropy.
- They will also learn about ATP structure and properties, oxidation - reduction reactions and carbohydrates breakdown pathways.
- They can explain how the innate and adaptive immune systems work together to generate an effective immune response against a specific pathogen.
- To understand the importance of pathogenic Microorganisms in human disease with respect to infections of the respiratory track, gastrointestinal tract urinary track etc.
- They can explain production of fermentation products and economics.
- Explain the production method of bio fertilizers and mushrooms.
- Preparation DPR and understand patenting