

**PHARMACEUTICAL MICROBIOLOGY**  
**THEORY 3 hours/ week**

**UNIT -I**

Scope and future of microbiology. Classification of microbes. Morphological study of Bacteria, Brief introduction about Actinomycetes, Fungi, Rickettsiae, Spirochetes and Viruses and their importance in pharmaceuticals.

**UNIT-II**

Nutrition, cultivation and isolation of bacteria, actinomycetes, fungi and viruses. Identification of Microbes : Cultural characteristics, Biochemical reactions, Staining techniques (simple staining, Gram staining, negative Staining) of bacteria. Preservation of microbial cultures.

**UNIT -III**

Microbial genetics – Mutations, Isolation of mutants, factors influencing rate of mutation, mutagens. Transformation, conjugation, transduction.

**UNIT -IV**

Sterilization, different methods, validation of sterilization methods & equipment. Disinfection, factors influencing disinfectants and antiseptics and their evaluation. Test for sterility – Importance, objectives, methodology as per pharmacopoeial standards, evaluation tests. Microbial limit tests for pharmaceutical dosage forms.

**UNIT -V**

Microbiological assay of antibiotics – penicillin, Vitamins – vitamin B12 and amino acids – lysine. Industrial production of Ethanol and Lactic acid