

## **MBH 402: BACTERIOLOGY AND VIROLOGY**

**52 HRS**

### **UNIT- I**

**(13hr)**

**Bacteria: Morphological types**; cell wall – cell walls of Gram negative, Gram positive, Cell wall synthesis, cell membrane, capsule type's composition and function. Structure and function of flagella, fimbriae and pili, gas vesicles, Intracytoplasmic inclusions: nucleoid, plasmids, transposons, gas vacuoles, cellulosomes, carboxysomes, magnetosomes. Endospore and exospores. chlorosomes, and phycobilisomes. Reserve food materials -polyhydroxybutyrate, polyphosphates, cyanophycin ,Nuclear material - bacterial chromosomes and bacterial plasmids

### **UNIT II**

**(13hr)**

**Taxonomy of bacteria- morphological, biochemical and molecular methods for identification;16srRNA analysis, phylogenetic analysis, DNA sequencing and comparison** ; Bergy's Manual of Systematic Bacteriology; characteristics of major groups of bacteria. – general characteristics, classification ultra-structure, reproduction and economic importance; a) Actinomycetes b) Cyanobacteria c) Mycoplasma d)Archaeobacteria

### **UNIT III**

**(13 hr)**

**Viruses, Discovery, nomenclature, classification and properties of viruses, Morphology and ultra structure - capsid and their arrangement, envelope - types and their composition, viral genome** – types and structure, Sub viral agents- viroids, prions, virusoids and satellite viruses, Virus-Host interaction; Multiplication of viruses: attachment, uncoating, penetration, biosynthesis and release viral pathogenesis: transmission, tropism, virulence, host factors, host defense mechanism.

### **UNIT- IV**

**(13 hr)**

**Plant viruses: General symptoms, economic importance, diseases in pulses: transmission and control**. Special references - BCMV, PMV, SMV, ULCV, BYMV, Human viruses: importance epidemiology symptoms and control measures - HIV, H1N1 Ebola virus, SARS virus, Small pox virus, Rabies virus, Zica virus. Bacterial viruses: classification, Lytic and lysogenic cycle. Phage Mu, M13, T4, P1, Bacteriophage typing, Cultivation & Maintenance of virus; cell culture techniques and their types, Host plant inoculation test, Histopathological examination, ELISA, Dot assay, RIA, western blot, immunofluorescence