

UNIT I**12 h**

Bio inoculants-definition, history and scope. Types of bio inoculants. Microbial Inoculants- types in microbial inoculants-seed, soil, nursery. Methods of inoculant preparation in seed/seedling and soil inoculants. ISI standards and quality tests followed in bioinoculants

UNIT II**14 h**

Biofertilizers- Definition & types, Biological Nitrogen fixers- symbiotic and non- symbiotic- *Gluconoacetobacter*, *Rhizobium*, *Frankia*, *Azotobacter*, *Azospirillum*, *Azolla*, Blue green algae .Phosphate solubilizers- mechanisms, examples. Phosphate Mobilizers- Mycorrhizae- Ecto and Endomycorrhizae and VAM

UNIT III**14 h**

Biopesticides- Definitions, Importance in management of crop pests-, *Verticillium*, *Metarrhizium*, *Beauveria*. Biofungicides: *Trichoderma* and its importance in Biocontrol of plant diseases. Bacterial biopesticides- *Bacillus thuringiensis*, *Pseudomonas*. Production and formulation of Rhizobium biofertiliser

