**MBS-408: MICROBIAL DIVERSITY** **40 HRS**

Unit-I 12 h

Importance of microbial diversity in environment: Forest ecosystem, Aquatic ecosystem, Soil ecosystem, Marine ecosystem, Air microflora. Microbial interaction: Algae & Plants, Plants & fungi, Bacteria & Animals, Plants & Bacteria. Parasitism: Bacterial, Fungal and Viral diseases. Rhizosphere and Phyllosphere microflora. Microbial life in extreme environment.

Unit-II 14 h

Indicator organisms and Bioleaching, biodegradation, bioremediation and phytoremediation. Ecological and Evolutionary diversity (Genetic diversity) of microbes. Intestinal microflora, Biofilms, Rumen Microbiology. Conventional and molecular methods of studying microbial diversity.

Unit-III 14 h

Microorganisms in different soil horizons, Classification of microorganisms, Role of Microbes in Geochemical cycling of Carbon, Nitrogen, Sulfur and Phosphorus. Studies on extremophiles in different geological spheres, Microorganisms in aquatic ecosystem and their role. Role of microbes in weathering of rocks, Lichens, the events that led to the emergence of life, evolution of metabolic processes, and the diversification of the biosphere