MANGALORE UNIVERSITY

Department of Microbiology

M.Sc. Microbiology

Open Elective MBE- 459: Microbial Diversity

40h

OBJECTIVES

1. Study of various microbes and their significance.
2. Interaction of microbes with other living and nonliving ecosystems.
3. Microbial life in extreme environments like low temperature, high temperature, low and high pressure and oxygen
4. Bioleaching and biodegradation of aspects of microbes.

COURSE OUTCOME

CO1: Study of various microbial disease of human and their control measures.
CO2: Significance of microbes in various ecosystems like soil, water, forest, air etc.
CO3: Production of antibiotics from microorganisms.
CO4: Understanding phylogenetic relationship between microorganisms.

UNIT I

Classification of microbes: Virus, Bacteria, Fungi, Algae and protozoans 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

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

Bacterial diseases: Cholera, Typhoid, Tuberculosis, Salmonellosis, Anthrax, Shigellosis. Fungal Disease: Candidiasis, Dermatitidis, Aspergillosis, Mycotoxicosis. Viral Diseases: AIDS, HIV, Rabies, Hepatitis, Poliomyelitis, Small pox, Chicken pox.

UNIT IV

Importance of microbial diversity in environment: Forest ecosystem, Aquatic ecosystem, Soil ecosystem, Marine ecosystem, Air microflora. Antibiotics and its importance: Streptomycin, Ampicillin/ Penicillin, Tetracycline.

Note: Each unit is for 10h