

OBT752 MICROBIOLOGY

DETAILED SYLLABUS

OBJECTIVE

- To introduce students to the principles of Microbiology, to emphasize the structure and biochemical aspects of various microbes.

UNIT I INTRODUCTION TO MICROBIOLOGY

classification and nomenclature of microorganisms, microscopic examination of microorganisms: light, fluorescent, dark field, phase contrast, and electron microscopy.

UNIT II MICROBES- STRUCTURE AND REPRODUCTION

Structural organization and multiplication of bacteria, viruses (TMV, Hepatitis B), algae (cyanophyta, rhodophyta) and fungi (Neurospora), life history of actinomycetes (Streptomyces), yeast (Sacharomyces), mycoplasma (M. pneumoniae) and bacteriophages (T4 phage, λ phage)

UNIT III MICROBIAL NUTRITION, GROWTH AND METABOLISM

Nutritional classification of microorganisms based on carbon, energy and electron sources
Definition of growth, balanced and unbalanced growth, growth curve and different methods to quantify bacterial growth:(counting chamber, viable count method, counting without equipment, different media used for bacterial culture (defined, complex, selective, differential, enriched) themathematics of growth-generation time, specific growth rate.

UNIT IV CONTROL OF MICROORGANISMS

Physical and chemical control of microorganisms Definition of sterilization, dry and moist heat, pasteurization, tyndalization; radiation, ultrasonication, filtration. Disinfection sanitization, antiseptics sterilants and fumigation. mode of action and resistance to antibiotics; clinically important microorganisms

UNIT V INDUSTRIAL MICROBIOLOGY

Microbes involved in preservation (Lactobacillus,bacteriocins), spoilage of food and food borne pathogens (E.coli, S.aureus, Bacillus, Clostridium). Industrial use of microbes (production of penicillin, alcohol, vitamin B-12); biogas; bioremediation (oil spillage leaching of ores by microorganisms, pollution control); biofertilizers, biopesticides. Biosensors.

SSLC, HSE, DIPLOMA, B.E/B.TECH, M.E/M.TECH, MBA, MCA

Notes

Syllabus

Question Papers

Results and Many more...

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OUTCOMES:

- To provide to the students the fundamentals of Microbiology, the scope of microbiology and solve the problems in microbial infection and their control,

TEXT BOOKS:

1. Pelczar, M.J. "Microbiology", 5th Edition, Tata McGraw-Hill, 1993.
2. Prescott. Harley, Klein. "Microbiology ": McGraw-Hill Higher Education, 2008
3. Ananthanarayanan, R. and C.K. JayaramPaniker, "Textbook of Microbiology",4th Edition, Orient Longman, 1990.