

# AMEV10 ENVIRONMENTAL MICROBIOLOGY

## UNIT-1 MICROBIOLOGY

- 1.1 Introduction, Classification of living organisms with special emphasis on micro-organisms
- 1.2 Characteristics- application in environmental engineering
- 1.3 DNA & RNA.

## UNIT-2 METHODS OF STUDY

- 2.1 Culture of micro-organisms- media preparation- sterilization,
- 2.2 Pure culture- maintenance of cultures
- 2.3 Stains and staining- estimation of bacterial numbers.

## UNIT-3 GROWTH AND METABOLISM OF MICRO-ORGANISMS

- 3.1 Growth curves - factors affecting growth
- 3.2 Nutritional requirements of microorganisms
- 3.3 Metabolism of micro-organisms- carbohydrates,
- 3.4 Proteins, fat metabolisms and the role of enzymes.

## UNIT- 4 RESPIRATIONS

- 4.1 Aerobic and anaerobic
- 4.2 Role of enzymes- bacterial respiration- fermentation and saprogenic action
- 4.3 Basic concepts of molecular biology.

## UNIT-5 BIODEGRADATION AND BIOLOGICAL TREATMENT

- 5.1 Microbiology of wastewater treatment (domestic and industrial),
- 5.2 Indicator microorganisms,
- 5.3 Biodegradation of xenobiotics, bioaugmentation,
- 5.4 Microbial leaching of heavy metals.

## References Books

1. Raina, M.Maier, Ian L. Pepper, Charles P. Gerba. "Environmental Microbiology", Academic Press, 2000.
2. Bhatia, S.C., "Handbook of Environmental Microbiology", Vol. I, II & III, Atlantic Publ. & Dist. Ltd., 2008.