

ENSE 653 ENVIRONMENTAL MICROBIOLOGY AND BIOTECHNOLOGY (Credits 04)

OBJECTIVE

To paraphrase basics of microbiology and biotechnology among learners and their applications in enhancing the quality of environment and sustainable use

SYLLABUS

Environmental Microbiology: Distribution, characteristics, diversity and ecological significance of Microbes; Microbial growth and metabolism: Environmental factors, growth phases and metabolic pathways; Environmental applications of microbiology: Bioremediation, Detoxification of pollutants, Toxic waste treatment, and treatment of drinking water

Environmental Biotechnology: Xenobiotic and recalcitrant compounds: Concepts and application of genetic engineering; Biotechnology and biodiversity; Regulatory and ethical issues

SUGGESTED READINGS

Biological Degradation of Wastes- A.M. Martin, Elsevier App. Sci., New York.

In-situ Bioremediation (2nd ed.)- B.E. Rittmann, E. Seagren, B.A. Wrenn, A.J. Valocchi, C. Ray and R. Lutgarde, Naves Publication USA.

Environmental Biotechnology for Waste Treatment-G.S. Saylor, Robust Fox and J.W. Blackburn, Plenum Press, New York.

Principles of Gene Manipulation (3rdedn.)- R.W. Old and S.B. Primrose, Blackwell Sci. Pub., Cambridge.