

2.11 40132 AGRICULTURAL AND ENVIRONMENTAL BIOTECHNOLOGY

UNIT-1 INTRODUCTION

- 1.1 Introduction to Agriculture & Environmental Biotechnology,
- 1.2 Scope, potential & Achievements,
- 1.3 Effect of Biotechnology on Agro Biodiversity

UNIT-2 INTERACTION BETWEEN PLANTS & MICROORGANISMS

- 2.1 Types of interactions: positive & negative,
- 2.2 Mycorrhiza,
- 2.3 Insect - Plant Interaction

UNIT-3 BIOLOGICAL NITROGEN FIXATION

- 3.1 Introduction, Definition,
- 3.2 Types- Symbiotic & Non symbiotic with example,
- 3.3 Mechanism of nitrogen fixation

UNIT-4 BIOFERTILIZERS AND BIOPESTICIDES

- 4.1 Bio fertilizers- Definition, Types,
- 4.2 Merits and Demerits over chemical fertilizers
- 4.3 Bio pesticides- Introduction, Types Merits and Demerits

UNIT-5 APPLICATION OF BIOTECHNOLOGY IN AGRICULTURE

- 5.1 Transgenic plants, Definition, Study of different types,
- 5.2 Transgenic plant as Bioreactor, Production of Vaccines,
- 5.3 Interferons, Antisense RNA technology,
- 5.4 Termination gene technology: a general study

UNIT-6 ENVIRONMENTAL POLLUTIONS

- 6.1 Pollution of air, water & soil.
- 6.2 Waste water treatment technology in industries,
- 6.3 Primary, Secondary and Tertiary treatment of Sewage Treatment Plants.

UNIT-7 BIOLEACHING AND BIO FUELS

- 7.1 Bioleaching of Gold, Copper and Uranium
- 7.2 Biofuel: Biogas- Introduction,
- 7.3 Production and applications

UNIT-8 BIOREMEDIATION:

- 8.1 Oil spills, Treatment of municipal waste and industrial effluents,
- 8.2 Chemical degradation,

- 8.3 Degradation of plastics, Heavy metal degradation,
- 8.4 Degradation of petroleum products
- 8.5 Dissertation on Industrial Innovation

Reference Books:

1. Biotechnology V. Kumaresan
2. Agriculture Biotechnology H.D. Kumar
3. General microbiology by Stanier R Y., Ingraham J.L
4. Plant Biotechnology Adrian Slater
5. Introduction to soil microbiology by Alexander M.
6. Soil microorganism And Plant growth by Subbarao N S

