

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

M.Sc. Biotechnology (Five years integrated course)

Semester - II

IBT: 205

Course Title: Environmental Biology

Unit – I (7 hrs.)

1. Introduction: Basic ecological principles, Scope, importance and application.
2. Ecosystem: Concepts of an ecosystem, regulation and control mechanisms, Structure and functional aspects of an ecosystem. Producers, consumers and decomposers

Unit-II (7 hrs.)

3. Energy flow in the ecosystem, food chains, food webs, ecological pyramids.
4. Material cycling in ecosystems: Concept of geochemical cycles, cycling of essential elements; Carbon, Nitrogen, phosphorous, Sulphur,

Unit-III (7 hrs.)

5. Ecological succession: Development and evolution of ecosystem
6. Characteristic features of Terrestrial ecosystem (forest, grass land, agriculture land), aquatic ecosystem (marine, fresh water, estuarine).
7. Biology of extreme environments: thermal springs, Saline, Dee sea

Unit – IV (7 hrs.)

8. Environmental pollution: Causes and effects of Air pollution, Water pollution, Soil pollution, Marine pollution, Radioactive pollution, Noise pollution and Thermal pollution.
9. Solid waste management: Causes, effects and control of urban and industrial waste.

Unit- V (7hrs.)

10. Biodiversity and its Conservation: Genetic, species and ecosystem diversity, Biodiversity at global, National and local levels, Hot spots of biodiversity,
11. Threats to biodiversity: habitat loss, poaching of wild life. Endangered and endemic species of India, In -situ and ex-situ conservation of biodiversity

Unit –VI (7 hrs.)

12. Environmental protection Acts: Air (Prevention and control of pollution) Act, Water (Prevention and control of pollution) Act, Wild life protection Act, Forest conservation Act.
13. Concept of sustainable development.
14. Global environmental problems, International summits on environmental issues

References:

1. Fundamentals of Ecology - M C Dash, Tata Mcgraw-Hill Publishing Co. Ltd.1998
2. Concepts of Ecology - Edward J. Kormondy, Prentice-Hall Of India Pvt. Ltd.1996
3. Ecology - Mohan P. Arora, Himalaya Publishing House, 2004
4. Environmental Biology-Biswarup Mukherjee, Tata Mcgraw-Hill Publishing Co.Ltd,1996
5. Fundamentals of Ecology-Eugene P. Odum, Natraj Publishers, 1996