

Course Name: Principles of Ecology and Environment
Course Code: PLS 470

Credit: 02

Learning outcomes

- Students will be to understand characteristics of plants at community, population and ecosystem levels.
- Students will have sound background of ecosystem structure and function.
- Students will be able to use various tools and techniques for ecological studies
- Students will understand the source of the environmental pollution and how to control the pollution in a sustainable way

UNIT -I

Basic concept of Ecology, Environment interaction with ecological factors, Approaches to Ecology, Biological Clocks, Ecological niche, and type of niche, Ecological Equivalents and Character Displacement, Basic Concepts of Population, Population Characteristics and Population Dynamics.

UNIT -II

Methods of study of communities, Individualistic concept and vegetational continuum concept of communities, Interspecific associations and ordination. Community Dynamics, Types of Succession, General process of succession, Hydrosere, Lithosere and Heterotrophic Succession.

UNIT -III

Ecosystem Development, Climax concept and Biome, Structure of Ecosystem. Function of an ecosystem, Ecological Energetic. Nutrients cycles in ecosystem, Basic concept of system ecology, Freshwater Ecology, Marine Ecology, Estuarine ecology, terrestrial ecology and desert ecology

UNIT -IV

Forest resources, forest cover, Forest survey of India, Deforestation, Desertification, Afforestation, Energy plantations for ethanol and biodiesel, Conventional and non conventional sources of energy

UNIT -V

Environmental pollution, Kinds, sources, Climate change, Basic concepts of sustainable development, Industrial ecology and recycling industry, role of natural products and biodiversity in international trade.

Suggested Readings:

1. Ambasht, R. S. and Ambasht, A. K. 2002. A textbook of Plant Ecology. C.B.S. Publishers and Distributors.
2. Kumar, H. D. 2000. Modern Concepts of Ecology. Prentice Hall India, New Delhi.
3. E. P. Odum, 2005. Fundamentals of Ecology, Cengage Publisher, 5 edition
4. P. D. Sharma, 2011, Ecology and Environment, Rastogi Publication
5. Chapman, J.L. and Reiss, M.J. 1988. Ecology – Principles and Applications, Cambridge University Press, U.K.
6. Tiwari, S.C. 1993. Concept of Modern Ecology, Bishan Singh Mahendra Pal Singh, Dehra Dun.
7. Kormondy, E.J. 1996. Concepts of Ecology, Prentice-Hall of Indian Ltd., New Delhi