

CORE COURSE IV : PRINCIPLES OF ENVIRONMENTAL SCIENCES

Unit I

Basic components of an ecosystems – structure and functional aspects of an ECO system, Tropic structure – Ecological Niche – Ecological dominances – Stability Diversity rule, Energy flow in ecosystems – Laws of Thermodynamics, Productivity – Biomass production, primary productivity and net productivity

Unit II

Food Chain – Types of food chain, with examples, Foodweb, Ecological pyramid of biomass – Number and energy – inverted ecological pyramids

Unit III

Aquatic Ecosystem – Physics – Chemical nature of lentic and lotic ecosystems, Types of aquatic ecosystem – structure and organization with examples of fresh water Ecosystem, Marine water ecosystem, estuarine water Ecosystem – Mangroves

Unit IV

Population dynamics, models for single and interacting population, stable points, stable cycles, chaos competition, prey perdation etc. Ecological succession, primary and secondary processes in succession, models of successions, climax community and types of climax

Unit V

Biogeochemical Cycles – Availability and rate of cycling of nutrients – gaseous and Sedimentay cycle

References:

1. Fundamental and Environmental Ecology, III Edition, (1971) Odum, E.P. Prentice Hall
2. Anjaneyulu, Y. 2004, Introduction to Environmental Science, B.S. Publications
3. D. Daniel Chiras, 2001, Environmental Science, 6th Ed., Jones and Bartlett Publishers.
4. Mukherji Shormila, 2004, Fragile environment, Manak Publication Pvt. Ltd.
5. Subramanian. V. 2002, A text book in Environmental Science, Narosa Publishing House, New Delhi.