SOFT CORE COURSES
BSS 503APPLIEDECOLOGY

39hrs

Course Outcomes:

After successful completion of the course, students will be able to:

CO 1. Understandbiodiversity, hotspots, conservation and management
CO 2. Develop knowledge of forest and landscape ecology and watershedmanagement.
CO 3. Understand fisheries and aquaculture methods for commercial production of sea food
CO 4. Learn about the impacts of aquaticpollution.
CO 5. Develop in-depth knowledge in population ecology, prey-predatory dynamics, life-history strategies,energybudgetsandreproductivestrategies.

Unit I (13 hours)

Biodiversity: types, significance, distribution and measurements-Species richness: Simpson index, Shannon Wiener index, Evenness.Megadiversity countries, hot spots, biodiversity of Western Ghats and EasternHimalayas.Wildlife management: Present status of threatened wildlife of Western Ghats; Conservation, Administrative and Judicialmeasures.Forest and landscape ecology: types of forests and their distribution with reference to Western Ghats; Vegetation mapping; Plant-animal interactions; Integrated pest management. Landscape Ecology –watershedsmanagement.

Unit II (13 hours)

Fisheries: Aquatic resources - fish, mollusca and crustaceans. Aquatic wildlife; Conservation and management of aquatic wildlife. Aquaculture - prawns, seaweeds, oysters, mussels, fin fishes and the environment. Aquaponics. Aquatic pollution – Eutrophication, algal blooms, coral reefs – bleaching, shellfish poisoning. Ganga action plan

Unit III (13 hours)

Population ecology: Demography-life tables; population structure-recruitment patterns, settlement and migration; population growth-growth patterns, age and growth, allometry, growth parameters; biotic parameters-predation, pray-predatory dynamics, competition, mutualism and population regulation; life history strategies-life history traits, longevity and survival rates, energy budgets, and reproductive strategies, *k*-selection and*r*-selection.

References:

1. Burn, A.J., Coaker, T.H. and Jepson, P.C. (1987). Integrated pest management. Academic Press, London. 474pp.
2. Daniel, J.C.A century of natural history. Bombay natural History Society,Bombay. 697 pp.
3. Dwivedi,A.P. (1993). Forests. International book Distributors, Dehra Dun. 352pp.
4. Eugene, P. Odum(1983). Basic Ecology. Saunders College,London.
5. Govardhan Veerelapati (1993). Remote sensing and water management incommend areas. International Book Distributors, Lucknow. 353pp.
6. Green, R.H. (1979). Sampling design and statistical methods for environmental biologists. Wiley, New York. 257pp.
7. Gugjisberg, C.A.W. (1970). Man and Wildlife, Arco Publishing Company Inc., NewYork.
8. Gulland, J.A. (1971). The fish resources of the Ocean, FAO/Fishery News(Books) Limited, England. 255pp.
9. Gulland, J.A. (1977). Fish population dynamics. John Wiley & Sons, London. 372pp.