

Biodiversity and its Conservation**LTP-4-0-0****Credits: 4****Course Objective:**

Purpose of the course is to have sound understanding of biodiversity, species, ecosystems and the interconnection of the living world. Students will be able to use the indices for the analysis of diversity. They will be able to understand the dire need of conservation of biodiversity.

Course Outcomes:

With completion of this course, students will be able to:

1. Understand the concept of biodiversity, importance of biodiversity
2. Use the indices for quantitative analysis of biodiversity in term of species richness and evenness.
3. Get familiar with method of conservation of biodiversity.
4. They will further be able to know about the international bodies involved in biodiversity conservation.

Syllabus**Unit: I Concept and key areas of biodiversity**

Concept of biodiversity: diversity forms: ecological, morphological, functional; Biodiversity as source of food, fodder and fuel and medicine, ethical values, cultural values, RET species.

Unit: II Biodiversity pattern and theories of distribution

Latitudinal gradients in species diversity; Concept of hot spot of biodiversity and hot spot of biodiversity region in India and world. The phylogeographic regions of the world.

Unit: III Assessment of biodiversity

Plant collections, Species Inventories, Species Richness and Evenness, Diversity indices, Genetic Diversity Analysis: polymerase chain reaction (PCR), DNA sequencing.

Unit: IV Loss of biodiversity:

Extinction of Species; natural, mass, anthropogenic; Causes of extinction, consequences of extinction of species, biodiversity erosion, Impact of climate change on biodiversity and food security, climate change

Unit: V Conservation strategies:

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Programmes for biodiversity conservation, convention on biological diversity (CBD). Conservation strategies; In-situ: Wildlife sanctuaries, National parks, Biosphere reserves, mangrooves. Ex-situ: Botanical Gardens, Seed banks, Field gene banks.

Suggested readings:

1. Gaston, K.J. and Spicer J.I. (2004). Biodiversity: An Introduction. 2nd Edition. Blackwell Science Limited, U.S.A.
2. Hubbel, S.P. (2001). The unified neutral theory of biodiversity and biogeography. Princeton University Press, Princeton NJ.
3. Gaston, K.J & Blackburn, M.J. (2000). Pattern and Process in Macroecology. Blackwell Sciences Limited. Oxford, UK.
4. Huston, M.A. (1994). Biological Diversity. Cambridge University Press, Cambridge, U.K.
5. Ludwig, J.A. and Reynolds J.F. (1988). Statistical Ecology: A primer on methods and computing. John Wiley & Sons, New York.

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