

Devi Ahilya Vishwavidyalaya Indore (M.P.)

Department of Higher Education, Govt. of M.P.

Post Graduate Semester wise Syllabus

As recommended and Approved by Board of Studies D.A.V.V.

उच्च शिक्षा विभाग, म.प्र. शासन

स्नातकोत्तर कक्षाओं के लिये सेमेस्टर अनुसार पाठ्यक्रम

अध्ययन मण्डल देवी अहिल्या विश्वविद्यालय द्वारा अनुशंसित तथा अनुमोदित

Session (सत्र) 2019-20

M. Sc. Botany (Semester System)

First Semester

Course PG 104:

Ecology and Environment

85+15

- UNIT I: **Ecology and Ecosystem:** definition, Trophic organization and structure, Food chains and webs; ecological pyramids, energy flow pathway, Ecological efficiencies, consumption, assimilation and production; Primary production - methods of measurement of primary production, Global patterns, Limiting factors.
- UNIT II: **Fate of matter in Ecosystems:** Recycling pathway, Relationship between energy flow and recycling pathways, Global biogeochemical cycles of C, N, P and S; Physical, chemical and biological characteristics of soil.
- UNIT III: **Ecosystem development and Stability:** Temporal changes, cyclic and non cyclic; Succession processes and types; Mechanism of succession facilitation, Tolerance and inhibition models; Concept of climax community. Ecological perturbation- natural and anthropogenic. Ecosystem restoration.
- UNIT IV: **Community organization:** Concepts of community and continuum; analysis of community, analytical and synthetic characters and community coefficients. Intra and Interspecific association, negative and positive Interaction and concept of ecological niche. Ordination concepts of biodiversity; evolution and differentiation of species. Allopatric and sympatric speciation; ecads and ecotypes.
- UNIT V: **Population ecology:** Population and Environment; density and distribution, Natality, Mortality, Survivorship curves, Age structure and pyramids, Fecundity schedules, Life tables; Population growth. Exponential and logistic curves; Intra specific competition and self regulation; r-and k-strategies.


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Suggested Readings

1. Smith. R.L. 1996. Ecology and Field Biology. Harper Collins. New York.
2. Muller-Dombois. D. and Ellenberg. H. 1974. Aims and Methods of Vegetation Ecology, Wiley, New York.
3. Begon. M., Harper, J.L. and Townsend, C.R. 1996. Ecology. Blackwell Science. Cambridge.
4. Ludwig. J. and Reynolds. J.F. 1988. Statistical Ecology. John Wiley and Sons.
5. Odum. E.P. 1971. Fundamentals of Ecology. Saunders, Philadelphia.
6. Odum, E.P. 1983. Basic Ecology. Saunders, Philadelphia.
7. Barbour, M.G., Burk, J.H. and Pitts, W.O. 1987. Terrestrial Plant Ecology. Cummings Publication Company, California.
8. Kormondy, E.J. 1966. Concepts of Ecology. Prentice-Hall of India Pvt. Ltd., New Delhi.
9. Chapman, J.L. and Reiss, M.J. 1988. Ecology: Principles and Applications. Cambridge University Press, Cambridge, U.K.
10. Moldan, B. and Billharz, S. 1997. Sustainability Indicators. John Wiley and Sons, New York.



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