SEMESTER VI

UCZOK20- ENVIRONMENTAL BIOLOGY

Year	SEM	Course code	Title of the Course	Course Type	Course Category	H/W	Credits	Marks
III	**VI**	**UCZOK20**	**Environmental Biology**	**Theory**	**Core**	**4**	**3**	**100**

Objectives:

- To understand the network of the surrounding and other organism.
- To protect the environment and to use the resources sustainably.

Course Outcomes:

On completion of the course the student will be able to…

CO1: Explain ecology its branches and abiotic and biotic components of ecosystem.
CO2: Discuss animal association, biogeochemical cycle and Ecosystem and its functions.
CO3: Discuss the structure and functions of terrestrial and aquatic ecosystems.
CO4: Describe the Characteristics of population, Community and Ecological Succession
CO5: Discuss the causes of pollution their control measures and wildlife management.

CO/PSO	PSO					
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	H	H	M	H	M	M
CO2	H	H	M	H	H	M
CO3	H	H	M	H	H	M
CO4	H	H	M	H	H	M
CO5	H	H	M	H	H	H

CO/PO	PO					
	PO1	PO2	PO3	PO4	PO5	PO6

CO1	H	M	H	H	M	M
CO2	H	H	H	H	H	M
CO3	H	H	H	H	H	M
CO4	H	H	H	H	H	M
CO5	H	H	H	H	H	H

Unit 1: (12 Hours)

1.1: Definition, Branches- Autecology – Synecology- Integrated. (K1, K2, K3)
1.2: Abiotic factors: Temperature-Thermal stratification. Range of Temperature tolerance, Effect of temperature on Plants and animals. (K1, K2, K3)
1.3: Light-Biological effects of light on plants and animals. (K1, K2, K3)
1.4: Water-Types and properties. (K1, K2, K3)
1.5: Soil- Soil profile-Pedogenesis. (K1, K2, K3)
1.6: Atmosphere- layers and functions. (K1, K2, K3)

Unit 2:(12 Hours)

2.1: Biotic factors: Intra and inter specific animal associations. (K1, K2, K3)
2.2: Biogeochemical cycles- Water, Carbon, Nitrogen, Phosphorus. (K1, K2, K3)
2.3: Structure of Ecosystem and functions. (K1, K2, K3, K4)
2.4: Energy flow, Productivity-primary and secondary. (K1, K2, K3, K4)
2.5: Ecological pyramids, food chain and food web. (K1, K2, K3, K4)
2.6: Decomposition and homeostasis.

Unit 3:(12 Hours)

3.1: Terrestrial habitat-characters of biome, Tundra, Forest, Deserts. (K1, K2, K3)
3.2: Fresh water habitat-physico chemical nature. (K1, K2, K3, K4)
3.3: Adaptation of animals in lentic and lotic habitat. (K1, K2, K3)
3.4: Marine ecology-Characteristics, Zonation and stratification. (K1, K2, K3)
3.5: Inter-tidal zone (Rocky, Sandy & Muddy shore). (K1, K2, K3)
3.6: Mangroves. (K1, K2, K3)

Unit 4:(12 Hours)

4.1: Definition, characteristics-Density, Natality, Mortality. (K1, K2, K3)
4.2: Survivorship curves, Age pyramids. (K1, K2, K3)
4.3: Carrying capacity, Fluctuations, Equilibrium. (K1, K2, K3)
4.4: Population growth, Population dispersal, Density dependent factors. (K1, K2, K3)
4.5: Ecotone and Edge effect. (K1, K2, K3)
4.6: Ecological succession. (K1, K2, K3)

Unit 5: (12 Hours)

5.1: Pollution- Causes and control- Air. (K1, K2, K3, K4)
5.2: Water, soil pollutions. (K1, K2, K3, K4)
5.3: Greenhouse effect, Global warming, Acid rains. (K1, K2, K3, K4)
5.4: Water treatment. (K1, K2, K3, K4)
5.5: Wild life conservation and its Management. (K1, K2, K3, K4)
5.6: Red data book, National parks and Wild life sanctuaries. (K1, K2, K3, K4)

Books for Study and Reference:

Textbooks:

1. Verma, P.S. and V.K. Agarwal- Environmental Biology, S. Chand & Co. Ltd, 1986.
2. Rastogi V.B. and M.S. Jayaraj- Animal Ecology and distribution of animals, Kedar Nath Ram Nath, Meerut-250 001, 1988-89.

Reference Books:

3. Clarke, G.L.- Elements of Ecology, John Wiley & Sons Inc, New York, London, 1954.
4. Eugene P. Odum- Fundamentals of Ecology, Saunders International Student Edition, W. B Saunders Company, Philadelphia, London, Toronto,1971.
5. Kotpal, R.L and N.P- Basic Concepts of Ecology, Vishal Publications, Delhi,1986.
6. Biswarup Mukherjee - Environmental Biology, Tata McGraw-Hill Publishing Company Ltd. New Delhi,1997.
7. Asthana, D.K. and Asthana, M- Environmental problems and solutions. S. Chand and Co., New Delhi, 2001.

E-Resources:

http://www.enviroindia.net
http://aelsindia.com
http://environment-ecology.com