

ENVIRONMENTAL BIOLOGY

Semester	Subject Code	Category	Lecture		Theory		Practical	Credits
			Hrs/ week	Total Hours/ Semester	Hrs/ week	Total Hours/ Semester		
VI	21CZO6A	Core-VIII	5	75	5	75	Nil	4

COURSE OBJECTIVES

- To develop awareness about the environment and the interactions of various components.
- To create awareness on the effect of pollutions, biodiversity and need for its conservation

COURSE OUTCOMES (CO)

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

CO Number	CO Statement	Knowledge Level (K1-K4)
CO1	Students will develop an awareness about the environment and the interaction of various components	K2 , K3
CO2	To realize the importance of inter relationship between the organism and its environment	K3, K4
CO3	Students can understand about various ecosystems and the impact of eco factors on the morphology and distribution of organisms in various habitat.	K2, K3
CO4	Students can understand the reasons and capable of managing pollution and after effects.	K3, K4
CO5	Students will be able to understand the value and need of Biodiversity conservation	K2, K4

Knowledge Level: K1- Remember; K2 – Understand; K3 – Apply; K4 – Analyze.

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	S
CO2	S	S	S	M	M
CO3	M	S	S	S	S
CO4	S	S	S	S	S
CO5	S	M	S	S	S

S-Strong; M-Medium; L- Low

Distribution of Marks: Theory 100% and Problems Nil %

UNIT I

ECOLOGICAL CONCEPTS

(15 Hours)

Scope-Branches in ecology – Autecology, synecology and integrated ecology. Abiotic factors and its ecological role –Soil-Types, Soil Profile, Pedogenesis, Light- Biological Effects of Light, Temperature- Biological Effects of Temperature, Water-Properties of water. Limiting factors. Population: Definition – characteristics – Natality, Mortality, age distribution, Population growth forms, population fluctuation.

UNIT II

NUTRIENT CYCLES and INTERACTIONS

(15 Hours)

Biogeochemical cycles – Gaseous cycle- Carbon, Nitrogen and Sedimentary cycles. Sulphur, and Phosphorous. Food chain and Food web, Pyramids and Trophic levels -Energy flow. Animal relationships: Intra specific and inter specific animal association: colony formation, social organization, predation, parasitism, commensalisms, mutualism. Inter specific competition – competitive principle or Gause's principle.

UNIT III

HABITAT ECOLOGY

(15 Hours)

Ecosystem: characteristic features, types and faunal adaptations in Freshwater (Lotic and lentic), Marine- (sandy shore-rocky shore- benthic), estuarine, mangrove and forest ecosystem. Community ecology-Ecotone and edge effect. Ecological succession, Significance and Conservation of wetlands.

UNIT IV

POLLUTION

(15 Hours)

Types of Pollution- Water, Air, Land, Thermal, Nuclear and Pesticide pollution and its causes, effects (with examples) and Management of Solid waste, Plastic waste, Medical waste and e-waste.

UNIT V

CONSERVATION

(15 Hours)

Biodiversity – definition, loss and cause. IUCN, CITES and Brief outlines of Indian laws of conservation. Biodiversity hot spots in India. Indian Endangered species and conservation, Community reserves, Sanctuaries, National parks and Tiger reserves in Tamilnadu. Afforestation and Deforestation. Global warming and Green House Effects.

TEXT BOOKS

S. No.	Authors	Title of the Book	Publishers	Year of Publication
1	Arumugam,N	A Text Book of Environmental Biology	Saras Publication	2003
2	Verma P.S., Agarwal., V.K	Environmental Biology	S. Chand and Company	2000
3	Sharma PD	Elements of Ecology	Rastogi Publications, Meerut	1980

REFERENCES BOOKS

S. No.	Authors	Title of the Book	Publishers	Year of Publication
1	Gupta PK,	Cytology, Genetics and Evolution,	Rastogi Publications, Meerut	1990
2	Kotpal. R.L, and N.P. Bali	Concepts of Ecology	Vishal Publications, New Delhi – 7	1986
3	Odum EP	Fundamentals of Ecology	W.B Saunders College Publishing, Philadelphia	1983
4	Rastogi V.B, and M.S. Jayaraji	Animal Ecology and Distribution of animals	Kedar nath, Ram Nath Meerut – 250 00	1989
5	AnanthakrishnanT.N, and S. Viswanathan	Principles of Animal Ecology	S.G. Wasani for the Macmillan Co. of India Ltd.,	1976
6	Divan S, Rosencranz A	Environmental law and policy in India: Cases, materials and statutes	New Delhi: Oxford University Press	1996
7	Clark, G. L	Elements of Ecology	John wiley and Sons Inc., New York, London.	2006

WEB SOURCES:

www.sciencedirect.co.

www.pebmed.com

www.khansacademy.com

www.epatsala.com

www.swayam.com

TEACHING METHODOLOGY

- Class room teaching
- Discussions
- Assignments
- Charts/ Models
- Power point Presentations
- Home test

SYLLABUS DESIGNERS

- Dr. D. Sasikala, Assistant Professor and HOD
- Dr. V. Kiruthiga, Assistant Professor
- Dr. V. Rekha, Assistant Professor
- Dr. A. Vinodhini, Assistant Professor
- Dr. G. Vidhya, Assistant Professor