Department of Liberal Education
Era University, Lucknow
Course Outline
Effective From: 2023-24

Name of the Program	**B.A. / B.Sc. (LIBERAL EDUCATION)**			**Year/ Semester:**	**1st / 2nd**
Course Name	**Ecology, Ecosystem and Biodiversity**	**Course Code:**	**EVA102**	**Type:**	**Theory**
Credits	**05**			**Total Sessions Hours:**	**75 Hours**
Evaluation Spread	**Internal Continuous Assessment:**	**50 Marks**		**End Term Exam:**	**50 Marks**
Type of Course	○ Compulsory	◉ Core		○ Creative	○ Life Skill
Course Objectives	1. To foster conceptual knowledge on ecology, ecosystem and biodiversity. 2. To explore the interconnectedness among all the components of environment and the dynamic nature of the ecological processes. 3. To gain insight into the challenges faced by ecosystem and biodiversity leading to their degradation and learn initiatives taken for their conservation. 4. Develop conception and skills to conserve biodiversity and manage ecosystem.				
Course Outcomes (CO): *After the successful course completion, learners will develop following attributes:*					
Course Outcome (CO)	**Attributes**				
CO1	Learn basic elements of ecosystem, ecology and biodiversity.				
CO2	Learn the interdependency of ecological components on each other and their importance for human wellbeing.				
CO3	Learn issues causing ecological disturbance and methods to measure the health of ecosystem and biodiversity				
CO4	Participate in protection of ecosystem and biodiversity and facilitate their conservation.				
Pedagogy	Interactive, discussion-based, student-centered, presentation.				
Internal Evaluation Mode	Mid-term Examination: 20 Marks Activity: 10 Marks Class test: 05 Marks Online Test/Objective Test: 05 Marks Assignments/Presentation: 05 Marks Attendance: 05 Marks				
Session Details	**Topic**			**Hours**	**Mapped CO**
Unit 1	**Ecology and Ecosystem** ● Ecology and Ecosystem: Concept, definition & components ● Ecological classification, Concept of limiting factors, biological clock and circadian rhythm ● Trophic level, food chain & food web, energy flow, productivity & ecological pyramids ● Structure and function of major ecosystems ● Biomes of the world **Activity**: Visit to a natural ecosystem to assess its structure and possible food chain.			20	CO1, CO2

Unit 2	**Population and Community Ecology** ● Population and community characteristics ● Population interactions ● Concept of keystone species, ecotone, ecotypes, ecophene, edge effect, ecological niche, and ecological indicators ● Biogeochemical cycle (N, C, S, P) ● Ecological succession **Activity**: Assessing population density and frequency of flora using quadrate method.	18	CO2
Unit 3	**Biodiversity and man-wildlife conflicts** ● Biodiversity: Definition and types ● Measurement of biodiversity ● Biodiversity hotspots ● Value and threats to biodiversity ● Case study: Sundarbans tigers and fisherman conflict, Human-Elephant conflict in India **Activity**: Identification of flora in a natural area and prepare a herbarium file.	18	CO1, CO3
Unit 4	**Conservation of Biodiversity** ● IUCN Red Data Book and protected areas categories ● Conservation of biodiversity: *In-situ* & *Ex-situ* approach ● Wildlife corridors & Flyway conservation ● Eco-sensitive zones ● Biodiversity conventions: CBD, Ramsar Convention, World Heritage Convention, CITES, Bonn convention. **Activity**: Mark major biodiversity conservation sites on map of India.	19	CO4

CO-PO and PSO Mapping

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1		2					1				2	2	2	
CO2		2	2	2			1		2		3	2	2	
CO3		3	2	1			2		2		3	2	2	
CO4		3	2	2			2		2		3	2	2	

Strong contribution-3, ***Average contribution-2,*** ***Low contribution-1,***

Suggested Readings:

Text- Books	1. Singh, J.S., Singh, S.P. & Gupta, S.R. 2006. Ecology, Environment and Resource Conservation. Anamaya Publications. 2. Sharma, P.D. 2017. Ecology and Environment, Rastogi Publications. 3. Erach Bharucha, Text Book of Environmental Studies, Orient Longman Pvt. Ltd., Ernakulum.
Reference Books	1. Groom. B. & Jenkins. M. 2000.Global Biodiversity: Earth's Living Resources in the 21st Century. World Conservation Press, Cambridge, UK. 2. Gurevitch, J., Scheiner, S. M., & Fox, G. A. 2002. The Ecology of Plants. Sinauer associates incorporated. 3. Ecology, 2nd Edition by Paul Colinvaux, Wiley.
Para Text	**Unit 1:** 1. Ecology and levels of organization- https://www.youtube.com/watch?v=srbuqpr6jUw&ab_channel=dek2635 2. Biogeochemical cycle – https://www.youtube.com/watch?v=X7hJxUP8Kmo; https://www.youtube.com/watch?v=C_qbmUAw-5c

	Unit 2: 1. Species interaction and competition -https://www.nature.com/scitable/knowledge/library/species-interactions-and-competition-102131429/ 2. Ecological succession- https://www.youtube.com/watch?v=8ceDE01iWLE&ab_channel=MooMooMathandScience **Unit 3:** 1. Value of Biodiversity- https://www.youtube.com/watch?v=iT8NnVukUrs&ab_channel=MicrobiologywithDeeptha iVarier **Unit4:** Biodiversity conservation- https://www.youtube.com/watch?v=WrjNRG3S_Z8&t=23s&ab_channel=INFOADDA

Recapitulation & Examination Pattern

Internal Continuous Assessment:

Component	**Marks**	**Pattern**
Mid-term Exam	20	**Section A:** Contains **10** MCQs/Fill in the blanks/One Word Answer/ True-False type of questions. Each question carries **0.5 marks.** **Section B:** Contains **07** descriptive questions out of which **05** questions are to be attempted. Each question carries **03 marks**.
Activity	10	Will be decided by subject teacher.
Class Test	05	Contains **05 descriptive questions.** Each question carries **01** marks.
Online Test/ Objective Test	05	Contains **10 multiple choice questions.** Each question carries **0.5** marks.
Assignment/ Presentation	05	Assignment to be made on topics and instruction given by subject teacher.
Attendance	05	As per policy.
Total Marks	**50**	

Course created by: Dr. Swati Sachdev **Signature:**	**Approved by: Prof. Venkatesh Dutta** **Signature:**