



Integral University Lucknow
Department of Environmental Science

Effective from Session: 2023-24

Course Code	B150209T/ES141	Title of the Course	Introduction to Environmental Studies	L	T	P	C
Year	1st	Semester	I/II	3	1	0	4
Pre-Requisite	10+2	Co-requisite	NIL				
Course Objectives	To study the Environment and the Ecosystem. To study Natural Resources. To study Biodiversity and Conservation. To study Environmental pollution and management. To study Human Population and Environmental Ethics.						
Course Outcomes							
CO1	Gain knowledge about the environment and ecosystem						
CO2	Students will learn about natural resource, its importance and biogeochemical cycles						
CO3	Gain knowledge about the conservation of biodiversity and its importance.						
CO4	Aware students about problems of environmental pollution, its impact on humans and ecosystem and control measures and about Environmental Laws.						
CO5	Students will learn about increase in population growth and its impact on environment.						

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mappe d CO
1	Introduction to Ecology and Environment	Concept of Ecology and Environment, components and segments of Environment, Multidisciplinary nature of Environmental Studies, Concept of Sustainability and sustainable development, and Environmental movements.	8	CO1
2	Ecosystem and Biogeochemical cycles	Concept of Ecosystem, Structure & Functions of Ecosystem, Energy flow in the Ecosystem, Ecological Pyramids, Concept of Gaseous and sedimentary cycles, Hydrological cycle, Carbon, Nitrogen, Oxygen, Phosphorus, and sulfur cycle. Ecosystem services and Ecological Succession.	8	CO1
3	Natural Resources	Renewable and non-renewable resources, Soil erosion and desertification, Deforestation, Water: Use and over-exploitation, Impacts of large Dams, Case studies	8	CO2
4	Biodiversity and Conservation	Levels of biological diversity, Hot spots of biodiversity, India as a Mega Diversity Nation, Endangered and endemic species of India, Threats to Biodiversity, Conservation of Biodiversity, Biodiversity services.	8	CO2
5	Environmental Pollution and Management	Environmental pollution, Solid waste management, Ill effects of fireworks, Climate change, Ozone layer depletion, acid rain, and impacts on human communities and the Environment.	8	CO3
6	Environmental Laws	Environmental Laws: Environment Protection Act, Air (Prevention & Control of Pollution) Act, Water (Prevention & Control of Pollution) Act, Wildlife Protection Act, Forest Conservation Act, International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD), Tribal rights, Human-wildlife conflicts.	8	CO4
7	Human Population and Environment	Human population growth: Impacts on environment, human health and welfare, Resettlement, and rehabilitation of project affected persons, Environmental ethics, Environmental communication, and public awareness, case studies.	8	CO4
8	Case Studies and Field Work	<ul style="list-style-type: none"> • Discussion on one national and one international case study related to the environment and sustainable development. • Field visits to identify local/regional environmental issues, make observations including data collection, and prepare a brief report. • Documentation of campus biodiversity. • Campus environmental management activities such as solid waste disposal, water management, and sewage treatment. 	8	CO5

Reference Books:

- 1) Agarwal, K.C. 2001 Environmental; Biology, Nidi Pub. Ltd. Bikaner.
- 2) Bharucha Erach, The Biodiversity of India, Mapin Pub. Pvt. Ltd., Ahmedabad-380, India.
- 3) Brunner R.C. 1989. Hazardous waste incineration, Mc Graw Hill
- 4) Clark R.S. Marine Pollution, Clanderon Press Oxford (TB)
- 5) Cunningham W.P. 2001. Cooper, T.H. Gorbani, E & Hepworth, Environmental encyclopedia, Jaicob Publication House, Mumbai.
- 6) De. A.K. Environmental chemistry Willey Eastern Limited.
- 7) Glick, H.P. 1993 water in crisis, Pacific Institute for studies in dev. Environment & security, Stockholm Env, Institute, Oxford Univ, Press 473 p.
- 8) Hawkins R .E. Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay.
- 9) Heywood, V.H. & Watson, R. T. 1995. Global biodiversity Assessment Cambridge Univ. Press 1140 p.
- 10) Jadhve, H. and Bhosale, V. M. 1995 Environmental protection and laws, Himalaya pub, house, Delhi. 284 p.
- 11) Mckinney, M.L. and School, R. M. 1996 Environmental science systems and solutions, web enhanced edition 639 p.

e-Learning Source:

- [https://byjus.com/biology/difference-between-environment-and-ecosystem.](https://byjus.com/biology/difference-between-environment-and-ecosystem)
<https://www.youtube.com/watch?v=dRP14TB8w7k>
<https://www.youtube.com/watch?v=3fbEVytyJCK>
<https://www.vedantu.com/biology/conservation-of-biodiversity>
<https://youmatter.world/en/definition/soil-erosion-degradation-definition/>

Course Articulation Matrix: (Mapping of COs with POs and PSOs)

PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
	CO1	1	2	2	1	1	1	3	1	1	1	1	2	1	1	1	-	-
CO2	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	-	-	-
CO3	1	1	2	1	1	1	2	1	1	1	1	2	1	1	1	-	-	-
CO4	1	1	1	1	1	1	2	1	1	1	1	2	1	1	1	-	-	-
CO5	1	1	2	1	1	2	3	2	1	2	1	2	1	1	1	-	-	-

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & sign of Program Coordinator	Sign & Seal of HoD
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