



Indraprastha College for Women University of Delhi

Work Plan for ODD SEMESTER – 2026

Course Name:	B.A (H) Phil (Theory + Practical), B. Com (H) Practical only
Paper Title:	Environmental Science: Theory into Practice-I
Unique Paper Code:	2181001001
Semester:	I
Faculty:	Dr. Neha Mishra
Year:	2026

Work Plan (Theory)			
Unit No.	Learning Objective	Lecture No.	Topics to be Covered
1	Development of a Strong foundation on the on the critical linkages between ecology- society- economy	1	Multidisciplinary nature of EVS, Concept of sustainability and sustainable Development History of Environmentalism
2	Biotic and non biotic components that make up an ecosystem. Understand how energy flows through an ecosystem. Gain an understanding of how various nutrients are cycled through ecosystems. Understand the difference between ecosystems and biological communities.	2-5	Concept & Structure of Ecosystem, Functions of Ecosystem, Concept of Productivity, Energy flow (Food chains and food web) Ecological pyramids, Biogeochemical cycles Types of Ecosystems, Ecosystem services, Ecosystem preservation. and conservation strategies; Basics of Ecosystem restoration
3	Understanding of various natural resources such as forest, minerals, land resource, Water resources, Energy Resources etc	6-9	resources, forest, minerals, Impacts of mining, Water resource, international & interstate conflicts over water, Dams Land cover, land use change, land degradation Energy resources: Renewable and non-renewable energy resources; Alternative energy resources Case studies:

			Contemporary Indian issues related to mining, dams, forests, energy, etc (e.g ., National Solar Mission, Cauvery river water conflict, Sardar Sarovar dam, Class test, Presentations
4	Environmental pollution (Air, water, soil, noise, nuclear), Solid waste management	10-13	Air Pollution, water pollution, noise pollution: causes, effects, and controls Soil, and Nuclear Pollution, Nuclear hazards Solid waste management, Hazardous waste, E-waste, etc; Waste segregation and disposal Pollution case studies: Ganga Action plan (GAP}, Delhi air pollution and public health Issues, Plastic waste management rules, Bhopal gas tragedy
	Revision	14	Revision & Discussion of previous year question papers

Work Plan (Practical)			
Unit No.	Learning Objective	Lecture No.	Topics to be Covered
1	Development of a Strong foundation on the on the critical linkages between ecology- society- economy	1	Analysis of achievement of Sustainable Development Goals of any country.
2	Biotic and non biotic components that make up an ecosystem. Understand how energy flows through an ecosystem. Gain an understanding of how various nutrients are cycled through ecosystems. Understand the difference between ecosystems and biological communities.	2	Submission and correction, Schematic collection of data for depicting ecological pyramids in the College campus
		3	Differentiation of natural and managed ecosystems using Google Earth/Google Map
		4	Field visit to terrestrial and aquatic ecosystems (forests, grasslands, wetlands, biodiversity parks, etc.)
		5	Use of worksheets to identify structure and function of different ecosystems.
		6	Submission and correction

3	Understanding of various natural resources such as forest, minerals, land resource, Water resources, Energy Resources etc	7	Visit to a paper recycling unit/rainwater harvesting plant/solar plant/biogas plant in the College campus
		8	Submission and correction
		9	Comparison of energy demand and consumption of a particular state over the years using graphical tools
		10	Mapping of natural resources of a given study area using Google earth
		11	Submission and correction
4	Environmental pollution (Air, water, soil, noise, nuclear), Solid waste management Revision	12	Prepare water audit report of the college/house/locality/colony
		13	Map solid and liquid discharge of the college/colony and develop a management plan (show it using schematic diagram, and photographs.
		14	Project submission and evaluation

Unit	Contents/Syllabus
I	Introduction to Environmental Studies Multidisciplinary nature of environmental studies; components of environment: atmosphere, hydrosphere, lithosphere, and biosphere Concept of sustainability and sustainable development; Brief history of environmentalism
II	Ecosystems Definition and concept of Ecosystem Structure of ecosystem (biotic and abiotic components); Functions of Ecosystem: Physical (energy flow), Biological (food chains, food web, ecological succession) Biogeochemical (nutrient cycling) processes. Concepts of productivity, ecological pyramids and homeostasis Types of Ecosystems: Tundra, Forest, Grassland, Desert, Aquatic (ponds, streams, lakes, rivers, oceans, estuaries); importance and threats with relevant examples from India Ecosystem services (Provisioning, Regulating, Cultural, and Supporting) Ecosystem preservation and conservation strategies; Basics of Ecosystem restoration

III	Natural Resources Land resources: Minerals, soil, agricultural crops, natural forest products, medicinal plants, and forest-based industries and livelihoods; Land cover, land use change, land degradation, soil erosion, and desertification; Causes of deforestation; Impacts of mining and dam building on environment, forests, biodiversity, and tribal communities Water resources: Natural and man-made sources; Uses of water; Over exploitation of surface and ground water resources; Floods, droughts, and international & interstate conflicts over water Energy resources: Renewable and non-renewable energy sources; Use of alternate energy sources; Growing energy needs; Energy contents of coal, petroleum, natural gas and bio gas; Agro-residues as a biomass energy source Case studies: Contemporary Indian issues related to mining, dams, forests, energy, etc (e.g., National Solar Mission, Cauvery river water conflict, Sardar Sarovar dam, Chipko movement, Appiko movement, Tarun Bharat Sangh, etc)
IV	Environmental Pollution Environmental pollution (Air, water, soil, thermal, and noise): causes, effects, and controls; Primary and secondary air pollutants; Air and water quality standards Nuclear hazards and human health risks Solid waste management: Control measures for various types of urban, industrial waste, Hazardous waste, E-waste, etc; Waste segregation and disposal Pollution case studies: Ganga Action plan (GAP), Delhi air pollution and public health issues, Plastic waste management rules, Bhopal gas tragedy, etc
S. No.	Name of Authors/Books/Publishers
1.	Raven, P.H, Hassenzahl, D.M., Hager, M.C, Gift, N.Y., and Berg, L.R. Environment, 8th Edition. Wiley Publishing, USA. 2015
2.	Singh, J.S., Singh, S.P., and Gupta, S.R. Ecology, Environmental Science and Conservation. S. Chand Publishing, New Delhi. 2017
3.	Brusseau, M.L., Pepper, I.L. and Gerba, C.P. Environmental and Pollution Science, 3rd Edition. Academic Press, USA. 2019
4.	Carson, R. Silent Spring. Houghton Mifflin Harcourt, USA. Pp. 1-264.

	Paper Components		
Credits	Lecture (L)	Tutorial (T)	Practical (P)
2	1	NA	1
Assessment Scheme			
S.No.	Component	Marking Scheme	Total Marks
1	Internal Assessment		10
	• Assignment	4	
	• Class Test	4	
	• Attendance	2	
2.	Continuous Assessment (Tutorial)		NA
	• Activity 1		
	• Activity 2		
	• Attendance		
3.	Practical		40
	• Continuous Assessment	20	
	• End Term Written/Practical Exam	20	
	• Viva		
4.	End Semester Examination	30	