

COMPETENCY BASED LEARNING DESIGN/COMPETENCY BASED POST-TEACHING REFLECTION

YEAR – 2026

SEMESTER – I

DEPARTMENT -GEOGRAPHY

FACULTY-DR AMBIKA ROY BARDHAN

Topic/Unit	Competency-Based Expected Learning Outcome (Knowledge, Skill Value, Attitude)	Assessment	Brief Description of Strategies, Aids (if any), Evaluation process	Hours Allotted	Evaluated Outcome/ Post-Teaching Reflections
Paper: ENVS-01: Fundamentals of Environment					
Unit 1: Introduction to Environmental Studies	Students will be able to: Knowledge • Explain the multidisciplinary nature of Environmental Studies. • Describe the scope and importance of Environmental Studies. • Explain the concepts of sustainability, sustainable development, Sustainable Development Goals (SDGs), and Mission LiFE. Skills • Analyse environmental issues from an interdisciplinary perspective. • Relate the principles of sustainability to everyday life and environmental decision-making. • Evaluate the role of individuals in	Quiz with MCQ	• Group Learning and Discussion • Technology based learning	3 hours	Outcomes attained: Challenges Identified: Improvements required: Alignment with POs, PSOs, COs:

	promoting sustainable development. Values • Appreciate the importance of environmental conservation and sustainable resource use. • Recognise individual and collective responsibility towards environmental protection. Attitude • Develop environmentally responsible behaviour. • Demonstrate commitment towards adopting a sustainable and low-carbon lifestyle.				
Unit 2: Ecology and Ecosystems	Students will be able to: Knowledge • Explain the concepts of ecology, ecosystem and ecosystem services. • Describe the structure and functions of ecosystems. • Explain energy flow, ecological pyramids, food chains and food webs. • Describe the concepts of population ecology, community ecology and ecological succession. Skills • Analyse ecological relationships within terrestrial and aquatic	Quiz with MCQ	• Group Learning and Discussion • Technology based learning	7 hours	

	ecosystems. • Interpret food chains, food webs and ecological pyramids. • Differentiate ecological processes operating in different ecosystems. • Apply ecological principles to explain environmental issues. Values • Appreciate the importance of ecosystem services for sustaining life. • Recognise the significance of ecological balance and conservation. Attitude • Develop concern for ecosystem conservation. • Demonstrate responsible behaviour towards protecting ecosystems.				
Unit 3: Natural Resources	Students will be able to: Knowledge • Explain renewable and non-renewable resources. • Describe land degradation, soil erosion and desertification. • Explain causes, consequences and management of deforestation. • Describe issues related to water resources, floods, droughts and water conflicts. • Explain conventional, non-	Short Answer Questions	• Group Learning and Discussion • Technology based learning • Experiential Learning	6 hours	

	conventional, green energy resources and natural resource accounting. Skills • Analyse patterns of natural resource utilisation and depletion. • Evaluate sustainable resource management practices. • Interpret the environmental impacts of resource exploitation. • Suggest appropriate conservation measures for natural resources. Values • Appreciate the need for sustainable utilisation of natural resources. • Recognise the importance of resource conservation for future generations. Attitude • Develop responsible environmental behaviour towards natural resource management. • Demonstrate commitment to sustainable consumption and conservation practices.				
Unit 4: Biodiversity and Conservation	Students will be able to: Knowledge • Explain the levels of biodiversity and ecosystem diversity. • Describe India's biogeographic zones,	Quiz with MCQ	• Group Learning and Discussion • Technology based learning	7 Hours	

	biodiversity hotspots, endemism and megadiversity status. • Explain threats to biodiversity and IUCN threat categories. • Describe in-situ and ex-situ conservation, protected area network, People's Biodiversity Register, bioprospecting and biopiracy. Skills • Identify biodiversity-rich regions and biodiversity hotspots. • Analyse threats to biodiversity and conservation strategies. • Evaluate the role of indigenous communities in biodiversity conservation. • Interpret conservation policies and protected area management. Values • Appreciate the ecological, economic and cultural significance of biodiversity. • Respect indigenous knowledge systems and community participation in conservation. Attitude • Develop commitment towards biodiversity conservation. • Demonstrate responsible behaviour in protecting biological diversity.				
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Unit 5: Environmental Pollution	Students will be able to: Knowledge • Explain the concepts and types of environmental pollution. • Describe the causes, effects and control measures of air, water, soil, noise and marine pollution. • Explain hazards, waste generation and human health risks. • Describe municipal, biomedical and e-waste management practices. • Explain climate change, global warming, ozone layer depletion and acid rain and their impacts. Skills • Analyse the causes and consequences of different forms of pollution. • Evaluate pollution control measures and waste management strategies. • Interpret environmental issues using contemporary examples and case studies. • Recommend sustainable solutions to minimise environmental pollution. Values • Appreciate the importance of environmental quality and public health. • Recognise the need for climate action	Group Presentation	• Peer Teaching • Group Learning and Discussion • Technology based learning	7 Hours	
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	and pollution prevention.				
	Attitude • Develop environmentally responsible behaviour. • Demonstrate commitment towards sustainable waste management and environmental protection.				

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YEAR - 2026 SEMESTER - I DEPARTMENT -GEOGRAPHY

CVAC-ENVS01: Fundamentals of Environment

Dr. Suman Chatterjee (SCH)

Topic/Unit	Competency-Based Expected Learning Outcome (Knowledge, Skill, Value & Attitude)	Assessment	Brief Description of Strategies, Aids (if any), Evaluation Process	Number of Classes	Evaluated Outcome / Post-Teaching Reflections
Unit 1: Introduction to Environmental Studies (Multidisciplinary nature, Scope & Importance, Sustainability, SDGs, Mission LIFE)	Knowledge: Explain the scope, multidisciplinary nature, sustainability, SDGs and Mission LIFE. Skill: Relate sustainable development concepts to real-life environmental issues. Value & Attitude: Develop environmental ethics and adopt a low-carbon lifestyle.	Quiz on sustainability, Mission LIFE, SDGs and multidisciplinary nature; short-answer questions on sustainability and Mission LIFE; long-answer questions on principles of	Interactive lecture using PowerPoint, SDG framework and Mission LIFE campaign videos; brainstorming on local sustainability practices; class quiz and discussion; evaluation through Quiz, short-answer test and assignment.	3	

		sustainable development and SDGs.			
Unit 2: Ecology and Ecosystems (Ecology, Ecosystem, Energy Flow, Ecological Pyramid, Food Chain & Food Web, Population & Community Ecology, Ecological Succession)	Knowledge: Describe ecosystem structure, energy flow, ecological pyramids, succession and ecological relationships. Skill: Construct food chains/webs, ecological pyramids and interpret ecosystem processes. Value & Attitude: Appreciate ecosystem services and biodiversity conservation.	Quiz on trophic levels, ecological pyramids, ecosystem components and energy transfer; short-answer questions on food chain vs. food web, ecological succession, ecological pyramid; long-answer questions on Y-shaped energy flow model and food chain.	Lecture with diagrams, animations and ecosystem models; preparation of food webs and ecological pyramids; group discussion and concept mapping; evaluation through diagram-based exercises, worksheets and class test.	7	
Unit 3: Natural Resources (Renewable & Non-renewable Resources, Land, Forest, Water, Energy Resources, Natural Resource Accounting)	Knowledge: Explain the classification, utilization and conservation of natural resources. Skill: Analyse resource depletion, land degradation, water conflicts and sustainable resource management. Value & Attitude: Develop responsible resource-use behaviour and conservation ethics.	Quiz on renewable/non-renewable resources, green energy, deforestation, groundwater pollution and natural resource accounting; short-answer questions on afforestation, natural resource accounting, water	Lecture supported by maps, satellite images, case studies and videos; discussion on Indian resource issues; numerical and case-based exercises; evaluation through quizzes, assignments and written tests.	6	

		conflicts and green energy; long-answer questions on biomass energy, desertification, renewable energy and groundwater pollution.			
Unit 4: Biodiversity and Conservation (Levels of Biodiversity, Biogeographic Zones, Hotspots, Endemism, IUCN Categories, In-situ & Ex-situ Conservation, Indigenous Communities, Bioprospecting & Biopiracy)	Knowledge: Explain biodiversity patterns, conservation strategies and IUCN categories. Skill: Identify biodiversity hotspots, conservation methods and indigenous conservation practices. Value & Attitude: Foster respect for biodiversity and community participation in conservation.	Quiz on biodiversity hotspots, IUCN, in-situ/ex-situ conservation, gene banks and protected areas; short-answer questions on endangered species, species diversity, bioprospecting, biopiracy and biodiversity hotspots; long-answer questions on biodiversity loss, endemism and India's mega-diversity status.	Lecture using biodiversity maps, protected area maps and Red List examples; documentary clips and case studies; group discussion on conservation success stories; evaluation through quizzes, presentations and written assignments.	7	
Unit 5: Environmental Pollution (Air, Water, Soil, Noise & Marine Pollution, Hazardous Waste, Solid Waste)	Knowledge: Describe different types, causes, effects and control measures of environmental pollution. Skill: Analyse pollution problems, waste management practices and climate-related issues. Value & Attitude: Promote pollution prevention, waste	MCQs on greenhouse gases, ozone depletion, pollutants, BOD, hazardous waste, biomedical waste, acid rain, climate change and solid	Lecture supported by videos, pollution maps, environmental case studies and newspaper reports; demonstration of waste segregation and pollution control measures; evaluation through quizzes, case analysis, presentations and written examination.	7	

Management, Climate Change, Global Warming, Ozone Depletion & Acid Rain)	segregation and environmentally responsible behaviour.	waste management; short-answer questions on marine pollution, ozone hole, biomedical waste and source segregation; long-answer questions on greenhouse gases, global warming, marine pollution and impacts of climate change.			
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COMPETENCY BASED LEARNING DESIGN/COMPETENCY BASED POST-TEACHING REFLECTION

YEAR – I SEMESTER – I DEPARTMENT – GEOGRAPHY FACULTY – DEBASREE SINHA

COURSE: COMMON VALUE-ADDED COURSES ON ENVIRONMENTAL STUDIES

CODE: CVAC 1.1. ENVS: FUNDAMENTALS OF ENVIRONMENT

Topic/Unit	Competency-Based Expected Learning Outcome (Knowledge, Skill Value, Attitude)	Assessment	Brief Description of Strategies, Aids (if any), Evaluation process	Hours Allotted
Unit I: Introduction to Environmental Studies: Multidisciplinary nature; Scope and Importance;	1. Knowledge – Understand the causes and consequences of major environmental challenges at local, national, and global levels.	1. Written test 2. Peer assessment 3. Assignment	1. Group and individual learning. 2. Lecture 4. Game-based learning	30

Sustainable Development; Mission LIFE. Unit II: Ecology and Ecosystems: Concept, Structure and Function; Energy Flow; Ecological Pyramid; Food Chain and Web; Population, Community Ecology; Succession. Unit III: Natural Resources: Renewable and Non-renewable Resources; Land; Forest; Water; Energy; Natural Resource Accounting. Unit IV: Biodiversity and Its Conservation: Genetic, species and ecosystem diversity; Biogeographic Zones and Biodiversity Hotspots; Threats to Biodiversity, IUCN Categories; In situ, Ex situ Conservation; Protected Area Network; Role of Indigenous Communities; PBR	2. Skill – Evaluate resource conservation, biodiversity management, pollution control, and climate mitigation strategies. 3. Skill – Demonstrate basic environmental problem-solving and informed decision-making skills. 4. Value – Respect indigenous knowledge systems and community participation in environmental management. 5. Attitude – Demonstrate willingness in reducing environmental impacts through sustainable practices.			
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Unit V: Environmental Pollution: Concept and types; Air, water, soil, noise, and marine pollution; Hazardous waste and human health; Solid Waste Management; Climate Change, Global Warming, Ozone Layer Depletion, Acid Rain.				
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