

**LORETO COLLEGE**  
**SEMESTER ONE COMMON VALUE-ADDED COURSES ON ENVIRONMENTAL STUDIES**

**ENVS 01: FUNDAMENTALS OF ENVIRONMENT (CVAC ENVS)**  
**TIME PLAN 2025**

**Name of Teacher: DEBASREE SINHA**

**Initials: D.S.**

**Teaching Objectives:**

- Sensitizing students to the significance of Environmental Education
- Inculcating in students a respect for nature and the environment
- Motivating students to actively safeguard and conserve the environment

**1<sup>st</sup> Semester Topic-wise Time Plan**

<i>Topics</i>	<i>Hours allotted</i>	<i>Topics (as per curriculum)</i>	<i>Teaching method</i>	<i>Learning outcome (output)</i>	<i>Assessment</i>
<b>Common Value-Added Courses on Environmental Studies ENVS 01: Fundamentals of Environment</b>	30	Unit I: Introduction to Environmental Studies: <ul style="list-style-type: none"> <li>• Multidisciplinary nature.</li> <li>• Scope and Importance.</li> <li>• Sustainable Development.</li> <li>• Mission LIFE.</li> </ul> Unit II: Ecology and Ecosystems: <ul style="list-style-type: none"> <li>• Concept</li> <li>• Structure and Function.</li> <li>• Energy Flow.</li> <li>• Ecological Pyramid.</li> <li>• Food Chain and Web.</li> <li>• Population, Community Ecology.</li> <li>• Succession.</li> </ul> Unit III: Natural Resources: <ul style="list-style-type: none"> <li>• Renewable and Non-renewable Resources.</li> </ul>	1. Lecture  2. Individual learning / self-study (selected topics/topic portions)  3. Game-based learning (Quiz)  4. Learning through problem-solving (solutions for environmental problems and conservation strategies).	Students will be able to:  1. Understand the subject matter of Environmental Studies as a discipline.  2. Appreciate the significance of natural ecosystems, their structure and function.  3. Discern the value of different natural resources and the need for their conservation.  4. Perceive the threats to biodiversity and comprehend	1. Written test  2. Quiz with MCQs

		<ul style="list-style-type: none"> <li>• Land</li> <li>• Forest</li> <li>• Water</li> <li>• Energy</li> <li>• Natural Resource Accounting.</li> </ul> <p>Unit IV: Biodiversity and Its Conservation:</p> <ul style="list-style-type: none"> <li>• Genetic, species and ecosystem diversity.</li> <li>• Biogeographic Zones and Biodiversity Hotspots.</li> <li>• Threats to Biodiversity, IUCN Categories.</li> <li>• In situ, Ex situ Conservation; Protected Area Network.</li> <li>• Role of Indigenous Communities; PBR</li> </ul> <p>Unit V: Environmental Pollution:</p> <ul style="list-style-type: none"> <li>• Concept and types.</li> <li>• Air, water, soil, noise, and marine pollution.</li> <li>• Hazardous waste and human health.</li> <li>• Solid Waste Management.</li> <li>• Climate Change, Global Warming, Ozone Layer Depletion, Acid Rain.</li> </ul>		<p>the efforts of protection</p> <p>5. Identify the different types of environmental pollution, their impacts, and their control measures.</p>	
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**LORETO COLLEGE**  
**B.Ed. TIME PLAN 2025**

**Name of the teacher: Dr. Ambika Roy Bardhan**

**Initials: A.R**

**Teaching Objective:**

- Explain the nature, scope and importance of environmental studies.
- Discuss the concept of sustainable development and its various goals.
- Discuss the concept, nature, structure and functions of ecology and ecosystems
- Explain the importance of natural resources with respect to land, soil, water, forest and the impact due to their over-exploitation
- State the various concepts related to biodiversity and in what ways they can be conserved
- Discuss the various types, causes, effects and remedial measures of environmental pollution, climate change, global warming, ozone depletion and acid rain.

**UG Semester Topic-wise Time Plan**

<b>Topics</b>	<b>Hours allotted</b>	<b>Topics (as per curriculum)</b>	<b>Teaching method</b>	<b>Learning outcome (output)</b>	<b>Assessment</b>
Multidisciplinary nature of environmental studies	45 minutes	<b>Multidisciplinary nature of environmental studies</b>	<b>Group Learning and teaching</b>	. State the nature of environmental studies . Explain the multidisciplinary nature of environmental education	<b>Quiz with MCQ</b>
Scope and importance of Environmental studies	45 minutes	<b>Scope and importance</b>	<b>Group Learning and teaching</b>	. State the scope and content of environmental studies.	<b>Quiz with MCQ</b>
Sustainable development	1 hour 30 minutes	<b>Concept of sustainability, sustainable development, and sustainability goals</b>	<b>Seminar Presentations by students</b>	. Define sustainable development. . List the characteristics of sustainable development . Explain the sustainable goals.	<b>Seminar Presentations</b>
Low carbon lifestyle: Mission LIFE	45 minutes	<b>Low carbon lifestyle: Mission LIFE</b>	<b>Group Learning and teaching</b>	. Define low carbon lifestyle . List the characteristics of	<b>Quiz with MCQ</b>

				Mission LIFE.	
Ecology, Ecosystem and ecosystem services	45 minutes	<b>Concept of ecology, ecosystem, and ecosystem services</b>	<b>Group Learning and teaching</b>	. Define the concepts Ecology, Ecosystem and ecosystem services	<b>Quiz with MCQ</b>
Structure and function of ecosystem	45 minutes	<b>Structure and function of ecosystem</b>	<b>Group Learning and teaching</b>	. Explain the structure of an ecosystem . List the functions of ecosystem	<b>Quiz with MCQ</b>
Energy flow in an ecosystem	45 minutes	<b>Energy flow in an ecosystem</b>	<b>Group Learning and teaching</b>	. Explain how energy flows in an ecosystem	<b>Quiz with MCQ</b>
Ecological pyramid	45 minutes	<b>Ecological pyramid</b>	<b>Group Learning and teaching</b>	. Define ecological pyramids . State the characteristics of ecological pyramids . Explain the three types of ecological pyramids	<b>Quiz with MCQ</b>
Food chain and food web (Terrestrial and aquatic ecosystems)	45 minutes	<b>Food chain and food web (Terrestrial and aquatic ecosystems)</b>	<b>Group Learning and teaching</b>	. Explain food chain and food web with examples . Differentiate between food chain and food web . Outline the characteristics of terrestrial and aquatic ecosystems with examples. . State the types of terrestrial and aquatic ecosystems	<b>Quiz with MCQ</b>
Population and community ecology	45 minutes	<b>Basic concept of population and community ecology</b>	<b>Group Learning and teaching</b>	. Define population and community ecology. . Outline the key features of population and community ecology	<b>Quiz with MCQ</b>

Ecological succession	45 minutes	<b>Ecological succession</b>	<b>Group Learning and teaching</b>	. Explain the process of ecological succession	<b>Quiz with MCQ</b>
Renewable and non-renewable resources	45 minutes	<b>Concept of renewable and non-renewable resources</b>	<b>Seminar presentation by students</b>	. Explain renewable and non-renewable resources with examples. . Differentiate between renewable and non-renewable resources	<b>Seminar presentation by students</b>
Land resources and land use change; land degradation,	45 minutes	<b>Land resources and land use change; land degradation, soil erosion and desertification</b>	<b>Group Learning and teaching</b>	. Outline the importance of land resources . Differentiate between land use and land cover . Show how land use change takes place . Define land degradation . State the impacts of land degradation	<b>Assignment</b>
Soil erosion and desertification	1 hour 30 minutes	<b>Land resources and land use change; land degradation, soil erosion and desertification</b>	<b>Seminar Presentations by students</b>	. Explain the concept of soil erosion with examples . List the impacts of soil erosion . Define desertification . List the impact of desertification	<b>Seminar Presentations by students</b>
Forest Resources	45 minutes	<b>Forest resources: Importance, Deforestation- causes. consequences, and remedial measures</b>	<b>Seminar Presentations by students</b>	Outline the importance of forest resources	<b>Seminar Presentations by students</b>
Deforestation-causes. consequences, and remedial measures	45 minutes	<b>Forest resources: Importance, Deforestation- causes. consequences, and remedial measures</b>	<b>Seminar Presentations by students</b>	. State the causes and consequences of deforestation . List the remedies for controlling deforestation	<b>Seminar Presentations by students</b>
Water: use and	1 hour 30	<b>Water: use and over-</b>	<b>Group</b>	. List the	<b>Quiz with</b>

over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state).	minutes	<b>exploitation of surface and ground water, floods, droughts, conflicts over water (international &amp; inter-state).</b>	<b>Learning and teaching</b>	importance of water for human existence . State the reasons for exploitation of surface and ground water . Discuss the causes and effect of flood and drought with real life examples. . Discuss the various water conflicts in India and other countries in the world.	<b>MCQ</b>
Energy resources: Environmental impacts of energy generation, use of alternative and Non-conventional energy sources. green energy	1 hour 30 minutes	<b>Energy resources: Environmental impacts of energy generation, use of alternative and Non-conventional energy sources. green energy.</b>	<b>Group Learning and teaching</b>	. List the impacts of energy generation on environment . Outline the merits of using alternative and non-conventional energy sources with examples . Define green energy	<b>Quiz with MCQ</b>
Natural resource accounting	45 minutes	<b>Natural resource accounting</b>	<b>Group Learning and teaching</b>	. Explain the concept of natural resource accounting	<b>Quiz with MCQ</b>
Levels of biological diversity: genetic, species and ecosystem diversity	45 minutes	<b>Levels of biological diversity: genetic, species and ecosystem diversity</b>	<b>Group Learning and teaching</b>	. Discuss biological diversity with respect to genetics and species. . Explain ecosystem diversity	<b>Quiz with MCQ</b>
Biogeographic zones of India, Biodiversity hotspots, Endemism, India as a mega diversity nation	1 hour 30 minutes	<b>Biogeographic zones of India, Biodiversity hotspots, Endemism, India as a mega diversity nation</b>	<b>Group Learning and teaching</b>	. Outline the major bio-geographic zones of India. . Define biodiversity hotspots	<b>Quiz with MCQ</b>

				. Name the biodiversity hotspots . Define endemism . Explain how India is a mega diversity nation with examples	
Threats to biodiversity. IUCN threat categories	45 minutes	<b>Threats to biodiversity. IUCN threat categories</b>	<b>Group Learning and teaching</b>	. List the threats to biodiversity . Outline the various IUCN threat categories	<b>Quiz with MCQ</b>
In-situ and Ex-situ conservation of biodiversity, protected area network	45 minutes	<b>In-situ and Ex-situ conservation of biodiversity, protected area network</b>	<b>Group Learning and teaching</b>	. Differentiate between in-situ and ex-situ conservation of bio-diversity . Discuss the concept of protected area network with examples	<b>Quiz with MCQ</b>
Role of indigenous communities in biodiversity conservation, Peoples Biodiversity Register, Bioprospecting and Biopiracy	1 hour 30 minutes	<b>Role of indigenous communities in biodiversity conservation, Peoples Biodiversity Register, Bioprospecting and Biopiracy</b>	<b>Group Learning and teaching</b>	. Discuss the role of indigenous communities in biodiversity conservation . Explain biodiversity register with example . Explain the concepts of bioprospecting and biopiracy	<b>Quiz with MCQ</b>
Environmental pollution	1 hour 30 minutes	<b>Environmental pollution: concepts and types,</b>	<b>Seminar presentation by students</b>	. Define environmental pollution .List the various types of environmental pollution with examples	<b>Seminar Presentations by students</b>
Air, water, soil. noise and marine pollution.	1 hour 30 minutes	<b>Air, water, soil. noise and marine pollution- causes, effects and controls</b>	<b>Seminar presentation by students</b>	. Explain the causes and effects of air, water, noise and marine pollution. . Outline the various ways	<b>Seminar Presentations by students</b>

				they can be controlled	
Hazards waste and human health risks	1 hour 30 minutes	<b>Concept of hazards waste and human health risks</b>	<b>Group Learning and teaching</b>	. Discuss the concepts of hazards waste and human health risks	<b>Quiz with MCQ</b>
Solid waste management: Control measures of municipal, biomedical and e-waste	1 hour 30 minutes	<b>Solid waste management: Control measures of municipal, biomedical and e-waste</b>	<b>Group Learning and teaching</b>	. Define solid waste management . Define e-waste, biomedical waste with examples . List the ways municipal , biomedical and e waste can be controlled	<b>Quiz with MCQ</b>
Climate change. global warming, ozone layer depletion, acid rain and their impacts on human communities and agriculture	3 hours	<b>Climate change. global warming, ozone layer depletion, acid rain and their impacts on human communities and agriculture</b>	<b>Project based Learning</b>	. List the various evidences of climate change . Explain the causes and effects of climate change . Discuss the causes, effects and controlling measures of ozone layer, global warming and acid rain . Explain the effects and controlling measures of ozone layer, global warming and acid rain on human communities and agriculture.	<b>Projects</b>



**LORETO COLLEGE**  
**Four-year (Honours & Honours with Research) /Three-year (Multidisciplinary)**  
**programme of U.G. courses of studies TIME PLAN 2025**  
**COMPULSORY CVAC-Environmental Studies**

**Name of the teacher: Dr. Suman Chatterjee**

**Initials: SCH**

**Teaching Objective:**

- To introduce students to the interdisciplinary nature, scope, and significance of environmental studies, and to develop an understanding of sustainability principles and Mission LiFE.
- To help students understand the structure and functioning of ecosystems, including energy flow, food chains, and ecological succession, with a focus on both terrestrial and aquatic environments.
- To enable students to identify various natural resources, analyze their patterns of use and exploitation, and evaluate the environmental impacts and sustainable management strategies.
- To develop an understanding of biodiversity at genetic, species, and ecosystem levels, recognize major threats, and explore strategies for biodiversity conservation, including the role of indigenous knowledge.
- To educate students about different types of environmental pollution, their causes and effects, and the technological and policy-based approaches for control and mitigation, including emerging global environmental issues.

**UG Semester I Topic-wise Time Plan**

<i>Topics</i>	<i>Hours allotted</i>	<i>Topics (as per curriculum)</i>	<i>Teaching method</i>	<i>Learning outcome (output)</i>	<i>Assessment</i>
Introduction to Environmental Studies	3 X 45 min = 135 mins	<ul style="list-style-type: none"> <li>• Multidisciplinary nature of environmental studies</li> <li>• Scope and importance</li> <li>• Concept of sustainability, sustainable development, and sustainability goals</li> <li>• Low carbon lifestyle: Mission LiFE</li> </ul>	Lecture, Group Learning, Technology-based learning (videos)	Learning Outcome: <ul style="list-style-type: none"> <li>• Understand environmental studies scope and importance</li> <li>• Explain sustainability concepts and Mission LiFE</li> </ul>	<ul style="list-style-type: none"> <li>• MCQ Quiz</li> <li>• Group discussion reflection</li> </ul>
Ecology and Ecosystems	7 x 45 = 315 mins	<ul style="list-style-type: none"> <li>• Concept of ecology, ecosystem, and ecosystem services</li> <li>• Structure and function of ecosystem</li> <li>• Energy flow in an ecosystem</li> <li>• Ecological pyramid</li> <li>• Food chain and food web (Terrestrial and aquatic ecosystems)</li> <li>• Basic concept of population and community ecology</li> <li>• Ecological succession</li> </ul>	Lecture, Game-based learning, Peer teaching	Learning Outcome: <ul style="list-style-type: none"> <li>• Describe ecosystem components and functions</li> <li>• Analyze ecological relationships and succession</li> </ul>	<ul style="list-style-type: none"> <li>• MCQ Quiz</li> <li>• Group presentation</li> <li>• Peer assessment</li> </ul>
Natural	6 x 45 = 270	<ul style="list-style-type: none"> <li>• Concept of renewable and</li> </ul>	Lecture,	Learning	<ul style="list-style-type: none"> <li>• Case study</li> </ul>

Resources	mins	non-renewable resources <ul style="list-style-type: none"> <li>• Land resources and land use change; land degradation, soil erosion and desertification</li> <li>• Forest resources: importance, deforestation - causes, consequences, and remedial measures</li> <li>• Water: use and over-exploitation, conflicts, floods, droughts</li> <li>• Energy resources: impacts, alternatives, green energy</li> <li>• Natural resource accounting</li> </ul>	Group Learning (case studies), Technology-based learning (interactive maps)	Outcome: <ul style="list-style-type: none"> <li>• Distinguish various types of natural resources</li> <li>• Assess environmental challenges related to resource use</li> </ul>	report <ul style="list-style-type: none"> <li>• In-class test (MCQs)</li> <li>• Map analysis reflection</li> </ul>
Biodiversity and Conservation	7 x 45 = 315 mins	<ul style="list-style-type: none"> <li>• Levels of biological diversity: genetic, species, ecosystem</li> <li>• Biogeographic zones of India, biodiversity hotspots, endemism</li> <li>• Threats to biodiversity, IUCN categories</li> <li>• In-situ and Ex-situ conservation, protected area network</li> <li>• Role of indigenous communities, PBR, bioprospecting, biopiracy</li> </ul>	Lecture, Individual Learning (research), Peer teaching	Learning Outcome: <ul style="list-style-type: none"> <li>• Explain biodiversity levels and conservation needs</li> <li>• Identify threats and protection strategies</li> </ul>	<ul style="list-style-type: none"> <li>• Poster presentation</li> <li>• Peer-reviewed mini presentation</li> <li>• MCQ Quiz</li> </ul>
Environmental Pollution	7 x 45 = 315 mins	<ul style="list-style-type: none"> <li>• Environmental pollution: concepts and types</li> <li>• Air, water, soil, noise, and marine pollution - causes, effects, controls</li> <li>• Concept of hazards, waste and human health risks</li> <li>• Solid waste management: municipal, biomedical, and e-waste</li> <li>• Climate change, global warming, ozone depletion, acid rain and impacts</li> </ul>	Lecture, Game-based learning, Technology-based (infographics)	Learning Outcome: <ul style="list-style-type: none"> <li>• Understand pollution types, impacts, and mitigation</li> <li>• Evaluate climate-related environmental concerns</li> </ul>	<ul style="list-style-type: none"> <li>• Infographic project</li> <li>• Class test</li> <li>• Role-play reflection activity</li> </ul>