

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

1st Semester Topic-wise Time Plan

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

		<ul style="list-style-type: none"> • Land • Forest • Water • Energy • Natural Resource Accounting. <p>Unit IV: Biodiversity and Its Conservation:</p> <ul style="list-style-type: none"> • 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 <p>Unit V: Environmental Pollution:</p> <ul style="list-style-type: none"> • 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. 	<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

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

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

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

over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state).	minutes	exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state).	Learning and teaching	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.	MCQ
Energy resources: Environmental impacts of energy generation, use of alternative and Non-conventional energy sources. green energy	1 hour 30 minutes	Energy resources: Environmental impacts of energy generation, use of alternative and Non-conventional energy sources. green energy.	Group Learning and teaching	. List the impacts of energy generation on environment . Outline the merits of using alternative and non-conventional energy sources with examples . Define green energy	Quiz with MCQ
Natural resource accounting	45 minutes	Natural resource accounting	Group Learning and teaching	. Explain the concept of natural resource accounting	Quiz with MCQ
Levels of biological diversity: genetic, species and ecosystem diversity	45 minutes	Levels of biological diversity: genetic, species and ecosystem diversity	Group Learning and teaching	. Discuss biological diversity with respect to genetics and species. . Explain ecosystem diversity	Quiz with MCQ
Biogeographic zones of India, Biodiversity hotspots, Endemism, India as a mega diversity nation	1 hour 30 minutes	Biogeographic zones of India, Biodiversity hotspots, Endemism, India as a mega diversity nation	Group Learning and teaching	. Outline the major bio-geographic zones of India. . Define biodiversity hotspots	Quiz with MCQ

				<ul style="list-style-type: none"> . Name the biodiversity hotspots . Define endemism . Explain how India is a mega diversity nation with examples 	
Threats to biodiversity. IUCN threat categories	45 minutes	Threats to biodiversity. IUCN threat categories	Group Learning and teaching	<ul style="list-style-type: none"> . List the threats to biodiversity . Outline the various IUCN threat categories 	Quiz with MCQ
In-situ and Ex-situ conservation of biodiversity, protected area network	45 minutes	In-situ and Ex-situ conservation of biodiversity, protected area network	Group Learning and teaching	<ul style="list-style-type: none"> . Differentiate between in-situ and ex-situ conservation of bio-diversity . Discuss the concept of protected area network with examples 	Quiz with MCQ
Role of indigenous communities in biodiversity conservation, Peoples Biodiversity Register, Bioprospecting and Biopiracy	1 hour 30 minutes	Role of indigenous communities in biodiversity conservation, Peoples Biodiversity Register, Bioprospecting and Biopiracy	Group Learning and teaching	<ul style="list-style-type: none"> . Discuss the role of indigenous communities in biodiversity conservation . Explain biodiversity register with example . Explain the concepts of bioprospecting and biopiracy 	Quiz with MCQ
Environmental pollution	1 hour 30 minutes	Environmental pollution: concepts and types,	Seminar presentation by students	<ul style="list-style-type: none"> . Define environmental pollution . List the various types of environmental pollution with examples 	Seminar Presentations by students
Air, water, soil. noise and marine pollution.	1 hour 30 minutes	Air, water, soil. noise and marine pollution- causes, effects and controls	Seminar presentation by students	<ul style="list-style-type: none"> . Explain the causes and effects of air, water, noise and marine pollution. . Outline the various ways 	Seminar Presentations by students

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

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

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

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