



Environmental Education Studies

Global Challenges and Solutions

Course Overview

Environmental Education is a comprehensive course that develops learners' understanding of ecological principles, environmental challenges, sustainable development, and responsible citizenship. The course explores the interrelationships between natural systems and human activities, focusing on climate change, biodiversity conservation, pollution control, natural resource management, and environmental policies. It equips learners with the knowledge, skills, and values required to analyse environmental issues, adopt sustainable practices, and contribute to environmental protection at individual, community, and professional levels.

Course Objective

After the successful completion of this course learner will be able to:

- ◆ Explain the fundamental concepts of environmental education and sustainability
- ◆ Describe the structure and functioning of ecosystems and the role of biodiversity
- ◆ Analyse major environmental issues such as climate change, pollution, and resource depletion
- ◆ Examine the impact of human activities on the environment and sustainable development
- ◆ Apply environmental conservation methods and sustainable lifestyle practices
- ◆ Interpret environmental policies, ethics, and global sustainability frameworks

What will you learn

1. Environmental awareness and responsibility
2. Critical thinking and problem analysis
3. Sustainable resource management skills
4. Pollution assessment and control understanding
5. Climate change impact analysis
6. Environmental policy interpretation
7. Decision-making for sustainability
8. Research and data interpretation skills
9. Problem-solving in environmental contexts
10. Ethical and socially responsible judgement

Program Highlights

- ◆ Eligibility - 10+ 2
- ◆ No. of Session - 121
- ◆ Language - English
- ◆ Shareable certificate - Yes

Week 1

Module 1: History of Human-Environment Interactions

S no.	Name of the Session	Session Objective
1.1	Early Humans	Analyse early human dependence on nature Evaluate significance of fire in adaptation Assess agricultural revolution shaping societies
1.2	Emergence of Civilisations	Analyse emergence of civilisations and environment Evaluate medieval and renaissance environmental changes Assess industrial revolution impact on nature
1.3	Population Growth and Global Environmental Change	Analyse population growth and resource exploitation Evaluate causes and effects of pollution Assess global responses to environmental change

Week 1

Module 2: Environmental Ethics and Global Environmentalism

S no.	Name of the Session	Session Objective
2.1	Anthropocentric vs Eco-centric Perspectives	Differentiate anthropocentric and ecocentric perspectives Evaluate environmental consequences of anthropocentrism Apply ecocentric ethics to sustainable living
2.2	Major thinkers in Environmental Philosophy	Understand contributions of major environmental thinkers Analyse implications of unsustainable global development Evaluate movements promoting environmental protection

Week 1

Module 2: Environmental Ethics and Global Environmentalism

S no.	Name of the Session	Session Objective
2.3	Global Milestones	Analyse global conferences on environment cooperation Evaluate sustainable development and poverty connections Apply principles from Rio agreements globally
2.4	Indicators of Progress and Contemporary Debates	Analyse key environmental indicators measuring progress Evaluate contemporary debates shaping environmentalism Apply solutions linking policy technology and equity

Week 2

Module 3: Understanding Natural Resources

S no.	Name of the Session	Session Objective
3.1	Forest as a Resource	Analyse forests importance and diverse categories Evaluate issues and strategies for conservation
3.2	Grasalands and Wetlands	Understand grasslands' role in livelihoods Analyse wetlands' ecological functions effectively Evaluate ecosystem conservation for climate resilience
3.3	Wildlife and Microbes	Understand wildlife and aquatic resource importance Analyse India's conservation initiatives effectively Evaluate microbes' roles in human society

Week 2

Module 4: Water Resources

S no.	Name of the Session	Session Objective
4.1	Introduction to Water Resources and Its uses	Analyse global fresh-water distribution and availability Evaluate freshwater usage across key sectors Assess pressures affecting freshwater sustainability
4.2	Water Scarcity and Management Strategies	Analyse causes and effects of water scarcity Evaluate strategies for sustainable water management Assess impacts of scarcity on communities
4.3	Water Conflicts and Treaties	Analyse causes of transboundary water conflicts Evaluate effectiveness of international water treaties Assess cooperative strategies for water management

Week 2

Module 5: Soil and Mineral Resources

S no.	Name of the Session	Session Objective
5.1	Soil: Types and Conservation	Analyse soil types and their properties Evaluate causes and effects of degradation Assess methods for sustainable soil conservation
5.2	Minerals: Types and Conservation	Analyse types and uses of mineral resources Evaluate economic and industrial importance of minerals Assess strategies for sustainable mineral conservation
5.3	Forest Conservation Acts in India	Analyse key forest conservation laws in India Evaluate roles of citizens in forest protection Assess impact of legislation on ecological balance

Week 2

Module 6: Energy Resources

S no.	Name of the Session	Session Objective
6.1	Energy Resources	Classify energy sources into renewable and non-renewable types. Evaluate the environmental impacts of different energy sources.
6.2	Environmental Implications of Energy Use	Identify energy-related environmental impacts. Analyse sources of pollution and climate change. Evaluate sustainable energy solutions.
6.3	Renewable Energy Technologies	Describe renewable energy technologies. Analyse their benefits. Evaluate Gujarat's Charanka Solar Park.

Week 2

Module 7: Sustainable Development

S no.	Name of the Session	Session Objective
7.1	Concept of Sustainable Development	Analyse the pillars of sustainable development. Evaluate sustainable development strategies.
7.2	Global Strategies for Sustainable Development	Explain global sustainability frameworks. Assess corporate and financial sustainability initiatives.
7.3	Mining Sustainable Programs	Analyse sustainable mining practices. Evaluate community benefits from mining.

Week 3

Module 8: Understanding Environmental Issues of Concern

S no.	Name of the Session	Session Objective
8.1	Defining Environmental Issues	Define major environmental issues and their causes. Analyse historical events shaping environmental awareness. Evaluate sustainable solutions to global concerns.
8.2	Spatial and Temporal Scales	Differentiate spatial and temporal scales with examples. Analyse the role of scales in managing environmental issues. Evaluate case studies and propose scale-appropriate solutions.
8.3	Scale-aware Environmental Management	Analyse scale-aware environmental approaches. Evaluate the integrated strategies.

Week 3

Module 9: Sectoral Effects of Environmental Issues

S no.	Name of the Session	Session Objective
9.1	Impact of Industry and Agriculture	Analyse the impact of industry on global environmental issues. Evaluate how agriculture can impact on global environmental issues
9.2	Impact of Energy production and Transport	Analyse the impact of energy production on global environmental issues. Evaluate how transport can impact on global environmental issues
9.3	Impact of Urbanisation	Evaluate how urbanisation can impact on global environmental issues

Module 10: Pollution and its Types

10.1	Introduction to Pollution	Define the concept of Pollution. Outline the types of Pollution.
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Week 3

Module 10: Pollution and its Types

S no.	Name of the Session	Session Objective
10.2	Types of Pollution Part 1	Analyse the pollution of air, water, soil, and noise. Describe how thermal, radioactive, and light cause pollution.
10.3	Types of Pollution Part 2	Analyse the pollution of waste, light, and e-waste. Describe how plastic and microplastic cause pollution.

Week 4

Module 11: Land Use and Land Cover Change

S no.	Name of the Session	Session Objective
11.1	Introduction to LULCC	Define the concept of Land Use and Land Cover Change (LULCC).
11.2	Environmental issues caused by LULCC Part 1	Analyse the environmental issues caused by deforestation. Describe how land degradation is caused by LULCC.
11.3	Environmental issues caused by LULCC Part 2	Analyse the environmental issues caused by urbanisation. Describe how desertification is caused by LULCC.

Module 12: Biodiversity Loss

12.1	Past and Current Trends	Describe trends in biodiversity loss. Analyse human drivers of decline. Evaluate impacts and propose conservation strategies.
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Week 4

Module 12: Biodiversity Loss

S no.	Name of the Session	Session Objective
12.2	Regional Manifestations	Analyse biodiversity challenges in India and South Asia. Evaluate the Living Planet Index as a biodiversity measure.
12.3	Impacts on Ecosystem Services	Describe biodiversity's role in ecosystem services. Analyse frameworks for biodiversity conservation. Evaluate solutions for future sustainability.

Module 13: Global Change and Its Implications

13.1	Ozone Layer Depletion	Identify causes and effects of ozone depletion. Evaluate global efforts like the Montreal Protocol.
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Week 4

Module 13: Global Change and Its Implications

S no.	Name of the Session	Session Objective
13.2	Climate Change	Explain the causes and effects of climate change. Analyse emission trends using IPCC and UNEP reports. Propose strategies to align with Paris Agreement targets.
13.3	Natural and Anthropogenic Disasters	Differentiate between natural and anthropogenic disasters with examples. Assess the environmental, social, and economic impacts of disasters. Recommend preventive and mitigation strategies for disaster management.
13.4	Implications of Global Environmental Changes	Analyse impacts of global environmental crises on ecosystems and societies. Propose sustainable and cooperative mitigation strategies.

Week 5

Module 14: Understanding Ecosystems, Biodiversity, and Conservation

S no.	Name of the Session	Session Objective
14.1	Biodiversity and its Distribution	Define biodiversity and its levels with examples. Differentiate between in-situ and ex-situ conservation strategies. Analyse biodiversity distribution across India's biogeographic zones.
14.2	Biodiversity in India	Describe India's biodiversity patterns and ecosystems. Identify biodiversity hotspots and endemic species in India. Analyse trends in endangered species populations. Evaluate conservation efforts and global targets.
14.3	Global Biodiversity	Describe the importance of global biodiversity. Assess global initiatives for biodiversity conservation.

Week 5

Module 15: Ecosystems Types

S no.	Name of the Session	Session Objective
15.1	Major Ecosystem Types in India	Classify the major ecosystem types in India. Evaluate the ecological and economic importance of these ecosystems.
15.2	Ecosystem Services	Classify ecosystem services into four categories with examples. Analyse their role in supporting human life and economy. Evaluate their importance for sustainability and conservation.
15.3	Threats to Biodiversity and Ecosystem Degradation	List the key threats to biodiversity. Describe their impacts on ecosystems and species. Analyse human and natural drivers of biodiversity loss. Evaluate conservation measures to address these threats.

Week 5

Module 16: Conservation Strategies and Policies

S no.	Name of the Session	Session Objective
16.1	In-situ and Ex-situ Conservation	Differentiate in-situ and ex-situ conservation. Explain key methods like protected areas, seed banks, and breeding programs. Analyse biodiversity statistics at national and global scales. Evaluate effectiveness of conservation strategies.
16.2	Conservation Instruments	Analyse national and international conservation policies. Evaluate community and global roles in biodiversity protection.
16.3	Community based Conservation and Gender Perspectives	Explain traditional knowledge in conservation. Analyse gender roles in resource management. Evaluate community-led conservation successes. Propose integrated, sustainable conservation strategies.

Week 6

Module 17: Pollution and its Types Part 1

S no.	Name of the Session	Session Objective
17.1	Definition and Sources of Pollution	Define pollution and its effects. Identify natural and human-made pollution sources. Analyse waste generation from production processes.
17.2	Air Pollution	Identify sources of air pollution. Differentiate primary and secondary pollutants. Analyse health impacts of air pollution. Evaluate air quality regulations.
17.3	Water Pollution	Identify the major sources of water pollution. Classify types of water bodies affected by pollutants. Analyse the health and ecological impacts of water pollution. Evaluate water quality standards and regulatory measures.

Week 6

Module 18: Pollution and its Types Part 2

S no.	Name of the Session	Session Objective
18.1	Soil Pollution	Identify causes of soil and waste pollution. Explain effects on ecosystems and human health. Analyse risks from hazardous and solid waste. Evaluate methods for pollution control and waste management.
18.2	Noise Pollution	Define noise pollution and its sources. Explain its health and environmental impacts. Analyse effects of noise intensity and exposure. Assess mitigation strategies.
18.3	Thermal and Radioactive Pollution	Explain thermal and radioactive pollution and their effects. Analyse health risks from radiation exposure. Evaluate pollution control methods. Apply safety measures to reduce radiation hazards.

Week 7

Module 19: Understanding Climate Change

S no.	Name of the Session	Session Objective
19.1	Climate and Structure of Atmosphere	Describe the factors influencing climate and distinguish it from weather. Explain the structure and functions of the Earth's atmosphere.
19.2	Anthropogenic Climate Change	Identify human activities that cause climate change. Assess the impacts of climate change on the environment and society.
19.3	Importance of 1.5°C and 2°C Targets	Describe the Paris Agreement's temperature goals. Assess measures to reduce greenhouse gas emissions.
19.4	Climate Change Projections for India and South Asia	Assess climate change impacts on South Asia. Propose adaptation strategies for India's climate risks.

Week 7

Module 20: Impacts and Vulnerability

S no.	Name of the Session	Session Objective
20.1	Impacts of Climate Change Part 1	Explain climate change impacts on global and regional environments. Analyse effects on oceans and coastal ecosystems. Evaluate impacts on terrestrial ecosystems and biodiversity.
20.2	Impacts of Climate Change Part 2	Assess consequences for agriculture and food security. Illustrate health risks from climate change.
20.3	Impacts of Climate Change Part 3	Examine urban infrastructure vulnerability. Propose adaptive strategies for resilience.

Week 8

Module 21: Adaption to Climate Change

S no.	Name of the Session	Session Objective
21.1	Adaption and Resilience	Define climate adaptation and resilience. Identify sectoral adaptation strategies. Assess integrated adaptation approaches.
21.2	Climate-Resilient Development	Define climate-resilient development. Assess strategies for sustainable and adaptive growth.
21.3	Role of Indigenous and Local Knowledge	Identify indigenous practices that support climate adaptation. Apply traditional knowledge to enhance modern resilience strategies.
21.4	Barriers to Adaptation	Identify key barriers to climate change adaptation. Assess measures to overcome these adaptation challenges.

Week 8

Module 22: Mitigation of Climate Change

S no.	Name of the Session	Session Objective
22.1	Mitigating Basics	Define climate change mitigation and its significance. Assess emission reduction strategies in key sectors. Illustrate ways to enhance carbon sinks.
22.2	Innovative Technologies	Evaluate how technological innovations mitigate climate change. Explain the role of international agreements in controlling global warming.
22.3	National Climate Action Plans (NAPCC and INDCs)	Analyse India's climate action framework and its core missions. Assess the objectives of India's INDC under the Paris Agreement.

Week 8

Module 22: Mitigation of Climate Change

S no.	Name of the Session	Session Objective
22.4	Climate Finance and Market Mechanisms	Explain the concept of climate finance. Assess carbon trading and its effectiveness in emission reduction.
22.5	Climate Justice and Equity	Explain the concept of climate justice and its importance. Assess measures to protect vulnerable communities from climate impacts.

Week 9

Module 23: Understanding the Complexity of Environmental Management

S no.	Name of the Session	Session Objective
23.1	Environmental Management	Define key principles of environmental management. Assess its role in protecting ecosystems and human health. Apply strategies for sustainable resource use and pollution control.
23.2	Drivers of Environmental Management	Explain the key drivers of environmental management. Evaluate how policies, technology, and public actions influence sustainable practices.
23.3	Constitutional and Legal Provisions	Recall key constitutional provisions for environmental protection. Examine judicial actions safeguarding the environment.

Week 9

Module 23: Understanding the Complexity of Environmental Management

S no.	Name of the Session	Session Objective
23.4	Major Environmental Legislations	Recall major environmental laws in India and their purposes. Explain how these laws protect resources and public health. Assess the effectiveness of legal frameworks like NGT and Biological Diversity Act. Apply hazardous and e-waste rules to real-world scenarios.
23.5	Challenges in Environmental Management	Assess key challenges to environmental management in India. Evaluate regulatory, social, and climatic impacts through case studies.

Week 9

Module 24: Environmental Management Systems

S no.	Name of the Session	Session Objective
24.1	Broad Aspects of Environmental Management Systems (EMS)	Analyse EMS components and functions. Evaluate EMS role in continuous improvement.
24.2	ISO 14001 and Standards	Explain ISO 14001 framework. Assess PDCA role in improvement.
24.3	Circular Economy and Life Cycle Analysis (LCA)	Differentiate between linear and circular economy models. Analyse the role of Life Cycle Assessment (LCA) in evaluating environmental impacts.
24.4	Environmental Audits and Impact Assessments	Differentiate audits and EIAs. Analyse case applications. Evaluate their role in sustainability.

Week 9

Module 25: Assessing Environmental Quality and Risk

S no.	Name of the Session	Session Objective
25.1	Environmental Quality Indicators	Identify key environmental quality indicators. Analyse case examples of air, water, soil, and biodiversity quality in India. Evaluate risks and implications for human and ecosystem health.
25.2	Environmental Risk and Hazard Assessments	Explain the steps of environmental risk and hazard assessment. Evaluate real-world cases to determine their role in risk management.
25.3	Pollution Control and Management	Describe major methods and laws for pollution control and management. Analyse real-world cases to assess their effectiveness in reducing pollution.

Week 9

Module 25: Assessing Environmental Quality and Risk

S no.	Name of the Session	Session Objective
25.4	Sustainable Practices and Ecolabeling	Explain key sustainable practices and the role of ecolabeling. Evaluate case studies to assess business benefits of sustainability.

Week 10

Module 26: International Cooperation for the Environment

S no.	Name of the Session	Session Objective
26.1	Concept of International Cooperation	Define the concept of International Cooperation
26.2	Importance of Global Cooperation	Analyse the importance of Cooperation
26.3	Instruments of International Cooperation	Define the instruments of International Cooperation.

Module 27: Major International Environmental Agreements

27.1	Biodiversity and Wildlife Treaties	Describe the biodiversity and wildlife treaties.
27.2	Treaties on Land and Desertification	Describe global treaties on desertification. Analyse community and international roles in land management.

Week 10

Module 27: Major International Environmental Agreements

S no.	Name of the Session	Session Objective
27.3	Treaties on Ozone Layer Protection	Explain global agreements for ozone layer protection. Evaluate the impact of the Montreal Protocol and its Kigali Amendment.
27.4	Treaties on Hazardous Substances and Chemicals	Describe key international treaties on hazardous chemicals and wastes. Assess their effectiveness in protecting health and the environment.
27.5	Treaties on Climate Change	Summarise major international treaties on climate change. Evaluate their effectiveness in mitigating global warming.

Week 10

Module 28: India's Environmental Legislations & Policies

S no.	Name of the Session	Session Objective
28.1	Constitutional and Legal Framework	Explain constitutional provisions for environmental protection in India. Analyse judicial principles and case laws shaping environmental jurisprudence.
28.2	Major Acts and Rules	Identify major environmental legislations in India and their scope. Evaluate the effectiveness of these laws in addressing environmental challenges.
28.3	Implementation and Institutional Mechanisms	Identify key environmental institutions in India. Analyse challenges in law enforcement.

Week 10

Module 28: India's Environmental Legislations & Policies

S no.	Name of the Session	Session Objective
28.4	Biosphere Reserves & Protected Areas	Differentiate between categories of protected areas in India. Evaluate the role of protected areas in biodiversity conservation.

Module 29: Major International Institutions and Initiatives

29.1	United Nations Agencies	Identify the roles of key UN agencies in addressing environmental challenges. Assess the contribution of UN agencies to global sustainability efforts.
29.2	Scientific and Conservation Bodies	Describe the roles of key international scientific and conservation organisations. Evaluate their impact on global biodiversity protection and policy.

Week 10

Module 29: Major International Institutions and Initiatives

S no.	Name of the Session	Session Objective
29.3	Financial and Implementation Agencies	Identify key global environmental finance institutions. Evaluate their role in sustainable development.
29.4	Role of Civil Society and NGOs	Explain the role of civil society and NGOs in environmental governance. Evaluate their impact on awareness, advocacy, and grassroots action.