

Semester	Part	Sub. Code	Title of the Paper	L	P	T	Credits
			Principles of Environmental Science	2	0	0	2

### ***Course Objectives:***

- ✓ ***Foundational Understanding:*** Introduce the fundamental components of the environment and its role in sustaining life, emphasizing the interconnections of natural systems.
- ✓ ***Environmental Awareness:*** Foster awareness of environmental issues, the reasons behind them, and different perspectives on the environment, including anthropocentric and ecocentric views.
- ✓ ***Multidisciplinary Approach:*** Highlight the multidisciplinary nature of environmental studies, emphasizing its scope and aims in addressing complex environmental challenges.
- ✓ ***Sustainability Principles:*** Introduce principles of sustainable development, focusing on the need to balance economic, social, and environmental factors for long-term well-being.
- ✓ ***Resource Conservation and Pollution Control:*** Define and classify natural resources and explore strategies for their conservation. Address various types of pollution, their causes, effects, and remedies to emphasize pollution control and mitigation.

### ***Learning Outcomes:***

Upon completing the Environmental Science course, students should be able to:

- ✓ ***Demonstrate Comprehensive Environmental Knowledge:*** Understand and explain the fundamental components of the environment, various types of natural resources, and the multidisciplinary nature of environmental studies.
- ✓ ***Recognize Environmental Issues:*** Identify and analyze the causes and consequences of environmental problems, demonstrating an awareness of the need for environmental conservation and sustainability.
- ✓ ***Evaluate Perspectives:*** Compare and contrast anthropocentric and ecocentric views on the environment, and understand how ethical considerations play a crucial role in environmental decision-making.
- ✓ ***Apply Sustainable Principles:*** Apply principles of sustainable development to evaluate and propose solutions for environmental issues, considering economic, social, and environmental factors.
- ✓ ***Resource Conservation:*** Distinguish between different types of natural resources, assess the consequences of their depletion, and propose strategies for resource conservation.
- ✓ ***Pollution Management:*** Recognize, evaluate, and propose solutions for various forms of pollution, including air, water, soil, noise, nuclear, and thermal pollution.
- ✓ ***Engage with Global Agreements:*** Understand the significance of international environmental agreements and their role in addressing global environmental challenges.
- ✓ ***Environmental Ethics and Social Awareness:*** Apply principles of environmental ethics to make ethically informed decisions related to environmental issues and understand the social and ethical dimensions of environmental challenges.

**Unit - 1: Introduction to environmental studies & Natural resources****6hrs**

Introduction to environment – components – nature of environment - need of awareness – reasons for environmental problems – anthropocentric and eco centric views. Environmental studies - multidisciplinary nature – scope and aim – sustainable development- principles – RRR concept- Indian environmental movements – environmental calendar.

**Unit-2: Natural Resources****6 hrs**

Natural resources – definition – types – forest resources – uses –deforestation- reasons – effects. Water resources – dams – effects of dams - food resources – modern agriculture– ill effects of agrochemical – integrated pest management- energy resources- types – hydel –nuclear – solar –wind and biomass energy.

**Unit-3: Environmental Pollution****6 hrs**

Pollution – definition – types – air pollution – causes and effects – effects of CO<sub>2</sub> – CO – NO<sub>x</sub> – SO<sub>x</sub> – particulates – control of air pollution – water pollution – causes – effects – remedies.

**Unit-4 : Advanced Pollution Solution & Disaster Management****6 hrs**

Soil pollution – solid waste management – Noise pollution – reasons – effects – control – nuclear pollution – cases – effects and control –thermal pollution causes – effects and remedies. e waste – ill effects of e-waste – proper recycling. Disaster management.

**Unit – 5: Social issues and environmental ethics****6 hrs**

Present environmental scenario – greenhouse effect – climate change – The Kyoto Protocol- ozone layer depletion- The Montreal Protocol - acid rain – causes – effects - disparity among the nations – The Copenhagen UNFCCC summit – carbon currency- virtual water- genetically modified organisms, Environmental ethics – introduction – people getting affected - resettlement and rehabilitation.

**Text Book**

- Anubha Kaushik and C.P. Kaushik,” Prospects of Environmental Science”, New Age International publishers, 2013.

**Reference books**

- Environmental Studies, N. Nandini, N. Sunitha and Sucharita Tandon, Sapna Book House, 2007.
- Text book of Environmental Science, Ragavan Nambiar, Scitech Publications, 2009.
- Text book of Environmental Chemistry and Pollution Control, S.S.Dara, S.Chand and Co., 2002.
- Environmental Chemistry, Colin Baird, W.H.Freeman and company, New York,1999.
- Environmental Chemistry, Gary W. VanLoon and Stephen J.Duffy, Oxford University Press, 2000.
- New Trends in Green Chemistry, V.K. Ahluwalia and M. Kidwai, Anamaya Publishers, 2006.