

Course Code	Course Name	Hours per Week			Total	Total
		L	T	P	Hrs.	Credits
EN3HS03	Environmental Sciences	2	0	0	2	2

Unit I: Environmental Communication and Public Awareness

Multidisciplinary nature of environmental studies: Scope and Significance of environmental education; Public awareness and rural outreach; Concept of sustainability and sustainable development – Principles, imperatives and threats; three E's to optimize sustainable development, Sustainable Agriculture and Organic Farming.

Environmental Ethics & Legislations: Enforcement of Environment laws in India – The water act, The Air (Prevention and Control of Pollution) Act, 1981, The Environment (Protection) Act, 1986, Environmental Impact Assessment and Environmental Auditing.

Unit II: Domestic and Global Environmental Concerns

Domestic environmental concerns: Human population growth: Impacts on environment, human health and welfare; Water conservation and Management; Resettlement and rehabilitation of project affected persons; Disaster management; Solid Waste management; Environmental movements: Chipko, Silent valley, Bishnois of Rajasthan; Deforestation; Urbanization and Energy requirements; case studies.

Global environmental concerns: Global Challenges - climate change and global warming, Kyoto Protocol, Greenhouse Gases, Ways to reduce Greenhouse gases emissions, Carbon Footprint, ways to reduce carbon footprint, Carbon Trading; Ozone layer depletion, Acid rain and impacts on human communities and agriculture.

Unit III: Natural resources and Environmental Pollution

Natural Resources: Land resources and land use change; Land degradation, soil erosion, salinization and desertification. Water: Use and over exploitation of surface and ground water, floods, droughts, conflicts over water; Forest Resources; Food resources. Energy resources: Renewable and non renewable energy sources, use of alternate energy sources, growing energy needs, India's renewable energy capacity, case studies.

Environmental pollution: types, causes, effects and control of; Air, water, soil and noise pollution; nuclear hazards and human health risks.

Unit IV: Ecosystem and Biodiversity

Ecosystem: Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession.

Biological diversity: types of biodiversity; its significance, threats and conservation.

Unit V: Sustainable habitat and Green Technology

Sustainable Habitat: Concept of Green Building and its rating systems, Volatile Organic Compounds (VOC), Heating Ventilation and Air Conditioning (HVAC) systems.

Green Technology: Hybrid Vehicle Technology, Industrial ecology, Green Technology, Green Business, Green Computing, Green Chemistry.

1. Environmental Science by Dr. Surinder Deswal, *Dhanpat Rai & Co. publication*
2. Environmental Studies by R. Rajgopalan, *Oxford IBH Publication 2011*
3. Environmental Science (8 th Edition) (2010): Daniel D. Chiras, Jones & Bartlett Ltd
4. Introduction to Environmental Science and Engineering (2nd Ed.) (2004): G. M. Masters, Pearson Education Pvt. Ltd.
5. Environmental Chemistry : A. K. De, New Age International,1996
6. Environmental Science (6 th ed) (1997): Jr. G. T. Miller, Wadsworth Publishing
7. A text book of Environmental Studies.,2006. D.K.Asthana, Meera Asthana (S.Chand&Co.)
8. Environmental Law in India Singh Gurdip, 2004, , Mcmillan & Co.
9. G.J. Rau and C.D. Wee ten, "Environmental Impact Analysis Hand book, McGraw Hill, 1980.
10. Petts Judith, 1999, Handbook of environmental impact assessment. Vol. 1, Blackwell Science