

Branch: B.Sc.(IT)	Semester-II
Subject Code: 2101	Lecture: 02 Credit: 02
Course Opted	Ability Enhancement Compulsory Course-II
Subject Title	Environmental Science

Course Objectives:

- To help the students to acquire knowledge of pollution and environmental degradation.
- To help students acquire knowledge of the environment beyond the immediate environment including distant environment.
- To help students acquire a set of values for environmental protection.
- To provide students with an opportunity to be actively involved at all levels in environmental decision making.

Course Outcomes:**Students will learn to**

- Appreciate concepts and methods from ecological and physical sciences and their application in environmental problem solving.
- Appreciate the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems.
- Reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world.

Module	Sr. No.	Topic and Details	No. of Lectures Assigned
Unit I	1.	The Multidisciplinary nature of environmental studies Definition, scope and importance Need for public awareness.	2
Unit II	1.	Natural Resources <ul style="list-style-type: none"> • Renewable and non-renewable resources: • Natural resources and associated problems. <ol style="list-style-type: none"> a) Forest Resources: Use and over-exploitation, deforestation. Timber extraction, mining, dams and their effects on forests and tribal people. b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems. c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies. d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, and salinity. 	8

		<p>e) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources.</p> <p>f) Land resources: Land as a resources, land degradation, man-induced landslides, soil erosion and desertification.</p> <p>g) Role of an individual in conservation of natural resources. - Equitable use of resources for sustainable lifestyles.</p>	
Unit III	1.	<p>Ecosystem Concept of an ecosystem. Structure and function of an ecosystem.</p> <ul style="list-style-type: none"> • Energy flow in the ecosystem. • Food chains, food webs and ecological pyramids. • Introduction, types, characteristics features, structure and function of the following ecosystem: <ol style="list-style-type: none"> a. Forest ecosystem b. Grassland ecosystem c. Desert ecosystem d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) 	6
Unit IV	1.	<p>Environmental Pollution Definition, Causes, effects and control measures of :</p> <ol style="list-style-type: none"> a. Air pollution b. Water pollution c. Soil pollution d. Noise pollution e. Thermal pollution f. Nuclear hazards 	6
	2.	<ul style="list-style-type: none"> • Solid waste Management: Causes, effects and control measures of urban and industrial wastes – biodegradable and non biodegradable wastes. Role of an individual in prevention of pollution. Disaster Management: Floods, earthquake, cyclone and landslides 	3
		Total	25

Recommended Readings:

1. Rajagopalan, R. 2018 Environmental Studies- From Crisis To Cure, Oxford University Press, New Delhi.
2. Agarwal, K.C. 2001 Environmental Biology, Nidi publ. Ltd. Bikaner.
3. Bharucha Erach, Text book on Environmental Studies, UGC, New Delhi, 2017
4. Borua P.K., J.N.Sarma and others, A Text book on Environmental Studies, Banlata, Dibrugarh, 1989
5. Brunner R.C., 1989 Hazardous Waste Incineration, McGraw Hill Inc. 480p.
6. Clark R.S., Marine Pollution, Clarendon Press Oxford (TB), 2001
7. J. P. Sharma 2013. Environmental Studies. University Science Press, New Delhi.
8. Jadav, H & Bhosale, V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284p.