ENVIRONMENTAL STUDIES

II Semester: **Common for all Branches**

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
AHS009	Foundation	3	-	-	3	30	70	100
Contact Classes: 45	Tutorial Classes: Nil	Practical Classes: Nil				Total Classes: 45		

I. COURSE OVERVIEW:

Environmental study is interconnected interrelated and interdependent subject. Hence, it is multidisciplinary in nature. The present course is framed by expert committee of UGC under the direction of honorable supreme court to be as a core module syllabus for all branches of higher education and to be implemented in all universities over India. The course is designed to create environmental awareness and consciousness among the present generation to become environmental responsible citizens. The course description is multidisciplinary nature of environmental studies, natural resources Renewable and non-renewable resources Ecosystems Biodiversity and its conservation Environmental pollution Social issues and the environment Human population and the environment Pollution control acts and field work. The course is divided into five chapters for convenience of academic teaching followed by field visits.

II. OBJECTIVES:

The course should enable the students to:

I The interrelationship between living organism and environment.

II The importance of environment by assessing its impact on the human world

III The knowledge on themes of biodiversity, natural resources, pollution control andwaste management.

IV The constitutional protection given for the safety of environment.

III. COURSE OUTCOMES:

After successful completion of the course, students should be able to:

CO 1	**Explain** the basic concept of environment, earths major cycle and its function related food chain, food web, and ecological pyramid for the importance of ecosystem and flow of energy in ecosystem	Understand
CO 2	**Classify** natural resource and necessity of natural resource conservation for sustainable use and proper use.	Understand
CO 3	**Utilize** renewable and non-renewable energy resource for futuregrowing energy needs.	Apply
CO 4	**Explain** the value of biodiversity hotspots, endangered and endemic species, in- situ and ex situ conservation methods for protecting thebiodiversity.	Apply
CO 5	**Relate** the cause and effects of pollution related to Air, Water, Soil and Noise their control and treatment technologies.	Understand
CO 6	**Summarize** the concepts of Environmental Impact Assessment, global environmental problem, international summits, to minimize the problems towards sustainable future.	Understand

IV. SYLLABUS:

UNIT-I	ENVIRONMENT AND ECOSYSTEMS	Classes: 08

Environment: Definition, scope and importance of environment, need for public awareness; Ecosystem: Definition, scope and importance of ecosystem, classification, structure and function of an ecosystem, food chains, food web and ecological pyramids, flow of energy; Biogeochemical cycles; Biomagnifications.

UNIT-II	NATURAL RESOURCES	Classes: 08

Natural resources: Classification of resources, living and nonliving resources; Water resources: Use and over utilization of surface and ground water, floods and droughts, dams, benefits and problems; Mineral resources: Use and exploitation; Land resources; Energy resources: Growing energy needs, renewable and non renewable energy sources, use of alternate energy source, case studies.

UNIT-III	BIODIVERSITY AND BIOTIC RESOURCES	Classes: 10

Biodiversity and biotic resources: Introduction, definition, genetic, species and ecosystem diversity; Value of biodiversity: Consumptive use, productive use, social, ethical, aesthetic and optional values; India as a mega diversity nation; Hot spots of biodiversity.

Threats to biodiversity: Habitat loss, poaching of wildlife, human-wildlife conflicts; Conservation of biodiversity: In situ and ex situ conservation; National biodiversity act.

UNIT-IV	ENVIRONMENTAL POLLUTION, POLLUTION CONTROL TECHNOLOGIES AND GLOBAL ENVIRONMENTAL PROBLEMS	Classes: 10

Environmental pollution: Definition, causes and effects of air pollution, water pollution, soil pollution, noise pollution; Solid waste: Municipal solid waste management, composition and characteristics of e-waste and its management; Pollution control technologies: Waste water treatment methods, primary, secondary and tertiary; Concepts of bioremediation; Global environmental problems and global efforts: Climate change, ozone depletion, ozone depleting substances, deforestation and desertification; International conventions / protocols: Earth summit, Kyoto protocol and Montreal protocol.

UNIT-V	ENVIRONMENTAL LEGISLATIONS AND SUSTAINABLE DEVELOPMENT	Classes: 09

Environmental legislations: Environmental protection act, air act1981, water act, forest act, wild life act, municipal solid waste management and handling rules, biomedical waste management and handling rules2016, hazardous waste management and handling rules, Environmental impact assessment(EIA); Towards sustainable future: Concept of sustainable development, population and its explosion, crazy consumerism, environmental education, urban sprawl, concept of green building.

Text Books:

1. Benny Joseph, "Environmental Studies", Tata Mc Graw Hill Publishing Co. Ltd, New Delhi, 1st Edition, 2006.
2. ErachBharucha, "Textbook of Environmental Studies for Under Graduate Courses", Orient Black Swan, 2nd Edition, 2013.
3. Dr. P. D Sharma, "Ecology and Environment", Rastogi Publications, New Delhi, 12th Edition, 2015.

Reference Books:

1. Tyler Miller, Scott Spoolman, "Environmental Science", Cengage Learning, 14th Edition, 2012.
2. Anubha Kaushik, "Perspectives in Environmental Science", New Age International, New Delhi, 4th Edition, 2006.
3. Gilbert M. Masters, Wendell P. Ela, "Introduction to Environmental Engineering and Science, Pearson, 3rd Edition, 2007.

Web References:

1. https://www.elsevier.com
2. https://www. libguides.lib.msu.edu
3. https://www.fao.org
4. https://www nrc.gov
5. https://www istl.org
6. https://www.ser.org
7. https://www.epd.gov.
8. https://www.nptel.ac.in

E-Text Books:

1. http://www.ilocis.org
2. http://www.img.teebweb.org
3. http://www.ec.europa.eu
4. http://www.epa.ie
5. http://www.birdi.ctu.edu.vn

Course Home Page: