

ENVIRONMENTAL SCIENCES

IV Semester: AE / CSE / IT / ECE / EEE / ME / CE								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
AHSB07	Mandatory	-	-	-	-	30	70	100
Contact Classes: Nil		Tutorial Classes: Nil		Practical Classes: Nil		Total Classes: Nil		
I. COURSE OVERVIEW:								
<p>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 honourable 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.</p>								
II. COURSE OBJECTIVES:								
The course should enable the students to:								
<ol style="list-style-type: none"> I. Analyze the interrelationship between living organism and environment. II. Understand the importance of environment by assessing its impact on the human world. III. Enrich the knowledge on themes of biodiversity, natural resources, pollution control and waste management. IV. Understand the constitutional protection given for environment. 								
III. COURSE OUTCOMES (COs):								
COs Course Outcomes								
CO 1 Discover knowledge in ecological perspective and value of environment.								
CO 2 Understand the significance of various natural resources and its management.								
CO 3 Demonstrate a comprehensive understanding of the world's biodiversity and the importance of its conservation.								
CO 4 Categorize different types of pollutions and their control measures. Discover effective methods of waste management. Analyze global environmental problems and come out with best possible solutions.								
CO 5 Understand environmental laws and sustainable development.								
IV. SYLLABUS:								
MODULE-I		ENVIRONMENT AND ECOSYSTEMS						
<p>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</p>								

MODULE-II	NATURAL RESOURCES
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.	
MODULE-III	BIODIVERSITY AND BIOTIC RESOURCES
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.	
MODULE-IV	ENVIRONMENTAL POLLUTION, POLLUTION CONTROL TECHNOLOGIES AND GLOBAL ENVIRONMENTAL PROBLEMS
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	
MODULE-V	ENVIRONMENTAL LEGISLATIONS AND SUSTAINABLE DEVELOPMENT
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	
V. Text Books:	
<ol style="list-style-type: none"> 1. Benny Joseph, “Environmental Studies”, Tata McGraw Hill Publishing Co. Ltd, New Delhi, 2005. 2. Erach Bharucha, “Textbook of Environmental Studies for Undergraduate Courses”, Universities Press 2005. 	
VI. Reference Books:	
<ol style="list-style-type: none"> 1. Anji Reddy .M, “Textbook of Environmental Sciences and Technology”, BS Publications, 2007. 2. Anjaneyulu, “Introduction to Environmental Sciences”, BS Publications, 2004. 3. Anubha Kaushik, Perspectives in Environmental Science, New age international. 3rd Edition, 2006. 4. Tyler Miller, Scott Spoolman, “Environmental Science”, Cengage Learning, 14th Edition, 2012. 	
VII. Web References:	
<ol style="list-style-type: none"> 1. https://www.tndte.com 2. https://www.nptel.ac.in/downloads 3. https://www.scribd.com 4. https://www.cuiet.info 5. https://www.sbttebihar.gov.in 6. https://www.ritchennai.org 	