



**C.U. SHAH UNIVERSITY**  
**B. TECH. SEMESTER I (CIVIL)**  
**ENVIRONMENTAL ENGINEERING & MANAGEMENT**

**Faculty of:** Technology and Engineering  
**Department of:** CE/IT/EC/MECH/EEE/AUTO/IC/EE/CIVIL  
**Subject name:** Environmental Engineering & Management  
**Subject code:** 4TE01EEM2

**Teaching and Evaluation Schemes:**

Subject Code	Subject Name	Teaching Schemes (Hours)				Credits	Evaluation Schemes (Marks)								
		Th	Tu	Pr	Total		Theory				Practical (Marks)				Total Marks
							Sessional Exam		University Exam		Internal		University		
							Marks	Hours	Marks	Hours	Pr	TW	Pr		
4TE01EEM2	Environmental Engineering & Management	02	00	00	02	02	30	1.5	70	3.0	00	00	---	100	

**Objectives:**

The primary objective of this course is to make people aware of the importance of environment on health of every individual and the society as a whole.

**Prerequisites:**

Basic understanding of concepts related to environment and awareness about the harmful effects of pollution are required to understand the concept better.

**Course outline:**

Sr. No.	Course Contents	No. of Hours
1.	<b>The Multidisciplinary nature of environmental studies</b> Definition, scope and importance Need for public awareness.	02
2.	<b>Environment Concept:</b> Introduction, concept of biosphere – lithosphere, hydrosphere, atmosphere; Biogeochemical cycle.	04
3.	Principles and scope of Ecology; concepts of ecosystem, population, community, biotic interactions, biomes, ecological succession.	06
4.	<b>Natural Resources:</b> Renewable and non-renewable resources <ul style="list-style-type: none"> <li>Natural resources and associated problems.</li> <li>a) Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.</li> <li>b) Water resources: Use and over-utilization of surface and groundwater, floods, drought, conflicts over water, dams-benefits and problems.</li> <li>c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.</li> <li>d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.</li> <li>e) Energy resources: Growing energy needs, renewable and nonrenewable energy sources, use of alternate energy sources. Case studies.</li> <li>f) Land resources: Land as a resource, Land degradation, man induced Landslides, soil erosion and desertification.</li> <li>Role of an individual in conservation of natural resources.</li> <li>Equitable use of resources for sustainable lifestyles.</li> </ul>	10

5.	<b>Environmental Pollution</b> Causes, effects and control measures of: Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution & Nuclear hazards	06
6.	<b>Biodiversity and its conservation</b> Introduction – Definition: genetic, species and ecosystem diversity. Biogeographical classification of India. Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values. Biodiversity at global, National and local levels. India as a mega-diversity nation. Hot-spots of biodiversity. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts. Endangered and endemic species of India. Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.	06

**Learning Outcomes:**

The course provides knowledge regarding conservation of environment which is very crucial in the present day scenario.

**Text Book & Reference Books :**

1. Masters, G.M., *"Introduction to Environmental Engineering and Science"*, Prentice –Hall of India Pvt. Ltd. , (1991)
2. Nebel, B.J., *"Environmental Science"*, Prentice –Hall Inc., (1987)
3. Odum, E.P., *"Ecology: The Link between the natural and social sciences"*, IBH Publishing Com. , Delhi.

**E-Resources:**

1. [en.wikipedia.org/wiki/Environmental\\_science](http://en.wikipedia.org/wiki/Environmental_science)
2. [www.iisc.ernet.in/ug/environmentscience.htm](http://www.iisc.ernet.in/ug/environmentscience.htm)
3. [www.sciencedaily.com/gallery/earth\\_climate/environmental\\_science/](http://www.sciencedaily.com/gallery/earth_climate/environmental_science/)
4. [environment.nationalgeographic.co.in/](http://environment.nationalgeographic.co.in/)