



C.U. SHAH UNIVERSITY
B. TECH. SEMESTER I (ALL BRANCH)
ENVIRONMENTAL STUDIES

Faculty of: Technology and Engineering

Department of: (All Branch)

Subject name: Environmental Studies

Subject code: 4TE01ENS1

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	
4TE01ENS1	Environmental Studies	03	00	00	03	03	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.	Unit 1: Introduction to environmental studies <ul style="list-style-type: none"> Multidisciplinary nature of environmental studies; Scope and importance; Concept of sustainability and sustainable development. 	02
2.	Unit 2: Ecosystems <ul style="list-style-type: none"> What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession. Case studies of the following ecosystems: <ul style="list-style-type: none"> a) Forest ecosystem b) Grassland ecosystem c) Desert ecosystem d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) 	06
3.	Unit 3: Natural Resources: Renewable and Non-renewable Resources <ul style="list-style-type: none"> Land resources and land use change; Land degradation, soil erosion and desertification. Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations. Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state). Energy resources: Renewable and non renewable energy sources, use of alternate energy sources, growing energy needs, case studies. 	08

4.	Unit 4: Biodiversity and Conservation <ul style="list-style-type: none"> Levels of biological diversity: genetic, species and ecosystem diversity; Biogeographic zones of India; Biodiversity patterns and global biodiversity hot spots India as a mega-biodiversity nation; Endangered and endemic species of India Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity. Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value. 	08
5.	Unit 5: Environmental Pollution <ul style="list-style-type: none"> Environmental pollution: types, causes, effects and controls; Air, water, soil and noise pollution Nuclear hazards and human health risks Solid waste management: Control measures of urban and industrial waste. Pollution case studies. 	08
6.	Unit 6: Environmental Policies & Practices <ul style="list-style-type: none"> Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture Environment Laws: Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act. International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD). Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context. 	07
7.	Unit 7: Human Communities and the Environment <ul style="list-style-type: none"> Human population growth: Impacts on environment, human health and welfare. Resettlement and rehabilitation of project affected persons; case studies. Disaster management: floods, earthquake, cyclones and landslides. Environmental movements: Chipko, Silent valley, Bishnois of Rajasthan. Environmental ethics: Role of Indian and other religions and cultures in environmental conservation. Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi). 	06
8.	Unit 8: Field work <ul style="list-style-type: none"> Visit to an area to document environmental assets: river/ forest/ flora/fauna, etc. Visit to a local polluted site---Urban/Rural/Industrial/Agricultural. Study of common plants, insects, birds and basic principles of identification. Study of simple ecosystems---pond, river, Delhi Ridge, etc. 	(Equal to 5 lectures)

Learning Outcomes:

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

Text Book & Reference Books:

- Erach Bharucha, "Textbook for Environmental Studies", UGC New Delhi.
- Masters, G.M., "Introduction to Environmental Engineering and Science", Prentice –Hall of India Pvt. Ltd., (1991)
- Nebel, B.J., "Environmental Science", Prentice –Hall Inc., (1987)
- Odum, E.P., "Ecology: The Link between the natural and social sciences", IBH Publishing Com., Delhi.

E-Resources:

- en.wikipedia.org/wiki/Environmental_science
- www.iisc.ernet.in/ug/environmentscience.htm
- www.sciencedaily.com/gallery/earth_climate/environmental_science/
- environment.nationalgeographic.co.in/