

GUJARAT TECHNOLOGICAL UNIVERSITY

Subject Name: Environmental Studies

Subject Code: 2220006

Teaching Scheme				Evaluation Scheme			
Theory	Tutorial	Practical	Total	Theory		Practical	
				External	Internal	External	Internal
3	0	0	3	80	20	0	0

Contents:

Sr. No.	Topics	Teaching Hrs.	Module Weightage
UNIT I: ENVIRONMENT AND NATURAL SYSTEMS			
1	Introduction to Environment and Environmental Studies: Definition and Components of Environment, Relationship between the different components of Environment, Man and Environment relationship, Impact of technology on Environment, Environmental Degradation, Multidisciplinary nature of the Environment studies, its scope and importance in the present day Education System	4	6%
2	Ecology and Ecosystems: Introduction: Ecology- Objectives and Classification , Concept of an ecosystem- structure and functions of ecosystem Components of ecosystem- Producers, Consumers, Decomposers Bio-Geo- Chemical Cycles- Hydrologic Cycle, Carbon cycle, Energy Flow in Ecosystem, Food Chains, Food webs ,Ecological Pyramids Major Ecosystems: Forest Ecosystem, Grassland Ecosystem, Desert Ecosystem, Aquatic Ecosystem, Estuarine Ecosystem.	10	11%
3	Natural Resources: a. Renewable and Nonrenewable resources, exploitation and conservation, Role of individual in conservation of natural resources. b. Water resources: Water sources- Surface and Ground water sources, Indian and Global scenario. c. Land as a resource, social issues d. Forest resources: Definition and Classification of Forests Ecological and Economic importance and benefits of forest, Indian scenario, Deforestation: causes and effects, remedial measures. e. Food resources: Sources of food, Global and Indian food demand scenario, Limits of food production, Environmental effects of Agriculture.	8	14%
UNIT II: HUMAN POPULATION AND ENVIRONMENTAL POLLUTION			
4	Human Population and Environment:	4	8%

	Population Growth, World and Indian scenario, Population and Environmental Degradation, Malthusian theory, Optimum theory, Population explosion – Causes, Effects and Control. Urbanization: Urban population growth and Environmental problems		
5	Environmental pollution: Types of Environmental Pollution: a) Water Pollution: Introduction – Water Quality Standards, Sources of Water Pollution: Industrial ,Agricultural, Municipal; Classification of water pollutants, Effects of water pollutants, Eutrophication b) Marine pollution- c) Air Pollution: Composition of air, Structure of atmosphere, Ambient Air Quality Standards, Classification of air pollutants, Sources of common air pollutants like PM, SO ₂ , NO _x , Natural & Anthropogenic Sources, Effects of common air pollutants d) Land Pollution: Land uses ,Land degradation: causes, effects and control, soil erosion e) Noise Pollution: Introduction, Sound and Noise, Noise measurements, Causes and Effects f) Thermal Pollution: Causes and effects g) Role of individual in the prevention of pollution	14	22 %
UNIT III: ENERGY AND GLOBAL ENVIRONMENTAL ISSUES			
6	Global Environmental Issues: Climate Change, Global Warming and Green House Effect, Acid Rain, Depletion of Ozone layer	3	17 %

Reference Books:

1. Textbook of Environmental Studies for Undergraduate Courses by Erach Bharucha Second edition, 2013 Publisher: Universities Press (India) Private Ltd, Hyderabad.
2. Basics of Environmental Studies by Prof Dr N S Varandani ,2013 Publisher: LAP -Lambert Academic Publishing , Germany
3. Environmental Studies by Anindita Basak ,2009 Publisher: Drling Kindersley(India)Pvt. Ltd Pearson
4. Textbook of Environmental Studies by Deeksha Dave & S S Kateva , Cengage Publishers.
5. Environmental Sciences by Daniel B Botkin & Edward A Keller Publisher: John Wiley & Sons.
6. Environmental Studies by R. Rajagopalan, Oxford University Press
7. Environmental Studies by Benny Joseph, TMH publishers
8. Environmental Studies by Dr. Suresh K Dhameja, 2007 Published by : S K Kataria & Sons New Delhi
9. Basics of Environmental Studies by U K Khare, 2011 Published by Tata McGraw Hill