



GUJARAT TECHNOLOGICAL UNIVERSITY

BACHELOR OF ENGINEERING SYLLABUS

1st Year, Subject Code : 3110007

Semester/Year	: 1
Category of the Course	: Mandatory Course
Subject Name & Code	: Environmental Science (3110007)

Type of course : Engineering Science

Prerequisite : Interest in natural systems sustaining the life on the earth.

Rationale : To inculcate the environmental values translating into pro-conservation actions. Honorable Supreme Court of India has made it 'mandatory' to introduce a basic course on environment at the undergraduate level.

Teaching and Examination Scheme :

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
			ESE(E)	PA (M)	ESE (V)	PA(I)		
2	2	0	0	70	30	0	0	100

Content:

Sr. No.	Content	Total Hrs	% Weightage
1	INTRODUCTION TO ENVIRONMENT Definition, principles and scope of Environmental Science. Impacts of technology on Environment, Environmental Degradation, Importance for different engineering disciplines	02	8 %



GUJARAT TECHNOLOGICAL UNIVERSITY

BACHELOR OF ENGINEERING SYLLABUS

1st Year, Subject Code : 3110007

2	ENVIRONMENTAL POLLUTION a) Water Pollution: Introduction – Water Quality Standards, Sources of Water Pollution, Classification of water pollutants, Effects of water pollutants b) 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 , Auto exhaust, Effects of common air pollutants c) Noise Pollution: Introduction, Sound and Noise, Noise measurements, Causes and Effects d) Solid Waste: Generation and management e) Bio-medical Waste: Generation and management f) E-waste: Generation and management	14	44 %
3	GLOBAL ENVIRONMENTAL ISSUES Sustainable Development, Climate Change, Global Warming and Green House Effect, Acid Rain, Depletion of Ozone layer, Carbon Footprint, Cleaner Development Mechanism (CDM), International Steps for Mitigating Global Change	06	24 %
4	Basic Concepts of Green Building & Smart Cities : Green Building : Introduction, Objectives, Fundamental Principles, Benefits of Green Buildings, Example of Green Buildings, Smart Cities Concepts.	04	16 %
5	Concept of 4R's : Principles, Application of 4R's.	02	8 %

Suggested Specification table with Marks (Theory) :

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
40	40	20	0	0	0

**Legends : R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate
C: Create and above Levels (Revised Bloom's Taxonomy)**

Note : This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.



GUJARAT TECHNOLOGICAL UNIVERSITY

BACHELOR OF ENGINEERING SYLLABUS

1st Year, Subject Code : 3110007

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: Dring 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

Course Outcome :

Sr. No.	CO statement	Marks % weightage
CO-1	Identify the types of pollution in society along with their sources	45
CO-2	Realize the global environmental issues	25
CO-3	Conceptualize the principles of Green Buildings and Smart cities	15
CO-4	Implement the concept of recycle and reuse in all fields of engineering	15

List of Tutorials : Based on

1. Introduction to Environment
2. Water Pollution
3. Air Pollution
4. Noise Pollution
5. Solid Waste
6. Bio-medical Waste
7. E-waste
8. Global Environmental Issues
9. Concept of Green Building
10. Concept of Smart Cities
11. Concept of 4R's

List of Open Source Software/learning website : MOEF, NPTEL