

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**Subject Name: Ecology and Environmental Management**  
**SUBJECT CODE: 1045504**  
**B.PLAN 4th SEMESTER**

**Objectives:** To provide basic understanding of the concepts ecology, ecosystems and their interrelations. To make understand the impacts of human development on the environment, methods adopted for impact assessment studies and introduction to policy level interventions

**Teaching and Examination Scheme:**

Teaching Scheme			Credits	Examination Marks				Total Marks
L	Field work(T)	P		Theory Marks		Practical Marks		
			ESE(E)	PA (M)	PA (V)	PA(I)		
3	0	0	3	50	50	--	--	100

L- Lectures; T- Tutorial/Teacher Guided Student Activity/Field work; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment.

**Content:**

Sr. No.	Content	Total Hrs	% Weightage
<b>Unit -1</b>	<b>Introduction</b> Meaning and scope of ecology; evolution of ecology; man, environment and ecosystem; components of nature and basic concepts and processes of ecology; flow of material water energy, invasion, succession, predation, regulatory forces, adaptation, trophic levels, food chain, food web, ecological pyramids; Environmental zones	9	15
<b>Unit -2</b>	<b>Ecosystem and its Relevance to Environment</b> Public Resources and human settlements impact of advanced agricultural methods, urbanization and industrialization on nature; urban ecosystem approach evolution and significance; soil, water, land, vegetation and solar, biomass, wind, hydro energy resources; settlement planning and energy conservation; development and management	12	25
<b>Unit -3</b>	<b>Quantitative Ecology</b> Introduction to quantitative ecology, identification of ecological parameters for planning at different levels; site planning, settlement planning and regional planning; data needs and format for data collection; types of analysis required to evolve ecological parameters. Planning for environmentally sensitive areas.	9	15
<b>Unit -4</b>	<b>Environmental Impact Studies</b> EIA - meaning, significance and framework; Methodologies - checklist, matrices, network and social cost-benefit analysis; Sources and acquisition of environmental information; Environmental land use classification; Environment impact studies of	12	30

	development projects.		
<b>Unit - 5</b>	<b>Environmental Policies</b> Global and national policies on environment; Five year plans in relation to environmental aspects; Legal measure for protection of environment; Environmental awareness and education in India; Agencies involved in environment protection; Public participation; Role of planners in shaping the future environment	6	15
	<b>Total no. of hours</b>	48	100

**Assessment /Evaluation Criteria:**

Assignment 1: 10 %

Assignment 2: 10 %

Midterm Exam: 20 %

Attendance and class participation: 10 %

Final Exam: 50%

Lecture Hours per Week	3
Total Marks	100
Internal Assessment	50
Examination	50

**Reference Books:**

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1.	V. K. Ahluwalia	Environmental Studies Basic Concepts	2013	TERI
2.	Bharucha, Erach.	Textbook of environmental studies for undergraduate courses	2015	University Press (India) pvt. ltd. Hyderabad
3.	Canter, Larry W	Environmental impact assessment	1977	Berkley,P.A,New York,Tokyo etc McGraw Hill Pub.
4	R. K. Agrawal	Environment and Ecology	7th Edition	Krishna Prakashan Media (p) Ltd.
5	Adrian X. Esparza, Guy Mcpherson	The Planner's Guide to Natural Resource Conservation: The Science of Land Development beyond the Metropolitan Fringe	1st Edition	Springer
6	J S Singh, S P Singh, S R Gupta	Ecology, Environment and resource Conservation	2008	Anamaya Publishers
7	Dash M C	Fundamentals Of Ecology	3 <sup>rd</sup> Edition	Tata Mcgraw Hill Education Private Limited

**Course Outcome:**

Deliverables in terms of term paper/ article review/ synopsis/ posters/presentations etc

<b>List of Exercises / Practicals:</b>	
1	Visit to concerned departments

<b>List of Assignments/Tests:</b>	
1	Test
2	Assignments

**ACTIVE LEARNING ASSIGNMENTS:** Preparation of power-point slides, which include videos, animations, pictures, graphics for better understanding theory and practical work – The faculty will allocate chapters/ parts of chapters to groups of students so that the entire syllabus to be covered. The power-point slides should be put up on the web-site of the College/ Institute, along with the names of the students of the group, the name of the faculty, Department and College on the first slide. The best three works should submit to GTU.