

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma in Environmental Engineering

Semester: 4

Subject Name: ECOLOGY AND ENVIRONMENTAL POLLUTION
A: ECOLOGY

Sr. No.	Course Content
1.	IMPORTANCE OF ECOLOGY IN ENVIRONMENTAL ENGINEERING FIELD
2.	ECOSYSTEM 2.1 Concept of an Ecosystem. 2.2 Components of ecosystem. 2.2.1 Abiotic substances. 2.2.2 Producer Organisms. 2.2.3 Consumer Organisms. 2.2.4 Decomposer Organisms. 2.3 Impact of Human on Ecosystem
3.	TYPES OF ECOSYSTEM. 3.1 Natural ecosystem. 3.2 Artificial ecosystem. 3.3 Ideal Ecosystem
4.	FOOD CHAINS & FOOD WEBS. 4.1 Grazing food chain. 4.2 Detritus food chain. 4.3 Food Webs.
5.	ECOLOGICAL PYRAMIDS & TROPHIC STRUCTURES. 5.1 Types of ecological pyramids. 5.1.1 Pyramids of numbers. 5.1.2 Pyramids of Biomass. 5.1.3 Pyramids of energy. 5.1.4 Energy & Energy flow. 5.1.5 Trophic Level & Trophic Structure. 5.2 Bio magnification
6.	BIO-GEO- CHEMICAL CYCLES. 6.1 Hydrological cycle 6.2 Carbon cycle. 6.3 Oxygen cycle 6.4 Nitrogen cycle 6.5 Phosphorus cycle 6.6 Sulfur cycle

B: ENVIRONMENTAL POLLUTION.

Sr. No.	Course Content
7.	WATER RESOURCES & WATER POLLUTION. 7.1 Surface water & Ground water Resources & World water distribution. 7.2 Use and Over use of World water resources. 7.2.1 Environmental problems of over use of water resources. 7.2.2 Eutrophication. 7.2.3 Thermal pollution – Causes, Effects and Control 7.3 Water pollution – Causes, Effects and control measures
8.	MARINE POLLUTION 8.1 Causes 8.2 Effects 8.3 Control Measures
9.	SOIL POLLUTION. 9.1 Sources of Soil pollution. 9.2 Types of Soil Pollution 9.3 Impact of soil pollution on soil quality. 9.4 Effect of industrial pollutants on soil quality.
10.	NOISE POLLUTION. 10.1 Noise & Sound. 10.2 Parameters for measurement of Noise. 10.3 Sources of Noise Pollution. 10.4 Measurement of noise pollution 10.5 Effects and control of Noise Pollution
11.	RADIO-ACTIVE POLLUTION 11.1 Radiation Fundamental and Measurement 11.2 Types of Radiation 11.3 Sources of Radio-active Pollution 11.4 Effects of Radio-active Pollution 11.5 Control of Nuclear(Radio Active) Pollution
12.	GLOBAL ENVIRONMENTAL PROBLEMS. 12.1 Acid Rain. 12.2 Green House effect 12.3 Ozone Layer depletion. 12.4 Global warming 12.5 Global Climate Change- EL Nino and its effects, Causes of occurrence etc.
13.	NEED FOR PUBLIC AWARENESS 13.1 Roll of Government, NGO and Individual in Prevention of Environmental pollution

LABORATORY EXPERIENCES/TERM WORK :

SR NO.	NAME OF TOPIC
	A. ECOLOGY
1	Tutorials based on importance of ecology in Environmental Engg. Field
2	Tutorials based on Ecosystem
3	Tutorials based on Types of Ecosystem
4	Tutorials based on Food chains & food webs.
5	Tutorials based on Ecological Pyramids & Trophic structures.
6	Tutorials based on Biogeochemical cycles.
	B. ENVIRONMENTAL POLLUTION
7	Tutorials based on Water resources & Water Pollution
8	Tutorials based on Marine Pollution
9	Tutorials based on Soil Pollution
10	Tutorials based on Noise Pollution.
11	Tutorial based on Radio Active Pollution
12	Tutorials based on Global Environmental Problems

REFERENCES BOOKS:

1. Text Book of Ecology P.D. Sharma
2. Environmental Ecology Kudeshia
3. Ecology and Environmental Science S.V.S. Rana
4. Ecology and Environment Majid Husain
5. Ecology and Environment B. N. Pandey and M. K. Jyoti.
6. Ecology and Environment H. B. Singh.
7. Ecology and Environment P. R. Trivedi.
8. Ecology and Environmental Biology C. M. Chakarwarty.
9. Ecology and Environmental Management M. S. Sankar
10. Ecology and Human Well- Being : Nature and Society in Himachal Pradesh Raghbir Singh Pirta.
11. Introduction to Ecology, Paul Colinviaux, 1973..
12. Fundamentals of Ecology, E.P. Odum, 1971..
13. Literature Published by Gujarat Pollution Control Board and Gujarat Ecology Commission.