

ENVIRONMENTAL STUDIES
BE 1st SEMESTER (EC/CE/ CIVIL) / BE 2nd SEMESTER (ME/IT/EE/ AE) SUB CODE : CC105

Teaching Scheme				Total Credit	Evaluation Scheme					Total
L	T	P	Total		Theory		Midsem	CIA	Pract.	
Hrs	Hrs	Hrs	Hrs		Hrs	Marks	Marks	Marks	Marks	
3	00	00	3	3	3	70	30	20	00	120

LEARNING OBJECTIVES:

The educational objectives of this course are

- To create awareness, acquire knowledge so that students manage their society properly inculcate skills for identifying problems associated with environment and develop ability to evaluate participate in environmental protection activities that is helpful to all living things.

OUTLINE OF THE COURSE

Sr. No.	Unit No.	Minimum No. of Hrs.
1	Unit :1	04
2	Unit:2	12
3	Unit:3	11
4	Unit:4	10
5	Unit:5	04
6	Unit:6	04

- Total Hours (Theory) : 45 Hours**
- Total Hours (Lab) : 00 Hours**
- Total Hours : 45 hours**

DETAILED SYLLABUS:

Unit No	Topics	Lectures (Hours)	Weight age (%)
1.	Introduction to Environment, Ecology and Ecosystem Definition and inter-relationships amongst and between them, components of environment, Relationship between different components, Man- Environment relationship, Impact of Technology on the environment, Environment education, Environment degradation	04	08
2.	Ecology & Ecosystem Introduction : Ecology – objectives & classification Concept of an ecosystem – structure & function of ecosystem Component of ecosystem – Producers , Consumers , Decomposer Bio-Geo chemical cycle – Hydrological cycle, Carbon cycle, Oxygen cycle, Nitrogen cycle, Sulfur cycle, Phosphorus cycle Energy flow in ecosystem, Food chain ,Food web, Ecological Pyramid Major Ecosystem : Forest ecosystem , Grassland ecosystem, Desert ecosystem, Aquatic ecosystem, Estuarine ecosystem	12	30
3.	Population & Natural Resources Population: Development of habitation patterns and environmental factor governing human settlement, Causes of overpopulation Natural Resources : Renewable & Non renewable resources : Renewable Resources, Non renewable resources, destruction v/s conservation Water resources: surface & ground water resources, use & overuse of water resources, problem due to overexploitation of water resources Forest resources : Importance of forest use of forest products, forest types, deforestation ,forest degradation in India Energy resources: conventional energy resources & its problem, non conventional energy resources, problem due to over exploitation of energy resources. Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity	11	25

4.	Environmental Pollution Types of environmental pollution Water pollution : Introduction, water quality standards, sources of water pollution, classification of water pollutants, effects of water pollutants, eutrophication Air Pollution: Composition of air, structure of atmosphere, Ambient Air quality standards, classification of air pollutants, sources of common air pollutants like SPM, SO ₂ , NO _x Land & Noise Pollution: Introduction, Lithosphere, Land use, Causes of land degradation, sources of noise pollution, effects of noise pollution	10	21
5.	Biodiversity and its conservation Introduction, definition: genetic, species and ecosystem diversity, Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option Values ,Biodiversity at global, National and local levels, Conservation of biodiversity	4	08
6.	Social Issues and the Environment protection act From unsustainable to sustainable development, Urban problems related to energy, global issues: global warming, acid rain, ozone layer depletion, nuclear accident, Environment Protection Act : Air, water, forest	4	08
Total		45	100

INSTRUCTIONAL METHOD AND PEDAGOGY (Continuous Internal Assessment (CIA) Scheme)

- At the start of course, the course delivery pattern, prerequisite of the subject will be discussed.
- Lectures will be conducted with the aid of multi-media projector, black board, OHP etc.
- Attendance is compulsory in lectures and laboratory which carries 5 Marks weightage.
- Assignments based on course content will be given to the students at the end of each Unit/topic and will be evaluated at regular interval. It carries a weightage of 5 Marks as a part of internal theory evaluation.
- Surprise tests/Quizzes/Seminar will be conducted which carries 5 Marks as a part of Internal theory evaluation.
- Viva Voce will be conducted at the end of the semester of 05 Marks.
- One internal exam of 30 marks is conducted as a part of Mid semester evaluation.

STUDENTS LEARNING OUTCOMES:

On the successful completion of the course the students will be able

- To understand basics about environment and its related recent problems.
- To identify environmental issues around them.
- To make the people aware, around them, about environment protection & improvement and thus creating awareness amongst the society.

TEXT BOOKS & REFERENCE BOOKS:

- Environmental Studies: R. Rajagopalan, Oxford University Press
- Environmental Pollution: Causes, Effects & Control by K.C Agrawal
- Environmental Science by Richard T Wright & Bernard J Nebel
- Environmental Science by Daniel B Botkin & Edward A Keller
- Environmental Engineering & Management by Suresh K Dameja
- Environmental Management by Dr. Swapan C Deb
- Environment & Ecology by Dr Gourkrishna Dasmohapatra
- Introduction to Environmental Engineering and Science by Master Gilbert M

WEB MATERIALS:

- <http://www.wikipedia.org>
- <http://nptel.iitm.ac.in/courses/Webcourse-contents/IIT Delhi/Environmental%20Air%20Pollution/index.htm>
- <http://nptel.iitm.ac.in/video.php?subjectId=105104099>
- <http://www.epa.gov>
- <http://www.globalwarming.org.in>