

**COURSE CODE:** ENE-101

**COURSE NAME:** INTRODUCTION TO ENVIRONMENTAL ENGINEERING

**CREDIT HOURS:** Theory = 03  
 Practical = 00  
 Total = 03

**CONTACT HOURS:** Theory = 48  
 Practical = 00  
 Total = 48

**PREREQUISITE:** Nil

**MODE OF TEACHING:**

Instruction: Three hours of lecture per week 100%

**COURSE DESCRIPTION:**

This course is designed to familiarize the students with the basics of Environmental Engineering. It deals with major environmental concerns in four spheres, sources of pollutants, their control and mathematics of growth measurement and track of pollutants with integrated technique of remote sensing and GIS.

**COURSE OBJECTIVES:**

The main objective of this course is to equip students with the understanding of causes of environmental pollution, water pollutants and their sources and its impact on water resources.

To familiarize the students with conventional and advance water and wastewater treatment technologies, solid waste engineering and management practices, and air pollution control technologies.

**PROGRAM LEARNING OUTCOMES (PLOs):**

The course is designed so that students will achieve the PLOs:

- |   |                                  |                                     |    |                                         |                          |
|---|----------------------------------|-------------------------------------|----|-----------------------------------------|--------------------------|
| 1 | Engineering Knowledge:           | <input checked="" type="checkbox"/> | 7  | Ethics:                                 | <input type="checkbox"/> |
| 2 | Problem Analysis:                | <input checked="" type="checkbox"/> | 8  | Individual and Collaborative Team Work: | <input type="checkbox"/> |
| 3 | Design/Development of Solutions: | <input type="checkbox"/>            | 9  | Communication:                          | <input type="checkbox"/> |
| 4 | Investigation:                   | <input type="checkbox"/>            | 10 | Project Management:                     | <input type="checkbox"/> |
| 5 | Tool Usage:                      | <input type="checkbox"/>            | 11 | Lifelong Learning:                      | <input type="checkbox"/> |
| 6 | The Engineer and Society:        | <input type="checkbox"/>            |    |                                         |                          |

## COURSE LEARNING OUTCOMES:

Upon successful completion of the course, students will be able to:

No.	CLO	Domain	Taxonomy Level	PLO
1	Describe the environmental concerns associated with four spheres, identify factors affecting environment and control technologies.	Cognitive	2	1
2	Establish an understanding of real world based environmental problem solving.	Cognitive	3	2

## PRACTICAL APPLICATIONS:

Industrial revolution during the past century has led to an increase in human health problems and climate change. This course will enable the environmental engineering students to understand the relationship between environment pollutants and human health, current technologies available to deal with environmental problems and the potential role of waste treatment technologies for a cleaner environment soon.

## TOPICS COVERED:

### Theory:

Week	Topic
1	Causes of Environmental Problems
2	Units of Measurement Materials Balance
3	Mathematics of Growth Water Pollution
4	Water Treatment
5	Water Treatment (Cont.)
6	Wastewater Treatment
7	Wastewater Treatment (Cont.)
8	Sludge Treatment
9	Air Pollution
10	Air Pollution (Cont.)
11	Air Pollution (Cont.)
12	Solid Waste management
13	Solid Waste management (Cont.)
14	Disposal by Sanitary Landfill
15	Hazardous Waste Management
16	Hazardous Waste Management (Cont.)
17-18	<b>ESE</b>

## TEXT AND MATERIAL:

### Textbook(s):

- a. Introduction to Environmental Engineering and Science by Gilbert M. Masters and Wendell P. Ela (Third Edition, 2008)

### References Material:

- a. Principles of Environmental Engineering & Science by Mackenzie Davis and Susan Masten (Second Edition, 2008)
- b. Environmental engineering by J. Jeffrey Peirce and P. Aarne Vesilind (Fourth Edition, 2003)

## ASSESSMENT SYSTEM:

### 1. CLOs Assessment

Cognitive	Psychomotor	Affective
Spreadsheet	-	-

### 2. Relative Grading

Theoretical/Instruction			100%
	Assignments	10%	
	Quizzes	10%	
	Mid Semester Exam	30%	
	End Semester Exam	50%	
Total			100%