M.E. Semester: 3 Mechanical Engineering (Thermal Engineering)
Subject Name: ENVIRONMENTAL ENGINEERING AND POLLUTION CONTROL

A. **Course Objective**

- To present a problem oriented in depth knowledge of Environmental Engineering And Pollution Control
- To address the underlying concepts and methods behind Environmental Engineering And Pollution Control

B. **Teaching / Examination Scheme**

SUBJECT		Teaching Scheme				Total Credit	Evaluation Scheme					Total Marks
		L	T	P	Total		THEORY		IE	CIA	PRACT.	
CODE	NAME	Hrs	Hrs	Hrs	Hrs		Hrs	Marks	Marks	Marks	Marks	
METH303-B	Environmental Engineering and Pollution Control	3	0	0	3	3	3	70	30	20	0	120

C. **Detailed Syllabus / Lesson Planning**

1. INTRODUCTION
Global atmospheric change – Green house effect –Ozone Depletion - Natural Cycles - Mass and Energy Transfer – Material balance – Environmental chemistry and biology – Impacts – Environmental legislations.

2. AIR POLLUTION
Pollutants - Sources and Effect – Air Pollution meteorology – Atmospheric dispersion –Indoor air quality - Control Methods and Equipments - Issues in Air Pollution control – Air sampling and measurement

3. WATER POLLUTION
Water resources - Water Pollutants - Characteristics – Quality - Water Treatment systems – Wastewater treatment - Treatment, Utilization and Disposal of Sludge - Monitoring compliance with Standards

4. WASTE MANAGEMENT
Sources and Classification – Solid waste – Hazardous waste - Characteristics – Collection and Transportation - Disposal – Processing and Energy Recovery – Waste minimization

5. OTHER TYPES OF POLLUTION FROM INDUSTRIES
Noise Pollution and its impact - Oil Pollution - Pesticides - Instrumentation for EIA test - Water Pollution from Tanneries and other Industries and their control – Environment Impact assessment for various projects – Case studies

D. **Detailed Syllabus / Lesson Planning**

Sr.No.	Date/Week	Unit No.	% Weightage	Topic No:
1	1^{st} ,2^{ed} ,3^{ed}	Unit 1	20 % .	1
2	4^{th} ,5^{th} ,6^{th}	Unit 2	20 %	2
3	7^{th} ,8^{th} ,9^{th}	Unit 3	20 %	3
4	19^{th} ,11^{th} ,12^{th}	Unit 4	20 %	4
5	13^{th} ,14^{th} ,15^{th}	Unit 5	20 %	5

E. **Instructional Method & Pedagogy**

1. At the start of course, the course delivery pattern , prerequisite of the subject will be discussed
2. Lecture may be conducted with the aid of multi-media projector, black board, OHP etc. & equal weightage should be given to all topics while teaching and conduction of all examinations.
3. Attendance is compulsory in lectures and laboratory, which may carries five marks in overall evaluation.
4. One/Two internal exams may be conducted and total/average/best of the same may be converted to equivalent of 30 marks as a part of internal theory evaluation.
5. Assignment based on course content will be given to the student for each unit/topic and will be evaluated at regular interval. It may carry an importance of ten marks in the overall internal evaluation.
6. Surprise tests/Quizzes/Seminar/Tutorial may be conducted and having share of five marks in the overall internal evaluation.

F. **Students Learning Outcomes**

- The student can identify different areas of Environmental Engineering And Pollution Control .
- Can find the applications of all the areas in day to day life.

G. **Recommended Study Materials**

- **TEXT BOOKS**

1. G.Masters, "Introduction to Environmental Engineering and Science", Prentice Hall of India Pvt. Ltd, New Delhi, 2003
2. H.S.Peavy, D.R..Rowe, G.Tchobanoglous, "Environmental Engineering", McGraw- Hill Book Company, New York, 1985

- **REFERENCE BOOKS**

1. H.Ludwig, W.Evans, "Manual of Environmental Technology in Developing Countries",
2. International Book Company, Absecon Highlands, N.J, 1991
3. Arcadio P Sincero and G. A. Sincero, "Environmental Engineering – A Design Approach", Prentice Hall of India Pvt. Ltd, New Delhi