

INSTITUTE	FACULTY OF TECHNOLOGY
PROGRAM	BACHELOR OF TECHNOLOGY (CIVIL ENGINEERING)
SEMESTER	5
COURSE TITLE	ENVIRONMENTAL POLLUTION
COURSE CODE	01CI1507
COURSE CREDITS	3

Objective:

- 1 To understand the various types and sources of environmental pollution.
- 2 To analyze the role of regulations and policies in managing environmental pollution.
- 3 To understand the various types and sources of environmental pollution
- 4 To analyze and assess the environmental impacts of pollution.
- 5 To study the principles and techniques of pollution prevention and control.
- 6 To analyze the role of regulations and policies in managing environmental pollution

Course Outcomes: After completion of this course, student will be able to:

- 1 Describe essential attributes of environmental pollution types
- 2 Ascertain environmental resources and their pollution aspects
- 3 Analyze the sampling and analysis strategies for the water, air, and soil samples
- 4 Apply remediation techniques for various environmental pollution

Pre-requisite of course:ES

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
3	0	0	50	30	20	25	25

Contents : Unit	Topics	Contact Hours
1	Introduction Introduction to Environmental pollution: Introduction and basic concepts of environment, the structure of the environment, air, soil, water interactions, Interface between Environment and Development, Pollution and Environmental Ethics, pollution types (Water, Air, Noise, Land, Municipal Solid Waste), Pollution prevention strategies and processes, Sustainable Development Goals (SDGs).	6

Contents : Unit	Topics	Contact Hours
2	<p>Water Pollution Definition and sources of water pollution, Environmental, health, and economic impacts of water pollution, Water quality standards, and regulatory Overview of regulatory agencies and their roles in enforcing compliance, Fundamentals of water quality monitoring, Techniques for determining water quality., overview of available technologies and their application in water pollution control, Case studies., Conservation and Management of Water Resources: Groundwater Pollution and its control measures, Rainwater Harvesting and Artificial Recharge.</p>	10
3	<p>Air and Noise Pollution Air Pollution: Introduction and Impacts of air pollution on human health, vegetation, animals, building materials, structures, atmosphere, soil and water bodies, Sources, and classification, Air Quality Monitoring, Air Quality Index (AQI), Global and regional environmental issues of air pollution: Ozone depletion, Climate change, Global warming, Acid rain., Indoor air pollution: sources, types, and health impacts. Air pollution emission standards, National and international policies, acts, rules, and regulations., Noise Pollution Basics of acoustics- propagation of indoor and outdoor sound&#x02;noise profiling effects of noise – measurement, index, and mitigation methods&#x02;health effects of noise., Noise regulations and guidelines, Overview of regulatory agencies and their roles in enforcing compliance. Overview of available technologies and their application in noise control, Case studies</p>	10
4	<p>Municipal Solid Waste (MSW) Treatment and Disposal Introduction to Solid Waste Management, Municipal Solid Waste Characteristics and Quantities, MSW Rules 2016, NITI Aayog, Swachh Bharat Mission and Smart Cities Program, Municipal Solid Waste Collection, Transportation, Segregation and Processing, factors influencing a waste generation and health hazards, Waste minimization, waste hierarchy, and waste audit, Recycling of solid wastes, Disposal of Municipal Solid Waste: Landfill, Current Issues in Solid Waste Management., E-waste: Introduction, E-waste characteristics; E-waste generation, collection, transport, recycling, and disposal methods; E-Waste Management Rules 2016 and Management Challenges., Plastic waste: Introduction, Plastic Waste – Sources, Production, Global and Indian Context; Plastic Waste Management Practices – Plastic management&#x02;recycling, energy production & other applications. Plastic Waste Management Rules, 2022, Construction and Demolition (C&D) Waste Management – Introduction & Overview C&D Waste – Regulation, Beneficial Reuse of C&D Waste Materials. Construction and Demolition Waste Management Rules 2016</p>	10

Contents : Unit	Topics	Contact Hours
5	Climate Change and Environmental Pollution Introduction to Climate change and its effect on the environment, Climate Change Impacts agriculture, biodiversity, water resources (intense droughts, water scarcity, severe fires, rising sea levels, flooding, melting polar ice, catastrophic storms), and Current examples of emerging environmental pollutants and their potential impacts	6
Total Hours		42

Textbook :

- 1 Environmental Pollution Control Engineering, C.S. Rao,, NEW AGE International Publishers., 2021

References:

- 1 Water pollution: causes, effects, and control, Water pollution: causes, effects, and control, Goel, P. K., New age international,, 2006
- 2 Environmental pollution and control, Environmental pollution and control, Peirce, J. J., Vesilind, P. A., & Weiner, R, Butterworth-Heinemann., 1998

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
15.00	25.00	25.00	20.00	10.00	5.00

Instructional Method:

- 1 Presence in all academic sessions is mandatory, carrying 5% marks of the total internal evaluation
- 2 Prerequisites of the course and its pattern shall be discussed at the commencement of the course.
- 3 The course delivery method will depend upon the requirement of content and the need of students. The teacher, in addition to the conventional teaching method by a whiteboard, may also use any of the tools such as collaborative learning, demonstration, role play, Quiz, brainstorming, MOOCs, Active Learning Assignments, etc
- 4 The internal evaluation will be done based on continuous evaluation of students in the classroom.
- 5 At the end of each unit/topic, the students will be given an assignment based on the course content, carrying a minimum of 5% weightage for timely completion. And submission of the assigned work.

Supplementary Resources:

- 1 <https://www.bing.com/search?q=Environmental+Pollutionptel&qs=n&form=QBRE&sp=-1&lq=0&pq=environmental+pollutionpte&sc=10-26&sk=&cvid=06837D0C7E874D9687C6B89D83F38FCF&ghsh=0&ghacc=0&ghpl=>
- 2 https://onlinecourses.nptel.ac.in/noc23_ce14/preview
- 3 https://onlinecourses.swayam2.ac.in/cec21_ge08/preview
- 4 https://onlinecourses.swayam2.ac.in/cec23_1w08/preview