

Environmental chemistry - Web course

COURSE OUTLINE

Environmental Chemistry: Atmosphere; Pollution (air, water and soil), Fertilizers & Pesticide (classification) and health effect; Photochemistry; Analytical instruments.

COURSE DETAIL

Sl.No	Module Distribution	Lectures
1	Module – 1: Atmospheric composition and principles of contaminant behavior	
	The atmosphere of Earth; 2. Contaminant behavior in the environment; 3. Green house effect - Global temperature-Acid rain and - Ozone layer depletion	5
2	Module – 2: Contaminants and their natural pathways of degradation and their abatement	
	1. Carbon Cycle; 2. Nitrogen Cycle; 3. Sulphur Cycle; 4. CO formation in atmosphere; 5. Organic Pollutants; 6. Pollution from Combustion Systems; 7. Coal Combustion; 8. Photochemical Smog; 9. Indoor Air Pollution	9
3	Module – 3: Air Pollution Control Techniques	
	1. Carbon Monoxide; 2. Oxides of nitrogen; 3. Sulphur Dioxide; 4. Volatile Organic Compounds; 5. Instruments techniques to monitor pollution	5
4	Module – 4: Water Pollution	



NP-TEL

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<http://nptel.ac.in>

Chemistry and Biochemistry

Additional Reading:

J. Jeffrey Peirce, P. Aarne Vesilind, Ruth F. Weiner
Environmental Pollution and Control, 4th ed. Elsevier
Science & Technology Books
1997

Coordinators:

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	1. Ground and subsurface water contamination; 2. Water pollution sources; 3. Ground Water Pollution; 4. Ocean Pollution	4
5	Module – 5: Major Sources of Water Pollution	
	1. Eutrophication; 2. Acid Mine Drains; 3. Pesticides and Fertilizers; 4. Dying and Tanning	4
6	Module – 6: Water Pollution Treatment	
	1. Introduction; 2. Technological Approach; 3. Chemical Degradation of wastes and Chemicals; 4. Coagulation and flocculation; 5. Photocatalytic degradation of pollutants; 6. Supercritical water oxidation	6
7	Module – 7: Soil Pollution	
	1. Soil Around us; 2. Soil Water Characteristics; 3. Soil Erosion; 4. Soil & Pollution; 5. Water resources: Irrigation and Wetlands; 6. Soil Pollution Management; 7. Nuclear Waste Management; 8. Sewage Treatment; 9. Solid Waste Management.	9

References:

1. Manahan, Stanley E. Fundamentals of Environmental Chemistry Boca Raton: CRC Press LLC,2001
2. Sonja Krause, Herbert M. Clark, James P. Ferris, Robert L. Strong Chemistry of the Environment, Elsevier Science & Technology Books 2002
3. Eugene R. Weiner Applications of Environmental Chemistry 2000 CRC Press, LLC
4. By Clair N. Sawyer, Perry L. McCarty, Gene F. Parkin Chemistry for environmental engineering and science (5th edition) McGrawHill Professional