

ANALYTICAL CHEMISTRY (BS-ADP 7th Semester)

Module Code:	Chem-428
Module title:	Environmental Chemistry
Name of Scheme:	BS-ADP 7th Semester
Department:	School of Chemistry
Faculty:	Science
Module Type:	Compulsory
Module Rating:	2 credits

OBJECTIVES:

This course will help the students to learn the significance of environmental degradation, impact of the modern life use of acid value, ester value, saponification value and iodine value of different vegetable oils, dissolved oxygen, biological oxygen demand, chemical oxygen demand and industrial analysis. The student will also learn about industrial analysis and textile.

SYLLABUS OUTLINE:

1. Analytical Techniques for pollutant Analysis

Techniques for the analysis of emerging pollutants in aqueous system like PCB, PAH, THM, HAA.

Guidelines, Parameters, MCL and threshold values by US-EPA, ASTM, Pak-EPA.

2. Environmental Pollution

Introduction: Environmental pollution in the world and in Pakistan. Oxygen and ozone chemistry: Ozone depletion and its biochemical affect, sulfur dioxide, nitrogen oxide, chlorofluorocarbons, greenhouse effect. Hazards of pesticides: Hazards to man, soil, plant and animals. Water contamination through pesticides disposal, ground water contamination by herbicides. Effects of nitrogen fertilizer: Plant effluent discharges in soil, composition of fertilizer plant effluent discharges, effect and fate of nitrogen fertilizer effluent discharges in the soil ecosystem, suggestion for controlling adverse effects of fertilizer plant effluent and conservation of soil, leaching of fertilizer into soil, factors affecting nitrate, sulphate phosphate accumulation, losses of methane and ammonia from paddyland production system, global sources of methane, or sinks of methane. Atmospheric changes and sources of ammonia. Public awareness: Improper disposal/dumping of hazardous waste of landfills.

RECOMMENDED BOOKS:

1. Kumar. Environmental Chemistry, Wiley Eastern, New Delhi.
2. J.W. Moore & EM. Moore, Environmental Chemistry, Academic Press, New York.
3. S. K. Banerji, Environmental Chemistry, Prentice Hall, Delhi.
4. K. Banerji, Environmental Chemistry, Tata Publisher, Delhi.
5. Staneley E. Manahan, Environmental Chemistry, Brooks, California.
6. Neil, P.O. Environmental Chemistry, Chapman, London.
7. Baird, C. Environmental Chemistry, Freeman, New York.
8. Hassol, K.A. 1992. Biochemistry of Pesticides. McMillan Publishing Co. Ltd. USA.
9. Kumar. 1987. Environmental Chemistry. Anmol Publication, New Dehli, India.
10. Evangelon, V. P. 1998. Environmental Soil and Water Chemistry. John Willey, USA.
11. McBride, M.B. 1994. Environmental Chemistry of Soils. Oxford University Press, UK.