ENS-820 Environmental Chemistry

Credit Hours: 3-0

Prerequisite: Nil

Course Objectives

To improve students' comprehension about the effects and fate of pollutants and toxicants on human health & environment and acquaint them with pollution mitigation practices.

Course Contents

Pollutants in-organic (Chromium/Cadmium, Lead) and organic-pesticides,

their residues fertilizers

Toxicology-inorganic metallic compounds and industrial effluents effects of pollutants on human health (Nickel)

Monitoring of air pollution and its control

Water pollution and its control

Processes for disposal of industrial pollutants (Landfill techniques incineration etc.)

SOXs and NOXs, their efficient removal- radiation processing techniques

Outlines of classical and modern chromatographic techniques

Comparative merits

GLC

HPLC

Gel permeation chromatography

SEC size exclusion chromatography

Course Outcomes

By the end of this course, students will be able to:

1. Identify and assess the impact of major inorganic and organic pollutants on human health and the environment.
2. Understand toxicological effects of industrial effluents and heavy metals.
3. Explain methods for monitoring and controlling air and water pollution, including disposal techniques.
4. Demonstrate knowledge of classical and modern chromatographic techniques used in pollution analysis and control..

Recommended Books

Stanley E. Manahan, Fundamentals of Environmental and Toxicological Chemistry, CRC Press, Taylor & Francis Group, 2013.

D.A. Skoog, D.M. West, F.J. Holler and S.R. Crouch, Fundamentals of Analytical Chemistry, Mary Finch Publications USA. 2014.