Course Code	Course Title	Credit Hours
ENS-801	Environmental Analytical Techniques	3 (2+1)

Course Description

This course helps to familiarize students with sampling and analysis of environmental samples for describing the fate of environment. Practical component is designed to provide hands on experience to the students through analytical work and usage of lab equipment.

Course Outline

Introduction; Principles of physical, chemical and microbiological analysis of environmental pollutants, Sampling Procedure for the examination of Water, Wastewater, Air and Solid Waste; sampling rules, sample collection and preservation. Laboratory Techniques and Field Monitoring for parameters of importance causing environmental pollution. Environmental Chemical Analysis; Principles for Instrumental Techniques using Spectroscopy, Chromatography, Microscopy and X-Ray Diffraction analyses. Assessment and Interpretation of Results using Statistical Tools.

Lab work

Analyses of Water, wastewater, air and solid wastes for pollutant determination; Instrumental analyses using Spectroscopy, Chromatography, Microscopy and X-Ray Diffraction analyses. Data Interpretation using Statistical Tools

Recommended Books

1. Standard Methods for Examination of Water and Wastewater. L. S. Clesceri, A. E. Greenberg, A. D. Eaton. 24th Edition. APHA publisher, USA, 2023.
2. Environmental Engineering Laboratory. Ahmed, K.A one Publishers Lahore, Pakistan, 1998.