

**MSc. Final Environmental Sciences
Semester III**

**Paper IV
Instrumentation and Environmental Analysis**

Unit I

Introduction of various equipments of environmental monitoring and analysis: High volume air sampler, Atomic absorption spectrophotometer, Flame photometer, Infrared gas analyzer, UV spectrophotometer, H.P.L.C, scanning electron microscope, transmission electron microscope. Cooling centrifuge, growth chamber, Autoclave, polarograph, nuclear magnetic resonance.

Unit II

Machines involved in various equipments, working principles of all the equipments used in environmental monitoring and analysis.

Unit III

Air pollution analysis, monitoring of SO₂, NO₂, CO₂ and analysis of SPM, sampling methods for aerosol, organic gases and vapor analysis.

Unit IV

Water pollution analysis, Physical analysis, chemical analysis, Biological Analysis, analysis of minor components, Industrial and domestic effluent analysis, Primary, Secondary and tertiary treatment of water.

Unit V

Soil pollution and pesticide analysis, agricultural pollution, Role of micronutrient in soil, trace elements in soil, pesticide and soil pollution ,chromatography characterized zones, polarographic spectroscopic analysis. Soil pollution and crop health, soil microbes and plants diseases. Physical, chemical and biological analysis of soil.