

## **ESP458 ADVANCED INSTRUMENTATION LAB.**

### **Course Outcomes:**

*CO1 Learn the principles of various instruments used in environmental science and to conduct experiments using such instruments.*

*CO2 Develop the technical skill of handling and operation of various advanced instruments.*

*CO3 Learn different titration methods.*

*CO4 Understand air sample analysis.*

1. Spectrophotometric determination of trace elements.
2. Conductometric titration of water & Soil extract samples.
3. Extraction of plant pigments and study of TLC and column chromatography.
4. Determination of Fluorides by spectrophotometry.
5. Determination of Organic carbon in soil.
6. Potentiometric titration of Non-aqueous solvents.
7. Determination of Nitrite/Nitrate/Total nitrogen/Ammonia nitrogen in water and soil samples.
8. Determination of sodium and potassium by flame photometry.
9. Determination of pesticides in different samples.
10. Determination of phosphate in water samples.
11. Determination of SO<sub>2</sub> in air sample.

## **ESP459 ENVIRONMENTAL TOXICOLOGY LAB.**

### **Course Outcomes:**

*CO1 Determine various toxic chemicals in different samples.*

*CO2 Study histological processing of organs for toxicological tests.*

*CO3 Learn microtomy, paraffin section preparation and staining.*

*CO4 Get the skill of conducting experiments to detect the concentration of toxic chemicals in different samples.*

1. Determination of solid food adulteration.
2. Methods of prevention of food poisoning.
3. Determination of liquid food adulteration.
4. Estimation of LC<sub>50</sub> value in mosquito larvae.
5. Determine the histotoxicity/histopathology of a given sample.
6. Spot test for the detection of nitrate/nitrite poisoning.
7. Histological processing of organs for toxicological tests
8. Determination of fluoride content in a given sample.
9. Determination of differential leukocyte count of the pesticide treated blood smear.