DEPARTMENT OF CHEMISTRY

Drinking Water Quality Analysis

Syllabus

Total hrs-75, Credit-2

Theory (30 hours)

Module 1 : Water quality parameters and their effects (4 hours)

Physical parameters, pH, colour (Hazen), odour, taste, turbidity, General parameters – Hardness, Total Dissolved Solids, Chloride, Sulphate, Nitrate, Fluoride, Calcium, Magnesium, Iron, Manganese, Heavy metals, Pesticides, Dissolved oxygen, Coliform bacteria, Drinking Water Specifications – Indian Standards

Module 2 : Procedures for the measurement of physical parameters (3 hours)

Water sampling and preservation, Procedures for the measurement of pH, Conductivity and Turbidity

Module 3 : Procedures for the measurement of Chemical parameters (8 hours)

Procedures for the measurement of Total Hardness, Chloride, Nitrate, Fluoride, Iron, Dissolved oxygen, Biological Oxygen Demand, Heavy metals, Pesticides

Module 4: Microbiological analysis (15 hrs)

MPN method for analysis for total coliform and fecal coliform bacteria.

Practicals (45 hours)

1. **Estimation of hardness of water** – by complexometric titrations using EDTA (Ethylenediamminetetraaceticacid)
2. **Estimation of iron and fluoride** – by colorimetry using UV- Visible spectrophotometer
3. **Estimation of physical parameters like pH, Conductivity, TDS (Total Dissolved Solids), Salinity, Dissolved oxygen** – using suitable probes in the water analysis kit
4. **Estimation of the total coliform and fecal coliform bacteria by MPN method**

Field Project

The student collect water samples from different localities, measure the various water quality parameters and prepare a water card as per the guidelines of CWRDM (Centre for Water Resources Development and Management, Kozhikode

References

1. Standard Methods for the Examination of Water and Waste water, APHA, AWWA and WEF, 22nd Edition 2012

2. ITRC (1999) Lecture Notes of Post Graduate Training Programme on ‘Advanced Water Quality Instruments under the technical assistance from Hydrology Project, October 11 -23, 1999 at Industrial Toxicology Research Centre, Lucknow.