



MANGALORE UNIVERSITY

Department of Industrial Chemistry

ICS 505: CHEMICAL ANALYSIS IN AGRO, FOOD AND PHARMACEUTICAL INDUSTRIES

Course Outcomes:

Students gain knowledge about the analysis of soil and fuel, determination calorific values of fuels, drug, food analysis and clinical chemistry.

Unit I

10 Hrs

Analysis of soil: Moisture, pH, total nitrogen, phosphorous, silica, lime, Magnesia, Manganese, sulfur and alkali salts.

Fuel analysis: Solid, liquid and Gas, ultimate and proximate analysis heating values, grading of coal, liquid fuels, flash points, aniline point, octane number and carbon residue, gaseous fuels – producer gas and water gas – calorific value.

Unit II

10 Hrs

Clinical Chemistry: Composition of blood collection, and preparation of samples, clinical analysis – serum electrolytes, blood glucose, blood urea nitrogen, uric acid, albumin, globulin, barbiturates, acidic and alkaline phosphates, Immunoassay, principles of radioimmunoassay and applications. The blood- gas analysis – trace elements in the body.

Unit III

10 Hrs

Drug analysis: Narcotics and dangerous drugs, classification of drugs, screening by gas chromatography and spectrophotometric analysis.

Introduction to Fluorescence, instrumentation and its application in Biological, Medical and Drug Development.

Unit IV

12 Hrs

Food analysis : Moisture, ash, crude protein, fat, crude fiber, carbohydrate, calcium, potassium, sodium, and phosphates, food adulteration – common adulteration in food, contamination of food stuffs, microscopic examination of foods for adulterants, Pesticide analysis in food products, Extraction and purification of sample, HPLC, gas chromatography for organo – phosphates, thin layer chromatography for identification of chlorinated pesticides in food products

Reference Books

1. Fundamentals of analytical chemistry by D. A. Skoog, D. M. West and F. J. Horner, W. B. Saunders.
2. Chromic phenomenon, The Technological application of color chemistry Peter, Bamfield

