

## BS (4 Years) for Affiliated Colleges



Code	Subject Title	Cr. Hrs	Semester
CHEM-412	Analytical Chemistry (Sp. Theory-I)	4	VII
Year	Discipline		
4	Chemistry		

### **SYLLABUS OUTLINE:**

#### **Gas Liquid Chromatography / Gas Solid Chromatography:**

Gas Chromatographs, Derivative Formation, Gas Chromatographic Columns, Liquid Phases and Column Selection, Detectors for Gas Chromatography, Optimization of Experimental Condition, Gas-Solid Chromatography, Interfacing Gas Chromatography with Mass Spectrometry, Interfacing Gas Chromatography with Infrared Spectrometry,

#### **High Performance Liquid Chromatography:**

Optimization of Column Performance, Gradient Elution and Related Procedures, Derivation, HPLC Instrumentation, Mobile-Phase Delivery System, Sample Introduction, Separation Columns, Detectors, Interfacing HPLC with Mass Spectrometry

#### **Potentiometry:**

Nernst equation; Electrode Potentials; different reference electrodes including glass and calomel electrode; working of a potentiometer and its applications including pH measurements and potentiometric titrations; ion-selective electrode systems; ion-exchange membrane electrode; gas-sensing electrode; solid-state membrane electrode and bio membrane electrode.

#### **Thermo gravimetric Analysis / Differential Thermal Analysis:**

General Principle of thermal, instrumentation, types of measurements; TGA (thermogravimetric analysis), DTA (differential thermal analysis), DSC (differential scanning calorimetry), TT (thermometric titrations) and EGD (evolved gas detection), Principles, instrumentation and applications of these techniques.

### **RECOMMENDED BOOKS:**

1. Electro Analytical Chemistry by J.J. Longane, Inter Science Publisher Inc. N.Y. London.
2. Vogels, text book of Quantitative chemical analysis by J. Mendham, R.C. Denney, J.D. Barnes, M.J. K. Thomas, Pearson Education Ltd.