

SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Instrumentation)
Semester: II
Syllabus with Effect from: June - 2010

Paper Code: PS02CINS01	Total Credit: 4
Title Of Paper: Analytical Instrumentation	

Unit	Description in detail	Weightage (%)
I	Spectrophotometers (UltraViolet-Visible): Beer-Lambert's Law, Absorption Instruments & Multi - Channel Photometer, Types of IR Spectrophotometers, Sample Handling Techniques, Fourier Transform IR Spectroscopy Technique, Flame Photometry: Principle, Components & Interferences	25%
II	Atomic Absorption Spectrophotometers: Instrumentation, Sources of Interferences, Fluorimeters: Principle, Measurement & Phosphorescence Spectrometer, Raman Spectrometer, Photo-Acoustic & Photo-Thermal Spectrometers,	25%
III	Types of Mass Spectrometers, Nuclear Magnetic Resonance Spectrometer, Electron Spin Resonance Spectrometer, Surface Spectroscopic Techniques, Radioactive Radiation Detectors, pH measurement	25%
IV	Chromatography: Gas & Liquid (Components & Detection Systems), Thermo Gravimetric Analysis, Differential Thermal Analysis, Differential Scanning Calorimetry, Electrophoresis Techniques, Analyzers: Paramagnetic Oxygen, Infrared Gas, Gas Density & Ionization of Gases, Air Pollution Monitoring, Water Pollution Monitoring Techniques.	25%

Basic Text & Reference Books:-

- Handbook of Analytical Instruments, R. S. Khandpur, Tata McGraw-Hill.
- Principles of Instrumental Analysis, Douglas A. Skoog, F. James Holler & Timothy A. Nieman, Thomson- Brooks/Cole.
- Instrumental Methods of Analysis, Hobart H. Willard, Lynne L. Merritt Jr., John A. Dean & Frank A. Settle Jr., CBS Publishers & Distributors.
- Instrumental Methods of Chemical Analysis, Gurdeep R. Chatwal & Sham Anand, Himalaya Publishing House.

