

**SARDAR PATEL UNIVERSITY**  
**Programme & Subject: B.Sc (Instrumentation – Vocational)**  
**Semester: V**  
**Syllabus with Effect from: June-2013**

<b>Paper Code: US05CINV04</b>	<b>Total Credit: 3</b>
<b>Title Of Paper: Analytical Instrumentation</b>	

Unit	Description in detail	Weightage (%)
I	pH Concept & Definition, Principle of pH measurement, Electrodes: Hydrogen, Glass, Calomel, Combined pH Electrode, Buffer solution, Handling of pH Electrodes, Types of pH meters: Null Detector, Direct Reading: Chopper Amplifier, Zero Corrected DC Amplifier,	25%
II	Components of Gas Chromatography: Carrier Gas Supply, Sample Injection, Column, Stationary Phase, Thermal Compartment, Conductivity detector, Flame Ionization Detection, Electron Capture Detector.	25%
III	Liquid Chromatography, Ion Exchange, Gel Permeation, Thin Layer, Paper Partition, High Performance Liquid Chromatography, High Pressure Pump, Gradient Elution, Sample Injection, Column.	25%
IV	Detection Systems: Fluorescence Detector, UV Detector, Refractive Index Detector, Conductivity detector, Mass Detector, Laser based, Dual type, Performance Parameters, Calibration Methods.	25%

**Basic Text & Reference Books:-**

- Handbook of Analytical Instruments, R. S. Khandpur, Tata McGraw-Hill.
- Instrumental Methods of Chemical Analysis, Gurdeep R. Chatwal & Sham Anand, Himalaya Publishing House.
- 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.

