

**SARDAR PATEL UNIVERSITY****Programme: B.Sc (Chemistry)****Semester: IV****Syllabus with effect from: November/December-2012**

<b>Paper Code: US04ECHE06</b>	<b>Total Credit: 2</b>
<b>Title Of Paper: Instrumental Methods Of Analysis</b>	

<b>Unit</b>	<b>Description in detail</b>	<b>Weighting (%)</b>
I	PH metry: Introduction and determination of PH, applications. Potentiometric titrations: Introduction, Types of titrations, Advantages of potentiometric titrations. Conductometric measurements: Introduction, Some important laws, Definition and relations, Effect of dilution, Applications of conductance measurements, Types of titrations, Advantages and disadvantages.	
II	Chromatography: Introduction, Classification and application Paper chromatography: Experimental details for qualitative analysis, Experimental details for quantitative analysis. Thin layer chromatography: Superiority of TLC over the other techniques, Experimental techniques, Limitations, Scope. Column chromatography: Introduction, Experimental details, Theory of development, factors affecting column efficiency.	
III	HPLC and GC: Introduction, Instruments involved, Sampling methods, Experimental details and applications	
IV	Visible spectrophotometry and Colorimetry: Introduction, Theory of spectrophotometry and colorimetry, Deviation from Beer's Law, Instrumentation, Applications. Ultra Violet Spectroscopy: Introduction, Origin and theory of ultraviolet spectra, Choice of solvent, instrumentation, Applications	

**Basic Text & Reference Books :-**

- Instrumental methods of chemical analysis by Chatwal – Anand, Himalaya Publishing House.
- Instrumental methods of chemical analysis by B.K. Sharma, Krishna Publication Media (P) Ltd., Meerut.
- Organic spectroscopy by William Kemp, Macmillan Press Ltd., London.
- Analytical chemistry by Gray D. Christian, 4<sup>th</sup> edition, Wiley & Sons, Inc.
- Instrumental methods of analysis by Willard Merritt, Dean Settle, CBS Publishers & Distributors, New Delhi.
- Principles of instrumental analysis by Skoog, Holler, Nieman, Thomson Asia Pvt. Ltd., Singapore.
- Basic concept of analytical chemistry by S.M. Khopkar, New Age International Publishers.
- Instrumental methods of chemical analysis by Galen W. Ewing, McGraw – Hill Book Company.

