

SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Polymer Science & Technology)
Semester: IV
Syllabus with Effect from: June - 2015

Paper Code: PS04EPST06	Total Credit: 4
Title Of Paper: Analytical Techniques	

Unit	Description in detail	Weightage (%)
I	Fundamentals of Analytical Chemistry: Definitions, Application of analytical Chemistry, Classification of analytical techniques and importance, GMPs and its Components, Verification and Validation in chemical analysis.	25%
II	Chemical calculations and Chromatography: Concentration units, preparation and standardization of analytical reagents Introduction to chromatography techniques: classification and working principles. (Paper chromatography, Thin Layer chromatography, Column chromatography, HPLC, GC and GPC)	25%
III	Fundamentals of Spectroscopy and Components of Optical Instruments: Introduction, Classification, EMR and Interactions of EMR with Matters, Sources of radiations, wave length selectors, sample holders, detectors and signal processors and readouts, Lambert's and Beer's Law, FTIR, NMR, Mass Spectroscopy	25%
IV	Instrumental Polymer Analysis: Thermogravimetric Analysis (TGA), Differential Scanning Calorimetry, Thermomechanical Analysis, Dynamic Mechanical Analyses, Scanning electron Microscopy (SEM), TEM	25%

Basic Text & Reference Books:-

- Skoog, Holler, Niemon, "principles of instrumental analysis" 5th edition, Saunders college publisher.
- Robert D. Braun "Introduction to chemical analysis" McGraw-HILL International Edition.
- Robert D. Braun "Introduction to instrumental analysis" McGraw-HILL International Edition.
- Gary D. Christian. "Analytical chemistry" 6th edition John Wiley & sons, Inc. 2004
- B. K. Sharma. "Instrumental method of chemical analysis" 24th edition, GOEL publishing house Meerut .2005
- R. A. Day, jr , A. L. Underwood., "Quantitative analysis" 6th edition, Prentice –Hall of India Private limited, New Delhi. 2006.
- L.Huber, "Validation and qualification in analytical laboratories" 2nd Edition, 2007.

