

SARDAR PATEL UNIVERSITY
Programme: MSC (Pharmaceutical Chemistry)
Semester: III
Syllabus with effect from: June 2010

Paper Code: PS03CPCH03	Total Credits: 4
Title Of Paper: Spectroscopic Techniques for Quality Control	

Unit	Description in detail	Weightage (%)
1	<p>Introduction to Spectroscopic Techniques: Types of Analytical techniques, Introduction of Instrumental methods and its classification, Selecting an analytical methods, Overview of spectroscopic methods based on wave length regions of Electromagnetic radiation, properties of Electromagnetic radiation Emission Spectroscopy: Atomic emission spectroscopy, Principle and theory, Instrumentation, Atomization techniques, Flame atomizer, Flame emission spectroscopy, Principle, Instrumentation and applications, Fluorimetry, Principle, Instrumentation and application.</p>	25 %
2	<p>UV – Visible Absorption and Infrared Spectroscopy: UV – Visible Absorption Spectroscopy: Types of transitions, Requirement of UV – Visible Absorption Spectroscopy, Chromophoric effect, auxochromic effect, Bathochromic effect and Hysochromic effect, Instrumentation with diagram, Lambert, Beer’s law, its principle and limitations, Applications and pharmaceutical analysis by UV – Visible spectroscopy, examples. Infrared Spectroscopy: Introduction to IR and FTIR, Theory of Infrared absorption spectrometry, Infrared sources and transducers, Sample handling, Instrumentation, Interpretation of IR spectra, Applications and limitations of IR spectroscopy, Problems</p>	25 %
3	<p>Nuclear Magnetic Resonance Spectroscopy: Introduction to Nuclear Magnetic Resonance, Quantum description of Nuclear magnetic resonance, NMR Spectrometer, Chemical shift, Applications of Nuclear magnetic resonance spectroscopy, Introduction and application of ¹³C – NMR</p>	25 %
4	<p>Mass Spectroscopy: Introduction, Theory and components of mass spectrometers, Recording and resolution of mass spectrometer, Types of ions produced in mass spectrometer, Interpretation of Mass spectra, Applications of Mass spectrometry.</p>	25 %

Basic Text & Reference Books:

- **Principles of Instrumental Analysis** by Doulas A Skoog, F. James Holler and Trmothy A. Nieman, Harcourt Brace College Publishers. ISBN: 981-243-869-6.
- **Pharmaceutical analysis** by P. Parimoo, CBS Publishers & Distributors. ISBN: 8123906277, ISBN-13: 9788123906270, 978-8123906270.(2006)
- **Instrumental methods of Analysis** by Willard, Merritt, Dean and Settle, CBS Publishers & Distributors. ISBN: 81-239-0943-8.
- **Fundamentals of Analytical Chemistry**, Skoog, West, Holler & Crouch, Publisher: Brooks Col, ISBN : 981-243-513-1, (2006).
- **Spectrometric Identification of Organic Compounds**, by Silverstein, M. Robert, Webster, Franics X, ISBN 0-471-13457 – 0.

