



COURSE CURRICULUM

Course Title: INSTRUMENTAL ANALYSIS – CHEMICAL

Course Code:

Level: PG

Credit Distribution			
L	T	P	Total
3	0	0	3

Course Objective The objective of the course is to provide student with practical understanding of working and applications of various instrumentation techniques used in the forensic science laboratory for the chemical analysis of evidences.

Prerequisites: Basic Knowledge in Chemistry

Course Contents:	Weightage (%)
Module I: Chromatographic Techniques I General principles, Type of Chromatography, Paper chromatography, Thin layer chromatography	20
Module II: Chromatographic Techniques II HPLC, HPTLC : Basic principles, theory, Instrumentation and Applications	20
Module III: Chromatographic Techniques III Gas chromatography, Gas-liquid chromatography: Basic principles, theory, Instrumentation and Applications	20
Module IV: Spectroscopic Techniques I UV- Visible spectrophotometry, AAS. IRS: Basic principles, theory and Instrumentation	20
Module V: Spectroscopic Techniques II Mass Spectrometry: Sample flow, Ionization methods, Mass analyzer, Data handling, Correlation of mass spectra	20
Total	100

Student Learning Outcomes: Upon completion of this course the students would be able to:

- **Demonstrate** principles and working of various instrumentation techniques.
- **Analyze** various evidences by instrument.

Pedagogy: This course will be taught in the active-learning mode, featuring lecture, discussion and presentations.

Assessment/ Examination Scheme:

Theory L/T (%)	Lab/Practical/Studio (%)	Total
100	0	100

Theory Assessment (L&T):

Components	CIA (30%)			ESE (70%)
	A	H	CT	
Weightage (%)	5	10	15	70

Lab/ Practical/ Studio Assessment: NA

Text & References:

- H.H Willard et al, Instrumental methods of analysis, CBS Publishers and Distributors, Delhi, 1986.
- Skoog, Holler, Crouch, PRINCIPLES OF INSTRUMENTAL ANALYSIS, 6TH EDITION, 2007.
- Mendham et al., Vogel's Quantitative Chemical Analysis, Pearson Education Ltd., 2009.
- N. Gray, Instrumental Methods of Analysis, 1st Edition, CBS Publisher, 2011.