



AMITY UNIVERSITY

UTTAR PRADESH

COURSE CURRICULUM

Course Title: INSTRUMENTAL ANALYSIS - PHYSICAL

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 analysis of evidences.

Prerequisites: Basic Knowledge in Physics

Course Contents:	Weightage (%)
Module I : Introduction Electromagnetic spectrum, Sources of Radiation, their utility and limitations, Atomic spectra, Molecular spectra	20
Module II: UV- Visible Spectrophotometry Types of sources and stability, wavelength selection, filters-cells and sampling devices, detectors, resolution, qualitative and quantitative methods for detection.	20
Module III: AAS Atomic absorption spectrometry: Instrumentation and techniques, interference in AAS, background correction methods, quantitative analysis.	20
Module IV: IRS Infrared spectrophotometry: Dispersive and Fourier Transform spectrophotometry, sample handling, quantitative analysis and interpretation of IR spectra	20
Module V: X-ray spectroscopy X-ray absorption and fluorescence methods, X-ray diffraction, Basic principles, theory and Instrumentation	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.