

Title of Paper: BIOINSTRUMENTATION AND ANALYTICAL TECHNIQUES

Type: BCH – 101 CORE

SEMESTER – I

TOTAL CREDITS: 4

TOTAL HOURS: 48L+12T+0P

Course Objectives

- The primary objectives of this course are to develop the skills to understand the theory and practice of bioanalytical techniques and bioinstrumentation
- To provide scientific understanding of analytical techniques and detail interpretation of results

Course Learning Outcomes

- Understanding the applications of biophysics and principle involved in bioinstruments, methodology involved in biotechniques
- Applications of bioinstruments

Sr. No.	Unit No.	Syllabus Content	No. of Hours (L+T+P)
1.	1.	Chromatography Principle, types and applications-partition, adsorption, gel filtration, paper, thin layer, gas chromatography, ion exchange, molecular sieve, supercritical fluid and HPLC	8L+2T
2.	2.	Electrophoresis Principle, instrumentation and applications of moving boundary and zonal electrophoresis, including paper and gel (SDS-PAGE and Agarose) electrophoresis, iso electrofocusing, PFGE and Capillary electrophoresis.	8L+2T
3.	3.	Centrifugation Principles of sedimentation & centrifugation, types of centrifuge, differential and density gradient centrifugation	8L+2T
4.	4.	Microscopy Principles and applications of light microscope, fluorescence, Phase contrast, Dark field, electron (TEM and SEM), interference, polarization, inverted and stereomicroscope. Freeze fracture, fixation	8L+2T