

Programme: M.Sc. (Microbiology)

Course Code: MIPC-403

Title of the Course: TECHNIQUES AND INSTRUMENTATION IN MICROBIOLOGY [P]

Number of Credits: 1, Practical

Contact hours: 30

Effective from Academic Year: 2022-23

Prerequisites	The student should be familiar with the concepts of biochemistry and Microbiology.	
Objective:	This course develops the concepts of various techniques, methodology and instruments involved in studying the microbial cells and their products.	
Content:		(30)
1.	Analysis of the microbial cell structure using Phase contrast Microscopy.	
2.	Counting of bacterial cells using epifluorescence microscopy.	
3.	Cell disruption by sonicator and efficacy of sonication.	
4.	Density gradient separation of microbial cells.	
5.	Extraction of microbial pigments and profiling using UV-Vis spectroscopy.	
6.	Silica gel based adsorption chromatography for separation of pigments	
7.	Native Polyacrylamide gel electrophoresis (PAGE) for protein separation and Zymogram (Amylase or Protease).	
8	Demonstration of HPLC, FT-IR, GC and spectral analysis.	
Pedagogy:	Hands-on experiments in the laboratory, video, online data	
References/ Readings	As given under Theory Course MITC-403	
Learning Outcomes	To use various instruments for analysis of microbial cell and products. Develop and apply various methods for the processing of microbial cells and their products.	