



Course Code	PS02CBIC54	Title of the Course	LAB-I
Total Credits of the Course	04	Hours per Week	04

Course Objectives:	<ol style="list-style-type: none"><li>1. To learn to handle protein solutions.</li><li>2. To learn enzyme assay.</li><li>3. To learn to derive kinetic parameters of enzymes, calculate <math>V_{max}</math>, <math>K_m</math> and <math>K_{cat}</math> values.</li><li>4. To learn separation and spectroscopic estimation techniques.</li></ol>
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### PS02CBIC54 (Lab 1)

1. Performance of SDS PAGE
2. Performance of Agarose gel electrophoresis.
3. Performance of density gradient centrifugation.
4. Determination of Partition coefficient between two phases.
5. Performance of thin layer and paper chromatography
6. Demonstration of HPLC and Flash chromatography
7. Determination of absorption maxima in visible spectroscopy.
8. Estimation of protein by UV-Visible spectroscopy.
9. Demonstration of FTIR
10. Invertase Assay
11. Progress curve
12. Enzyme curve
13. Substrate saturation curve
14. Optimization of pH for invertase activity
15. Analysis of Substrate saturation data by various plots
16. Inhibition kinetics
17. Optimization of Temperature for invertase activity
18. Effect of temperature on Rate of reaction and determination of activation energy
19. Effect of temperature on enzyme stability
20. Enzymology workshop: kinetics, plots and numericals

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%





Course Outcomes: Having completed this course, the learner will be able to

1.	Maintain conditions to work with proteins and enzymes.
1.	Determine and compare enzyme activities.
2	Do electrophoretic analysis of proteins.
3.	Do spectroscopic analysis and estimations.

References:

1	Thimmaiah S. K. (2012). Standad Methods of Biochemical Analysis. Kalyani Publishes, New Delhi, India.
2	Copeland, Robert A. (Ed.) (1994) Methods for Protein Analysis A Practical Guide for Laboratory Protocols Springer.

