

Semester	IV	
Course * ¹	Skill Enhancement Course	
Paper Code	S2BT230421P	
Paper Title	Bioanalytical methods (Pr1) and Immunology (Pr2)	
No. of Credits * ²	3	
Theory / Practical / Composite	Full Practical	
Minimum No. of preparatory hours per week a student has to devote	3+4	
Number of Modules	2	
Syllabus	<p>Section 1: Bioanalytical methods</p> <ol style="list-style-type: none"> 1. Estimation of protein concentration by taking absorbance at 280 nm 2. Estimation of protein concentration by Modified Lowry Method 3. Identification of amino acids and lipids by TLC and paper chromatography 4. Determination of buffering capacity of amino acids 5. SDS-polyacrylamide gel electrophoresis (reducing and non-reducing gel) 6. Selective salting out of proteins using ammonium sulfate precipitation 7. Size exclusion chromatography (demonstration) <p>Section 2: Immunology</p> <ol style="list-style-type: none"> 1. Haemagglutination assay and Haemagglutination inhibition assay – tutorial 2. Double immunodiffusion test using specific antibody and antigen 3. ELISA 4. Western Blotting. 	
Learning Outcomes * ³	<ul style="list-style-type: none"> • 1. Provide an overview of various technical methods and bio-analytical tools which have useful applications in biotechnology. • 2. Introduce students to microscopy, centrifugation and cell fractionation techniques. • 3. Introduce students to electrophoresis and its applications. • 4. Enable students understand the principles of chromatography. • 5. Introduce students to the principles of spectroscopy. • 6. Provide students with a hands-on-experience of several bio analytical techniques in the practical module. • 7. Students would get to know the principle of Haemagglutination assay and Haemagglutination inhibition assay. • 8. They would get a hands-on knowledge on immunological techniques like Double Immunodiffusion, ELISA and Western blotting. 	
Evaluation		Practical (50)