Title of the Course: MICROBIAL BIOCHEMISTRY [P]

Course Code: MIC-501

Number of Credits: 1, Practical

Contact hours: 30

Effective from Academic Year: 2022-23

Prerequisites	The student should be familiar with the different biomolecules and their metabolism.	
Objective:	This course deals with the characteristics, properties and biological significance of the biomolecules of life. In depth knowledge of the energetics and regulation of different metabolic processes in microorganisms.	
Content:		**(30)**
1.	Standard curve for reducing sugar, total sugar and polysaccharide (starch).	
2.	Standard curve for protein (Folin Ciocalteau method).	
3.	Enzyme assay (Amylase), determination of *Km* and *Vmax*.	
4.	Precipitation of protein from solution by salting out and dialysis	
5.	Size exclusion (Gel filtration) chromatography.	
6.	Specific activity, fold purification, percentage yield of enzyme.	
7.	Molecular weight determination by SDS-PAGE.	
Pedagogy:	Hands-on experiments in the laboratory, video, online data	
References/ Readings	Berg, J.M., Tymoczko, J.L., Gatto, G.J. and Stryer, L. Biochemistry. W. H. Freeman & Company. (2018)	
	Bull, A. T. and Meadow, P., Companion to Microbiology, Longman Group Limited, New York. (1978)	
	Jayaraman, J., Laboratory Manual in Biochemistry, John Wiley & Sons, Limited, Australia. (1981)	
	Lehninger, A., Cox, M. and Nelson, D. L., Principles of Biochemistry, W. H. Freeman & Company. (2021)	
	Moat, A. G., Foster, J. W. and Spector, M. P., Microbial Physiology, A. John Wiley & Sons Inc. Publication. (2003)	
	Murray, R. K., Bender, D. A., Botham, K. M., Kennelly, P. J., Rodwell, V. W. and Weil, P. A., Harper's Illustrated Biochemistry, The McGraw-Hill Companies, Inc. (2018)	
	Plummer, D. T., An Introduction to Practical Biochemistry, Tata McGraw Hill Publishing Company. (2001)	
	Sadasivam, S., Manickam, A., Biochemical Methods, New Age International (P) Limited. (2007)	
	Voet, D., Voet, J. G. and Pratt, C. W., Principles of Biochemistry, John Wiley and Sons Inc. (2018)	
Course Outcomes	• Estimation of various biomolecules. • Separate various biomolecules. • Discriminate metabolic processes applicable to various biomolecules of the microbial origin.	

	● Explore microorganisms for their microbial products.	