

Course Code	CHE407M2	
Course Title	Advanced Organic Chemistry III	
Credit Value	2	
Hourly breakdown	Theory	Independent learning
	30	70
Objective/s	<ul style="list-style-type: none"> • Discuss role and diversity of carbohydrates, proteins and enzymes • Describe structure elucidation of oligosaccharides and peptides • Explain synthesis and reactivity of oligosaccharides and peptides • Impart knowledge on activity regulation, kinetics and inhibition of enzymes • Explain significance of therapeutic agents and their action 	
Intended Learning Outcomes	<ul style="list-style-type: none"> • Relate the importance of primary metabolites in biological system • Predict the structure of oligosaccharides and peptides by interpreting the given data • Devise synthetic strategies for oligosaccharides and peptides • Illustrate protein structure, denaturation and purification • Discuss mechanism, kinetics and inhibition of enzyme activity • Prioritize mechanistic action of therapeutic agents 	
Contents	<p>Carbohydrates</p> <ul style="list-style-type: none"> • Brief overview of monosaccharides, Nomenclature of oligosaccharides, Determination of oligosaccharide structure, Synthesis and reactions of oligosaccharides, Polysaccharides and chemical glycobiology <p>Proteins</p> <ul style="list-style-type: none"> • Brief overview of amino acids, Nomenclature of peptides, Determination of peptide structure, Solution-phase and solid-phase approaches to peptide synthesis, Levels of protein structure and protein denaturation, Protein purification techniques <p>Enzymes</p> <ul style="list-style-type: none"> • Introduction to enzymology, Classification and properties of enzymes, Mechanism of enzyme action, Enzyme kinetics, Enzyme inhibition <p>Therapeutic Agents</p> <ul style="list-style-type: none"> • Mechanism of therapeutic action, Haematological agents, Sulphonamides, Vitamins, Antibiotics, Drugs to combat AIDS 	
Teaching and Learning Methods / Activities	Lectures, tutorial discussions, small group presentations, home-work assignments, e-learning, online learning	

Evaluation/Assessment Strategy	In-course Assessment	End of Course Examination
	30%	70%
Recommended References	<ul style="list-style-type: none"> • Bhat, S. V., Nagasampagi, B. A., and Sivakumar, M., "Chemistry of Natural Products", Narosa Publishing House, 2005. • Wade, L. G., "Organic Chemistry, Pearson Education", 2013. • Davis, B. G., and Fairbanks, A. J., "Carbohydrate Chemistry", Oxford University Press, 2002. • Jones J., "Amino Acid and Peptide Synthesis", 2nd Edition, Oxford University Press, 2002. • Devasena, T., "Enzymology", Oxford University Press, 2010. • Finar, I. L., "Organic Chemistry", Volume 2: "Stereochemistry and the Chemistry of Natural Products", 5th Edition, Pearson India, 2011. • Ashutosh Kar, "Medicinal Chemistry", 5th Edition, New Age International, India, 2010. 	