Course Type	Course Code	Name of Course	L	T	P	Credit
DE	NCYD517	Oligosaccharide synthesis	3	0	0	3

Course Objective
• Introduction to important carbohydrate polymers in natural systems. • Introduction to some of the most important methods in carbohydrate synthesis
Learning Outcomes
• Biologically important carbohydrate polymers - their structural and repeating units. • Synthetic tools and methodologies in carbohydrate synthesis. • Knowledge of the synthetic routes to repeating units of some biologically interesting carbohydrates.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Monosaccharides; Protecting group strategies – one-pot orthogonal protection; Glycosyl donors and glycosylation - glycosylation methods, photochemical glycosylation, substituent effects on glycosylation.	21L	Understanding the basic building blocks of carbohydrates. Strategies for designing monosaccharides derivatives for oligosaccharide synthesis. Understanding and maniplulating reactivity patterns of the monosaccharide building blocks with relevant to the protecting groups on them.
2	Oligosaccharide synthesis – one pot glycosylation, iterative glycosylation, solid phase and automated synthesis. Structure, relevance and synthesis of some important oligosaccharides such as glycosaminoglycans, capsular polysaccharides of pathogens, etc.	21L	Strategies for stereoselective glycosylations. Strategies for oligosaccharide synthesis. Streamlined and fast synthesis of oligosaccharides incorporating the economic and green chemistry concepts. Literature reports of the applications of the strategies for actual synthesis of oligosaccharides. Designing oligosaccharide synthesis.
TOTAL		**42**	

Text Books:

1. Essentials of Carbohydrate Chemistry and Biochemistry, T. K. Lindhorst, Wiley VCH, 2000.

Reference Books:

1. Carbohydrates- the sweet molecules of life R. V Stick, Academic press, 2001.
2. Recent Primary literature.