

1.	Title of the course	Introduction to Polymer Science
2.	Course number	CY515L
3.	Structure of credits	3-0-0-3
4.	Offered to	PG
5.	New course/modification to	Modification To CY5021/6
6.	To be offered by	Department of Chemistry
7.	To take effect from	July 2022
8.	Prerequisite	Nil
9.	Course Objective(s): This course will provide the basics of both Physics and Chemistry of polymers to understand the underlying principles of its structure and dynamics. The recent research developments will also be discussed.	
10.	Course Content: Chemistry of polymers: Definition and classification, Vinyl polymers, Inorganic polymers, Condensation and radical polymerization, Copolymerization, Molecular weights, Rubber, Thermodynamics of polymer solutions. Physics of Polymers: Random flight model, Gaussian chain, Excluded volume effect, Scaling behaviour, Rouse model, Zimm model, Dynamical scaling, Normal modes, Structure factor, Entanglement effect, Tube model, Reptation dynamics. Polymer translocation.	
11.	Textbook(s): 1. Rubinstein M, and Colby R H, <i>Polymer Physics</i> , Oxford University Press (2003). 2. Ravve A, <i>Principles of Polymer Chemistry</i> , Springer (2016).	
12.	Reference(s): 1. Muthukumar M, <i>Polymer Translocation</i> , CRC Press (2011). 2. Flory F, <i>Principles of Polymer Chemistry</i> , Cornell University Press (1953). 3. Doi M and Edwards S F, <i>The Theory of Polymer Dynamics</i> , Clarendon Press (1988).	