

1.	Title of the course	Chemistry of Inorganic Clusters
2.	Course number	CY613L
3.	Structure of credits (L-T-P-C)	3-0-0-3
4.	New course/modification to	New
5.	To be offered by	Chemistry
6.	Prerequisite	CoT
7.	Course Objective(s): To introduce the synthetic, structural and reactivity aspects of metal clusters. To demonstrate the potential applications of metal clusters.	
8.	Course Content: Introduction to metal clusters, mixed-metal clusters; Synthesis, structures, and bonding of clusters; Skeletal electron counting, Wade-Mingos-Louher rule; Application of isolobal and isoelectronic relationships; Capping rules; Carbide, nitride, chalcogenide, and halide containing clusters; Iso- and hetero-polyoxometalates of transition metals: nomenclature, synthesis, structure, reactions, and applications; Pillared clays; Zeolites; Clusters in catalysis.	
9.	Textbook(s): 1. Moraga G G, Cluster Chemistry, Springer-Verlag (1993). 2. Fehlner T, Halet J F and Saillard J Y, Molecular Clusters: A Bridge to Solid State Chemistry, Cambridge University Press, Cambridge (2007).	
10.	Reference(s): 1. Cotton F A, Murillo C A and Walton R A, Multiple Bonds Between Metal Atoms, 3rd Edition, Springer Science and Business Media, Inc. (2005). 2. Sels B and Kustov L M, Zeolites and Zeolite-Like Materials, Elsevier (2016). 3. Gupta B D and Elias A J, Basic Organometallic Chemistry: Concepts, Synthesis, and Applications, 2nd Edition, Universities Press, India (2013).	