

1.	Title of the Course	Main Group and Organometallic Chemistry
2.	Course Number	CY5109
3.	Status of the Course	Core
4.	Structure of Credits	3-0-0-3
5.	Offered To	PG
6.	New Course/Modification to	New
7.	To be Offered by	Department of Chemistry
8.	To take effect from	July 2020
9.	Prerequisite	Nil
10.	Whether approved by the Department	Yes
11.	Course Objective: To introduce fundamental knowledge on the synthesis, structure and properties of organometallic compound and to impart knowledge on the relationship between the electronic structure and the reactivity of main group elements.	
12.	Course Content: Chemistry and bonding in non-transition elements and compounds; Solvents, solutions, acids and bases; Inorganic chains, rings and cages; Organometallic compounds of non-transition elements; Role of non-transition elements in biological processes; Factors guiding metal-carbon bond formation; Main Group organometallics, structure and bonding, classification and bonding in carbon-based ligands; Transition metal organometallics including metal clusters; Reactivity studies, applications of organometallic compounds in homogenous and heterogeneous catalysis; Hydrogenation, carbonylation, metal-mediated C-X (X = C, heteroatom) bond formations, olefin metathesis and Ziegler-Natta polymerization.	
13.	Text book(s): 1. Hill A F, <i>Organotransition Chemistry</i> , The Royal Society of Chemistry, Cambridge (2002). 2. Spessard G O, and Miessler G L, <i>Organometallic Chemistry</i> , Prentice Hall (2010).	
14.	Reference(s): 1. Bochmann M (Editor), <i>Oxford Premier Series on Organometallics, Vol 1 and Vol 2</i> , Oxford Press (2002). 2. Cotton F A, Wilkinson G, Murillo C A and Bochmann M, <i>Advanced Inorganic Chemistry</i> , John Wiley & Sons (2001). 3. Greenwood N N, and Earnshaw A, <i>Chemistry of the Elements</i> , Pergamon (1985). 4. Gupta B D, and Elias A J, <i>Basic Organometallic Chemistry</i> , University Press (India) Pvt. Ltd. (2013).	