

INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
PROFORMA FOR NEW COURSE

1.	Title of the Course	Organic & Inorganic Chemistry
2.	Course Number	CY1202
3.	Status of the Course	Core
4.	Structure of Credits	2-1-0-3
5.	Offered To	UG
6.	New Course/Modification to	New
7.	To be Offered by	Department of Chemistry
8.	To take effect from	July 2018
9.	Prerequisite	NIL
10.	Whether approved by the Department	Yes
11.	Course Objective: This course gives a microscopic understanding of properties of transition metal complexes, organometallic chemistry, bioinorganic chemistry, aromaticity, pericyclic reactions along with their industrial and medicinal applications.	
12.	Course Content: Transition metal chemistry: Isomerism; bonding: VBT, CFT; Jahn-Teller distortion, spectral and magnetic properties. Organometallics: 18 electron rules, nitrosyls and carbonyls, Zeiss salt, reaction mechanism, Ziegler-Natta Catalyst, Grignard reagent, catalysis cycles. Bio-inorganic: Biological trace elements, heme and non-heme oxygen carriers; haemoglobin and myoglobin cooperativity, Hill coefficient, Minamata disease, Alzheimer disease, Aromaticity: Aromatic, non-aromatic and anti-aromatic; MO description of aromaticity; reaction mechanism: electrophilic and nucleophilic substitution reactions; benzyne; diazonium salt; synthetic utilities. Pericyclic reactions: Definition; electrocyclic, cycloaddition and sigmatropic reactions; Diels Alder reaction; Woodward Hoffmann rules; orbital correlation, FMO and conservation of symmetry approaches; Cope and Claisen rearrangements; synthetic utilities.	
13.	Text book(s): 1. J. E. Huheey, E. A. Keiter, R. L. Keiter and O. K. Medhi, <i>Inorganic Chemistry: Principles of Structure and Reactivity</i> , Pearson, (2014). 2. T. W. G. Solomons, C. B. Fryhle and S. A. Snyder, <i>Organic Chemistry</i> , John Wiley & Sons, (2015). 3. I. Fleming, <i>Pericyclic Reaction</i> , Oxford University Press, (2015).	
14.	Reference(s): 1. A. K. Das and M. Das, <i>Fundamental Concept of Inorganic Chemistry Vol 4, 6</i> , CBS Publishers & Distributors Pvt. Ltd., (2014). 2. P. Sykes, <i>A Guidebook to Mechanism in Organic Chemistry</i> , Longman, (1986).	