1.	Title of the course	Bioinorganic and Environmental Chemistry
2.	Course number	CY510L
3.	Structure of credits	3-0-0-3
4.	Offered to	PG
5.	New course/modification to	Modification To CY5208/10
6.	To be offered by	Department of Chemistry
7.	To take effect from	July 2022
8.	Prerequisite	Nil
9.	**Course Objective(s):** To introduce and to analyze the role of inorganic elements in biological systems, in medicine and in environment. This subject will help humanity and environment uniquely.	
10.	**Course Content:** Role of metal ions in biology and medicine; A quick refresh of coordination chemistry, bio-molecules, spectral and biochemical techniques; Alkali and alkaline earth Ion transport by ATPases; Vanadium haloperoxidases; Manganese cluster in photosystem-II; Iron proteins & Enzymes: transport and storage, oxygenases phosphatases reductases; Environmental detoxification of organic compounds; Cobalamin (Vitamin B12) based enzymes; Nickel enzymes and their role in environment: urease, hydrogenases, carbonmonooxide dehydrogenases; Copper enzymes: electron transport; Oxidases of different types; Superoxide dismutase; Zinc: hydrolases, peptidases lyases, ligages, oxido-reductases; Molybdenum: nitrogenase oxido-reductases; Mercury reductase, detoxification of mercury in the environment.	
11.	**Textbook(s):** 1. Lippard S J, and Berg J M, *Principles of Bioinorganic Chemistry*, University Science Publications (1994). 2. Watkinson M, *Bioinorganic Chemistry: The Biological Chemistry of Transition Metals*, John Wiley & Sons (2009).	
12.	**Reference(s):** 1. Bertini I, Gray H B, Lippard S J and Valentine J S, *Bioinorganic Chemistry*, University Science Book, South Asian Edition Reprint (2004). 2. Bertini I, Sigel A and Sigel H, *Handbook on Metalloproteins*, CRC Press (2001). 3. Cowan J A, *Inorganic Biochemistry: An Introduction*, VCH Publishing (1993). 4. Trautwein A, *Bioinorganic Chemistry: Transition Metals in Biology and their Coordination Chemistry*, Deutsche Forschungsgemeinschaft (1997).	