BASICS IN INORGANIC CHEMISTRY

PROF. D. MAITI

Department of Chemistry

IIT Bombay

PRE-REQUISITES : Basic Chemistry courses, Basic Mathematics from school, 10+2 standard

INTENDED AUDIENCE : Undergraduate students belonging to Science and Engineering

COURSE OUTLINE :

This course will mainly deal with basics of Inorganic Chemistry. This includes periodic properties of the elements, source and extraction of metals. The study of transition metals comprises major portion of Inorganic Chemistry. Therefore, we will discuss some common properties like crystal filed stabilization energy, magnetic properties, spectroscopic properties and uses of these properties in various fields including biological systems.

ABOUT INSTRUCTOR :

I am Prof. Debabrata Maiti, Associate Professor at IIT Bombay. I have completed PhD from Johns Hopkins University with Prof. Kenneth D. Karlin in bioinorganic chemistry. Then I moved to MIT where I did my Post-doctoral research with Prof. Steven Buchwald. I have started independent carrier at IIT Bombay in 2011 and since then involved actively in teaching bio-inorganic chemistry and organometallic chemistry. Our group is also active in research areas of bio-inorganic chemistry and C-H activation.

COURSE PLAN :

Week 1: Basics in Inorganic Chemistry

Week 2: Purification of elements; Coordination Chemistry; 18 electron rule; Valence bond theory; Crystal field theory

Week 3: Term symbols; Spectroscopy of complexes; Jahn-Teller distortion; Spinels; Magnetism

Week 4: Bio-inorganic Chemistry, Enzymes; Hemoglobin and Myoglobin; Toxicity; Medicinal inorganic compounds