

## BS (4 Years) for Affiliated Colleges



Code	Subject Title	Cr. Hrs	Semester
<b>CHEM-407</b>	<b>Inorganic Chemistry (Sp. Theory-II)</b>	<b>4</b>	<b>VII</b>
Year	Discipline		
<b>4</b>	<b>Chemistry</b>		

### **SYLLABUS OUTLINE:**

#### **1. Chemistry of Oxides:**

Physical states and structures of oxides of the elements, covalent oxides, periodic trends in structure and physical state, acidity, solubility, practical uses, and environmental chemistry of volatile oxides, close packed anions, metal oxides, electrical conductivity of solid ionic compounds, spinels, perovskites, high temperature superconductors, magnetic properties in mixed metal oxides.

#### **2. Reactions in aqueous and non-aqueous solvents:**

Classification of solvents, types of reactions, the dielectric constant, solubilities, electrode potential and electromotive forces. Reactions in water and molten salts. Reactions in non-aqueous solvents, i.e. ammonia, sulphur dioxide, bromine trifluoride and hydrofluoric acid.

#### **3. Radioactivity:**

Natural radioactivity, Artificial radioactivity, types of radioactive rays, Saddy-Fajans and Russel group displacement law, Half life period of a radioactive substance, Disintegration constant K, Average life period, Radioactive equilibrium, Law of successive disintegration, Activity of a radioactive substance, Transmutation of elements, Artificial transmutation reactions induced by different bombarding projectiles, Applications of artificial transmutation reactions, Natural and artificial radioactive series.

### **RECOMMENDED BOOKS:**

1. J H Huheey, Inorganic Chemistry - Principles, structure and reactivity, Harper and Row Publisher, Inc. New York (2008)
2. Cullen Dolphin and James, Biological aspects of Inorganic Chemistry, 2005.
3. Williams, An Introduction to Bioinorganic Chemistry, 2003
4. Organotransition metal Chemistry by Akin Yamamoto, 1996, A. Wiley Interscience Publication London.
5. Hand Book of Organic reagents in Inorganic Analysis by ZAVIX Holzbecher and other 1976 Ellis Hurwod Limited, London.
6. Structural Inorganic Chemistry by Wells, A.F. 1975, Charenden Press, London.
7. Stereochemistry and bonding in Inorganic Chemistry by J.E. Ferguson 1974, Prentice Hall, New Jersey.