

SARDAR PATEL UNIVERSITY**Programme: B.Sc (Chemistry)****Semester: IV****Syllabus with effect from: November/December-2012**

Paper Code: US04CCHE01	Total Credit: 3
Title Of Paper: Inorganic Chemistry	

Unit	Description in detail	Weighting (%)
I	Chemistry Of D-Block Elements Introduction, Position of d-block elements in the periodic table, Electronic configurations and definition, Classifications of d-block elements in 3d, 4d, 5d and 6d series, Physicochemical properties: Atomic radii, Ionic radii, Metallic character and related properties, Atomic volumes and densities, Melting and boiling points, Ionization energies, Standard reduction potential values, Variable oxidation states, Colour of transition metal complex ions, Magnetic properties of transition metal ions and their complexes, Tendency of transition metals to form complex compounds, Formation of interstitial compounds, Catalytic activity, Alloy formation. Basic Text & Reference Books :- <ul style="list-style-type: none">➤ Advanced Inorganic Chemistry (Volume-II) by Satya Prakash, G. D. Tuli, S. K. Basu & R D Madan	
II	Coordination Chemistry And Isomerism In Coordination Compounds Postulates of Werner's coordination theory, Explanation of the structure of Co(III) ammines and Pt(IV) complexes on the basis of Werner's coordination theory, Experimental evidences in favour of Werner's theory, Sidgwick's electronic concept of coordinate bond and its limitations, Sidgwick's effective atomic number rule, Structural isomerism: Conformation isomerism, Ionization isomerism, Hydrate isomerism, Coordination isomerism, Linkage isomerism, Coordination position isomerism, Ligand isomerism and Polymerization isomerism, Stereoisomerism: Geometrical isomerism, Geometrical isomerism in 4-coordinated complex compounds, Geometrical isomerism in 6 -coordinated complex compounds, To distinguish between cis and trans isomers, Optical isomerism: Definitions, Conditions for a molecule to show optical isomerism, Optical isomerism in 4-coordinated complex compounds, Optical isomerism in 6 -coordinated complex compounds. Basic Text & Reference Books :- <ul style="list-style-type: none">➤ Advanced Inorganic Chemistry (Volume-II) by Satya Prakash, G. D. Tuli, S. K. Basu & R D Madan	
III	Lanthanides And Actinides (A) Lanthanides: Definition, Position of lanthanides in periodic table, General properties- electronic configuration, oxidation state and oxidation potential, chemistry of +2, +3 and +4 state, chemistry of +2, +3 and +4 state, Atomic and ionic radii, lanthanide contraction, cause of lanthanide contraction, consequences of lanthanide contraction, Color and absorption spectra of Ln^{+3} ion, magnetic properties and complex formation, Extraction of lanthanides from monazite mineral, Separation of individual rare earth	



	<p>elements by modern methods- ion exchange method, solvent extraction method, uses of lanthanide compounds.</p> <p>(B) Actinides: Definition, Position of actinides in periodic table, General properties and their comparison with lanthanides like - electronic configuration, oxidation state and oxidation potential, chemistry of +2, +3, +4, +5, +6 and +7 oxidation state, Atomic and ionic radii, actinide contraction, color and absorption spectra, magnetic properties and complex formation, Separation of actinide elements by- ion exchange method and solvent extraction method.</p> <p>Basic Text & Reference Books :-</p> <ul style="list-style-type: none"> ➤ Selected Topics in Inorganic Chemistry by Wahid U. Malik, G. D. Tuli and R. D. Madan 	
IV	<p>Chemistry Of Metallic Carbonyls And Nitrosyls</p> <p>[A] Metallic Carbonyls: General methods of preparation, general properties, Structure and nature of M-CO bonding in carbonyls, Effective atomic number (EAN) rule as applied to metallic carbonyls, 18-electron rule as applied to metallic carbonyls, Some carbonyls</p> <p>[B] Metallic Nitrosyls: Some metallic nitrosyls, Effective atomic number (EAN) rule as applied to metallic nitrosyls.</p> <p>Basic Text & Reference Books :-</p> <ul style="list-style-type: none"> ➤ Selected Topics in Inorganic Chemistry by Wahid U. Malik, G. D. Tuli and R. D. Madan 	

