SARDAR PATEL UNIVERSITY
Programme: B.Sc (Chemistry)
Semester: V
Syllabus with effect from: June-2013

Paper Code: US05CCHE04	Total Credit: 3
Title Of Paper: Inorganic Chemistry	

Unit	Description in detail	Weighting (%)
I	**Acids & Bases** Arrhenius Concept, Lowry-Bronsted Acid-Base Concept, Solvent System Concept, Usanovich Concept, Luxflood Concept, Lewis Acid-Base Concept, Classification of Lewis Acids and Bases, Pearson's Soft and Hard Acid-Base Principle (HSAB), Applications of HSAB Principle, Leveling Effect, Strength of Hydraacids, Strength of Inorganic Oxyacids. **Non-Aqueous Solvents** Classification of Solvents, General Properties of Ionizing Solvents, Liquid NH_3 as Nonaqueous Solvent, Cavity Model, Alkali Metals in Liquid NH_3, Merits and Demerits of Liquid NH_3 as Solvent, Liquid SO_2 as a Solvent, Liquid Hydrogen Fluoride. **Basic Text & Reference Books :-** ➢ Selected Topic in Inorganic Chemistry, Wahid U. Malik, G. D. Tuli and R. D. Madan	
II	**Carbides Of Main Group Elements:** General method of preparation, General properties, Ionic Carbides, Acetylides, Methanides, Allylides, Interstial or metallic carbides, Borderline carbides, Covalent Carbides, Calcium carbide [CaC_2], Boron Carbide [B_4C], Alluminium Carbide [Al_4C_3], Silicon Carbide or Silicon Silicide [SiC]. **Water And Hydrogen Peroxide:** Water and It's Properties, Hard and Soft Water, Potable Water, Heavy Water, Hydrogen Peroxide, Strength of Hydrogen Peroxide Solution, Properties of Hydrogen Peroxide, Uses, Tests, Estimation of H_2O_2, Constitution of Hydrogen Peroxide, H_2O_2 as Propellant. **Basic Text & Reference Books :-** ➢ Advanced Inorganic Chemistry Volume I- 18th By Satya Prakash, G.D.Tuli, S.K.Basu, R.D.Madan ➢ Text Book of Inorganic Chemistry (20th Edition), P.L.Soni & Mohan Katyal.	
III	**Glass & Ceramic Industry** **Glass:** Introduction, physical properties of glass, Chemical properties of glass, characteristics of glass, Raw materials, Chemical reactions, Methods of manufacture, Formation of batch material, Melting, Chemical reactions in the furnace, Shaping or forming, Forcault process of shaping sheet or window glass, Shaping of plate glass, Annealing, Finishing, Classification of glass making furnaces, Methods of division of the tank and flame space, Devices for recovery of heat of waste gases, Electric and flame electric furnaces, Flame electric furnaces, Auxiliary furnaces, Some special glasses.	

	Ceramics: What are ceramics, Subdivision of ceramics, General properties of ceramics, Permeable and impermeable wares, Distinction between permeable and impermeable wares, Classification based on reduction in porosity, Basic raw materials, Other ingredients, Manufacturing process, Grinding of raw material, Mixing or preparation of bodies, Body preparation using clay in plastic form, Body preparation using dry clay, Body preparation using clay slip, Filtering, Kneding, Jjollying, Slit casting, Pressing, Extrusion, turning, Drying, Types of driers, Firing, Glazing, Frits, Decoration, Application of colors to the pottery, Porcelain and china, Raw materials, Manufacture, Earthenware and stone wares, Important points. **Basic Text & Reference Books :-** ➢ Industrial Chemistry- 9th by B. K. Sharma	
IV	**Inorganic Polymers** Introduction, Classification of inorganic polymers, General properties of inorganic polymers, Polymers containing boron: Preparation properties and structure of borazine and substituted borazines, boron nitrites **Polymers containing silicon:** Preparation properties and structure of silicones, silicone resins, silicon fluids or oils, silicon rubbers, silicon greases **Polymers containing phosphorous:** Preparation properties and structure of polyphosphonitrilic chlorides, Vitreous polyphosphates **Polymers containing sulfur:** Preparation properties and structure of nitrides of sulfur, thiazyl halides, imides of sulphur. **Basic Text & Reference Books :-** ➢ Advanced Inorganic Chemistry Volume I- 18th By Satya Prakash, G.D.Tuli, S.K.Basu, R.D.Madan	