

Course No. and Title	: CY- 001 : Preparatory Chemistry I
Course Objective	: To give basic ideas in Chemistry
Course Contents	: Formula, stoichiometry, molarity, molality, normally, applications of these concepts.
Introduction	: Boyle's law, Charle's law, PV-nRT and applications, Dalton's law of partial pressure, Graham's law of diffusion, kinetic theory of gases(physical concept) and applications in problems solving.
Physical Equilibrium	: Law of mass action, reversible reaction, equilibrium constant for homogeneous and heterogeneous reactions, effect of pressure, volume and concentration of reactants and products on equilibrium, effect of temperature on equilibrium constant. Dissociation constants of acids and bases, common ion effect, ionization constant of water, pH, buffer solution and hydrolysis of salts. Solubility product and its application to chemical analysis, Determination of K_a , and K_{sp} by conductance measurement. Colligative properties, Distillation - fractionsand diagrams.
.....Thermodynamics	: First law of thermodynamics, reversible work, irreversible work, isothermal and adiabatic, thermo chemistry, Hess's law, bond energy.
.....Kinetics	: Rate expression, order and molecularity, first order reaction, half life period, radioactive carbon dating, Arrhenius equation activation energy and catalysis.
.....Electrochemistry	: Faraday's laws of electrolysis, galvanic cells, electrode potential and electrode reaction of simple electrode processes.
.....Atomic Structure and Periodic Classifications	: Spectra of H-atom, Bohr's model of H-atom, wave nature of electron, atomic effects....., shapes of s,p, and d orbitals, quantum numbers, Pauli Principle, Hund's Rule, electronic configuration of elements upto krypton, periodic classification of elements, Solids.
Pre-requisite	: None
Credits	: 5
Contract Hrs.	: L T P 3 2 2/2
Semester	: Autumn

Books Recommended :

1. "Concise Inorganic Chemistry" - Chaperman and J.D. Lee Hall
2. "Organic Chemistry" - Morrison and Boyd

Topics	Number of Lectures
Introduction	2
Gases	4
Chemical Equilibrium	8
Thermodynamics	6
Chemical Kinetics	6
Electrochemistry	4
Atomic Structure	8