SARDAR PATEL UNIVERSITY
Programme: B.Sc (Chemistry)
Semester: III
Syllabus with effect from: JUNE 2012

Paper Code: US03CCHE02	Total Credit: 3
Title Of Paper: Physical Chemistry	

Unit	Description in detail	Weighting (%)
I	**Entropy And Second Law Of Thermodynamics** Limitation of first law, spontaneous or irreversible process, cyclic process, Carnot cycle, Carnot theorem, entropy the new state function, the concept of entropy, entropy change in isothermal expansion of an ideal gas, entropy change in reversible and irreversible change, the entropy change accompanying phase change, calculation of entropy of an ideal gas with change in P, V and T, entropy of mixing of an ideal gas, physical significance of entropy, work and free energy function, variation of free energy change with T and P. **Basic Text & Reference Books :-** ➢ Principles of Physical Chemistry by Puri, Sharma and Pathania, 44th ed.	
II	**Colligative Properties Of Dilute Solutions** Colligative properties, Vapour pressure lowering, Determination of molar mass of solute, Measurement of vapour pressure lowering Osmosis and osmotic pressure, Derivation of equation for calculating osmotic pressure, Determination of molar mass, Measurement of osmotic pressure, The boiling point elevation, Derivation of equation and measurement of boiling point elevation The Freezing point depression, Derivation of equation for molar mass, Measurement of freezing point depression, Numericals **Basic Text & Reference Books :-** ➢ Principles of Physical Chemistry by Puri, Sharma and Pathania. 38th ed.	
III	**Electrolytes In Solution** Specific conductance, molar conductance, conductance and electrolytic dissociation, colligative properties and electrolytic dissociation, electrolysis transference numbers, ionic mobilities, applications, ionic strength, dissociation of weak electrolytes. **Basic Text & Reference Books :-** ➢ Physical Chemistry by G.M.Barrow, 5th ed.	
IV	**Electromotive Force Of Electrochemical Cells** Electrodes, cell emf, emf and free energy, Standard electrode potentials, emf and activities, activity coefficients from emf's, equilibrium constant from emf's, electrode concentration cells, electrolyte concentration cells, thermodynamic properties from cell emf's **Basic Text & Reference Books :-** ➢ Physical Chemistry by G.M.Barrow, 5th ed.	