

Syllabus

M.Sc. (Chemistry) Programme

(SEMESTER – II)

Physical Chemistry – II

Programme Code- (MSCCH -21)

Course Code – (MSCCH -508)

Block I Surface and Polymer Chemistry

Unit 1 Surface Chemistry

Gibb's adsorption isotherm, Freundlich and Langmuir adsorption isotherms, determination of free energy of adsorption, BET theory for multilayer adsorption with derivation, determination of surface area using BET method, catalytic activity at surfaces.

Unit 2 Polymer Chemistry

Macromolecules, polymers and their general applications, classification of polymers, chain configuration of polymers, liquid crystals and their applications. Molecular mass, number and mass average molecular mass, molecular mass determination using osmometry, viscometry, diffusion and light scattering methods.

Block II Quantum Chemistry-I

Unit 3 Quantum Chemistry I

de-Broglie concept and de-Broglie equation, postulates of quantum mechanics, physical interpretation and properties of wave functions, Linear, Laplacian, Linear-momentum and Hamiltonian operators, eigen values, eigen functions, normalization and orthogonalization,

Unit 4 Quantum Chemistry II

Derivation of the Schrodinger's wave equation, general and brief discussion on the applications of Schrodinger's wave equation to some model systems viz. particles in a box, harmonic oscillator, rigid rotator

Unit 5 Quantum Chemistry III

Hydrogen atom. concept of cartesian and spherical coordinates,