CY-502 ADVANCED CHEMICAL KINETICS

Chemical Kinetics: Theories of bimolecular reactions, bimolecular reactions in solution, solvent effect, effect of ionic strength, hydrostatic pressure.

Isothermal Reactors, Non Isothermal Reactors: Batch, Tubular and Stirred Tank Reactors, stable operating conditions in Stirred Tank Reactor, Non Ideal Reactor, Residence Time Distribution, Conversion models in Non- Isothermal Reactors.

Reaction Mechanism: Elementary reaction steps, unimolecular gas phase reaction, Lindemann mechanism, chain reactions, heterogeneous catalysis, homogeneous catalysis, catalysis by acids, bases, autocatalysis, oscillating reactions, enzyme catalyse reaction, relaxation method, photochemical reaction kinetics, radiation chemistry kinetics.

Instrumentation and Application: Mixing reactants: magnetic stirring, stopped flow, continuous flow, kinetic base titrimetry, stat procedure, centrifugal mixing, techniques for monitoring reaction kinetics: absorptiometric detection, detection by means of light emission, fluorescence, phosphorescence, chemical luminescence, electrochemical detection, dilatometry, nanotechnology, techniques for gas phase, other methods, thermodynamic approach to chemical kinetics applications.