CY-408 POLYMER TECHNOLOGY

Classification of polymers, bonding in polymers, stereoisomerism, Polymer synthesis: Condensation, addition polymerization, copolymerization, bulk, solution, suspension and emulsion polymerization, Molecular weight and molecular weight determination, Polymer solutions and polymer solution thermodynamics, Physical states and transitions in polymers, Crystallinity and morphology of polymers, Introduction to rheology: elasticity, purely viscous flow, linear viscoelasticity, Basic processing operations: Extrusion process (Single and twin screw extruder), Injection moulding, Blow moulding (extrusion blow moulding, injection blow moulding, and stretch blow moulding), Mould and dies, Calendaring, Film blowing, Thermoforming, Vacuum forming, Pressure forming, Rotational moulding, Compression and transfer moulding, Reaction injection moulding. Mechanical properties of polymers, Commercial polymers, additives. Blending: Definitions of polymer blends, method of blending, compatibility and miscibility of polymer blends, thermodynamics of polymer-polymer mixing, blend morphology & characterisation. Examples of polymer blends.