## PHARMACEUTICS-III
## (Physical Pharmacy – II)

**PH. 4.1 THEORY** **3 hours/week**

**UNIT -I**

**1**. **Micromeretics and powder Rheology** : Particle size and distribution, average particle size, number and weight distribution, particle number, methods for determining particle size, volume, shape, surface area, specific surface, derived properties of powders, porosity, packing arrangement, densities, bulkiness & flow properties.

**UNIT -II**

**2.** **Rheology** : Newtonian systems, Law of flow, kinematic viscosity, effect of temperature, Newtonian and non-Newtonian systems, pseudoplastic, dilatant, plastic, thixotropy, thixotropy in formulation, determination of viscosity, capillary, falling sphere, rotational viscometers.

**UNIT -III**

**3.** **Dispersion Systems:** Colloidal dispersions, types, properties of colloids, protective colloids, applications of colloids in pharmacy; Suspensions: Interfacial properties of suspended particles, wetting of particles, controlled flocculation, flocculation in structured vehicles, rheological considerations, Emulsions : theories of emulsification, physical stability and rheological considerations.

**UNIT -IV**

**4.** **Kinetics and Drug Stability:** General considerations & concepts, half-life determination, Influence of temperature, light, solvent, catalytic species, Accelerated stability study, determination of expiry date.

**5.** **Solubility & related phenomenon :** Solubility expression, Determination of solubility, Solubility of gases in liquids, Solubility of liquids in liquids, Solubility of solids in liquids.

**6.** **Complexation:** Classification of complexes, methods of preparation, analysis and applications.