II Semester

M.PHARM (PHARMACEUTICS)

MPH2A.1: ADVANCED PHYSICAL PHARMACEUTICS 3 Hrs/Week
THEORY

UNIT - I

Solubility: Solubility of solid in liquids, Theory of solution formation.
Solubilisation techniques using surfactants, cosolvents, complexation, inclusion compounds, drug derivatization and solid state manipulation.

UNIT - II

Solid state properties: Crystal properties and polymorphism, techniques for study of crystal properties; solid state stability, flow properties of powders.

Polymer Science: Types of polymers, properties of polymers, thermodynamics of polymer solution and polymers in solid state. Applications of polymers in pharmaceutical formulations.

UNIT - III

Diffusion: Diffusion, steady state diffusion procedures and apparatus. Diffusion principles in biological systems, thermodynamics of diffusion.
Dissolution: Theories of dissolution, dissolution models. Sink conditions in dissolution and its importance. In-vitro - in-vivo correlations.

UNIT - IV

Kinetics and Drug stability: Rate equation, kinetics of decomposition, stability testing protocol, drug degradation and methods of stabilization, methods of accelerated stability testing in dosage forms, freeze-thaw methods, centrifugal methods.

REFERENCES:

1. Physical Pharmacy by Martin, 4th Edition.
2. Bentley's Text Book of Pharmaceutics by E.A. Rawlin.
3. Pharmaceutical dosage forms: Tablets I, II, III.
4. Theory and Practice of Industrial Pharmacy by L. Lachman.
5. Physicochemical Principles of Pharmacy by A.T. Florence and D. Altwood.
6. Pharmaceutical preformulation by J.T. Cartensen.