

PHARMACEUTICS-IV
(Pharmaceutical Technology III)

THEORY **3 hours / week**

UNIT -I

Preformulation studies:

Concept of Preformulation, study of Principal areas like Spectroscopy, Solubility (aqueous solubility, intrinsic solubility, pKa from solubility data, salts, solvents, partition coefficient and dissolution), melting point, polymorphism, assay development, drug and drug product stability, microscopy, powder flow characteristics, compression properties and excipient compatibility.

UNIT -II

Design of controlled drug delivery system: Fundamentals of controlled drug delivery systems, terminology, potential advantages, drug properties relevant to formulation. Concept and rationale, advantages, disadvantages, factors in the design of controlled drug delivery system, Pharmacokinetic principle in the design of controlled release system, drug release patterns. mathematical models for controlled release systems.

UNIT -III

Approaches in the design of oral controlled release systems:

Controlled release oral drug delivery systems.

Gastro-retentive drug delivery systems (GRDDS).

Oral site specific drug delivery systems.

UNIT -IV

Parenteral controlled release system

Basic concept of design of Injectables (solutions, dispersions, microspheres, nanoparticles, niosomes, liposomes and resealed erythrocytes), Implants, Infusion devices (osmotic pumps, vapor pressure powered pumps and battery powered pumps).

UNIT-V

Design and evaluation of transdermal drug delivery systems, Basic concept of ocular drug delivery system (Occusert), IUD (Copper T and Progestasert).