SYLLABUS FOR MASTER OF PHARMACY (M.PHARM.)

UNIT-I

Micromeretics & powder rheology, various dispersion systems (viz. colloidal, suspensions & emulsions) kinetics & drug stability, polymorphism, surface & interfacial phenomenon. Liquid dosage forms, pharmaceutical aerosols, ophthalmic preparations. Cosmetic preparations, tablets, capsules & microencapsulation technology. Parenteral products, GMP and quality assurance, biopharmaceutics & pharmacokinetics, compartment model and kinetics, clearance concept, bioavailability & bioequivalence, formulation design of various controlled released drug delivery systems.

UNIT-II

Stereo isomerism, conformational analysis of alkanes and cycloalkanes, relative stabilities of cycloalkanes, study of various heterocyclic compounds & polynuclear aromatic hydrocarbons, study of Amino acids, proteins, carbohydrates & lipids, brief concept on QSAR, steps involved to synthesize various categories of drugs mentioned in I.P and their SAR studies, structure elucidation of some important drugs under the category of vitamins, antibiotics and alkaloids.

UNIT-III

Various limit tests, acid-base titrations, common ion effect, solubility product, theory & choice of indicators, precipitation titrations, non-aqueous titrations, complexometirc & gravimetirc titrations, various oxidation & reduction titrations, RIAS, principle, basic instrumentation, elements of interpretation of spectra and applications of the following analytical tools. UV-Visible spectrophotometer IR & flame photometer NMR spectroscope including 13 CNMR & mass spectrometer, study of various chromatographic instruments viz TLC, column chromatography, HPLC, GLC & HPTLC.

UNIT-IV

Pathophysiology of common diseases, viz. rheumatoid arthritis, gout, epilepsy, psychosis, depression, mania etc. Pharmacology of various drugs acting on peripheral nervous system, central nervous system, on cardiovascular system, on haemopoetic system, urinary system, respiratory system, GI tract system & endocrine system. Principles of chemotherapy and toxicology, pharmacology of autacoids, various bioassay of drugs/hormones & biological standardization. Basic concepts on hospital and clinical pharmacy.

UNIT-V

Study of cultivation, collection, chemical constituents, adulterants and uses of various drugs obtained from natural sources with special emphasis on alkaloids, steroids, cardiac glycosides, terpenes, flavonoids and volatile oils. General techniques of biosynthetic studies and basic metabolic pathways. Brief introduction to biogenesis of secondary metabolites of pharmaceutical importance. Study of Plant tissue culture techniques.

UNIT-VI

Pharmaceutical Biotechnology: Immunology & immunological preparations, genetic code & protein synthesis, genetic recombination, gene cloning and its applications, development of hybridoma for monoclonal antibodies. Microbial transformation, enzyme immobilization, study of drugs produced by biotechnology. blood products and plasma substitutes.