

**PHARMACY / PHARMACEUTICAL SCIENCE (DEGREE STANDARD)**

**Unit-I - Formulative and Industrial Pharmacy including Biopharmaceutics**

Manufacturing (Equipments and other facilities), quality control storage and stability of various sterile and non-sterile pharmaceutical dosage forms such as oral uncoated and coated tablets, capsules, liquid orals, injections, IV Fluids and electrolytes, ophthalmic products, Aerosols, topical preparations (ointments, creams, gels), SR/CR dosage forms – Spansules, SR tablets, Transdermal patches, ocuserts, Liposomes, Nanoparticles and Monoclonal antibodies Bioavailability studies, Biopharmaceutical classification, Basics of bioequivalence studies Stability studies - and ICH guidelines.

Different methods of Sterilization including their merits and demerits  
Sterility testing of different pharmaceutical preparations.

**UNIT-2 - Pharmaceutical Jurisprudence (Forensic Pharmacy)**

Drugs and Cosmetics Act 1940 and Rules made there under 1945 and amendments with emphasis on revised schedule M.

WHO GMP Guidelines.

Drugs and Magic remedies (Objectionable advertisements) Act 1954 and Rules.

Drugs Price Control order 1995.

**UNIT -3 - Pharmaceutical Biotechnology**

Preparation, Standards, Storage and safety aspects of blood products, biological products (sera, vaccines and antisera) and rDNA biotechnology products of therapeutic value – regulatory proteins (interferons), hormones (Insulin) and vaccines (hepatitis)

Basic principles of fermentation and production of alcohol, Citric acid, penicillin, vit B<sub>12</sub>, glutamic acid, streptokinase by bioprocess technology.

Application of monoclonal antibodies in clinical diagnosis and pharmaceutical research such as ELISA.

#### **UNIT-4: PHARMACEUTICAL ANALYSIS**

Limit tests, Bioassay, sterility test, pyrogen test, Determination of alcohol, Karl-Fisher titration

Principles and instrumentation of UV & visible spectrophotometry

Fluorimetry, Infrared spectroscopy.

Planar chromatography – Gas chromatography, HPLC, HPTLC.

Quality assurance

GLP, ISO 9000m TQM, Quality Review, Quality documentation

Regulatory control, regulatory drug analysis and interpretation of analytical data.

Validation, quality audit, validation of equipment and validation of analytic procedures.

#### **UNIT-5 Medicinal Chemistry**

Classification, Chemical name, structure, use and mode of action of the following classes of drugs:

CNS depressants (Sedatives and hypnotics), Local anesthetics, Psychotherapeutic agents, Adrenergic agents, cholinergic drugs and related agents, diuretics, cardiovascular agents, antihistamines, analgesics (narcotics and non narcotics & NSAID)

#### **UNIT –6 PHARMACOLOGY AND TOXICOLOGY**

Principles of Pharmacokinetics (Absorption, Distribution, Metabolism and excretion ) and pharmacodynamics (drug receptors interaction, agonist and antagonists ) of drugs.

Drug toxicity and drug allergy

Drug dependence, addiction and drug abuse

Adverse drug reactions: classification, excessive, pharmacological effects secondary pharmacological effects, idiosyncrasy, allergic drug reactions, genetically determined toxicity, sudden drug withdrawal

Pharmacology of drugs acting on CNS (NSAIDS, antiepileptics, Narcotics and Psychopharmacological drugs) and CVS (Antianginal, antiarrhythmics, antihypertensives and Congestive heart failure drugs ) with special reference to dose, side effects & uses.

### **UNIT- 7 PHARMACOGNOSY**

Role of medicinal and aromatic plants in India, importance and status of herbal medicines and cosmetics. Botanical sources, vernacular names, chemical constituents, uses and adulteration of the following natural drugs – Aloes, Amla, Bael, Brahmi Digitalis, Gymnema, Methi, Opium alkaloids, Pyrethrum, Rasna, Senna, Tulsi, Tylospora

Plant fibers used as surgical dressings.

Tissue culture – Historical development, types of cultures, nutritional requirements, growth and its maintenance, application of plant tissue culture in pharmacy and pharmacognosy, cloning and propagation.

### **UNIT –8 PHARMACY PRACTICE**

Drug store management and inventory control

- (a) Organization of drug store, types of materials stocked and storage conditions.
- (b) Purchase and inventory control Principles, Purchase procedures, purchase order, Procurement and stocking.

. Hospital Pharmacy - Inventory and records.

Clinical Pharmacy and its role in hospitals – ICH /WHO guidelines for GCP regarding clinical trials

Drug information services: Drug information center, sources of information on drugs, disease treatment schedules, procurement of information, computerized services. (e.g. MEDLINE ), retrieval of information and medication error.

Drug-drug interactions, beneficial interactions and adverse interactions, Pharmacokinetic drug interactions, Drug food interactions.