

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF PHARMACY

Semester: 4

Subject Code: 240005
Subject Name: Pharmacology –I

Sr. No.	Course content	Proposed No. of Hours of Teaching
1.	<p>General pharmacology</p> <ul style="list-style-type: none"> a. Introduction and scope of pharmacology, b. Sources of drugs and nomenclature of drugs c. Dosage forms and routes of administration. d. Factors modifying drug action, tolerance and dependence e. Pharmacokinetics: Drug absorption and bio-availability of a drug Distribution, Biological half life and its significance, drug distribution, drug metabolism, drug excretion, Methods prolonging the duration of action of a drug. f. Pharmacodynamics: Mechanism of drug action, site of drug action, drug receptors, dose response relationship, combined effects of drugs, structure activity relationship g. Adverse drug Reactions h. Drug interactions i. Development of new drugs: Animal Toxicity study (acute, sub-acute and chronic), clinical trials (various Phases) 	16
2.	<p>Pharmacology of peripheral Nervous system</p> <ul style="list-style-type: none"> a. Neurohumoral transmission (autonomic and somatic) b. Parasympathomimetics, Parasympatholytics, Sympathomimetics, adrenergic receptor and neuron blocking agents c. Ganglionic stimulants and blocking agents Neuromuscular blocking agents. d. Local anesthetics 	09
3.	<p>Autacoids</p> <ul style="list-style-type: none"> a. Histamine, 5-HT and their antagonists. b. Prostaglandins, thromboxane and leukotrienes. c. Pentagastrin, cholecystokinin, Angiotensin, Bradykinin and substance P 	05

Pharmacology – I – Practical (45 Hours)

1. Introduction to experimental pharmacology: preparation of different solutions for experiments. Drug dilutions, use of molar and W/V solutions in experimental pharmacology, common laboratory animals, Legal regulations for the use of experimental animals, anesthetics used in animal studies, commonly used instruments in experimental pharmacology. Some common and standard techniques for drug administration (intravenous injection, intra gastric administration) and collection of blood samples. Euthanasia of laboratory animals.
2. Experiments on urinary excretion of drugs/their metabolites
3. To study the effects of various agonists (pD_2) and antagonist (pA_2) using isolated preparations.
 - a. To record the concentration response curve (CRC) of acetylcholine using rat ileum/chicken preparation.
 - b. To study the effect of atropine on concentration response curve (CRC) of acetylcholine using rat/chicken ileum preparation.
 - c. To record the concentration response curve (CRC) of Histamine on guinea pig/chicken ileum
 - d. To study the effect of mepyramine on concentration response curve (CRC) of Histamine using guinea pig /chicken ileum preparation
4. To study the effects of acetylcholine, Histamine, $BaCl_2$, physostigmine, atropine, mepyramine and papaverine using rat/guinea pig/chicken ileum preparation
5. Demonstration Experiments
 - a. To study the effects of autonomic drugs on rabbits eye
 - b. To study the effect of hepatic microsomal enzyme inhibitors and inducers on pentobarbitone sleeping time
 - c. To study the effects of various drugs on rat fundus preparation
 - d. To study the effects of various drugs on rat anococcygeus muscle preparations.
 - e. To study the effects of various drugs on rat vas deference preparations.

Reference Books: (Latest Editions)

1. Satoskar, R.S. and Bhadarkar, S.D. Pharmacology and pharmacotherapeutics. 16th edition (single volume), 1999. Publisher: Popular, Dubai.
2. Rang, H.P. & Dale, M.M. Pharmacology. 4th edition, 1999. Publisher: Churchill Living stone.
3. Goodman Gilman, A., Rall, T.W., Nies, A.I.S. and Taylor, P. Goodman and Gilman's The pharmacological Basis of therapeutics. 9th Ed, 1996. Publisher Mc Graw Hill, Pergamon press.
4. Katzung, B.G. Basic and clinical pharmacology. Latest edition. Publisher: Prentice Hall, Int.
5. Ghosh, M.N. Fundamentals of experimental pharmacology. Latest edition, Publisher: Scientific book agency, Kolkata.
6. R.K.Goyal. Practicals in Pharmacology: B.S. Shah Prakashan, Ahmedabad.