



**PANIPAT INSTITUTE OF ENGINEERING AND TECHNOLOGY,  
PANIPAT  
DEPARTMENT OF PHARMACY  
Course: B.Pharmacy**



**LESSON PLAN**

**Faculty Name: Ms. Garima Mittal**  
**Class: B. Pharmacy – IV<sup>th</sup> Sem.**

**Subject: Pharmacology-I**  
**Subject Code: BP-404 T**

**Scope:**

This course imparts knowledge to understand what drugs do to the living organisms and how their effects can be applied to therapeutics. The subject covers the information about the drugs like, mechanism of action, physiological and biochemical effects (pharmacodynamics) as well as absorption, distribution, metabolism and excretion (pharmacokinetics) along with the adverse effects, clinical uses, interactions, doses, contraindications and routes of administration of different classes of drugs.

**Course Objectives:**

This course will discuss the following aspects:

1. Basic understanding of pharmacology and its scope with all the terminology
2. ADRs and Drug Discovery of a new drug molecule.
3. Molecular understanding of receptors responsible for particular action of the drug.
4. Classification and mechanism of action of the drugs acting on PNS and CNS.

**Course Outcomes:**

Upon completion of this course the student should be able to

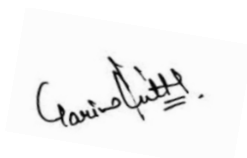
1. Understand the pharmacological actions of different categories of drugs
2. Explain the mechanism of drug action at organ system/sub cellular/ macromolecular levels.
3. Apply the basic pharmacological knowledge in the prevention/treatment of various diseases.
4. Observe the effect of drugs on animals by simulated experiments
5. Appreciate correlation of pharmacology with other bio medical sciences

**Number of Lectures: 45**

**Each Lect. Time: 01 hour**

| Lecture No.  | Particular  | Remark/Date |
|--|---|-------------|
| <b>UNIT-1:- General Pharmacology (8 hrs.)</b>  |   |             |
| 1.   | Introduction to Pharmacology- Definition, historical landmarks and scope of pharmacology                            |             |
| 2.   | Introduction to Pharmacology- nature and source of drugs, essential drugs concept and routes of drug administration |             |
| 3.   | Introduction to Pharmacology- Agonists, Antagonists (competitive and non competitive), spare receptors, addiction.  |             |
| 4.   | Introduction to Pharmacology- Tolerance, dependence, Tachyphylaxis, idiosyncrasy, allergy                           |             |
| 5.   | Pharmacokinetics-Absorption, Distribution   |             |
| 6.   | Pharmacokinetics-Metabolism, Excretion  |             |
| 7.   | Pharmacokinetics- Enzyme induction, enzyme inhibition   |             |
| 8.   | Pharmacokinetics- kinetics of elimination   |             |
| <b>Module -2:- General Pharmacology (12 hrs)</b>                                       |   |             |
| 9.   | Pharmacodynamic- Principles & mechanisms of drug action   |             |
| 10.  | Receptor theories and classification of receptors   |             |
| 11.  | Regulation of receptors, drug receptors interaction   |             |
| 12.  | signal transduction mechanisms  |             |
| 13.  | G-protein–coupled receptors   |             |
| 14.  | Ion channel receptor, Transmembrane enzyme linked receptors, Transmembrane JAK-STAT receptor                        |             |
| 15.  | Receptors that regulate transcription factors   |             |
| 16.  | Dose Response Relationship, Therapeutic index   |             |
| 17.  | Combined effects of drugs and factors modifying drug action   |             |
| 18.  | Adverse drug reactions  |             |
| 19.  | Drug interactions (pharmacokinetic and pharmacodynamic)   |             |
| 20.  | Drug discovery and clinical evaluation of new drugs   |             |
| <b>Module - 3:- Pharmacology of drugs acting on peripheral nervous system (10 hrs)</b> |   |             |
| 21.  | Organization and function of ANS  |             |
| 22.  | Neurohumoral, co-transmission & classification of NTs   |             |
| 23.  | Parasympathomimetics  |             |
| 24.  | Parasympatholytics  |             |
| 25.  | Sympathomimetics  |             |
| 26.  | Sympatholytics  |             |
| 27.  | Neuromuscular blocking agents and skeletal muscle relaxants   |             |

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| 28.  | Local anesthetic agents                                   |  |
| 29.  | Drugs used in myasthenia gravis                           |  |
| 30.  | Drugs used in glaucoma                                    |  |
| <b>Module- 4:- Pharmacology of drugs acting on central nervous system (8hrs)</b> |   |  |
| 31.  | Neurohumoral transmission in the C.N.S.                   |  |
| 32.  | Importance of various NTs like with GABA, Glutamate.      |  |
| 33.  | Importance of Glycine, serotonin, dopamine.               |  |
| 34.  | General anesthetics and pre-anesthetics.                  |  |
| 35.  | Sedatives & Hypnotics                                     |  |
| 36.  | centrally acting muscle relaxants                         |  |
| 37.  | Anti-epileptics   |  |
| 38.  | Alcohols and disulfiram                                   |  |
| <b>Module-5:- Pharmacology of drugs acting on central nervous system (7 hrs)</b> |   |  |
| 39.  | Psychopharmacological agents: Antipsychotics              |  |
| 40.  | Antidepressants   |  |
| 41.  | Anti-anxiety agents                                       |  |
| 42.  | Anti-maniacs and hallucinogens                            |  |
| 43.  | CNS stimulants and nootropics                             |  |
| 44.  | Drugs used in Parkinson's disease and Alzheimer's disease |  |
| 45.  | Drug addiction, drug abuse, tolerance and dependence.     |  |



**Teacher in-charge**

**HOD**

**Principal**