

**NIRMA UNIVERSITY**  
**Institute of Pharmacy**  
**(B. Pharm.)**  
**(Semester - VI)**

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| <b>Course Code</b>  | <b>BP602T</b>                    |
| <b>Course Title</b> | <b>Pharmacology-III - Theory</b> |

**Scope:**

This subject is intended to impart the fundamental knowledge on various aspects (classification, mechanism of action, therapeutic effects, clinical uses, side effects and contraindications) of drugs acting on respiratory and gastrointestinal system, infectious diseases, immuno-pharmacology and in addition, emphasis on the principles of toxicology and chronopharmacology.

**Objectives:**

Upon completion of the course the student should be able to-

1. Understand the mechanism of drug action and its relevance in the treatment of different infectious diseases
2. Comprehend the principles of toxicology and treatment of various poisonings and
3. Appreciate correlation of pharmacology with related medical sciences.

**Course Learning Outcomes (CLO):**

At the end of the course, students will be able to –

1. Outline the mechanism of drug action and its relevance in the treatment of respiratory system and gastrointestinal disorders.
2. Illustrate mechanism of action of various drugs with their pharmacological actions and therapeutic applications of anti-infectives and chemotherapeutic agents.
3. Relate mechanism of action, pharmacological actions and applications of immunotherapeutic agents and biosimilars.
4. Explain principles of toxicology and treatment of various poisoning
5. Discuss significance of chronopharmacology in various disease treatments.
6. Improve their skills of handling of instruments, animals and softwares for studying pharmacological effects of the drugs.

**Syllabus:**

**Teaching hours: 45 Hours**

**UNIT I**

**10 Hours**

**Pharmacology of drugs acting on Respiratory system**

- a. Anti -asthmatic drugs
- b. Drugs used in the management of COPD
- c. Expectorants and antitussives
- d. Nasal decongestants
- e. Respiratory stimulants

**Pharmacology of drugs acting on the Gastrointestinal Tract**

- a. Antiulcer agents.

- b. Drugs for constipation and diarrhoea.
- c. Appetite stimulants and suppressants.
- d. Digestants and carminatives.
- e. Emetics and anti-emetics.

## **UNIT II**

**10 Hours**

### **Chemotherapy**

- a. General principles of chemotherapy.
- b. Sulfonamides and cotrimoxazole
- c. Antibiotics- Penicillins, cephalosporins, chloramphenicol, macrolide, quinolones and fluoroquinolones, tetracycline and aminoglycosides

## **UNIT III**

**10 Hours**

### **Chemotherapy**

- d. Antitubercular agents
- e. Antileprotic agents
- f. Antifungal agents
- g. Antiviral drugs
- h. Anthelmintics
- i. Antimalarial drugs
- j. Antiamoebic agents

## **UNIT IV**

**08 Hours**

### **Chemotherapy**

- k. Urinary tract infections and sexually transmitted diseases.
- l. Chemotherapy of malignancy.

### **Immunopharmacology**

- a. Immunostimulants
  - b. Immunosuppressant
- Protein drugs, monoclonal antibodies, target drugs to antigen, biosimilars

## **UNIT V**

**07 Hours**

### **Principles of toxicology**

- a. Definition and basic knowledge of acute, subacute and chronic toxicity.
- b. Definition and basic knowledge of genotoxicity, carcinogenicity, teratogenicity and mutagenicity
- c. General principles of treatment of poisoning
- d. Clinical symptoms and management of barbiturates, morphine, organophosphorus compound and lead, mercury and arsenic poisoning.

### **Chronopharmacology**

- a. Definition of rhythm and cycles.
- b. Biological clock and their significance leading to chronotherapy.

## **Tutorials**

**Teaching hours: 15 Hours**

Tutorials will be based on above syllabus

## **Recommended books** ^: (Latest Edition)

1. Rang H. P., Dale M. M., Ritter J. M., Flower R. J., Rang and Dale's Pharmacology, Churchill Livingstone Elsevier

2. Katzung B. G., Masters S. B., Trevor A. J., Basic and clinical pharmacology, Tata Mc Graw-Hill
3. Goodman and Gilman's, The Pharmacological Basis of Therapeutics
4. Marry Anne K. K., Lloyd Yee Y., Brian K. A., Robbin L.C., Joseph G. B., Wayne A. K., Bradley R.W., Applied Therapeutics, The Clinical use of Drugs. The Point Lippincott Williams & Wilkins
5. Mycek M.J, Gelnet S.B and Perper M.M. Lippincott's Illustrated Reviews-Pharmacology
6. K.D. Tripathi. Essentials of Medical Pharmacology, JAYPEE Brothers Medical Publishers (P) Ltd, New Delhi.
7. Sharma H. L., Sharma K. K., Principles of Pharmacology, Paras medical publisher Modern Pharmacology with clinical Applications, by Charles R.Craig & Robert,
8. Ghosh MN. Fundamentals of Experimental Pharmacology. Hilton & Company, Kolkata,
9. Kulkarni SK. Handbook of experimental pharmacology. VallabhPrakashan,
10. N. Udupa and P.D. Gupta, Concepts in Chronopharmacology.

L= Lecture, T= Tutorial, P= Practical, C= Credit

^ this is not an exhaustive list

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