

Subject Code: MPL102T	Subject Title: Advanced Pharmacology-I
Pre-requisite Subject	-NONE-

Scope:

The subject is designed to strengthen the basic knowledge in the field of pharmacology and to impart recent advances in the drugs used for the treatment of various diseases. In addition, this subject helps the students to understand the concepts of drug action and mechanisms involved.

Course Objectives: After completion of course student is able:

1. To discuss the pathophysiology and pharmacotherapy of certain diseases.
2. To explain the mechanism of drug actions at cellular and molecular level.
3. To understand the adverse effects, contraindications and clinical uses of drugs used in treatment of diseases

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)		
Lecture	Tutorial	Practical	Credit	Theory (T)		Total (Marks)
				University Assessment	Continuous Assessment	
4	-	-	4	75	25	100

Subject Contents:

Sr. No.	Topic	Total Hours	Weight (%)
1	UNIT I General Pharmacology: a. Pharmacokinetics: The dynamics of drug absorption, distribution, biotransformation and elimination. Concepts of linear and non-linear compartment models. Significance of Protein binding. b. Pharmacodynamics: Mechanism of drug action and the relationship between drug concentration and effect. Receptors, structural and functional families of receptors, quantitation of drug receptors interaction and elicited effects.	12	20
2	UNIT II Neurotransmission: a. General aspects and steps involved in neurotransmission. b. Neurohumoral transmission in autonomic nervous system (Detailed study about neurotransmitters- Adrenaline and Acetylcholine). c. Neurohumoral transmission in central nervous system (Detailed study about neurotransmitters- histamine, serotonin, dopamine, GABA, glutamate and glycine). d. Non adrenergic non cholinergic transmission (NANC). Cotransmission Systemic Pharmacology: A detailed study on pathophysiology of diseases, mechanism of action, pharmacology and toxicology of existing as well as novel drugs used in the following systems Autonomic Pharmacology: Parasympathomimetics and lytics, sympathomimetics and lytics, agents affecting neuromuscular junction	12	20

3	UNIT III Central nervous system Pharmacology: General and local anesthetics. Sedatives and hypnotics, drugs used to treat anxiety. Depression, psychosis, mania, epilepsy, neurodegenerative diseases. Narcotic and non-narcotic analgesics.	12	20
4	UNIT IV Cardiovascular Pharmacology: Diuretics, antihypertensives, antiischemics, anti- arrhythmics, drugs for heart failure and hyperlipidemia. Hematinics, coagulants, anticoagulants, fibrinolytics and antiplatelet drugs.	12	20
5	UNIT V Autocoid Pharmacology: The physiological and pathological role of Histamine, Serotonin, Kinins Prostaglandins Opioid autocoids. Pharmacology of antihistamines, 5HT antagonists.	12	20

References:

Text books:

1. A Complete Textbook of Medical Pharmacology by Dr. S.K Srivastava published by APC Avichal Publishing Company.
2. Graham Smith. Oxford text book of Clinical Pharmacology.

Reference Books:

1. The Pharmacological Basis of Therapeutics, Goodman and Gillman's.
2. Principles of Pharmacology. The Pathophysiologic basis of drug Therapy by David E Golan, Armen H, Tashjian Jr, Ehrin J, Armstrong, April W, Armstrong, Wolters, Kluwer-Lippincott Williams & Wilkins Publishers.
3. Basic and Clinical Pharmacology by B.G Katzung.
4. Hand book of Clinical Pharmacokinetics by Gibaldi and Prescott.
5. Applied biopharmaceutics and Pharmacokinetics by Leon Shargel and Andrew B.C.Yu.
6. Avery Drug Treatment.
7. Dipiro Pharmacology, Pathophysiological approach.
8. Green Pathophysiology for Pharmacists.
9. Robbins & Cortan Pathologic Basis of Disease, 9th Ed. (Robbins Pathology)
10. K.D.Tripathi. Essentials of Medical Pharmacology.
11. Modern Pharmacology with Clinical Applications, Craig Charles R. & Stitzel Robert E., Lippincott Publishers.
12. Clinical Pharmacokinetics & Pharmacodynamics: Concepts and Applications – Malcolm Rowland and Thomas N.Tozer, Wolters Kluwer, Lippincott Williams & Wilkins Publishers.
13. Applied biopharmaceutics and Pharmacokinetics, Pharmacodynamics and Drug metabolism for industrial scientists.
14. Modern Pharmacology, Craig CR. & Stitzel RE, Little Brown & Company.