STUDYGUIDE, DEPARTMENT OF PHARMACOLOGY

THIRD YEAR MBBS STUDENTS

(BATCH 2025-2026)

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DEPARTMENT OF PHARMACOLOGY
HISTORY, AIM AND TEACHING STRATEGY

INTRODUCTION

King Edward Medical University (KEMU) is committed to excellence in promoting biomedical education at all levels and has robust programs at both undergraduate and postgraduate levels. KEMU has philosophy of not only enhancing the depth of knowledge of its students but also the breadth. Pharmacology & Therapeutics as a subject acts as a foundation stone on which the entire clinical empire is based. Currently the department is providing teaching and training to M. Phil, M.B.B.S, B.DS, DPT, Nursing and Allied Health Sciences students under the supervision of Prof. Dr. Moneeb Ashraf efficiently. The teaching faculty includes three Assistant professors, one PMO, two senior demonstrators and one demonstrator. The Department of Pharmacology is located in newly constructed Maqbool Ahmed Block and is equipped with state of the art facilities.

AIMS

To create interest in studying pharmacology and train students to make them finest so that they can compete and deliver best in medical profession by providing conducive environment.

TEACHING STRATEGY

Use of bridge in, objective based, pretest, participatory/interactive lecture, problem based learning, assessment of test questions according to standardized key, post-test discussion, and summarizing strategies for improving knowledge of students.

MESSAGE OF THE VICE CHANCELLOR
PROF.DR.MAHMOOD AYYAZ

Prof. Dr. Mahmood Ayyaz

Vice Chancellor

King Edward Medical University, Lahore

FCPS (Pak), FRCS (Ed), FRCS (Glasgow), FACS (USA),

Diploma in Minimal Invasive Surgery (France)

I am honored to step into the educational leadership of the King Edward Medical University. As it Vice Chancellor, I will strive to maintain the tradition of strong, insightful, and forward-thinking leadership of my predecessors. While the challenges and research opportunities in the future will be decidedly different from those faced by the university`s previous leaders, but the principles of dedication to outstanding high-impact science, community participation, accountability, and transparency in the decision-making process will guide my vision for the university

As its Vice Chancellor, I am capable of fully embracing the challenges and opportunities that lie ahead and take this as unique opportunity to help shape the future of the medical education and research in my country and will work hard to further vitalize the University by enfolding new and exciting areas of growth and development particularly in Clinical Informatics and Data Sciences.As a Vice Chancellor, I envision to:

- Provide Academic and Scientific leadership for the University.
- Promote scientific inquiry and discovery to generate new knowledge, Identify promising pathways, pursue novel targets, develop innovative diagnostics, and design effective interventions that bring hope and health to the human condition.

- Create opportunities to understand how human health is affected by Medical Education and Research and how this knowledge can be used to reduce morbidity, improve qualityof life, and extend longevity.
- Modernize and Standardize Induction, Training, Monitoring and Evaluation in the Under and post graduate programs of the university.
- Create a forum for open and ongoing communication between the University and both the public and scientific communities to identify areas for programmatic development, to fully evaluate a problem or opportunity, and to enhance public and scientific awareness of the problem and find a solution, and, when appropriate, coordinate these activities with programmatic efforts with other National and International universities
- Foster the development of programmatic, interdisciplinary research with the Mechanical, Electrical, Textile and Environmental Science Industry of Pakistan and support the development of research careers in these fields
- Work with the other institutes like NIH, the Centers for Disease Control and Prevention, the Environmental Protection Agency, and other relevant scientific institutes to coordinate scientific and training programs.
- Serve as a spokesperson of the University to the Government in Medical Education and Science.

I believe that the University will benefit from my perspective as an active Surgeon–Scientist. The reasons for this are simple and straightforward, I enjoy patient care and research, I see these activities as part of my identity, and throughout my career my research has been driven and inspired by taking care of patients with complex and unexplainable illnesses.

I am very excited about my role in the future with the University and am fully committed to serving as its Vice Chancellor. I have decided to take on this responsibility because of my long- Standing commitment to Medical education and patient care and my firm belief in our collective responsibility to advance society. With the Blessings of Allah Almighty, I look forward to the work ahead with **ALTAPETE** as my motto and the ALUMINI of King Edward Medical University as my guiding light.

KINGE DWARD/MEDICAL UNIVERSITY, LAHORE
VISION AND MISSION STATEMENT

VISION

The vision of King Edward Medical University is to be a renowned national and world class academia maintaining a leading role in medical education, innovative research and provisionof best health care services of international standards.

MISSION

King Edward Medical University will prepare health professionals in accordance with highest professional standards to practice evidence-based medicine maintaining international quality ofpatient-centered care in health care delivery system and will produce research scholars demonstrating excellence in knowledge, skills, and ethical values empowered with community oriented self- directed learning and professional development.

DEPARTMENT OF PHARMACOLOGY
VISION AND MISSION STATEMENT

DEPARTMENTAL VISION

A leading department in research, teaching and training of students in the field of pharmacology.

DEPARTMENTAL MISSION

The Department of Pharmacology is committed to academic excellence and to the attainment of national and international recognition for the quality of its educational and research activities.

Teaching excellence is a priority of the department and the staff aims to disseminate knowledge to undergraduate and graduate students through quality teaching. The purpose of teaching is to impart relevant information to the students in a manner that allows them to develop their analytical and intellectual capabilities, with emphasis on self-reliance and continued self-education.

The research mission of the department is to conduct and promote innovative research to contribute to advancement in biomedical knowledge in the field of pharmacology. The department promotes high quality, interdepartmental collaborative research.

INTRODUCTION
TO STUDY GUIDE

Dear Students,

Welcome to the Third year Pharmacology Course. The Department of Pharmacology will be facilitating the course. There are three teaching units in the department to assist in your learning. You will spend hundreds of hours in third year, learning the different aspects of the pharmacology. The hourly allocation of different learning assignments is as under:

a) For 3rd Year M.B.B.S according to PMDC Rules
b) Lectures: 130
c) Practical/Tutorial/Grand Tutorial:170

The purpose of the study guide is to give you an orientation and help you to learn the subject of Pharmacology. It is designed to help you manage your learning and access the available resources to you. It takes you through the general objectives of learning the subject, divides the subject into modules for easy learning and helps you understand the course work, clinical correlation and attitudes that are desired for a good doctor.

The basic sciences courses you did in the last two years are pre-requisites for the course of Pharmacology and will help you in better understanding of the subject and its application to clinical cases. We advise you to refer back to these subjects if there are any issues in understanding the subject. We hope you will realize how integrated these subjects are to your clinical practice.

Methods of assessment, have also been written so that you can relate teaching to assessment and have a fair idea of the assessment methods and what internal and external assessment is all about. We hope the students take time out to go through the guide and to use it effectively to learn the subject of Pharmacology. We look forward to feedback from the students and faculty so that the guide can be too improved further.

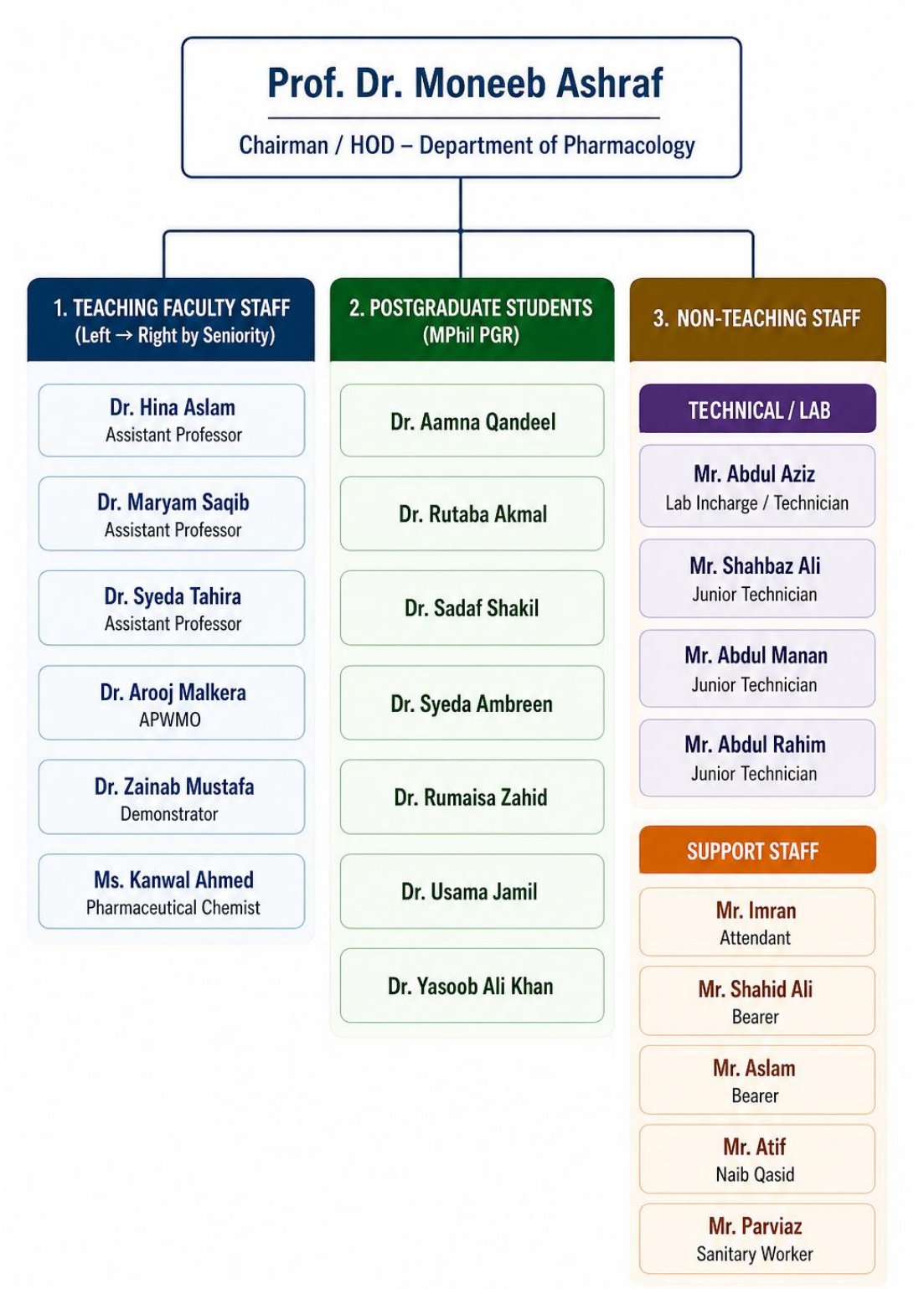
For any assistance please do not hesitate to contact the teaching faculty of the department of Pharmacology (Details available at KEMU website). Alternatively, please feel free to visit the head of the department for any issues that you face in learning of the subject or otherwise.

We hope that your time in our department will be very fruitful and enjoyable and will equip you for future practical life.

With compliments from:
Head of department &
Members of faculty, Department of Pharmacology KEMU

ORGANOGRAM,DEPARTMENT OF PHARMACOLOGY

KING EDWARD MEDICAL UNIVERSITY, LAHORE



LEARNING OUTCOMES

LEARNING GOAL:

The overall goal of this work is to equip students with essential knowledge and skills in Pharmacology.

LEARNING OBJECTIVES / OUTCOMES:

By the end of the course, the 3rd year students should be able to:

General objectives of under graduate Pharmacology teaching are to equip the students with essential knowledge, skills and attitudes, so that they are able to:

- Understand pharmacokinetic and pharmacodynamics principles related to drugs which are used in clinical practice.
- Understand and identify the various factors that can affect the mechanism of action of drugs.
- Knowledge of various routes of drug administration with advantages and disadvantages of the respective routes.
- Understanding of dosage calculations as appropriate for the patient and be able to select the proper drug and dose for the at risk population i.e. patients with kidney or liver disease, elderly, pregnant and lactating females, and children.
- Understand the importance of rational prescribing of drugs and the concept of essential drugs.
- To be able to identify and monitor adverse drug reactions (ADRs) and appreciate the importance of ADR reporting.
- Knowledge of drugs used in systemic illnesses, infections and chemotherapy etc. With main mechanism(s) of action, pharmacokinetics, uses, side-effects and indications.
- Understand the principles and practice of pharmacy.
- Understand the methods in experimental pharmacology, principles of bioassay and be able to correlate drug effects with the action of drugs at the receptors.
- Have knowledge of common drugs and doses used for different ailments
- Should be able to select rationally from the available drugs.

CURRICULUM MAPS

You will study details here

First year	Second Year	**Third Year**	Fourth Year	Final Year	House Job

You are entering in 3rd year of basic classes. Here you are going to study General Principles in Pharmacology along with therapeutics of different body systems. In third year you are supposedto attend lectures, tutorials and perform practicals in pharmacology lab. In third year, you're also starting ward rotations.

In the final assessment you will be assessed in all aspects of Pharmacology. So, learn carefully and revise it very often till your university professional examination.

TEACHING METHODOLOGY & SCHEDULES

THIRD YEAR

- Apart from other subjects in Third Year (Forensic Medicine and General Pathology) the structure of the modules taught in Pharmacology will be:
    - Lectures – 6 lectures a week.
    - Lecture are scheduled daily.
    - Every lecture is of 45 minutes duration.
    - Two practical per week in pharmacology laboratory.
    - One tutorial fortnightly.
    - Monthly test / viva.
    - At the end of every lecture feedback from the students would be collected for quality assurance and evaluation
- There will be a total of 126 lectures in third year.
    - Collective feedback along with results are provided during lectures after Class Tests.
    - Send ups are scheduled at the end of third year, 2 months before the professional examination.

TEACHING SCHEDULE

THEORY:

Starting date of the session	05-01-2026
Venue	Forensic Lecture hall
No. of Total Lectures	130
Days of Pharmacology Lectures	Monday, Tuesday, Wednesday, Thursday, Friday and Saturday

Practicals:

Starting date of the session	05-01-2026
Venue	Pharmacology Laboratory
Days of Pharmacology Practicals	Monday, Tuesday, Wednesday, Thursday, Friday and Saturday

Tutorials/small group discussions:

Starting date of the session	05-01-2026
Venue	Demonstration rooms in Pharmacology Department
Days of Pharmacology tutorial /problem based Learning	Monday, Tuesday, Wednesday, Thursday, Friday and Saturday

DEPARTMENT OF PHARMACOLOGY, KEMU
TIME TABLE OF 3rd YEAR MBBS (Generalized Module and 1st Inter module)
02-01-2025 to 13--01-2025

Date	Day	Time	Topic	Doctor
02-01-25	Thursday	8:00-8:45am	Introduction and branches of Pharmacology	Prof. Dr. Moneeb
03-01-25	Friday	8:00-8:45am	Active principles and sources of drugs	Dr. Zainab
04-01-25	Saturday	9:30-10:15am	Route of drug administration	Dr. Zainab
04-01-25	Saturday	10:15-11:00am	Transport of drugs / Absorption, factors affecting absorption	Prof. Dr. Moneeb
06-01-25	Monday	8:45-9:30am	Transport of drugs / Absorption, factors affecting absorption	Prof. Dr. Moneeb
09-01-25	Thursday	8:45-9:30am	Drug distribution, volume of distribution	Dr. Maryam
10-01-25	Friday	8:45-9:30am	Biotransformation	Dr. Maryam
11-01-25	Saturday	8:45-9:30am	Biotransformation	Dr. Maryam
13-01-25	Monday	8:00-8:45am	Excretion of drugs, half-life ,First order, zero order kinetic and steady state of drugs	Dr. Hina

DEPARTMENT OF PHARMACOLOGY, KEMU
TIME TABLE OF 3rd YEAR MBBS (1st Inter module)
15-01-2025 to 30--01-2025

Date	Day	Time	Topic	Doctor
15-01-25	Wednesday	8:00-8:45am	Pharmacodynamics	Prof. Dr. Moneeb
16-01-25	Thursday	8:00-8:45am	Receptors & Transmembrane signaling mechanism	Prof. Dr. Moneeb
17-01-25	Friday	8:45-9:30am	Dose response Curves / Tolerance & Tachyphylaxis	Prof. Dr. Moneeb
18-01-25	Saturday	11:45-12:30pm	Dose response Curves / Tolerance & Tachyphylaxis	Prof. Dr. Moneeb
21-01-25	Tuesday	8:45-9:30am	Adverse drug reactions	Dr. Tahira
22-01-25	Wednesday	8:00-8:45am	New drug development	Dr. Hina
23-01-25	Thursday	8:45-9:30am	Pharmacogenomics	Dr. Tahira
24-01-2 5	Friday	8:45-9:30am	Drug interactions	Dr. Zainab
25-01-25	Saturday	9:30-10:15am	Factors affecting dosage of drugs	Dr. Tahira

25-01-25	Saturday	10:15-11:00am	Serotonin Agonists & Antagonists	Dr. Zainab
28-01-25	Tuesday	8:45-9:30am	Prostaglandins	Dr. Sadaf
29-01-25	Wednesday	8:00-8:45am	Histamine, Antihistamine	Dr. Tahira
30-01-25	Thursday	8:45-9:30am	Corticosteroids	Dr. Sadaf
31-01-25	Friday	8:00-8:45am	Ergot Alkaloids	Dr. Zainab

DEPARTMENT OF PHARMACOLOGY, KEMU
TIME TABLE OF 3rd YEAR MBBS (Inflammation & 2nd Inter module)
01-02-2025 to 15-02-2025

Date	Day	Time	Topic	Doctor
01-02-25	Saturday	9:30-10:15am	NSAIDs	Prof. Dr. Moneeb
01-02-25	Saturday	11:45-12:30pm	NSAIDs	Prof. Dr. Moneeb
03-02-25	Monday	8:00-09:30am	Class Test General Pharmacology	
04-02-25	Tuesday	8:45-9:30am	Test Discussion	Dr. Tahira
04-02-25	Tuesday	9:30-10:15am	Treatment of Gout	Dr. Maryam
06-02-25	Thursday	8:00-8:45am	Treatment of Rheumatoid arthritis	Dr. Hina
08-02-25	Saturday	8:45-9:30am	Introduction of ANS	Prof. Dr. Moneeb
10-02-25	Monday	8:45-9:30am	Introduction of ANS	Prof. Dr. Moneeb
11-02-25	Tuesday	8:45-9:30am	Parasympathomimtic drugs	Prof. Dr. Moneeb
12-02-25	Wednesday	9:30-10:15am	Parasympathomimtic drugs	Prof. Dr. Moneeb
13-02-25	Thursday	9:30-10:15am	Parasympatholytic drugs	Dr. Hina
15-02-25	Saturday	8:45-9:30am	Parasympatholytic drugs	Dr. Hina

DEPARTMENT OF PHARMACOLOGY, KEMU
TIME TABLE OF 3rd YEAR MBBS (2nd Inter module)
17-02-2025 to 05-03-2025

Date	Day	Time	Topic	Doctor

17-02-25	Monday	9:30-10:15am	Sympathomimetic drugs	Dr. Sadaf
18-02-25	Tuesday	8:45-9:30am	Sympathomimetic drugs	Dr. Sadaf
19-02-25	Wednesday	8:45-9:30am	Beta blockers	Dr. Maryam
20-02-25	Thursday	8:00-8:45am	Beta blockers	Dr. Maryam
21-02-25	Friday	8:45-9:30am	Alpha Blockers	Dr. Tahira
22-02-25	Saturday	9:30-10:15am	Sport weeks	
24-02-25	Monday	8:45-9:30am	Glaucoma	Dr. Sadaf
28-02-25	Friday	8:45-9:30am	Treatment of Migraine	Dr. Tahira
05-03-25	Wednesday	9:00-10:00am	Pharmacology Assessment (ANS+ Inflammation)	

DEPARTMENT OF PHARMACOLOGY, KEMU
TIME TABLE OF 3rd YEAR MBBS (Special Microbiology module)
06-03-2025 to 23-04-2025

Date	Day	Time	Topic	Doctor
06-03-25	Thursday	9:30-10:15am	Test Discussion	Dr. Maryam
08-03-25	Saturday	8:00-8:40am	Introduction to Chemotherapy	Prof. Dr. Moneeb Ashraf
10-03-25	Monday	8:00-8:45am	Cell wall synthesis inhibitors	Dr. Sadaf
12-03-25	Wednesday	8:00-8:45am	Cell wall synthesis inhibitors & membrane active antibiotic	Dr. Sadaf
13-03-25	Thursday	9:30-10:15am	Macrolides, Clindamycin	Dr. Maryam
15-03-25	Saturday	9:20-10:00am	Tetracycline, Chloramphenicol, Streptogramins, oxazolidinon	Dr. Tahira
17-03-25	Monday	8:00-8:45am	Aminoglycosides	Prof. Dr. Moneeb Ashraf
18-03-25	Tuesday	8:45-9:30am	Sulfonamide and trimethoprim	Dr. Tahira
19-03-25	Wednesday	9:30-10:15am	Fluroquinolones Miscellaneous antimicrobial agent +Disinfectants	Dr. Tahira
20-03-25	Thursday	9:30-10:15am	Anti-helminthic	Dr. Zainab
22-03-25	Saturday	9:20-10:00am	Anti-Mycobacterial Drugs	Dr. Hina
24-03-25	Monday	8:00-8:45am	Anti-Mycobacterial Drugs	Dr. Hina

25-03-25	Tuesday	8:45-9:30am	Anti-fungal drugs	Dr. Maryam
26-03-25	Wednesday	8:00-8:45am	Anti-fungal drugs	Dr. Maryam
26-03-25	Wednesday	8:45-9:30am	Anti-Viral drugs	Prof. Dr. Moneeb Ashraf
27-03-25	Thursday	8:45-9:30am	Anti-Viral drugs	Prof. Dr. Moneeb Ashraf
11-04-25	Friday	8:45-9:30am	Anti-Protozoal drugs	Dr. Hina
12-04-25	Saturday	9:30-11:00am	Pharmacology Assessment (Introduction to chemotherapy, Cell wall & membrane synthesis inhibition, Protein synthesis inhibitor, Antifolate drugs, Quinolones, Antifungal, Antimycobacterial, Miscellaneous antimicrobial agent Antiseptics, Disinfectants	
23-04-25	Wednesday	9:30-10:15am	**EXTRAVAGANZA**	

DEPARTMENT OF PHARMACOLOGY, KEMU
TIME TABLE OF 3rd YEAR MBBS (Special Microbiology module)
26-04-2025 to 21-05-2025

26-04-25	Saturday	11:00-11:45am	Anti-Protozoal drugs	Dr. Hina
26-04-25	Saturday	11:45-12:30pm	Drugs used for acid peptic disease	Prof. Dr. Moneeb Ashraf
28-04-25	Monday	8:00-8:45am	Drugs used for acid peptic disease	Prof. Dr. Moneeb Ashraf
02-05-25	Friday	8:00-8:45am	Prokinetic drugs used for IBS +IBD	Dr. Hina
03-05-25	Saturday	11:45-12:30pm	Prokinetic drugs used for IBS +IBD	Dr. Hina
08-05-25	Thursday	9:30-10:15am	Emetic + Antiemetic drugs	Dr. Tahira

DEPARTMENT OF PHARMACOLOGY, KEMU
TIME TABLE OF 3rd YEAR MBBS (Special Microbiology module)
13-05-2025 to 26-05-2025

Date	Day	Time	Topic	Doctor
13-05-25	Tuesday	8:45-9:30am	Anti-diarrheal drugs	Dr. Tahira
15-05-25	Thursday	9:30-10:15am	Drugs used for asthma and COPD	Dr. Maryam
16-05-25	Friday	8:00-8:45am	Drugs used for asthma and COPD	Dr. Maryam
17-05-25	Saturday	11:00-11:45am	Expectorant, Mucolytics and anti tussive drugs / Carminatives sialagogues Anti sialagogues	Dr. Zainab

19-05-25	Monday	8:45-9:30am	Anti-hypertensive drugs	Dr. Maryam
19-05-25	Monday	9:30-10:15am	Anti-hypertensive drugs	Dr. Maryam
20-05-25	Tuesday	9:30-10:15am	Anti anginal drugs	Prof. Dr. Moneeb
26-05-25	Monday	9:00-10:00am	Pharmacology Assessment	

DEPARTMENT OF PHARMACOLOGY, KEMU
TIME TABLE OF 3rd YEAR MBBS (Special Microbiology module)
29-05-2025 to 04-06-2025

Date	Day	Time	Topic	Doctor
29-05-25	Thursday	8:00-8:45am	(Test Discussion) Diuretics	Dr. Hina
30-05-25	Friday	8:00-8:45am	Diuretics	Dr. Hina
31-05-25	Saturday	8:45-9:30am	Anti- arrhythmic drugs	Prof. Dr. Moneeb
31-05-25	Saturday	11:45-12:30pm	Anti- arrhythmic drugs	Prof. Dr. Moneeb
02-06-25	Monday	9:30-10:15am	Cardiac Failure	Dr. Tahira
04-06-25	Wednesday	9:30-10:15am	Cardiac Failure	Dr. Tahira

DEPARTMENT OF PHARMACOLOGY, KEMU
TIME TABLE OF 3rd YEAR MBBS (HAEMODYNAMICS MODULE)
10-07-2025 to 22-07-2025

Date	Day	Time	Topic	Doctor
10-07-25	Thursday	9:30-10:15am	Agents used in cytopenias, Hematopiotic gouth facter	Dr. Zainab
11-07-25	Friday	8:00-8:45am	Coagulants and anti-coagulants	Dr. Maryam
12-07-25	Saturday	9:30-10:15am	Coagulants and anti-coagulants	Dr. Maryam
12-07-25	Saturday	10:15-11:00am	Antihyperlipidic drugs	Dr. Hina
14-07-25	Monday	8:45-9:30am	Antihyperlipidic drugs	Dr. Hina
15-07-25	Tuesday	8:00-8:45am	Anti-platelet,	Dr. Hassan
17-07-25	Thursday	8:45-9:30am	Thrombolytics drug	Dr. Hassan

18-07-25	Friday	8:45-9:30am	Pharmacological agents in shock	Dr. Hassan
19-07-25	Saturday	Self-Study		
22-07-25	Tuesday	9:00-10:00am	Pharmacology Assessment	All Faculty

DEPARTMENT OF PHARMACOLOGY, KEMU
TIME TABLE OF 3rd YEAR MBBS (3RD INTERMODULE)
25-07-2025 to 08-08-2025

Date	Day	Time	Topic	Doctor
25-07-25	Friday	8:00-8:45am	Hypothalamic & pituitary hormones	Dr. Zainab
26-07-25	Saturday	8:00-8:45am	Drugs that Affect Bone Mineral Homeostasis	Dr. Hina
26-07-25	Saturday	09:00 – 10:00am	Pharmacology Assessment	
28-07-25	Monday	9:30-10:15am	Test Discussion	Dr. Maryam
29-07-25	Tuesday	8:00-8:45am	Gonadal Hormone inhibitors	Dr. Asif
30-07-25	Wednesday	8:45-9:30am	Gonadal Hormone inhibitors	Dr. Asif
31-07-25	Thursday	8:00-8:45am	Pancreatic hormones, Antidiabetic Agents & glucose	Dr. Hassan
01-08-25	Friday	9:30-10:15am	Pancreatic hormones, Antidiabetic Agents & glucose	Dr. Hassan
02-08-25	Saturday	8:00-8:45am	Thyroid, anti-thyroid drugs	Dr. Tahira
04-08-25	Monday	8:00-8:45am	Introduction to CNS	Prof. Dr. Moneeb
05-08-25	Tuesday	8:45-9:30am	Sedative hypnotics	Dr. Amna
06-08-25	Wednesday	8:45-9:30am	Sedative hypnotics	Dr. Amna
07-08-25	Thursday		Self-Study	
08-08-25	Friday	09:00 – 10:00am	Pharmacology Assessment	

DEPARTMENT OF PHARMACOLOGY, KEMU
TIME TABLE OF 3rd YEAR MBBS (3RD INTERMODULE)
15-08-2025 to 20-09-2025

Date	Day	Time	Topic	Doctor
15-08-25	Friday	9:30-10:15am	ANNUAL URS MUBARAK OF HAZRAT DATA GUNJ BUKHSH (RA)	
16-08-25	Saturday	9:30-10:15am	Test Discussion	Dr. Tahira
16-08-25	Saturday	10:15-11:00am	Sedative-Hypnotic drugs	Dr. Amna
18-08-25	Monday	8:45-9:30am	Antiseizure Drugs	Dr. Maryam
19-08-25	Tuesday	8:00-8:45am	Skeletal muscle relaxant drugs	Prof. Dr Moneeb
20-8-25	Wednesday	8:00-8:45am	General Anesthetics	Prof. Dr Moneeb
20-8-25	Wednesday	8:45-9:30am	General Anesthetics	Prof. Dr. Moneeb
21-08-25	Thursday	8:00-8:45am	Local Anesthetics	Dr. Hassan
21-08-25	Thursday	9:30-10:15am	CNS Stimulation	Dr. Tahira
22-08-25	Friday	8:00-8:45am	Local Anesthetics	Dr. Hassan
23-08-25	Saturday	9:30-10:15am	Pharmacological management of Parkinsonism	Dr Hassan
23-08-25	Saturday	10:15-11:00am	Antidepressant drugs	Dr. Tahira
25-08-25	Monday	9:30-10:15am	Antipsychotic drugs	Dr. Tahira
26-08-25	Tuesday	8:00-8:45am	Antipsychotic agents & lithium	Dr. Tahira
26-08-25	Tuesday	8:45-9:30am	Alcohol	Dr. Maryam
27-08-25	Wednesday	8:00-8:45am	Drug of abuse	Dr. Zainab
27-08-25	Wednesday	9:30-10:15am	Opioid agonist & Antagonist	Prof. Dr. Moneeb
28-08-25	Thursday	9:30-10:15am	Opioid Agonist & Antagonist	Prof. Dr. Moneeb
29-08-25	Friday	8:00-8:45am	Immunopharmacology	Dr. Zainab
29-08-25	Friday	9:30-10:15am	Immunopharmacology	Dr. Zainab
30-08-25	Saturday	8:00-8:45am	Management of a poisoned patient	Dr. Rutaba
30-08-25	Saturday	9:30-10:15am	Anti-Cancer Drugs	Dr. Hassan
30-08-25	Saturday	10:15-11:00am	Anti-Cancer Drugs	Dr. Hassan
01-09-25	Monday	8:45-9:30am	Anti-Cancer Drugs	Dr. Hassan

02-09-25	Tuesday	8:00-8:45am	Special Aspects of Perinatal & Pediatric Pharmacology	Dr. Sadaf
05-09-25	Friday	Pharmacology Assessment		
11-09-25	Thursday	9:30-10:15am	Test Discussion	Dr. Hassan
12-09-25	Friday	8:00-8:45am	Dermatologic Pharmacology	Dr. Hina
15-09-25	Monday	9:30-10:15am	Dermatologic Pharmacology	Dr. Hina
18-09-25	Thursday	8:00-8:45am	Special Aspects of Geriatric Pharmacology	Dr. Ambreen
20-09-25	Saturday	9:30-10:15am	Uterine stimulant and relaxant	Dr. Hina

DEPARTMENT OF PHARMACOLOGY, KEMU
TIME TABLE OF 3rd YEAR MBBS (Generalized Module and 1st Inter module)
05-01-2026 to 02-02-2026

Date	Day	Time	Topic	Doctor
05-01-26	Monday	8:00-8:45am	Introduction and branches of Pharmacology	Prof. Dr. Moneeb
06-01-26	Tuesday	8:00-8:45am	Active principles and sources of drugs	Dr. Zainab
07-01-26	Wednesday	9:30-10:15am	Route of drug administration	Dr. Zainab
08-01-26	Thursday	8:45-9:30am	Transport of drugs / Absorption, factors affecting absorption	Prof. Dr. Moneeb
10-01-26	Saturday	10:15-11:00am	Transport of drugs / Absorption, factors affecting absorption	Prof. Dr. Moneeb
12-01-26	Monday	8:45-9:30am	Drug distribution, volume of distribution	Dr. Maryam
13-01-26	Tuesday	8:00-8:45am	Pharmacodynamics	Prof. Dr. Moneeb
14-01-26	Wednesday	8:45-9:30am	Receptors & Transmembrane signaling mechanism	Prof. Dr. Moneeb
15-01-26	Thursday	8:00-8:45am	Dose response Curves / Tolerance & Tachyphylaxis	Prof. Dr. Moneeb
17-01-26	Saturday	8:00-8:45am	Dose response Curves / Tolerance & Tachyphylaxis	Prof. Dr. Moneeb
19-01-26	Monday	8:45-9:30am	Biotransformation	Dr. Maryam
19-01-26	Monday	9:30-10:15am	Biotransformation	Dr. Maryam
20-01-26	Tuesday	8:45-9:30am	Excretion of drugs, half-life ,First order, zero order kinetic and steady state of drugs	Dr. Hina
24-01-26	Saturday	8:00-8:45am	Pharmacogenomics	Dr. Tahira

24-01-26	Saturday	11:45-12:30am	Conference	
26-01-26	Monday	8:45-9:30am	Drug interactions therapeutic drug monitoring	Dr. Tahira
27-01-26	Tuesday	8:45-9:30am	Adverse drug reactions	Dr. Arooj
28-01-26	Wednesday	9:30-10:15am	Factors affecting dosage of drugs	Dr. Tahira
30-01-26	Thursday	8:45-9:30am	New drug development	Dr. Hina
31-01-26	Saturday	8:00-8:45am	Prostaglandins	Dr. Tahira
31-01-26	Saturday	10:15-11:00am	Histamine, Antihistamine	Dr. Tahira
02-02-26	Monday	8:45-9:30am	Serotonin Agonists & Antagonists	Dr. Zainab

DEPARTMENT OF PHARMACOLOGY, KEMU
TIME TABLE OF 3rd YEAR MBBS (Special Microbiology module)

Date	Day	Time	Topic	Doctor
03-02-26	Tuesday	8:45-9:30am	Class Test General Pharmacology	All Faculty
03-02-26	Tuesday	9:30-10:15am		
09-02-26	Monday	8:45-9:30am	Test Discussion	Dr. Hina
11-02-26	Wednesday	9:30-10:15am	Corticosteriod	Dr. Maryam
13-02-26	Friday	8:00-8:45am	Corticosteriod	Dr. Maryam
14-02-26	Saturday	8:45-9:30am	NSAIDs	Prof. Dr. Moneeb
16-02-26	Monday	8:45-9:30am	NSAIDs	Prof. Dr. Moneeb
17-02-26	Tuesday	9:30-10:15am	Treatment of Rheumatoid arthritis	Dr. Hina
18-02-26	Wednesday	9:30-10:15am	Treatment of Gout	Dr. Maryam
20-02-26	Friday	9:30-10:15am	Introduction of ANS	Prof. Dr. Moneeb
21-02-26	Saturday	8:00-8:45am	Parasympathomimtic drugs	Prof. Dr. Moneeb
23-02-26	Monday	8:45-9:30am	Parasympathomimtic drugs	Prof. Dr. Moneeb
24-02-26	Tuesday	8:45-9:30am	Parasympatholytic drugs	Dr. Hina
25-02-26	Wednesday	8:45-9:30am	Parasympatholytic drugs	Dr. Hina

27-02-26	Friday	8:00-8:45am	Sympathomimetic drugs	Dr. Tahira
28-02-26	Saturday	10:15-11:00 am	Sympathomimetic drugs	Dr. Tahira
02-03-26	Monday	8:00-8:45am	Alpha blockers	Dr. Tahira
02-03-26	Monday	8:45-9:30am	Beta Blockers	Dr. Maryam
04-03-26	Wednesday	8:45-9:30am	Beta Blockers	Dr. Maryam
05-03-26	Thursday	9:30-10:15am	Treatment of Glaucoma	Dr. Arooj
07-03-26	Saturday	8:00-8:45am	Treatment of shock	Prof. Dr. Moneeb

DEPARTMENT OF PHARMACOLOGY, KEMU
TIME TABLE OF 3rd YEAR MBBS (Special Microbiology module)

Date	Day	Time	Topic	Doctor
16-03-26	Monday	9:30-10:15am	Class Test	All Faculty
17-03-26	Tuesday	9:30-10:15am	Test Discussion	Dr.Tahira
03-04-26	Friday	8:00-8:45am	Introduction to Chemotherapy	Prof. Dr. Moneeb
04-04-26	Saturday	11:45-12:30pm	Cell wall synthesis inhibitors	Dr. Maryam
08-04-26	Wednesday	8:00-8:45am	Cell wall synthesis inhibitors	Dr. Maryam
11-04-26	Saturday	9:30-10:15am	Tetracycline, Chloramphenicol, Streptogramins, oxazolidinon	Dr. Tahira
11-04-26	Saturday	11:00-11:45 am	Macrolides	Dr. Maryam
15-04-26	Wednesday	8:45-9:30am	Pharmacology Art Extravaganza	
16-04-26	Thursday	8:00-8:45am	Macrolides	Dr. Maryam
17-04-26	Friday	9:30-10:15am	Aminoglycosides	Prof. Dr. Moneeb
18-04-26	Saturday	8:00-8:45am	Sulfonamide and trimethoprim	Dr. Tahira
21-04-26	Tuesday		Self Study	
22-04-26	Wednesday	9:00 – 10:00am	Fluoroquinolones	Dr. Tahira

DEPARTMENT OF PHARMACOLOGY, KEMU
TIME TABLE OF 3rd YEAR MBBS (Inflammation & 2nd Inter module)

28-04-2026 to 01-06-2026

Date	Day	Time	Topic	Doctor
28-04-26	Tuesday	9:30-10:15am	Anti-Protozoal drugs	Dr. Arooj
29-04-26	Wednesday	8:00-8:45am	Anti-Protozoal drugs	Dr. Arooj
29-04-26	Wednesday	8:45-9:30am	Anti-fungal drugs	Dr. Maryam
30-04-26	Thursday	8:45-9:30am	Anti-fungal drugs	Dr. Maryam
02-05-26	Saturday	9:30-10:15am	Anti-Viral drugs	Dr. Tahira
04-05-26	Monday	9:30-10:15am	Anti-Viral drugs	Dr. Tahira
05-05-26	Tuesday	8:45-9:30am	Anti-Mycobacterial Drugs	Dr. Zainab
06-05-26	Wednesday	8:45-9:30am	Anti-Mycobacterial Drugs	Dr. Zainab
07-05-26	Thursday	8:45-9:30am	Disinfectants, Anti-Septics + Sterinats	Dr. Rutaba
08-05-26	Friday	9:30-10:15am	Anti-helminthic Drugs	Dr. Amna
09-05-26	Saturday	9:30-10:15am	Anti-diarrheal drugs	Dr. Tahira
13-05-26	Wednesday	8:45-9:30am	Prokinetic drugs used for IBS +IBD	Dr. Zainab
14-05-26	Thursday	8:45-9:30am	Prokinetic drugs used for IBS +IBD	Dr. Zainab
15-05-26	Friday	8:45-9:30am	Drugs used in Acid Peptic Disease	Prof. Dr. Moneeb
16-05-26	Saturday	10:15-11:00am	Drugs used in Acid Peptic Disease	Prof. Dr. Moneeb
18-05-26	Monday	8:45-10:15am	Class Test	
19-05-26	Tuesday	9:30-10:15am	Test Discussion	

20-05-26	Wednesday	8:45-9:30am	Emetics + Anti- Emetics	Dr. Tahira
21-05-26	Thursday	8:45-9:30am	Laxatives	Dr. Maryam
23-05-26	Saturday	10:15-11:00am	Expectorant, Mucolytics and anti tussive drugs / Carminatives sialagogues Anti sialagogues	Dr. Zainab
01-06-26	Monday		Pharmacology Assessment	

DEPARTMENT OF PHARMACOLOGY, KEMU
TIME TABLE OF 3rd YEAR MBBS (Special Microbiology module)
13-05-2025 to 26-05-2025

Date	Day	Time	Topic	Doctor
			Anti-diarrheal drugs	Dr. Tahira
			Drugs used for asthma and COPD	Dr. Maryam
			Drugs used for asthma and COPD	Dr. Maryam
			Expectorant, Mucolytics and anti tussive drugs / Carminatives sialagogues Anti sialagogues	Dr. Zainab
			Anti-hypertensive drugs	Dr. Maryam
			Anti-hypertensive drugs	Dr. Maryam
			Anti anginal drugs	Prof. Dr. Moneeb
			Pharmacology Assessment	

DEPARTMENT OF PHARMACOLOGY, KEMU
TIME TABLE OF 3rd YEAR MBBS (Special Microbiology module)
29-05-2025 to 04-06-2025

Date	Day	Time	Topic	Doctor
			(Test Discussion) Diuretics	Dr. Hina
			Diuretics	Dr. Hina

			Anti- arrhythmic drugs	Prof. Dr. Moneeb
			Anti- arrhythmic drugs	Prof. Dr. Moneeb
			Cardiac Failure	Dr. Tahira
			Cardiac Failure	Dr. Tahira

TEACHING METHODOLOGIES

- Lectures(Interactive, student-centered, outcome based)
- Practicals
- Tutorials/Problem based learning sessions
- Individual presentations
- Regular Class test/assessment at the end of each Topic
- Send-Up Examination
- Viva Voce

SYLLABUS OUTLINE WITH LEARNING OUTCOMES

According to PM&DC & King Edward Medical University guide lines, following topics and their relevant lab work and PBLs will be taught in Third Year MBBS:

1. Introduction To Basic Principles Of Pharmacology
2. Drugs Used In Neuro Transmitters Disorders (ANS)
3. Drugs Used In Neuro Transmitters Disorders (CNS)
4. Drugs Used In Cardio-Vascular & Haemopoietic Disorders
5. Drugs Used In Airway Diseases
6. Drugs Used In Secretory & Motality Disorders Of Gastro-Intestinal Tract, Autacoids
7. Drugs Used In Endocrinal & Metabolic Disorders
8. Drugs Used In Infectious, Neoplastic Diseases

INTRODUCTION TO BASIC PRINCIPLES OF PHARMACOLOGY

Learning Objectives:

By the end of this module the students should be able to:

- Common routes of administration & excretion of drugs
- Compare efficacy & potency
- Types of antagonism
- Mechanism of hepatic enzyme induction
- Major phase I & phase II metabolic reactions

Course Contents:

- Sources & Active Principles of Drugs
- Routes of Administration
- Transport across cell-membranes
- Absorptions & factors effecting drug absorptions
- Bio-availability
- Distribution of Drugs
- Volume of distribution
- Metabolism (Zero order & Ist order kinetics)
- Elimination / excretion of drugs
- Plasma half life
- Pharmacodynamics
- Mode of drug actions
- Signalling–m echanism (Receptors, Channels & 2^{nd} messenger)
- Dose response curves (Graded & Qunatal curves)
- Agonist, Partial agonist, Inverse agonist & Antagonist
- Types of drugs antagonism
- Pharmacogenics
- Drug Interactions
- Adverse Drug Reactions (Allergy & Toxicity)
- Factors modifying actions and doses of drugs
- Tolerance
- Tachyphylaxis
- Dermatological Pharmacology
- Bio-assay/ Bio-equivalence
- Geriatric Pharmacology
- Peadiatric Pharmacology
- Herbal Pharmacology

DRUGS USED IN NEURO TRANSMITTERS DISORDERS (ANS)

Learning Objectives:

By the end of this module the students

should be able to describe

- Steps in synthesis, storage, release and termination of action
    - of major autonomic neuro-transmitters
- Major types of autonomic receptors
- Organ system effects of stimulation of para-sympathetic and
    - sympathetic system.
- Effects of acetylcholine on major organs
- Clinical uses of cholinomimetic agonists
- Effects of atropine on major organs
- Sign, symptoms & treatment of atropine poisoning
- Major Clinical application of adrenoceptor agonists
- Clinical indications & toxicities of alpha & beta blockers

Course Contents:

- Physiological anatomy of ANS
- Neurotransmitters and their effects on organs
- Autonomic reflexes
- Ocular physiology
- Nerve conduction
- Neuromuscular transmission
- Excitation contraction coupling
- Acetylcholine
- Cholinoceptor agonists
- Anticholinesterases and alkaloids
- Anti-cholinesterase poisoning
- Signs, Symptoms & treatment
- Cholinoceptor antagonists
- Ophthalmic Pharmacology
- Agents acting at autonomic Ganglia
- Agents acting at myoneural junctions
- Adrenergic NS introduction
- Endogenous Catecholamines
- Non-catecholamines
- Indirect sympathomimetics
- Alpha-agonists
- Beta-agonists
- Alpha-blockers

- Beta-blockers
- Central sympathoplegics
- Adrenergic Neuron blockers
- Adrenergic NS introduction
- Endogenous Catecholamines
- Indirect sympathomimetics
- Alpha-agonists

DRUGS USED IN NEURO TRANSMITTERS DISORDERS (CNS)

Learning Objectives:

By the end of this module the students

should be able to describe

- Major excitatory & Inhibitory CNS Neurotransmitters in CNS
- Difference between voltage – gated and ligand- gated Ion channels
- Pharmacodynamic actions of major sedative – hypnotics in terms of their clinical uses and adverse effects.
- Drug of choice for
    - Partial seizures
    - Generalized tonic- clonic seizures
    - Myoclonic seizures
    - Absence seizures
    - Status epilepticus
- Distinctive toxicity of new anti-seizures drugs
- Blood – Gas partition co-efficient
- Minimum alveolar anaesthetic concentration
- Mechanism of action of local anaesthetics
- Toxic effects of local anaesthetics
- Difference between depolarizing and non-depolarizing blockers
- Therapeutic and toxic effects of major anti-parkinsonism agents

Course Contents:

- Organization of CNS
- Sensory Receptors
- Somatic & visceral sensation
- Motor functions of Spinal cord
- Spinal Reflexes
- Centers of Motor function
- Cerebellum
- Basal Ganglia

- Cerebral Cortex
- Upper and lower motor neuron lesions
- Behavioral functions
- Limbic system
- Thalamus
- Hypothalamus
- Sleep – Brain waves
- Cerebro spinal fluid
- Cerebral blood flow
- Neurotransmitters, Receptors & Ion channels.
- Alcohol
- Sedative hypnotics
- Antidepressants & mood stabilizers
- Antipsychotics
- Opioid analgesics
- Drug abuse & dependence
- Parkinsonism
- Treatment of Parkinsonism
- NSAIDS
- DMARDS
- Treatment of Rheumatoid Arthritis
- Treatment of Gout
- Epilepsy & Anti-epileptic medication
- General Anaesthesia
- Stages of Anaesthesia
- Kinetics of Inhalational Anaesthesia
- Pre-anaesthetic medication
- Balanced anaesthesia
- Inhalational Anaesthetic Agents
- Intra-venous Anaesthetic Agents
- Local Anaesthetics
- Types of Local Anaesthesia
- Long & Short Acting Anesthetics
- Skeletal Muscle relaxants (Central & Peripheral)

DRUGS USED IN CARDIO-VASCULAR & HAEMOPOIETIC DISORDERS

Learning Objectives:

By the end of this module the students should be able to describe

- Major groups of anti-hypertensive drugs
- Strategies for relief of anginal pain
- Therapetuic and adverse effects of Nitrates, Beta-blockers & calcium channel blockers
- Strategies in treatment of heart failure
- Mechanism of digitalis toxic effects on heart

- Major classes of anti-arrhythmic drugs

Course Contents

- Heart muscle
- Rhythmic excitation of heart
- ECG & its interpretation
- Haemodynamics
- Cardiac out put & its regulation
- Venous return & its regulation
- Coronary & pulmonary circulation
- BP Regulation
- Cardiac failure
- Circulatory shock
- Haemostasis
- Haematopoiesis
- Drugs used in treatment of hypertension
- Anti-anginals
- Anti-arhythmics
- Drug treatment of acute & chronic heart Failure.
- Anticoagulants (Oral and parenteral)
- Antiplatelet Drugs
- Fibrinolytics
- Haemostatics
- Anti Hyperlipidaemics

DRUGS USED IN AIRWAY DISEASES

Learning Objectives:

By the end of this module the students should be able to describe

- Major classes of drugs used in Asthma
- Strategies of drug treatment of Asthma
- Mechanism of action of drugs used in Asthma
- Role of Mucolytics

Course Contents:

- Pulmonary ventilation
- Gaseous exchange & transport
- Regulation of respiration
- Respiratory insufficiency

- Pulmonary Edema / Pleural Fluid
- Respiratory Adjustment in Health & Disease
- Drugs used in Asthma & COPD
- Bronchodilators
- Corticosteroids
- Mast Cell stabilizers
- Leukotriene Antagonists
- Anti-tussive
- Expectorants
- Mucolytis

DRUGS USED IN SECRETORY & MOTALITY DISORDERS OF GASTRO-INTESTINAL TRACT, AUTACOIDS

Learning Objectives :

By the end of this module the students

should be able to

- List the major organ system effects of histamine and serotonin
- Describe the Pharmacology of H1 anti-histamine drugs
- Describe the Pharmacology of H2 anti-histmine drugs
- Describe the Pharmacology of Serotonin agonists and antagonists and their major applications.
- List the major effects of prostaglandin and leukotrienes
- List the important site of synthesis and effects of thromboxone and prostacyclin in the vascular system.
- List the currently available therapeutic antagonists of leukotrienes and prostaglandins and their targets.
- Explain the different effects of aspirin on prostaglandin synthesis and on leukotriene synthesis
- Identify different groups of drugs used in peptic ulcer disease.
- List different drugs used in emesis and their mechanism of action
- Identify commonly used anti diarrheal drugs
- Identify commonly used in purgatives
- Describe the drugs used in management of inflammatory bowel disease

Course Contents:

- Basic & Clinical Pharmacology of Histamine and its antagonists
- Serotonin Agonists and Antagonist
- Vasoactive Peptides (Renin Angiotensin system & Inhibition)
- Prostaglandins
- Motor functions of GIT
- Secretory functions of GIT

- Digestion
- Absorption
- Physiology of GIT disorders
- Emetics
- Antiemetics
- Drug for peptic ulcer
- Antacids
- Anti-secretory Agents
- Mucosal Protective Agents
- Anti diarroheals
- Purgatives
- Treatment of constipation
- Role of dietary fibre in bowel regulation
- Drugs used in hepatic disorders
- Drugs used in biliary disorders

DRUGS USED IN ENDOCRINAL & METABOLIC DISORDERS

Learning Objectives:

By the end of this module the students

should be able to

- Identify major anterior pituitary hormones and their effects
- Identify major posterior pituitary hormones and their effects
- Identify the drugs used for treatment of acromegaly & hyperprolactinemia
- List and describe the principal drugs used in treatment of Hypothyroidism and hyperthyroidism.
- List several natural and synthetic glucocorticoids and their actions
- List the indications and contraindications of glucocorticoids
- Name estrogen and progestins, describe their actions uses and Toxicity.
- List the benefit and hazards of hormonal contraceptives and HRT
- List the types of insulin preparation, their actions and adverse effects
- Describe major classes oral anti diabetic drugs
- List the agents used in treatment of hypercalcemia and osteoprosis

Course Contents:

Introduction to

- Pitutary & hypothalamic hormones
- Thyroid hormones
- Adenocoticoids

- Insulin, glucagone & DM
- Parathyroid hormones and calcium metabolism
- Reproductive hormones
- Pregnancy, parturition, Lactation
- Pitutary Hormones
- Thyroid & Anti thyroid drugs
- Corticosteroids
- Anti-diabetic drugs
- Gonadal Hormones & Inhibitors
- Agents effecing bone & mineral Metabolism

DRUGS USED IN INFECTIOUS, NEOPLASTIC DISEASES

Learning Objectives:

By the end of this module the students

should be able to

- Describe Mechanism of anti-bacterial action of beta lactam antibiotics.
- Identify drugs in each subclass of penicillins
- List the major adverse effects of penicillins and cephalosporin.
- Describe Mechanism of action and clinical uses of aminoglysides, tetracyclines and chloramphenicol.
- List toxic effect of aminoglycosides, tetracyclines and chloramphenicol.
- Describe mechanism of action of folate antagonists and their adverse effects.
- Describe development of resistance against different antibiotics
- Describe mechanism of action, clinical uses and toxicity of Quinolones.
- Describe mechanism of action and uses of azoles and polyene Antifungal drugs.
- Identify the main topical anti fungal agents.
- Describe mechanism of action of anti-herpes drugs.
- Describe mechanism of action of anti-HIV drugs.
- Identify the drugs used against HBV and HCV.
- Identify major urinary anticeptics and their adverse effects.
- List various anti-mycobacterial drugs and their adverse effects
- Describe different regments for tuberculosis.
- List different anti-amoebic drugs and their adverse effects.
- List various anti-malarial drugs.
- Explain life cycle of common parasites and drugs effective Against nematodes.
- List drugs effective against trematodes, cestodes.
- Describe the cell cycle kinetics to the modes of actions and Clinical uses of anti-cancer drugs.

- Identify the major classes of Anti-cancer drugs, their mechanism of action and toxic effects.
- Understand the rationale underlying the strategies of combination drug chemotherapy
- List immunosuppressants their mechanism of action and use.
- List immunodepressants their mechanism of action and use.
- Identify the clinically useful chelators and know their indications and adverse effects.

Course Contents:

  - Gram-positive Cocci & Bacilli
  - Gram-negative Cocci & Bacilli
  - Anaerobes
  - Principles of Chemotherapy
- Empiric and rational therapy
- Sensitivity testing
- Bactericidal and Bacteriostatic action
- Spectrum of activity
- Choice of Anti-microbial Agent
- Problems with the use of Anti-biotics
- Prophylactic use of Anti-biotics
- Combination therapy
  - Cell wall inhibitors
- Pencillins, Cephalosporins & others
  - Folate antagonists
- Sulphonamides, Trimethoprim , Co-trimoxazole
  - Protein synthesis inhibitors
- Tetracyclines, Aminoglycosides, Chloramphenicol,
- Macrolides & miscellaneous
- Quinolones
  - Types of virus
  - Pathology of common viral diseases
  - Anti-viral drugs
- Anti-herpes Agents
- Anti- Influenza Agents
- Anti-HIV Agents
- Anti-Hepatitis Drugs

  - Types of Fungi
  - Common Fungal diseases
  - Anti-Fungal Drugs
- For systemic Infections
- For Superficial Infections
  - Urinary Anti-septics
  - Anti-septics & Disinfectant
  - Locally acting drugs
  - Mycobacteria

- Staining & culture
- Diseases caused by mycobacteria
    - Anti-mycobacterial Drugs
- Treatment of Pulmonary Tuberculosis
- Treatment of Leprosy
- Treatment of Atypical mycobacteria
- Introduction to protozoa
    - Life cycle of Entamoeba histolytica
    - Anti-amoebic drugs
    - Life cycle of malarial parasites
    - Anti-malarial drugs
    - Introduction to parasitology
        - Life cycle of common parasites
        - Drugs acting against Nematodes
        - Drugs acting against Trematodes
        - Drugs acting against cestodes

- Cancer Chemotherapy
    - Cancer Cell kinetics
    - Alkylating Agents
    - Anti-metabolites
    - Anti-biotics
    - Antibodies
    - Plant Alkaloids
    - Hormonal Anticancer Agents
    - Miscellaneous

- Immuno-modulators
    - Immuno-suppressants
    - Immuno-stimulants

LECTURE & TUTORIAL

Sr. No	Topics	No. of lectures	No. of Practicals/ Tutorials
1	Generalized Module	20	18
2	Inflammation Module	10	12
3	Special Microbiology Module	44	60
4	3rd Internal Module	22	28
5	Immunity & Neoplasia	14	20
6	4th Intermodule	20	32

SKILLS- PRACTICAL

In every module skills required are mentioned which are taught in the lab as practicals and it is ensured to engage students for hands-on learning.

Experimental Pharmacology

- To study the effect of increasing doses of Acetylcholine on isolated piece of rabbit ileum
- To study the antagonism between Acetylcholine and Atropine on isolated piece of rabbit ileum
- To study the effect of various drugs (Adrenaline, Propranolol, Acetylcholine & Atropine) on frog heart.
- To study the effects of CNS stimulant drugs on frog
- To study the effect of unknown and known drugs on Rabbit eye
- Prescription writing
- Bio-statistics
- Pharmacological calculations

Pharmacy Practicals

- Introduction to pharmacy
- Weights, Measure and abbreviations
- Dosage forms
- APC powder
- Atropine powder
- Labelling and wrapping
- Solutions
- Mixtures
- Ointments
- Suspensions

TIME LINE FOR COURSE COVERAGE & ACADEMIC CALENDAR

Course Duration: 9 months (36 weeks)

- **Total lectures**: lectures (6 lectures per week)
  - Basic Pharmacology Lectures.
  - Clinically oriented lectures

- **Practicals:** One/week for each batch for two hours
- **Tutorials/Problem based Learning Sessions:** One/week for each batch for two hours

Unit No.	Unit Name	Exact Duration	Core Topics	Assessment / Event
1	General Pharmacology (PK Basics)	**02 Jan – 13 Jan 2025**	Introduction, routes, absorption, distribution, metabolism, excretion, kinetics	—
2	Pharmacodynamics	**15 Jan – 18 Jan 2025**	Receptors, signaling, dose-response, tolerance	—
3	Advanced General Pharmacology	**21 Jan – 24 Jan 2025**	ADRs, pharmacogenomics, drug interactions, drug development	—
4	Autacoids	**25 Jan – 31 Jan 2025**	Histamine, serotonin, prostaglandins, ergot alkaloids	—
—	**General Pharmacology Assessment**	**03 Feb 2025**	—	**Class Test**
5	Inflammation & Pain	**01 Feb – 06 Feb 2025**	NSAIDs, corticosteroids, gout, rheumatoid arthritis	Included in next test
6	ANS Pharmacology	**08 Feb – 21 Feb 2025**	Parasympathetic & sympathetic drugs, alpha & beta blockers	—
—	**ANS + Inflammation Assessment**	**05 Mar 2025**	—	**Assessment**
7	Chemotherapy / Antimicrobials	**06 Mar – 11 Apr 2025**	Antibiotics, antifungals, antivirals, antimycobacterials, antiprotozoals	—
—	**Chemotherapy Assessment**	**12 Apr 2025**	—	**Assessment**
—	Extracurricular	**23 Apr 2025**	—	**Extravaganza**
8	Gastrointestinal Pharmacology	**26 Apr – 08 May 2025**	Acid peptic disease, prokinetics, antiemetics	—
9	Respiratory Pharmacology	**13 May – 17 May 2025**	Asthma, COPD, expectorants	—
10	Cardiovascular Pharmacology	**19 May – 04 Jun 2025**	HTN, angina, arrhythmias, heart failure, diuretics	**Assessment: 26 May 2025**
11	Hematology (Haemodynamics)	**10 Jul – 22 Jul 2025**	Coagulants, anticoagulants, antiplatelets, thrombolytics, shock	**Assessment: 22 Jul 2025**
12	Endocrine Pharmacology	**25 Jul – 02 Aug 2025**	Thyroid, antidiabetics, pituitary, gonadal hormones	—

Unit No.	Unit Name	Exact Duration	Core Topics	Assessment / Event
13	CNS Pharmacology	**04 Aug – 01 Sep 2025**	Sedatives, antiepileptics, anesthetics, antipsychotics, opioids	—
14	Clinical & Special Pharmacology	**02 Sep – 20 Sep 2025**	Anticancer, immunopharmacology, toxicology, dermatology, geriatrics	**Assessment: 05 Sep 2025**

TEACHING/ CONTACT HOURS

Modules	Lectures	Practicals
MODULE I	30 hours	30 0 hours
MODULE II	44 hours	60 hours
MODULE III	42 hours	50 hours
MODULE IV	14 hours	30 hours
TOTAL	130 hours	170 hours

Self-Study: 50 hours

TOTAL HOURS 130 + 170= 300 hours

ASSESSMENT METHODS

FORMATIVE ASSESSMENT

Quizzes

Questioned

Problem based learning

SUMMATIVE ASSESSMENT

Sr.#	Assessment	Tools	Frequency
1.	Class Tests	26 MCQs 04 SEQs	Test at the end of each module
2.	Send up (written)	MCQs SEQs	After completion of the academic year

3RD PROFESSIONAL EXAMINATION

Sr.#	Assessment	Tools
1.	Pharmacology written assessment (135 marks)	30 MCQs(1.5 marks each) 10 SEQs (9 marks each)
2.	VIVA & OSPE (135 marks)	8 unobserved stations(32 marks) 3 observed stations (18 marks) VIVA (40 + 40 marks) Practical copy (5 marks)
3.	Internal Assessment (30 marks)	Written(15 marks) Practical (15 marks)

OBJECTIVE STRUCTURED PRACTICAL EXAMINATION

Station No.	Type	Topic	Task Focus	Time (min)	Marks
1	Non-observed	Pharmacy Practical	Calculations	4	4
2	Non-observed	Dosage Forms	Advantages & Disadvantages	4	4
3	Non-observed	Dose Conversion	Conversions & Calculations	4	4
4	Non-observed	Prescription Writing	Write a valid prescription	4	4
5	Non-observed	Apparatus	Identification & use	4	4
6	Non-observed	Biostatistics	Basic calculations / interpretation	4	4
7	Non-observed	P-Drug	Selection & justification	4	4
8	Non-observed	Rabbit's Eye Table	Data interpretation	4	4
9	Observed	Frog's Heart	Demonstration / procedure	4	6
10	Observed	Rabbit's Eye / Rabbit's Ileum	Demonstration / procedure	4	6

ASSESSMENT SCHEDULE

Assessment	Topics	Assessment Type	Marks Breakdown	Total Marks	Timing
Class Test 1	General Pharmacology	SEQs + MCQs	SEQs: 26, MCQs: 24	50	Week 6
Class Test 2	ANS and Inflammation	SEQs + MCQs	SEQs: 26, MCQs: 24	50	Week 10
Class Test 3	Chemotherapy and GIT	SEQs + MCQs	SEQs: 26, MCQs: 24	50	Week 18
Class Test 4	CVS, Respiratory, and Blood	SEQs + MCQs	SEQs: 26, MCQs: 24	50	Week 30
Class Test 5	Endocrinology	Viva-based	Not specified	Not specified	Week 33
Practical Tests	CNS, Anticancer, and Immunopharmacology	SEQs + MCQs	SEQs: 26, MCQs: 24	50	Week 36
Send-up Examination	Complete syllabus	MCQs + SEQs	Not specified	Not specified	Week 39
Professional Examination	Complete syllabus	Theory + Viva + Practical	Theory: MCQs, SEQs, InternalOral/Practical: Viva, Practical, Internal	Not specified	1 month after send-up

TABLE OF SPECIFICATIONS

Sr. No.	TOPICS	MCQs (30) 1.5 marks each	SEQs (10) 09 marks each
01	General Pharmacology	03	01
02	Autonomic Nervous System (ANS)	03	02
03	Central Nervous System (CNS)	04	01
04	Cardio Vascular System (CVS)	03	02
05	Respiratory system + GIT + Diuretics	05	01
06	Chemotherapy, Autacoid & Prostaglandins	09	02
07	Endocrinology & Blood	03	01
	Total	30	10

Total Marks for Theory Paper:
SEQ+MCQ

45+90=135 Marks

Note:

Minor variations can be possible in the final p aper.

INTERNAL EVALUATION

Total marks for internal evaluation:

At end of session, internal evaluation or assessment is calculated as follows:

- 50 % total attendance
- 50% test marks + Sendup marks

Marks of internal evaluation /assessment is added in Professional examination.

CODE OF CONDUCT

- Uniform

The students must wear the prescribed uniform of the institution, and white coats while attending class rooms, laboratories, dissection hall and the hospital.

- Attendance

1. Every student shall be required to attend at least 75 per cent of the lectures, seminars, tutorials, practical and clinical classes of each subject in each class failing which his/her name shall not be forwarded to the Controller of Examination, of the University for the purpose of appearing in the concerned examination.

2. The margin of twenty five per cent of absence in theoretical, lectures, practical classes and demonstrations and in hospital practice is intended to cover absence only on account of sickness or special emergency considered justifiable by the head of the institution. A written application should be sent to the head of the institution by the student or his/her parent or guardian, reporting his/her illness or cause of absence.

3. Every student is required to attend punctually at the hours notified for lectures, demonstrations, seminars, tutorial classes, practical and hospital wards. Students absenting themselves from college or hospital work shall be liable to a fine imposed by the head of the institution.

4. Students have to be present in time at any specified activity of the institution.

- Class Room

1. Students are expected to extend highest level of courtesy and respect towards their teachers.

2. No student is allowed to leave the lecture room without the permission of his teacher or until the class is dismissed.

3. Immediately after assembly of the class, the roll call will be taken. A student coming late into the class room will be marked absent unless his excuse is accepted by the teacher. Any student misbehaving in the class room shall at once be reported by the teacher to the Head of the Institution, who will take such action as he may deem fit.

4. Students are not permitted to remain in the lecture room except during the prescribed hours of lectures.

- Class Examination

1. Students are not allowed to take into the examination hall textbooks, notes or manuscript ofany kind.

2. Any student found infringing the examination rules or having recourse to unfair means may be expelled from the examination and the matter shall be reported to the head of the institute who may refer his case for action to the disciplinary committee.

3. Late comers arriving at the examination hall more than 15 minutes after the start of the paper will not be allowed to enter the examination hall.

- General Rules

1. Students are required to observe order and discipline at all times in the institution, attached hospitalsand hostels.

2. Smoking within the institution, attached hospitals and hostels premises is entirely prohibited.

3. No game of any sort is to be played during the classes and hospital duty hours.

4. Displaying and distribution of partisan/ethnic/sectarian/political pamphlets or circulars etc, in the institution, attached hospitals and hostels premises is not allowed.

5. All irregularities, neglect of duties and breach of discipline are to be brought to the notice of the headof the institution by the professors under whom the student is working.

6. Every student to whom books or other property of Government is entrusted shall be held responsible for their preservation in good condition and in the event of their being lost or damaged shall be required to replace them or repay their cost.

7. Any student breaking or damaging any property of the institution shall be required to pay the cost ofrepair or replacement.

8. In case of willful damage, he/she shall be punished under the disciplinary rules of the Institution.

9. If a student of the institution takes part in any political activity or conducts himself/herself in an unbecoming manner or in such manner as would interfere with the corporate life or educational work of the institution, the head of institution may take any action he deems proper or bring thematter before the College Academic Council for proper action.

10. No person shall be invited to address a meeting or society in the institution premises without prior permission of the head of the institution. In all cases, the chair shall be occupied by a responsible person approved for the purpose by the head of the institution. The subject of debate shall be fixed after obtaining the approval of the head of the institution in advance.

11. No student shall address a Press Conference, nor write to the press on the political or related subject or matters concerned directly with the administration of the institution, University or any Government or Educational Institution in Pakistan or abroad. No poster or banner shall be put up without the approval of the head of the institution.

12. No society may be set up by the students nor any meeting held in the institution premises without the written permission of the head of the institution.

13. **No riots, strikes, boycotts and demonstrations are allowed**

STUDENTS FEEDBACK

STUDENT FEED BACK PROFORMA FOR PHARMACOLOGY				
Strongly Agree	**Agree**	**Uncertain**	**Disagree**	**Strongly Disagree**
Q.1 Learning objectives were clear				
Q.2 Course workload was manageable & well organized				
Q.3 Attendance during the whole course covered				
Q.4 I participated actively in the course				
Q.5 I think material delivered was understandable				
Q.6 Class start in time & a good balance between Lectures, tutorials and practicals				
Q.7 Use of teaching Aids encourage participation				
Q. 8 Class room environment is satisfactory & conductive				
Q.9 Learning material (Lesson plan, course notes) was relevant and useful				
Q.10 Recommended reading books were appropriate and adequately available in library				

SUGGESTED BOOKS

RECOMMENDED BOOKS

Basic & Clinical Pharmacology
Bertram G. Katzung. 16th Edition. McGraw Hill Education.

Katzung & Trevor's Pharmacology Examination and Board Review
Anthony J. Trevor & Bertram G. Katzung. 14th Edition. McGraw Hill Education.

Lippincott Illustrated Reviews: Pharmacology
Karen Whalen 8th Edition. Wolters Kluwer.

REFERENCE BOOKS

Goodman & Gilman's: The Pharmacological Basis of Therapeutics
Laurence L. Brunton, Bjorn C. Knollmann & Randa Hilal-Dandan. 14th Edition. McGraw Hill Education.

Rang & Dale's Pharmacology
James M. Ritter, Rod J. Flower, Graeme Henderson & Ricky Upton. 10th Edition. Elsevier.

Pharmacology for Medical Graduates
Tara Shanbhag & Smita Shenoy . 5th Edition. Elsevier.

Review of Pharmacology
G. R. Garg & Sparsh Gupta. 14th Edition. Jaypee Brothers Medical Publishers.

Essentials of Medical Pharmacology
K. D. Tripathi. 9th Edition. Jaypee Brothers Medical Publishers.

ONLINE RESOURCE:

Online Journals and Reading Materials through HEC Digital Library Facility

ACS Journals (American Chemical Society)

PubMed (National Library of Medicine)

Elsevier's Pharmacology Journals

COURSE INSTRUCTORS

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