



**Study Guide**  
**3<sup>rd</sup> Year MBBS**

**Sharif Medical & Dental  
College, Lahore 2023**



## **Vision & Mission of UHS**

Qualitative and Quantitative Revolution in Medical Education and Research through Evolution and thereby improve Health Care delivery to Populace.

UHS shall be innovative global center of excellence in learning and research, supporting a community of scholars and professionals committed to serving society, promoting the development of students to reach their true potential in becoming competent, ethical, caring and inquiring health professionals for the benefit of the country and the wider world.

## **Vision of SMDC**

To be recognized for the provision of a safe and functional environment conducive to collaborative teaching & learning, comfortable working atmosphere and conducting world class research through professionalism and excellence.



# **Department of Pharmacology & Therapeutics**



## **PREFACE**

Study guides can make a major contribution to learning. They are sometimes likened to a tutor sitting on the student's shoulder-available 24 hours a day to advise the student what he/she should be doing at any stage in their study. Study guides are different from textbooks. They apprise the student at the beginning of an academic session about the course outline, the teaching methodology to be followed throughout the year, learning objectives of each academic activity and the assessment methodology to be followed in an academic session.

At SMDC we follow the traditional annual academic schedule in which the subject of Pharmacology and Therapeutics is taught in the third academic year of a medical student. Keeping in view the mission of UHS, Lahore and vision of our institute we have designed a training program which is intensive and at the same time interesting for the young minds. This guide includes details about various teaching activities which are to take place throughout the academic year along with the time allocation of each. A list of lectures to be conducted in this session with names of the instructors is attached. Broad learning outcomes of every section of the course accompanied by specific learning objective of every lecture is also included. A complete list of practical work to be carried out in the laboratory is part of this document. Details of various assessment and testing methodology are included and marks distribution for the subject in the 3<sup>rd</sup> Professional examinations has been given. Names and email contacts of faculty have also been mentioned to foster better interaction between the teacher and the taught. A list of prescribed text and reference books forms part of this study guide. Since this document is the first of its kind we intend to improve upon it in light of the student-feedback every year. For now happy reading.

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## Time allocation for academic activities

Duration of 3<sup>rd</sup> Year MBBS Session: 36 Wks

Total Teaching Hours (as required by PMC): 300

Topics	Subjects	Durations
	Lectures (152)	114 hrs
	Practicals (02hrs each)	64 hrs
Tutorial Time	SGDs(Small groups discussion) (02hrs)	64 hrs
	Seminars (02hrs)	16 hrs
Lecture Time	PBL (Problem based learning)	09 hrs
	TSDL (Time for students directed learning)	09 hrs
Sendup & Annual Examinations		24 hrs
<b>Total:</b>		<b>300 hrs</b>



## **PLANNED TEACHING ACTIVITIES FOR 3<sup>rd</sup> YEAR MBBS DEPARTMENT OF PHARMACOLOGY**

PMC has allocated 300 hours of teaching in the subject of Pharmacology and Therapeutics for the MBBS course. In order to meet this requirement following teaching modules have been planned. These modules have been carefully designed to impart core knowledge of Pharmacology in a manner that an undergraduate student can grasp the subject fully and is adequately prepared for university examinations.

### **Lectures:**

A total of 140-150 lectures are planned for the entire year. The lectures will be conducted by the Professor, associate and assistant professors or by senior lecturers that have completed their post- graduation in the subject of pharmacology. The lectures will be interactive and students should actively participate in them to clear their doubts. The students are required to take notes of the lectures and study the topic with the help of prescribed text books in light of the learning objectives of the topic enunciated by the teacher at the beginning of each lecture.

### **Practical classes:**

One practical class has been planned per week. It will comprise of pharmacodynamics practicals on isolated tissues and intact animals, pharmaceutical calculations, dosage forms and their intended use, prescription writing and P-drug concepts, basic biostatistics and standardization of drugs. The class will be divided into 03 batches to conduct the practicals effectively and one batch will be entertained once a week for these sessions. Practical will be conducted by demonstrators under an active supervision of senior instructors. Students are required to enter their work in their practical note books and get them checked by the instructors regularly.

### **Tutorials:**

One tutorial class per week is proposed throughout the academic session. The class will be divided into 03 batches. Topics for the tutorial will be notified at least one week before the class. Two instructors, one senior and one junior, will be deputed for every batch on rotation basis. A pre-tutorial quiz or test will be held before tutorial discussion so that the students come prepared for the topic. During this interactive session the students must clear their concepts regarding the topic by actively engaging with their respective teachers.

**Case based learning:**

Case based learning classes will be conducted from time to time throughout the academic year. A clinical problem with a short history will be notified at least one week before the occurrence. The learning objectives and suggested reading material will also be notified along with it. The class will be divided into smaller groups for effective conduct of the proceedings. A senior instructor will be facilitating the discussion in interactive session and students are required to generate the discussion amongst themselves in line with the learning objectives of the topic.

**Seminars:**

Departmental seminars are to take place periodically once the students have covered a substantial quantum of course work. Preferably clinical topics will be allocated to students and they will present a very short case history with ongoing treatment of the patient along with other available drug treatment options. Each presentation will be of 10-15 minutes duration with a Q&A session after it. All seminars on clinical topics will be conducted in coordination with the clinical side and wherever possible relevant clinical consultant would be requested to participate in the session.





**TRAINING PROGRAM FOR LECTURES  
DEPARTMENT OF PHARMACOLOGY  
3<sup>RD</sup> YEAR MBBS CLASS**

**General**

- Pharmacology should be considered as a bridge between the basic and clinical medical subjects. The teaching of this subject should encompass both the basic and the applied aspects.
- Teaching of Pharmacology should be integrated with other subjects e.g. General Pathology, Microbiology and clinical disciplines where ever possible.
- Interactive modes of teaching e.g. tutorials, seminars, case –based learning modules etc. should be an essential part of teaching methodology.
- Keeping in view the expanding scope of the subject and an exponential increase in the number of available drugs, the subject may be divided into areas of high, intermediate and low priority so that more emphasis could be laid on the areas which are more pertinent to treatment of common illnesses.

**General pharmacology**

<i>Sr. No</i>	<i>Title of Lecture</i>	<i>Instructors</i>
01	Pharmacology: Introduction	Dr. Salman
02	Pharmacology: Branches / Divisions of Pharmacology, Role in Medicine.	Dr. Maira
03	Scientific sources of drug information, pharmacopeias, formularies, essential drug list. Sources of drugs/active principals	Dr. Sabeen
04	Absorption of drugs: processes	
05	Factors modifying drug absorption.	
06	Distribution and plasma protein binding of drugs	Dr. Maira
07	Biotransformation of drugs.	Dr. Fouzia
08	Factors modifying biotransformation	
09	Bioavailability: clinical significance and factors affecting	Dr. Salman Bakhtiar
10	Half life of drugs: factors affecting and clinical significance.	
11	Excretion of drugs. Drug clearance, Elimination and kinetics	
12	Mechanisms of drug action – I	
13	Mechanisms of drug action – II	
14	Factors modifying actions & doses of drugs – I	Dr. Salman Bakhtiar
15	Factors modifying actions & doses of drugs – II	
16	Factors modifying actions & doses of drugs – III	
17	Drug dependence – Drugs of abuse	Dr. Fouzia



### Drugs acting on ANS

<i>Sr. No</i>	<i>Title of Lecture</i>	<i>Instructors</i>
01	A N S : Introduction-I&II	Dr. Salman Bakhtiar
02	Catecholamines – I Adrenaline.	
03	Catecholamines – II Nor adrenaline, Dopamine & Dobutamine.	
04	Non Catecholamines: Ephedrine, Amphetamines $\alpha$ receptor agonists etc.	
05	Adrenergic Blockers. Alpha-receptor Blockers.	Dr. Fouzia
06	Adrenergic Blockers: Beta receptor Blockers – I.	Dr. Salman
07	Beta Receptor Blockers- II	
08	Central Sympathoplegics	Dr. Fouzia
09	Cholinergic drugs. Classification, Cholinesters, alkaloids etc.	Dr. Sabeen Arjuman
10	Anti Cholinesterases	
11	Organophosphate poisoning & Oximes	
12	Cholinergic blockers; Natural alkaloids. Comparison between Hyoscine & Atropine.	Dr. Salman
13	Semisynthetic Anticholinergics.	
14	Skeletal Muscle Relaxants-I	Dr. Maira
15	Skeletal Muscle Relaxants-II	

### Drugs acting on C N S

<i>Sr. No</i>	<i>Title of Lecture</i>	<i>Instructors</i>
01	Central Neurotransmission – I	Dr. Salman
02	Central Neurotransmission – II	
03	Gen Anaesthetics – I, Classification, Method of administration, Pharmacokinetics of inhalational Anaesthetics	Dr. Sabeen
04	Gen Anesthetics-II, Pre- anesthetic medication, Stages of Anesthesia, Mechanism of action	
05	General Anesthetics-III, Volatile liquids	
06	General Anesthetics-IV, Gases& Intravenous anesthetics	Dr. Sabeen
07	Local Anaesthetics-I	Dr. Salman
08	Local Anaesthetics-II	



09	Aliphatic Alcohols. Chronic alcoholism, Aversion therapy	Dr. Sabeen
10	Sedative & Hypnotics – I. Introduction & Classification	Dr. Fouzia
11	Sedative & Hypnotics- II. Barbiturates	
12	Sedative & Hypnotics- III. Benzodiazepines	Dr. Fouzia
13	Antiepileptic drugs-I .Classification, hydantoin derivatives	Dr. Salman Bakhtiar
14	Antiepileptic drugs- II. Carbamazepine, valproic acid	
15	Antiepileptic drugs- III. Barbiturates, Succinimides, Benzodiazepines and newer drugs	
16	Introduction to Psycho Pharmacology	
17	Antipsychotic drugs-I Classification, Mechanism of action	
18	Antipsychotic drugs-II	
19	Anti depressants-I. Introduction, Classification, Mechanism of Action	Dr. Maira Bhatti
20	Anti depressants-II	
21	Drugs used in Parkinsonism -I	
22	Drugs used in Parkinsonism -II	
23	Analgesics –I : Introduction, Classification	Dr. Fouzia
24	Analgesics – II: Morphine	
25	Analgesics –III: Semisynthetic/ synthetic opioids. & opioid antagonists	
26	NSAIDs: Classification, Mechanism of Action	Dr. Salman Bakhtiar
27	Aspirin & other Salicylates	
28	Propionic acid, Acetic acid der. Paracetamol	
29	Analgesics - IV: Gold & Other Ant rheumatoid drugs	
30	Anti gout drugs	

### Drugs acting on C V S

<i>Sr. No</i>	<i>Title of Lecture</i>	<i>Instructors</i>
01	Physiology of Heart	Dr. Maira Bhatti
02	Drug treatment for heart failure	
03	Cardiotonic drugs.Management of cardiotoxicity of cardiac glycosides	Dr. Maira Bhatti



04	Anti anginal drugs – I	Dr. Salman Bakhtiar
05	Anti anginal drugs - II	
06	Drug Treatment of IHD	
07	Antihypertensive drugs-I Sympatholytic drugs	Dr. Sabeen Arjumand
08	Antihypertensives drugs-II Diuretics. Ca <sup>++</sup> Channel blockers	
09	Antihypertensives-III, ACE inhibitors, AT receptor Antagonist Directly acting vasodilators	
10	Anti arrhythmic drugs – I	Dr. Salman Bakhtiar
11	Anti arrhythmic drugs – II	
12	Anti arrhythmic drugs – III	

### Drug affecting water & electrolytes balance

<i>Sr. No</i>	<i>Title of Lecture</i>	<i>Instructors</i>
01	Diuretics: Introduction, Classification. Carbonic Anhydrase Inhibitors.	Dr. Salman Bakhtiar
02	Diuretics: Thiazides	
03	Diuretics: Loop	
04	Diuretics: K <sup>+</sup> sparing	
05	Osmotic & Misc groups	

### Chemotherapy

<i>Sr. No</i>	<i>Title of Lecture</i>	<i>Instructors</i>
01	Introduction, General Principles of Chemotherapy	Dr. Salman
02	Mechanism of resistance	
03	Sulfonamides	Dr. Maira
04	Trimethoprim & Cotrimoxazole	
05	Antibiotics, Penicillins	Dr. Salman
06	Antibiotics, Penicillins – Semisynthetics	
07	Antibiotics, Cephalosporins	
08	Macrolides. Antibiotics: Broad spectrum	
09	Antibiotics: Broad spectrum, Tetracyclines	Dr. Maira
10	Chloramphenicol	



11	Antibiotics: Aminoglycosides	Dr. Salman
12	Quinolones	Dr. Maira
13	Misc Drugs: Clindamycin, Fusidic acids, vancomycin, Nitrofurantoin, Linezolid	Dr. Sabeen
14	Antituberculosis drugs – I	Dr. Fouzia Perveen
15	Antituberculosis drugs – II	
16	Antituberculosis drugs – III	
17	Anti fungal drugs-I	Dr. Maira
18	Anti fungal drugs-II	
19	Anti viral drugs –I	Dr. Fouzia Perveen
20	Anti viral drugs –II	
21	Anti viral drugs –III	
22	Anti Malarial – I	Dr. Sabeen
23	Anti Malarial – II	
24	Anti Malarial – III	
25	Anti Amoebics – I	Dr. Salman
26	Anti Amoebics – II	
27	Antihelminthics – I	Dr. Sabeen
28	Antihelminthics – II	
29	Antineoplastics – I. Alkylating agents	Dr. Salman
30	Antineoplastics – II. Antimetabolites	
31	Antineoplastics – III. Vinca Alkaloids, Antibiotics & Hormones	
32	Immunosuppressants	Dr. Maira

### Endocrinology

<i>Sr. No</i>	<i>Title of Lecture</i>	<i>Instructors</i>
01	Antidiabetic drugs: Introduction Classification	Dr. Salman
02	Antidiabetic drugs:, Insulins	
03	Antidiabetic drugs: Oral antidiabetic agents	
04	Thyroid hormones	Dr. Maira bhatti
05	Antithyroid drugs	
06	Adrenal Hormones – I	Dr. Salman
07	Adrenal Hormones – II	
08	Sex Hormones: Estrogens & Progestins, Anabolics	



09	Drug used in the treatment of infertility	Dr. Sabeen Arjuman
10	Hormonal contraceptives	
11	Oxytocic drugs and Uterine Relaxants	
12	Drug treatment of osteoporosis	Dr. Salman
13	Hypothalamic & Pituitary hormone - I	Dr. Fouzia
14	Hypothalamic & Pituitary hormone - II	

### Drugs acting on blood

<i>Sr. No</i>	<i>Title of Lecture</i>	<i>Instructors</i>
01	Haematinics-I	Dr. Maira Bhatti
02	Haematinics-II	
03	Anticoagulants. Introduction, Classification. Heparin	Dr. Fouzia Perveen
04	Oral Anticoagulants	
05	Thrombolytic	
06	Antiplatelet drugs	
07	Anti Hyperlipoproteinaemics-I	Dr. Salman
08	Anti Hyperlipoproteinaemics-II	Bakhtiar
09	Anti Hyperlipoproteinaemics-III	

### Drugs acting on G I T

<i>Sr. No</i>	<i>Title of Lecture</i>	<i>Instructors</i>
01	Anti emetics	Dr. Maira
02	Antidiarrhoeals	Dr. Sabeen
03	Purgatives/laxatives	Dr. Fouzia
04	Drugs used in Peptic Ulcer – I	Dr. Salman
05	Drugs used in Peptic Ulcer – II	
06	Drugs used in Peptic Ulcer – III	
07	IBD & IBS	Dr. Sabeen

### Drugs acting on respiratory system

<i>Sr. No</i>	<i>Title of Lecture</i>	<i>Instructors</i>
01	Expectorants & Antitussives	Dr. Fouzia



02	Antiasthmatics– I	Dr. Maira
03	Antiasthmatics– II	

### **Misc**

<b><i>Sr. No</i></b>	<b><i>Title of Lecture</i></b>	<b><i>Instructors</i></b>
01	Antihistamines-I	Dr. Salman
02	Antihistamines-II	
03	Autacoids and prostaglandins	Dr. Sabeen
04	Drug treatment of Migraine	Dr. Maira
05	Heavy Metal Poisoning & Antidotes (Chelating Agents)	Dr. Fouzia
06	Drug treatment of glaucoma	Dr. Salman
07	Drug - Drug Interactions	
09	Drugs of choice – Rational use of drugs	Dr. Salman



**LIST OF LECTURES IN THE SUBJECT OF PHARMACOLOGY AND  
THEIR LEARNING OBJECTIVES  
DEPARTMENT OF PHARMACOLOGY & THERAPEUTICS  
3<sup>RD</sup> YEAR MBBS CLASS**

**GENERAL PHARMACOLOGY**

This course deals with the general principles of Pharmacology & Therapeutics. This serves to make the base for study of systemic Pharmacology and rational use of drugs in clinical practice. For this purpose emphasis should be laid on the clinical Pharmacokinetic and Pharmacodynamic parameters and the phenomena that lead to drug-drug interactions. At the end of the course student must be able to define the basic terminology of pharmacology, describe the various mechanism of drug actions and other concepts of pharmacodynamics.

<b>S.NO</b>	<b>Title of lectures with learning objectives</b>
1.	<p><b>Pharmacology: Branches / Divisions of Pharmacology, Role in Medicine.</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Enumerate various branches of pharmacology.</li><li>2. Define branches of pharmacology.</li><li>3. Explain the branches of the subject with the help of at least one example.</li><li>4. Relate the role of various branches in medicine.</li></ol>
2.	<p><b>Scientific sources of drug information, pharmacopeias, formularies, essential drug list. Sources of drugs/active principles.</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Recall authentic sources of drug information.</li><li>2. Define pharmacopeia.</li><li>3. Explain the importance of pharmacopeias, formularies and essential drug list.</li><li>4. Enumerate various sources of drugs.</li><li>5. Describe DNA recombinant technique and its role as a source of drugs.</li><li>6. Define and explain the active principles of drugs with examples.</li></ol>
3.	<p><b>Absorption of drugs: processes</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Enlist different processes involved in passage of drugs through membranes.</li><li>2. Define various processes of absorption of drugs.</li><li>3. Explain the characteristics of absorptive processes with examples of each.</li></ol>





4.	<p><b>Factors modifying drug absorption.</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Enumerate factors modifying absorption of drugs.</li><li>2. Classify various factors into those related to body and those related to drugs.</li><li>3. Explain various factors by quoting at least one example for each factor.</li></ol>
5.	<p><b>Distribution and plasma protein binding of drugs.</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Define distribution of drugs.</li><li>2. Explain phases of drug distribution: Fast and Slow</li><li>3. Explain redistribution of drugs with an example</li><li>4. Enumerate factors effecting distribution of drugs.</li><li>5. Explain the importance of plasma protein binding.</li><li>6. Define volume of distribution</li><li>7. Explain volume of distribution as a measure of drug distribution with examples.</li></ol>
6.	<p><b>Biotransformation of drugs.</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Define biotransformation.</li><li>2. Enumerate the aims of biotransformation with examples.</li><li>3. Enlist phase-I biotransformation reactions with examples.</li><li>4. Name phase-II biotransformation reactions with examples.</li></ol>
7.	<p><b>Factors modifying biotransformation.</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Enumerate factors effecting biotransformation.</li><li>2. Explain factors effecting biotransformation with examples.</li><li>3. Define enzyme induction and enzyme inhibition.</li><li>4. Name at least three important enzyme inhibitors and inducers.</li><li>5. Explain the importance of enzyme induction and inhibition with examples.</li></ol>
8.	<p><b>Bioavailability of drugs: clinical significance and factors affecting.</b></p> <p>By the end of this lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Define bioavailability of drugs</li><li>2. Describe the method of its measurement.</li><li>3. Enumerate factors effecting bioavailability of drugs</li><li>4. Explain the clinical significance of bioavailability of drugs</li><li>5. Differentiate between bioequivalence, therapeutic equivalence &amp; chemical</li></ol>



	equivalence.
9.	<b>Half-life of drugs: factors affecting and clinical significance.</b> By the end of lecture the students will be able to <ol style="list-style-type: none"><li>1. Define plasma half-life of drugs.</li><li>2. Enumerate factors effecting half-life of drugs.</li><li>3. Explain the way these factors affect this entity.</li><li>4. Describe the clinical significance of plasma half-life.</li></ol>
10.	<b>Excretion of drugs. Drug clearance.</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Enumerate major and minor routes of excretion.</li><li>2. Explain the processes involved in excretion of drugs through this route with examples.</li><li>3. Define clearance of drugs.</li><li>4. Explain factors effecting clearance of drugs.</li><li>5. Describe the clinical significance of clearance of drugs.</li></ol>
11.	<b>Mechanisms of drug action – I.</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Enlist various mechanisms of drug action</li><li>2. Explain physical &amp; chemical mechanisms of drug action with examples</li><li>3. Describe drug enzyme and drug ion channel interactions with examples</li></ol>
12.	<b>Mechanism of drug action – II.</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. Enumerate different types of receptors involved in drug action.</li><li>2. Explain various receptor types in detail with examples.</li><li>3. Describe G-protein coupled receptors with 2<sup>nd</sup> messenger system citing examples.</li><li>4. Explain some of the other diverse mechanisms of drug action with examples.</li></ol>
13.	<b>Factors modifying actions and doses of drugs – I.</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. Classify various factors modifying actions and doses of drugs.</li><li>2. Enumerate and describe physiological factors effecting action &amp; dose of drugs with examples.</li><li>3. Explain some pathological factors modifying dose and actions of drugs with examples.</li></ol>



14.	<b>Factors modifying actions and doses of drugs – II.</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. Define Pharmacogenetics and genetic polymorphism with in relation to modification of dose and action of the drugs.</li><li>2. Explain how genetics modify actions and doses of drugs by quoting various examples.</li><li>3. Define drug synergism and its types.</li><li>4. Explain drug synergism, summation and potentiating through examples.</li></ol>
15.	<b>Factors modifying actions and doses of drugs – III.</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. Define drug antagonism.</li><li>2. Define and explain various types of drug antagonism by giving examples of each.</li><li>3. Relate clinical significance of drug antagonism</li><li>4. Interpret various graphical representations of the phenomenon.</li><li>5. Define and explain other miscellaneous terms &amp; factors which may affect the dose or action of the drug with examples.</li></ol>
16.	<b>Drug dependence.</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. Define drug dependence.</li><li>2. Differentiate drug dependence from addiction.</li><li>3. Define and explain tolerance and withdrawal syndrome through examples.</li><li>4. Explain briefly different theories and hypothesis regarding the mechanism of drug dependence.</li></ol>

### **Drugs acting on autonomic nervous system**

This course comprises of the study of autonomic drugs. The students are expected to acquire a thorough back ground of the receptors and neurotransmitters of autonomic nervous system, their role in different organs and systems of body and their interactions with various drugs. At the end of the course the student must be able to classify different drug groups acting on ANS, describe their mechanism of action and enumerate their clinical uses and major side-effects with important contra-indications.

<b>S.NO</b>	<b>Title of lectures with learning objectives</b>
1.	<b>A N S : Introduction</b>



	<p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Recall salient anatomical and physiological features of ANS.</li><li>2. Enlist types and sub types of various ANS receptors along with their locations in different structures and organ systems of the body.</li><li>3. Describe the synthesis, storage, release and degradation of the neuro-transmitters of the ANS.</li><li>4. Explain the negative and positive feedback controls of neurotransmitter release.</li></ol>
2.	<p><b>Catecholamines – I Adrenaline.</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Classify sympathomimetics on the basis of chemistry &amp; receptor selectivity.</li><li>2. Explain the mechanism of action of adrenaline, the prototype drug of the group.</li><li>3. Describe the important pharmacological actions of adrenaline on different organ systems of the body.</li></ol>
3.	<p><b>Catecholamines – II Nor adrenaline, Dopamine, isoproterenol &amp; Dobutamine.</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Enlist and explain the therapeutic uses of adrenaline.</li><li>2. Enumerate important adverse effects&amp; contraindications of the drug.</li><li>3. Explain the differences in response, therapeutic uses&amp; side-effects of other catecholamines with reference to adrenaline.</li></ol>
4.	<p><b>Non Catecholamines: Ephedrine, Amphetamines <math>\alpha</math> receptor agonists etc.</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Differentiate between catecholamines and non-catecholamines.</li><li>2. Explain the pharmacological actions of important non-catecholamines in light of their mode of action.</li><li>3. Enlist important therapeutic uses and side-effects of important non-catecholamines.</li><li>4. Classify sympathomimetics according to their clinical indications.</li></ol>
5.	<p><b>Adrenergic Blockers. Alpha-receptor Blockers.</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Classify alpha blockers according to receptor selectivity.</li><li>2. Explain the pharmacological actions of alpha blockers.</li><li>3. Enlist and important clinical uses and side-effects of this drug group.</li><li>4. Describe their role in benign prostatic hyperplasia &amp; pheochromocytoma.</li></ol>



6.	<b>Beta receptor Blockers – I.</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Classify beta blockers according to receptor selectivity, ISA, MSP, lipid solubility &amp; duration of action.</li><li>2. Describe the pharmacological actions of beta blockers on different systems of the body.</li><li>3. Explain important pharmacokinetic features of the group.</li></ol>
7.	<b>Beta receptor Blockers – II.</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Enlist and explain important clinical uses of beta blockers especially with reference to CVS.</li><li>2. Enlist important side effects of beta blockers</li><li>3. Enumerate important contraindications of this group of drugs.</li><li>4. Describe salient features of management in overdose of beta blockers.</li></ol>
8.	<b>Central Sympathoplegics.</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Name central Sympathoplegics and centrally acting alpha-2 agonists.</li><li>2. Explain mechanism of action of alpha methyl Dopa &amp; clonidine.</li><li>3. Enumerate therapeutic uses of the above drugs.</li><li>4. Enlist important side-effects and contra-indications of the above mentioned drugs.</li><li>5. Differentiate between alpha methyl Dopa &amp; clonidine.</li></ol>
9.	<b>Adrenergic neuron blockers.</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Classify adrenergic neuron blockers on the basis of mechanism of action.</li><li>2. Describe the mechanism of action of guanethidine and reserpine.</li><li>3. Enlist therapeutic uses of the two drugs.</li><li>4. Enumerate important side-effects of both the drugs.</li><li>5. Differentiate between guanethidine and reserpine.</li><li>6. Recall important pharmacological features of bretylium.</li></ol>
10.	<b>Cholinergic drugs – I. Classification, Cholinesters, alkaloids etc.</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Classify cholinomimetics according to chemistry &amp; mechanism of action.</li><li>2. Describe actions of acetylcholine on different organ systems of body.</li><li>3. Enumerate the adverse effects of acetylcholine &amp; cholinergic drugs.</li></ol>



11.	<b>Cholinergic drugs – II. Anti-Cholinesterases.</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Explain the salient pharmacological properties of Cholinesterases with their appropriate clinical uses.</li><li>2. Differentiate between cholinergic and myasthenic crisis.</li><li>3. Describe the management of myasthenia gravis.</li><li>4. Explain the role of Pilocarpine in glaucoma.</li></ol>
12.	<b>Cholinergic drugs – III. Organophosphates &amp; oximes.</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Enumerate the signs and symptoms of organophosphate poisoning due to cholinergic excess.</li><li>2. Enlist steps in the management of organophosphate poisoning.</li><li>3. Describe aging and role of oximes in the management.</li><li>4. Explain the prevention of above mentioned poisoning.</li></ol>
13.	<b>Cholinergic blockers – I.</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Classify anti-cholinergic drugs based on chemistry.</li><li>2. Describe pharmacological actions of atropine.</li><li>3. Differentiate between atropine and hyoscine</li></ol>
14.	<b>Cholinergic blockers – II.</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Enlist valid therapeutic uses of atropine</li><li>2. Enumerate adverse effects of anti-cholinergic drugs</li><li>3. Describe features of atropine poisoning.</li><li>4. Explain the management of atropine poisoning.</li><li>5. Classify anti-cholinergics according to their therapeutic use.</li></ol>
15.	<b>Skeletal Muscle Relaxants-I.</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Recall physiology of neuromuscular junction.</li><li>2. Classify skeletal muscle relaxants according to their mechanism of action.</li><li>3. Describe mechanism of action of non-depolarizing skeletal muscle relaxants.</li><li>4. Explain pharmacological actions of non-depolarizing skeletal muscle relaxants.</li></ol>
16.	<b>Skeletal Muscle Relaxants-II.</b>



	<p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"> <li>1. Describe mechanism of action of succinylcholine.</li> <li>2. Enumerate therapeutic uses of peripherally acting skeletal muscle relaxants.</li> <li>3. Explain salient pharmacological properties of centrally acting muscle relaxants.</li> <li>4. Describe mechanism of action and uses of Dantrolene.</li> </ol>
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### **Drugs acting on C N S**

This course should aim at imparting the knowledge on receptors, neurotransmitters and enzymes that regulate activity of the central nervous system alongwith their interactions with various types of drugs. Both basic and applied aspects of the drugs should be taught. At the end of the course the student must be able to classify different drug groups acting on CNS, describe their mechanism of action and enumerate their clinical uses and major side-effects with important contra-indications.

S.NO	Title of lectures with learning objectives
1.	<p><b>Central Neurotransmission – I</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"> <li>1. Recall main functions of different areas of the brain.</li> <li>2. Describe the basic structure and function of a neuron.</li> <li>3. Explain different ion channels present in the brain along with their properties.</li> <li>4. Describe detail of metabotropic receptors in the CNS.</li> </ol>
2.	<p><b>Central Neurotransmission – II</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"> <li>1. Enlist steps in the synaptic transmission.</li> <li>2. Identify steps where the drugs can act in the neurons.</li> <li>3. Classify various neurotransmitters of CNS.</li> <li>4. Explain the steps in the synthesis of important CNS neurotransmitters along with their receptors.</li> </ol>
3.	<p><b>General Anesthetics –I</b></p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>1. Classify the Inhalational Anesthetic Agents</li> <li>2. Identify their pharmacokinetic and pharmacodynamic properties</li> <li>3. Describe the terms second gas effect &amp; diffusion hypoxia</li> </ol>



	4. Define Balanced anesthesia and MAC (Minimum alveolar anesthetic concentration)
4.	<b>General Anesthetics –II</b> By the end of lecture the students will be able to 1. Classify Pre-anesthetic medications 2. Explain stages of anesthesia 3. Define Neuroleptanesthesia 4. Describe the mechanism of action of Inhaled Anesthetic agents
5.	<b>General Anesthetics – III</b> By the end of lecture the students will be able to 1. Explain pharmacokinetic properties of Volatile liquids (Halothane) 2. Describe proposed targets for the actions of these volatile liquids 3. Enumerate their toxic effects 4. Explain drug interactions of these liquids with other CNS drugs
6.	<b>General Anesthetics-IV</b> By the end of lecture the students will be able to 1. Classify Intravenous anesthetic agents 2. Outline their mechanism of action 3. Explain dissociative anesthesia 4. Describe pharmacokinetic and pharmacodynamic properties of Propofol and etomidate 5. Outline the major adverse effects of Propofol and other I/V anesthetics
7.	<b>Local Anaesthetics – I</b> By the end of lecture the students will be able to 1. Classify major classes of local Anaesthetics 2. Describe the mechanism of action of local anesthetics 3. Explain the terms “use-dependent blockade” and “state-dependent Blockade”
8.	<b>Local Anaesthetics – II</b> By the end of lecture the students will be able to 1. Describe the relationship among tissue pH, drug pKa, and the rate of onset of Local Anesthetic action. 2. Explain rationale of adding local anesthetics with vasoconstrictors 3. List factors that determine the susceptibility of nerve fibers to local anesthetic blockade.





	4. Describe the major toxic effects of the local anesthetics
9.	<b>Aliphatic Alcohols Chronic alcoholism, Aversion therapy</b> By the end of lecture the students will be able to <ol style="list-style-type: none"><li>1. Classify Clinically important alcohols and their antagonists</li><li>2. Sketch the biochemical pathways for ethanol metabolism showing action of fomepizole and disulfiram.</li><li>3. Summarize Pharmacodynamic and pharmacokinetic properties of Ethanol.</li><li>4. Identify the toxic effects of chronic ethanol ingestion</li><li>5. Describe the toxicity and treatment of acute poisoning with methanol and ethylene glycol</li></ol>
10.	<b>Sedative &amp; Hypnotics – I.</b> By the end of lecture the students will be able to <ol style="list-style-type: none"><li>1. Explain role of excitatory and inhibitory neurotransmitters in anxiety and sleep disorders</li><li>2. Classify major drugs in each sedative-hypnotic subgroup</li><li>3. Recall the pharmacokinetic features of the sedative-hypnotic drugs</li></ol>
11.	<b>Sedative &amp; Hypnotics – II</b> By the end of lecture the students will be able to <ol style="list-style-type: none"><li>1. Describe the mechanism of action of Benzodiazepines &amp; Barbiturates</li><li>2. Summarize actions &amp; adverse effects of BZDs &amp; Barbiturates</li><li>3. Differentiate between BZDs and Barbiturates</li><li>4. Discuss their drug interactions</li></ol>
12.	<b>Sedative &amp; Hypnotics – III</b> By the end of lecture the students will be able to <ol style="list-style-type: none"><li>1. Identify the distinctive properties of buspirone and Ramelteon</li><li>2. Discuss Mechanism of action with adverse effects of Z compounds like zaleplon</li><li>3. Describe the symptoms and management of overdose of sedative-hypnotics along with their antidotes.</li></ol>
13.	<b>Antiepileptic drugs-I .Classification, hydantoin derivatives</b> By the end of lecture the students will be able to <ol style="list-style-type: none"><li>1. Differentiate between seizure and epilepsy and differentiate between the two</li><li>2. Explain the terminology of various types of epilepsies</li><li>3. Classify Antiepileptic drugs according to chemistry and chemical use</li></ol>



	<p>4. Describe Pharmacokinetic and pharmacodynamic profile of Phenytoin sodium</p> <p>5. Enumerate side effects of Phenytoin.</p> <p>6. Explain Fetal hydantoin syndrome</p>
14.	<p><b>Antiepileptic drugs- II.</b></p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Describe the main pharmacokinetic features of Carbamazepine, and valproic acid</li><li>2. Discuss the mode of action ( anti-seizure activity) of the above drugs</li><li>3. Enlist the therapeutic applications of carbamazepine other than epilepsy</li><li>4. Enumerate major adverse effects of these two drugs</li></ol>
15.	<p><b>Antiepileptic drugs- III.</b></p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Identify the mechanism of action of Felbamate, lamotrigine, and topiramate.</li><li>2. Enumerate major toxicities of these drugs</li><li>3. Explain why benzodiazepines are rarely used in the chronic therapy of seizure states but are valuable in status epilepticus</li><li>4. Outline the management for status epilepticus</li></ol>
16.	<p><b>Introduction to Psycho Pharmacology</b></p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Describe the “dopamine hypothesis” of schizophrenia.</li><li>2. Identify 4 receptors blocked by antipsychotic drugs</li><li>3. Describe tardive dyskinesia and the neuroleptic malignant syndrome.</li><li>4. Briefly explain Bipolar disorder</li></ol>
17.	<p><b>Antipsychotic drugs-I Classification, Mechanism of action</b></p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Classify different groups of Anti-Psychotics</li><li>2. Describe the mechanism of action of these drugs.</li><li>3. Tabulate the differences between High potency &amp; Low potency anti- psychotics</li><li>4. Describe the pharmacological effects of anti-psychotics</li></ol>



18.	<b>Antipsychotic drugs-II</b> By the end of lecture the students will be able to <ol style="list-style-type: none"><li>1. Enumerate the psychiatric and non-psychiatric indications of Anti-Psychotics</li><li>2. Discuss the adverse effects of Anti-Psychotics</li><li>3. Tabulate differences between typical and atypical anti-psychotics</li><li>4. Identify the distinctive pharmacokinetic features of lithium, and list its adverse effects and toxicities</li></ol>
19.	<b>Anti-depressants-I. Introduction, Classification, Mechanism of Action</b> By the end of lecture the students will be able to <ol style="list-style-type: none"><li>1. Classify different classes of Anti-depressants</li><li>2. Describe the mechanism of Action of TCAs &amp; SNRIs</li><li>3. Enlist the therapeutic applications of Anti-depressants</li><li>4. Outline major adverse effects of TCAs</li><li>5. Describe mechanism of action &amp; adverse effects of SSRIs</li></ol>
20.	<b>Anti depressants-II</b> By the end of lecture the students will be able to <ol style="list-style-type: none"><li>1. Explain mechanism of action of MAO Inhibitors in depression</li><li>2. Describe cheese reaction and other drug interactions of MAO inhibitors</li><li>3. Classify 5HT<sub>2</sub> receptor antagonists for depression</li><li>4. Explain mode of action with side effects of Amoxapine and Mirtazapine</li></ol>
21.	<b>Drugs used in Parkinsonism –I</b> By the end of lecture the students will be able to <ol style="list-style-type: none"><li>1. Describe the neurochemical imbalance underlying the symptoms of Parkinson's disease</li><li>2. Classify anti-parkinsonian drugs</li><li>3. Explain the mechanisms by which levodopa, dopamine receptor agonists alleviate parkinsonism</li><li>4. Identify drugs that inhibit Dopa decarboxylase and describe their uses along with their adverse effect.</li></ol>
22.	<b>Drugs used in Parkinsonism –II</b> By the end of lecture the students will be able to <ol style="list-style-type: none"><li>1. Describe the mechanism of action of MAO and COMT Inhibitors in Parkinsonism</li><li>2. Enumerate their toxicity and drug interactions</li><li>3. Explain the role of anti muscarinic drugs in parkinsonism</li></ol>



	4. Identify the drugs used in the management of essential tremor, Huntington's disease, drug-induced dyskinesias, restless legs syndrome, and Wilson's disease
23.	<b>Analgesics-I: Introduction, Classification</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Explain physiology of pain: pathway and neurochemical mediators.</li><li>2. Enlist commonly used analgesic drug classes and individual drugs.</li></ol>
24.	<b>Analgesics-II: Morphine</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Classify opioids on the basis of source and effect on their receptor.</li><li>2. Describe opioid receptor distribution.</li><li>3. Describe the mechanism of action of opioid analgesics.</li><li>4. Explain the pharmacological features of Morphine (prototype).</li><li>5. Enlist important clinical uses and side-effects of this drug.</li><li>6. Discuss the management of morphine toxicity.</li></ol>
25.	<b>Analgesics-III: Semisynthetic/synthetic opioids &amp; opioid antagonists</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Describe briefly some important aspects of some semisynthetic/synthetic opioids.</li><li>2. Recall the signs and symptoms of an opioid overdose.</li><li>3. Compare in brief the actions and indications of opioid antagonists.</li></ol>
26.	<b>NSAIDs: Classification, Mechanism of action</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Recall the role of cyclooxygenase enzyme in the synthesis of prostaglandins and leukotrienes.</li><li>2. Explain the mechanism of action of NSAIDs.</li><li>3. Classify NSAIDs according to the enzyme selectivity.</li></ol>



27.	<b>Aspirin and other salicylates</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Relate chemistry of aspirin with its mechanism of action and actions.</li><li>2. Explain the pharmacological effects of aspirin on different organ systems of the body.</li><li>3. Describe important pharmacokinetic features of aspirin.</li><li>4. Enumerate the therapeutic uses of aspirin.</li><li>5. Enumerate side-effects and salient features of aspirin intoxication with its management.</li><li>6. Describe briefly some important aspects of other salicylates.</li></ol>
28.	<b>Propionic acid, Acetic acid derivatives. Paracetamol</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Describe the salient pharmacological features of paracetamol.</li><li>2. Explain the pathophysiology behind paracetamol poisoning and its management.</li><li>3. Describe briefly some important aspects of other NSAIDs.</li></ol>
29.	<b>Analgesics – IV: Anti-Rheumatoid drugs</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Differentiate between normal and arthritic joint.</li><li>2. Enlist the objective of treatment and management strategy of arthritis.</li><li>3. Classify the drugs used in Rheumatoid arthritis.</li><li>4. Describe briefly some important pharmacokinetic and pharmacodynamic aspects of various anti-rheumatoid drugs.</li></ol>
30.	<b>Anti-gout drugs</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Enlist the causes of hyperuricemia.</li><li>2. Describe the pathophysiology of acute gouty arthritis.</li><li>3. Classify the drugs for acute and chronic gout.</li><li>4. Explain the mechanism of action, indications and adverse effects of important anti-gout drugs.</li></ol>

## CVS

The students, on completion of this course should be able to correlate the actions of cardio active drugs with the electro-physiological properties of heart and should understand the basis



of actions of these drugs in common cardio-vascular diseases. They must be able to classify different drug groups, enlist their clinical uses, side-effects and major contraindications.

S.NO	Title of lectures with learning objectives
1.	<p><b>Physiology of heart.</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Recall the physiologic principles which govern the function of the heart and the alterations induced by functional and structural abnormalities.</li><li>2. Name the elements of the intrinsic conduction system of the heart and describe the pathway of impulses through this system.</li><li>3. Enumerate and describe properties of the cardiac muscle</li><li>4. Explain the salient events in the action potential generation of cardiac muscle.</li></ol>
2.	<p><b>Drug treatment for heart failure</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Explain briefly the pathophysiology of heart failure.</li><li>2. Recall the compensatory mechanisms in a failing heart.</li><li>3. Outline a treatment plan for patients with compensated or decompensated CHF.</li><li>4. Enlist major drug groups used for management of congestive heart failure.</li><li>5. Explain the role of diuretics, angiotensin-converting enzyme inhibitors and beta blockers, in treating patients with congestive heart failure.</li></ol>
3.	<p><b>Cardiotonic drugs: Management of cardiotoxicity of cardiac glycosides</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Discuss digoxin and its use in long-term management of congestive heart failure.</li><li>2. Describe the mechanism of action of Digoxin.</li><li>3. Recount the mechanical and electrical effects of Digoxin.</li><li>4. Enumerate and explain the clinical uses of Digoxin.</li><li>5. Describe the important side-effects, contraindications &amp; drug interactions of Digoxin.</li><li>6. Explain the treatment and management of digitalis toxicity.</li></ol>
4.	<p><b>Anti-anginal drugs-I</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Define angina pectoris</li><li>2. Recall the relevant physiological aspects of coronary circulation</li><li>3. Enumerate and explain briefly the pathophysiology of different types of anginas.</li><li>4. Classify the drugs used in the management of angina pectoris</li></ol>



5.	<b>Anti-anginal drugs-II</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. Describe important pharmacokinetic aspects of nitrates.</li><li>2. Explain mechanism of action of nitrates.</li><li>3. Describe other important actions of nitrates.</li><li>4. Enumerate and describe important side-effects of nitrates.</li></ol>
6.	<b>Drug treatment of IHD</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. Describe mechanism of action of calcium channel blockers in angina pectoris.</li><li>2. Explain the relevance of beta blockers in IHD.</li><li>3. Describe the mechanism of FOX inhibitors, nicorandil and ivabradine in angina pectoris.</li></ol>
7.	<b>Anti-hypertensive drugs-I Sympatholytic drugs</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. Recall the basic physiology of blood pressure regulation.</li><li>2. Classify antihypertensives according to site and mechanism of action.</li><li>3. Describe the role of sympatholytic drugs in hypertension.</li></ol>
8.	<b>Anti-hypertensive drugs-II Diuretics, Ca<sup>++</sup> Channel blockers</b> By the end of this lecture the students will be able to <ol style="list-style-type: none"><li>1. Recall the role of diuretics in hypertension.</li><li>2. Recount the relevance of calcium channel blockers in hypertension.</li></ol>
9.	<b>Anti-hypertensive drugs-III ACE inhibitors, AT receptor antagonist, Directacting vasodilators</b> By the end of lecture, the students will be able to <ol style="list-style-type: none"><li>1. Classify vasodilators on the basis of site, route &amp; mechanism of action.</li><li>2. Describe the pharmacokinetic properties and side effects of vasodilators.</li><li>3. Classify the drugs acting on RAS.</li><li>4. Explain their mechanisms of action.</li><li>5. Describe the clinical indications and contraindications.</li><li>6. Mention their side effects and interactions.</li></ol>
10.	<b>Anti-arrhythmic drugs-I</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Recall physiological aspects relevant to the understanding of anti-arrhythmic</li></ol>



	<p>drugs.</p> <ol style="list-style-type: none"><li>2. Describe basic pathophysiological features of arrhythmias.</li><li>3. Enumerate the principles of treatment.</li><li>4. Classify anti-arrhythmic drugs.</li></ol>
11.	<p><b>Anti-arrhythmic drugs-II</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Describe cardiac, noncardiac effects of class I drugs (all subgroups).</li><li>2. Enumerate therapeutic uses and major side-effects of all class I anti-arrhythmic drugs.</li><li>3. Describe the important anti-arrhythmic actions of class II drugs.</li><li>4. Enumerate clinical indications and side-effects of class II drugs.</li></ol>
12.	<p><b>Anti-arrhythmic drugs-III</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Explain the actions, uses and side-effects of class III drugs(amiodarone).</li><li>2. Describe the actions, uses and adverse effects of calcium channel blockers (class IV drugs).</li><li>3. Describe briefly the salient features of adenosine as an anti-arrhythmic and its toxicity.</li></ol>

### **Drugs affecting water and electrolyte balance**

At the end of the course the student must be able to classify different drug groups acting as diuretics, describe their mechanism of action and enumerate their clinical uses and major side-effects with important contra-indications

1.	<p><b>Diuretics: Introduction, Classification. Carbonic Anhydrase Inhibitors</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Recall salient features of renal physiology relevant to the topic.</li><li>2. Classify diuretics on the basis of mechanism and site of action.</li><li>3. Enumerate carbonic anhydrase inhibitors.</li><li>4. Describe the mechanism of action of CAIs.</li><li>5. Enumerate &amp; explain therapeutic uses of CAIs.</li><li>6. Describe the important side-effects &amp; contraindications of CAIs.</li></ol>
2.	<p><b>Diuretics: Thiazides</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Enumerate thiazide diuretics.</li></ol>





	<ol style="list-style-type: none"> <li>2. Describe the mechanism of action of thiazide diuretics.</li> <li>3. Enumerate &amp; explain therapeutic uses of thiazide diuretics.</li> <li>4. Describe the important side-effects &amp; contraindications of thiazide diuretics.</li> </ol>
3.	<p><b>Diuretics: Loop</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"> <li>1. Enumerate loop diuretics</li> <li>2. Describe the mechanism of action of loop diuretics.</li> <li>3. Enumerate &amp; explain their therapeutic uses.</li> <li>4. Describe the important side-effects, contraindications &amp; drug interactions of loop diuretics.</li> </ol>
4.	<p><b>Diuretics: K<sup>+</sup> sparing</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"> <li>1. Enumerate k<sup>+</sup> sparing diuretics.</li> <li>2. Describe the mechanism of action of k<sup>+</sup> sparing diuretics.</li> <li>3. Enumerate &amp; explain their therapeutic uses.</li> <li>4. Describe the important side-effects, contraindications &amp; drug interactions of k<sup>+</sup> sparing diuretics.</li> </ol>
5.	<p><b>Osmotic and miscellaneous groups</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"> <li>1. Enumerate osmotic diuretics</li> <li>2. Describe the mechanism of action of osmotic diuretics.</li> <li>3. Enumerate &amp; explain their therapeutic uses.</li> <li>4. Describe their important side-effects, contraindications &amp; drug interactions.</li> <li>5. Name and recall salient features of vaptans.</li> </ol>

### Chemotherapy

The student should be imparted knowledge about the mechanisms of action, spectrum of activity, clinical uses and adverse effects of therapeutic agents. Stress should be laid on prevention of emergence of resistance by rational use of chemotherapy. At the end of course the student must be able to classify different antimicrobials, antifungal, and anti-neoplastic. They may be able to describe their mechanism of action and enumerate their clinical uses and major side-effects with important contra-indications.

S.NO	Title of lectures with learning objectives
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1.	<p><b>Introduction, General principles of Chemotherapy.</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Define chemotherapy, anti-microbial and antibiotics.</li><li>2. Differentiate between empiric, definitive and prophylactic therapy.</li><li>3. Explain the basis of combination therapy and causes of failure of chemotherapy.</li><li>4. Classify the chemotherapeutic agents on the basis of their mechanism of action.</li></ol>
2.	<p><b>Mechanism of resistance.</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Explain post-antibiotic effect.</li><li>2. Differentiate between time-dependent killing and concentration dependent killing.</li><li>3. Describe genetic and biochemical basis of drug resistance.</li></ol>
3.	<p><b>Sulfonamides</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Classify sulfonamides on the basis of their therapeutic uses.</li><li>2. Describe their spectrum, mechanism of action and resistance.</li><li>3. Enumerate their adverse effects.</li><li>4. Enlist their relevant clinical indications.</li></ol>
4.	<p><b>Trimethoprim &amp; Co-trimoxazole</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Describe the spectrum, mechanism of action and resistance of trimethoprim.</li><li>2. Explain rationale and advantages of combination of trimethoprim and sulfamethoxazole in co-trimoxazole.</li><li>3. Enlist adverse effects of trimethoprim</li><li>4. Enumerate clinical uses of Co-trimoxazole</li></ol>
5.	<p><b>Antibiotics, Penicillins</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Understand source and structure activity relationship.</li><li>2. Classify penicillins as natural and semisynthetic preparations.</li><li>3. Explain the mechanism of action and mechanism of resistance.</li><li>4. Elaborate important pharmacokinetic properties of penicillins.</li></ol>



6.	<b>Antibiotics, Penicillins- Semisynthetic</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. Enumerate the clinical uses of natural and semisynthetic penicillins</li><li>2. Explain the adverse effects of penicillins</li><li>3. Enlist important drug interactions of penicillins</li></ol>
7.	<b>Antibiotics-Cephalosporins</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. Classify cephalosporins on the basis of their spectrum into four generations.</li><li>2. Explain their mechanism of action and resistance.</li><li>3. Enumerate their adverse effects.</li><li>4. Enlist clinical uses of all four generations.</li></ol>
8.	<b>Macrolides, Antibiotics: Broad spectrum</b> By the end of this lecture the students will be able to <ol style="list-style-type: none"><li>1. Enumerate macrolides.</li><li>2. Describe their structure, spectrum and pharmacokinetic properties.</li><li>3. Explain their mechanism of action and resistance.</li><li>4. Enumerate adverse effects and therapeutic indications.</li><li>5. Enlist advantages and disadvantages of Clarithromycin and Azithromycin.</li></ol>
9.	<b>Antibiotics: Broad spectrum Tetracyclines</b> By the end of lecture the students will be able to <ol style="list-style-type: none"><li>1 .Enumerate tetracycline.</li><li>2 .Explain their pharmacokinetic properties and spectrum of activity.</li><li>3 Describe their mechanism of action and resistance.</li><li>4 Enlist adverse effects.</li><li>5 Define their valid therapeutic indications.</li></ol>
10.	<b>Chloramphenicol</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Explain pharmacokinetic properties and spectrum of activity.</li><li>2. Describe its mechanism of action and resistance.</li><li>3. Enumerate its adverse effects.</li><li>4. Enlist its therapeutic indications.</li></ol>
11.	<b>Antibiotics: Aminoglycosides</b> By the end of the lecture the students will be able to



	<ol style="list-style-type: none"><li>1. Classify aminoglycosides on the basis of their source.</li><li>2. Explain pharmacokinetic properties and spectrum of activity.</li><li>3. Describe mechanism of action, resistance and post-antibiotic effects.</li><li>4. Enumerate their adverse effects.</li><li>5. Enlist their therapeutic indications.</li></ol>
12.	<b>Quinolones.</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. Classify the quinolones on the basis of their spectrum of antibacterial activity.</li><li>2. Describe their pharmacokinetics, mechanism of action and resistance.</li><li>3. Enumerate their adverse effects.</li><li>4. Enlist their therapeutic indications.</li></ol>
13.	<b>Misc. Drugs: Clindamycin, Fusidic acids, Vancomycin, Nitrofurantoin, Linezolid</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. Explain their mechanism of action, resistance and spectrum of antibacterial activity.</li><li>2. Enumerate their adverse effects.</li><li>3. Enlist their clinical indications.</li></ol>
14.	<b>Antituberculosis drugs – I.</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. Understand different types of TB.</li><li>2. Enumerate first and second line drugs for TB.</li><li>3. Enlist special characteristics of Mycobacterium tuberculosis.</li><li>4. Explain mechanism of action, clinical uses and adverse effects of Isoniazid and Rifampicin.</li></ol>
15.	<b>Antituberculosis drugs – II</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. Explain the mechanism of action, clinical uses and adverse effects of Ethambutol and Pyrazinamide.</li><li>2. Enumerate drugs with doses for prophylaxis of TB.</li><li>3. Explain treatment for new patient.</li><li>4. Enumerate drugs for Resistant, MDR &amp; XDR TB.</li></ol>
16.	<b>Antituberculosis drugs – III</b> By the end of the lecture the student will be able to



	<ol style="list-style-type: none"><li>1. Enlist ATT during pregnancy and lactation.</li><li>2. Enumerate drugs for DOT with doses and different regimens.</li><li>3. Explain types of Leprosy.</li><li>4. Elaborate mechanism of action, clinical indication, adverse effects of Clofazimine and Dapsone.</li></ol>
17.	<p><b>Antifungal drugs-I</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Classify antifungal drugs on the basis of their mechanism of action.</li><li>2. Explain their spectrum, mechanism of action and resistance of Amphotericin B and Flucytosine.</li><li>3. Enumerate their adverse effects.</li><li>4. Enlist their clinical uses.</li></ol>
18.	<p><b>Antifungal drugs – II</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Enumerate azoles.</li><li>2. Explain their spectrum, mechanism of action and resistance.</li><li>3. Enumerate their adverse effects.</li><li>4. Enlist their therapeutic indications.</li></ol>
19.	<p><b>Anti-viral drugs –I</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Enumerate common properties of viruses.</li><li>2. Enlist common characteristics shared by antiviral drugs.</li><li>3. Classify antiviral drugs on the basis of therapeutic indications.</li><li>4. Classify antiviral drugs on the basis of therapeutic indications</li><li>5. Understand the life cycle of virus in accordance with drugs inhibiting the various steps of cycle.</li><li>6. Explain mechanism of action, therapeutic indications and adverse effects of anti HSV and VZV drugs.</li></ol>
20.	<p><b>Anti-viral drugs –II</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Describe some important properties of anti CMV drugs.</li><li>2. Explain HHART.</li><li>3. Understand the life cycle of HIV.</li></ol>



	<ol style="list-style-type: none"><li>4. Elaborate mechanism of action and A/R of fusion and entry inhibitors.</li><li>5. Enumerate group properties of NRTI, NNRTI, and INSTIs.</li><li>6. Explain Mechanism of action and A/R of PIs.</li></ol>
21.	<p><b>Anti-viral drugs –III</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Enumerate anti HIV drugs safe in pregnancy.</li><li>2. Enumerate types of interferon.</li><li>3. Explain mechanism of action, A/R and contraindications of INF-<math>\alpha</math>.</li><li>4. Enumerate drugs used in DAAS with detail of Sofosbuvir.</li><li>5. Elaborate drugs for influenza type A &amp; B virus.</li><li>6. Describe mechanism of action, spectrum,A/R and CI of Ribavirin.</li></ol>
22.	<p><b>Anti-Malarial - I.</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Enumerate species of malaria and understand life cycle of malarial parasite.</li><li>2. Classify antimalarial drugs on basis of chemical structure and therapeutic indications.</li><li>3. Explain mechanism of action and resistance of chloroquine.</li><li>4. Elaborate the salient pharmacokinetic features of chloroquine.</li><li>5. Enumerate its adverse effects and therapeutic indications.</li></ol>
23.	<p><b>Anti-Malarial - II.</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Explain mechanism of action and resistance of Mefloquine, Primaquine, and Quinine.</li><li>2. Elaborate their pharmacokinetics.</li><li>3. Enumerate their adverse effects.</li><li>4. Enlist their therapeutic indications.</li><li>5. Enumerate antimalarial drugs for pregnancy and prophylaxis.</li></ol>
24.	<p><b>Anti-Malarial - III.</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Enumerate artemisinin.</li><li>2. Explain their mechanism of action and resistance.</li><li>3. Enumerate their adverse effects and therapeutic uses.</li><li>4. Enlist WHO recommendations of treatment of Falciparum malaria.</li><li>5. Describe rationale for combination of antimalarial drugs.</li></ol>



25.	<p><b>Anti-Amoebic drugs-I</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Define amoebiasis and understand life cycle of ant amoeba histolytica.</li><li>2. Classify anti amoebic drugs on basis of chemical structure and therapeutic indications.</li><li>3. Explain mechanism of action of metronidazole.</li><li>4. Enlist its adverse effects.</li><li>5. Enumerate its therapeutic indications with spectrum of activity.</li></ol>
26.	<p><b>Anti-Amoebic drugs-II</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Explain mechanism of action of luminal anti amoebic drugs.</li><li>2. Enumerate their adverse effects.</li><li>3. Describe the rationale for combination of luminal with tissue anti amoebic drugs.</li></ol>
27.	<p><b>Antihelminthics – I</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Enumerate drugs for Nematodes, Trematodes and Cestodes.</li><li>2. Explain mechanism of action of Albendazole and Niclosamide.</li><li>3. Enlist their adverse effects and therapeutic indications.</li></ol>
28.	<p><b>Antihelminthics – II</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Explain mechanism of action for Nematodes and Cestodes.</li><li>2. Enumerate their adverse effects.</li><li>3. Enlist their clinical uses.</li></ol>
29.	<p><b>Antineoplastics – I. Alkylating agents</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Define cancer and enlist its causes.</li><li>2. Describe different treatment modalities and types of chemotherapy for cancer.</li><li>3. Enumerate different mechanism of resistance of anticancer drugs.</li><li>4. Explain toxicity of anticancer drugs with their management.</li><li>5. Classify anticancer drugs.</li><li>6. Elaborate mechanism of action of alkylating agents with their adverse effects and therapeutic indications.</li></ol>



30.	<b>Antineoplastics – II. Antimetabolites</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Explain mechanism of action and resistance of Methotrexate.</li><li>2. Enumerate its adverse effects with rescue therapy.</li><li>3. Enlist cancerous and non-cancerous uses of Methotrexate.</li><li>4. Explain mechanism of action, adverse effects and therapeutic indications of 5-FU and Anthracyclines.</li></ol>
31.	<b>Antineoplastics-III. Vinca Alkaloids, Antibiotics &amp; Hormones</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Explain mechanism of action of Vinca alkaloids.</li><li>2. Enumerate their adverse effects.</li><li>3. Enlist their therapeutic indications.</li><li>4. Categorize the drugs for treatment of some common cancers.</li></ol>
32.	<b>Immunosuppressants</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Classify immunosuppressive drugs.</li><li>2. Explain mechanism of action of each group.</li><li>3. Enumerate their adverse effects.</li><li>4. Enlist their important clinical indications.</li></ol>

### **Endocrinology**

The objective of this section is to educate the students about use of various hormones in replacement therapy and other diseases. Basic and applied aspects of other drugs used in commonly occurring endocrine disorders should also be covered. At the end of the course the student must be able to classify different drug groups acting on various endocrine organs, describe their mechanism of action and enumerate their clinical uses and major side-effects with important contra-indications.

<b>S.NO</b>	<b>Title of lectures with learning objectives</b>
1.	<b>Antidiabetic drugs: Introduction Classification.</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. Review the clinical manifestations of type 1 and type 2 diabetes mellitus and its diagnostic criteria.</li></ol>





	2. Outline the drug management for diabetes.
2.	<b>Antidiabetic drugs: Insulin</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. Understand the major effects of endogenous insulin on body tissues.</li><li>2. Classify different types of insulin on the basis of source and mechanism of action.</li><li>3. Describe characteristics of various insulins and its analogues.</li><li>4. Explain the mechanism of action, uses, adverse effects, contraindications insulin.</li><li>5. Review the SGLT 2 inhibitors, incretin mimetics, and dipeptidyl peptidase 4 (DPP-4) inhibitors including mechanisms of action, indications for use and adverse effects.</li></ol>
3.	<b>Antidiabetic drugs: Oral antidiabetic agents</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. List the main groups of oral anti-diabetic drugs.</li><li>2. Give a brief description of the pharmacological action of these drugs.</li><li>3. Understand the mechanisms by which these drugs lower the blood glucose level.</li><li>4. Enlist the common side effects and contraindications of these drugs.</li><li>5. Enumerate which drugs interact with oral anti-diabetic drugs.</li></ol>
4.	<b>Thyroid hormones</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. Recall the pathway for thyroid hormone synthesis, release, its site of action and mechanism.</li><li>2. Review the pharmacological effects of thyroid hormone.</li><li>3. Enlist drugs for the treatment of hypothyroidism.</li><li>4. Enumerate the toxicities of levothyroxine.</li></ol>
5.	<b>Antithyroid drugs</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. Enlist antithyroid drugs.</li><li>2. Describe the mechanism of action of antithyroid drugs.</li><li>3. Explain the role of Iodides and beta blockers in hyperthyroidism.</li><li>4. Outline the major toxicities of antithyroid drugs.</li></ol>



6.	<b>Adrenal hormones-I</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. Recall the naturally occurring adrenal steroid hormones, their synthesis and release.</li><li>2. Enlist some important synthetic glucocorticoids and mineralocorticoids.</li><li>3. Classify glucocorticoids according to the duration of action.</li><li>4. Enumerate the glucocorticoids given through inhalational route.</li></ol>
7.	<b>Adrenal hormones-II</b> By the end of this lecture the students will be able to <ol style="list-style-type: none"><li>1. Describe the pharmacological effects of glucocorticoids.</li><li>2. Elaborate their therapeutic uses.</li><li>3. Outline their adverse effects, contraindications and cautions.</li><li>4. Briefly describe the salient features of glucocorticoid antagonists.</li></ol>
8.	<b>Sex Hormones: Estrogens &amp; Progestins, Anabolics</b> By the end of lecture, the students will be able to <ol style="list-style-type: none"><li>1. Recall the synthesis, release and regulation of hormones produced by ovaries and testes.</li><li>2. Classify estrogens and progesterone.</li><li>3. Explain the pharmacokinetic and pharmacodynamic properties of estrogens and progesterone.</li><li>4. Enumerate their clinical indications, adverse effects and contraindications.</li><li>5. Name anti-estrogens and anti-progestins along with their indications and side effects.</li><li>6. Describe the salient features of androgens and anti-androgens.</li></ol>
9.	<b>Drug used in the treatment of infertility</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Recount the salient features of Gonadotropic Releasing Hormone agonists and antagonists in treatment of infertility.</li><li>2. Describe the role of FSH, LH, hCG in treating infertility also enlisting their side effects.</li><li>3. Explain the mechanism of action, pharmacological effects and therapeutic uses of Clomiphene.</li><li>4. Enumerate the important adverse effects of Clomiphene.</li></ol>
10.	<b>Hormonal contraceptives</b>



	<p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Enlist various types of hormonal contraceptive preparations.</li><li>2. State the mechanism of action and pharmacological effects of hormonal contraceptives.</li><li>3. Explain their uses, adverse effects and contraindications.</li><li>4. Cite important drug interactions that may occur.</li></ol>
11.	<p><b>Oxytocic drugs and Uterine Relaxants</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Describe the mechanism of action, indications and major adverse effects of oxytocin.</li><li>2. Explain the effects of Prostaglandins and ergot alkaloids on uterine smooth muscles.</li><li>3. Name and explain briefly the salient features of few uterine relaxants.</li></ol>
12.	<p><b>Drug treatment of osteoporosis</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Define osteoporosis</li><li>2. Recall the normal physiology of calcium &amp; phosphate – bone minerals homeostasis.</li><li>3. Review the management of osteoporosis.</li><li>4. Classify the drugs used in osteoporosis.</li><li>5. Describe the mechanism, uses and the adverse effects of some important drugs.</li></ol>
13.	<p><b>Hypothalamic &amp; Pituitary hormone-I</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Recall the role of the Hypothalamic-Pituitary axis in regulating the production of the major anterior pituitary hormones and discuss the role of negative feedback mechanisms.</li><li>2. Explain structure, pharmacokinetic, pharmacodynamics effects of GH</li><li>3. Enumerate clinical uses and adverse effects of GH.</li><li>4. Enlist clinical uses and adverse effects of Somatropin and Mecasermin.</li></ol>
14.	<p><b>Hypothalamic &amp; Pituitary hormone-II</b></p> <p>By the end of this lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Elaborate the effects of Somatostatin analogue (Octreotide).</li><li>2. Enlist the clinical uses and side effects of Octreotide.</li></ol>



	<p>3. Describe the indications, mechanism of action, and major adverse effects of Leuprolide.</p> <p>4. Briefly explain the salient features of bromocriptine.</p>
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### Drugs acting on blood

Treatment of anaemia should receive maximum attention of the teachers and students. Basic and applied aspects of anticoagulants should be covered. Role of aspirin as Antiplatelet agent should be highlighted. Students should be made to understand the part played by non-pharmacological measures in the treatment of hyperlipaemias. At the end of the course the student must be able to classify different drug groups acting on blood, describe their mechanism of action and enumerate their clinical uses and major side-effects with important contra-indications

S.NO	Title of lectures with learning objectives
1.	<p><b>Haematinics-I</b></p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>1. Name the 2 most common types of nutritional anemia and describe their biochemical causes.</li> <li>2. Draw the normal pathways of absorption, transport, and storage of iron in the human body.</li> <li>3. Name the anemias for which iron supplementation is indicated and those for which it is contraindicated.</li> <li>4. List the acute and chronic toxicities of iron and role of Desferrioxamine</li> </ol>
2.	<p><b>Haematinics-II</b></p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>1. Sketch the dTMP cycle and show how deficiency of folic acid and vitamin B12 affects the normal cycle.</li> <li>2. Explain hazards of folic acid as sole therapy for megaloblastic anemia</li> <li>3. Name hematopoietic growth factors with clinical uses and toxicity</li> <li>4. Explain the advantage of polyethylene glycol to filgrastim.</li> <li>5. Summarize the role of Epoetin Alfa in treating anemia</li> </ol>



03.	<p><b>Anticoagulants. Introduction, Classification. Heparin</b></p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Classify major Anticoagulants for treatment of various arterial and venous thrombosis</li><li>2. Compare the standard heparin, and LMW heparins with respect to Pharmacokinetics, mechanisms, and toxicity.</li><li>3. Explain mechanism of action of Buvalirudin, argatroban, and dabigatran with their toxicity</li><li>4. Describe the term HIT (Heparin induced thrombocytopenia)</li></ol>
04.	<p><b>Oral Anticoagulants</b></p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Describe the mechanism of action of Warfarin</li><li>2. Explain its therapeutic applications in various thrombo-embolic events</li><li>3. Enumerate its adverse effects, drug interactions and antidotes in case of poisoning</li><li>4. Differentiate between Heparin and Warfarin</li></ol>
05	<p><b>Thrombolytics</b></p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Classify Thrombolytic Agents and their routes of administration</li><li>2. Explain the mechanism of action of Streptokinase in coronary artery thrombosis</li><li>3. Enlist uses of Alteplase and other thrombolytic agents</li><li>4. Summarize the toxicity of these agents</li></ol>
06	<p><b>Antiplatelet drugs</b></p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Diagram the function of activated platelets at the site of a damaged blood vessel wall and show where the 4 major classes of antiplatelet drugs act.</li><li>2. Compare the pharmacokinetics, uses, and toxicities of the major antiplatelet drugs</li><li>3. Explain mode of action of Aspirin as an antiplatelet drug.</li><li>4. Describe the mechanism of action and side effects of Clopidogrel, Ticlopidine and Prasugrel</li><li>5. Summarize mode of action, uses with side effects of Dipyridamole</li></ol>
07	<p><b>Anti Hyperlipoproteinaemics-I</b></p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Explain the role of lipoproteins in the formation of atherosclerotic plaques.</li><li>2. Summarize the types of lipoproteins and their functions</li><li>3. Describe the dietary management of hyperlipidemia</li></ol>



	4. Propose a rational drug treatment regimen for different hyperlipidemias
08	<p><b>Anti Hyperlipoproteinaemics-II</b></p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>1. List the 5 main classes of drugs used to treat hyperlipidemia.</li> <li>2. Explain the mechanism of action and adverse effects of Statins</li> <li>3. Describe mode of action and toxicity of Fibrates</li> <li>4. Highlight role of bile acid binding resins in hyperlipidemia along with their toxicity</li> </ol>
09	<p><b>Anti Hyperlipoproteinaemics-III</b></p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>1. Explain role of Sterol absorption inhibitor (Ezetimibe) in treating hyperlipidemia</li> <li>2. Enlist its pharmacokinetic and Pharmacodynamic properties in treating hyperlipidemia</li> <li>3. Describe the mechanism of action of Niacin</li> <li>4. Enumerate therapeutic uses and adverse effects of this drug</li> <li>5. Compare different antihyperlipidemic drugs in reducing VLDL, LDL and raising HDL</li> </ol>

### **Drugs acting on GIT**

Stress should be laid on the rational treatment of diarrhea. Limitations of purgatives/laxatives in management of habitual constipation should be highlighted. Cost-effective approach in selection of anti-peptic ulcer drugs and treatment of associated H pylori infection should be emphasized. At the end of the course the student must be able to classify different drug groups acting on GIT, describe their mechanism of action and enumerate their clinical uses and major side-effects with important contra-indications.

<b>S.NO</b>	<b>Title of lectures with learning objectives</b>
1.	<p><b>Anti-emetics</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"> <li>1. Explain Pathophysiology of vomiting.</li> <li>2. Describe Reflex Mechanisms of vomiting.</li> <li>3. Explain Neuronal Pathways, transmitters and receptors involved in nausea and vomiting.</li> <li>4. Enlist causes of vomiting.</li> <li>5. Classify anti-emetic drugs</li> </ol>



	<p>6. Describe Mechanism of action, clinical uses and adverse effects of Metoclopramide and other drugs.</p>
2.	<p><b>Anti-diarrheals</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Define diarrhea.</li><li>2. Enlist causes of diarrhea.</li><li>3. Recall the pathogenesis of diarrhea.</li><li>4. Explain the rational treatment of diarrhea.</li><li>5. Classify agents used for management of diarrhea.</li><li>6. Explain the mechanism of action, uses and adverse effects of each group/drugs.</li></ol>
3.	<p><b>Purgatives/Laxatives</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Recall normal functions of colon</li><li>2. Differentiate between laxative and purgative</li><li>3. Explain non-pharmacological measures for constipation</li><li>4. Classify laxatives into 4 major groups</li><li>5. Understand the mechanism of action and enumerate the clinical indications and adverse effects of each group of laxatives</li></ol>
4.	<p><b>Drugs used in peptic ulcer-I</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Recall the pathogenesis of acid peptic disease.</li><li>2. Classify various drugs used in acid peptic disease.</li><li>3. Describe the mechanism of action of proton pump inhibitors.</li><li>4. Enumerate &amp; explain their therapeutic uses.</li><li>5. Enlist the important side-effects &amp; drug interactions of this drug groups.</li><li>6. Explain the regimens for H. pylori eradication</li></ol>
5.	<p><b>Drugs used in peptic ulcer-II</b></p> <p>By the end of the lecture the student will be able to</p> <ol style="list-style-type: none"><li>1. Enumerate H<sub>2</sub> receptor blockers.</li><li>2. Describe the mechanism of action of H<sub>2</sub> receptor blockers.</li><li>3. Enumerate &amp; explain their therapeutic uses.</li><li>4. Describe their important side-effects and drug interactions.</li></ol>



6.	<b>Drugs used in peptic ulcer-III</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. Recall the antacids and mucosal protectants used in acid peptic disease.</li><li>2. Identify common uses and adverse effect of antacids.</li><li>3. Know the cytoprotective drugs mainly Misoprostol and its use in NSAID induced peptic ulcer.</li></ol>
7.	<b>IBD &amp; IBS</b> By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>1. Recall the pathophysiological changes in the bowel in Crohn's disease and UC.</li><li>2. Outline the clinical approach to a patient with suspected IBD.</li><li>3. Classify the drugs used in the treatment of IBD.</li><li>4. Discuss the pharmacokinetics, pharmacodynamics, uses and adverse effects of 5-ASA, glucocorticoids, immunomodulators and TNF-alpha.</li><li>5. Describe the salient features of major pharmacological drug classes used to treat IBS.</li></ol>

### **Drugs acting on respiratory system**

Common irrationalities in the use of expectorants/mucolytics should be highlighted. Limitations of antitussives should be stressed. Use of Anti-asthmatics in various forms and manifestations of the disease should receive maximum priority. At the end of the course the student must be able to classify different drug groups acting on Respiratory Tract, describe their mechanism of action and enumerate their clinical uses and major side-effects with important contra-indications

1.	<b>Expectorants &amp; Antitussives</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Recall the physiology of cough reflex.</li><li>2. Enumerate causes of cough.</li><li>3. Classify drugs as antitussives, expectorants and mucolytics.</li><li>4. Explain mechanism of action and adverse drug reactions of each group</li></ol>
2.	<b>Anti-asthmatics-I</b> By the end of the lecture the students will be able to <ol style="list-style-type: none"><li>1. Recall the pathophysiology of asthma.</li><li>2. Describe the strategies for the treatment of Asthma.</li></ol>





	<ol style="list-style-type: none"><li>3. Enumerate drugs used for prophylaxis of asthma.</li><li>4. Classify the drugs used to treat asthma.</li><li>5. Explain the mechanism of action, clinical uses and side effects of <math>\beta_2</math> agonists in asthma.</li></ol>
3.	<p><b>Anti-asthmatics-II</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Explain salient features and adverse effects of Methyl xanthines.</li><li>2. Understand the effects of antimuscarinic, mast cell stabilizers, and LTIs.</li><li>3. Elaborate the anti-inflammatory effects of corticosteroids in asthma.</li><li>4. Explain management of acute attack of asthma.</li></ol>

### Misc

At the end of the course the student must be able to classify different drug groups in this last portion of the course, describe their mechanism of action and enumerate their clinical uses and major side-effects with important contra-indications.

1.	<p><b>Antihistamines-I:</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Recall the histamine receptor subtypes and its mechanism of action.</li><li>2. Briefly explain the pharmacological effects and potential indications of histamine.</li><li>3. Enlist different types of histamine antagonists.</li><li>4. Classify anti-histamines.</li></ol>
2.	<p><b>Antihistamines-II</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Discuss the pharmacology of H<sub>1</sub> antihistaminic with emphasis on clinical uses, adverse drug reactions and interactions.</li><li>2. Explain the differences between 1<sup>st</sup> and 2<sup>nd</sup> generation histamine antagonists.</li></ol>
3.	<p><b>Prostaglandins</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Discover and distinguish relationships between different types of eicosanoid molecules.</li><li>2. Recall the knowledge of enzymes that create PGs and TXs (cox-1 and -2)</li><li>3. Explain the mechanism of action and physiological functions of these</li></ol>



	<p>molecules.</p> <p>4. Discuss their clinical uses.</p>
4.	<p><b>Drug treatment of migraine</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Differentiate between different types of headaches.</li><li>2. Classify migraine.</li><li>3. Explain the causes, symptoms and pathophysiology of migraine.</li><li>4. Describe the drugs used for the <i>prevention</i> (prophylactic treatment) of migraine.</li><li>5. Classify the drugs used for the <i>acute management</i> of migraine.</li><li>6. Explain the pharmacological actions, clinical indications and adverse effects of Triptans and ergot alkaloids.</li></ol>
5.	<p><b>Heavy Metal Poisoning &amp; Antidotes (Chelating Agents)</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Enlist the important signs and symptoms of toxicity of As, Pb and Hg.</li><li>2. Define chelators.</li><li>3. Enumerate chelators.</li><li>4. Explain mechanism of action, indications and toxicity of BAL, Succimer, EDTA and Deferoxamine.</li></ol>
6.	<p><b>Drug treatment of glaucoma</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Recall the pathophysiology of glaucoma.</li><li>2. Review types of glaucoma along with sign and symptoms.</li><li>3. Classify the drugs used for the treatment of glaucoma.</li><li>4. Explain the mechanism of action, advantages and disadvantages of important drugs used for treating glaucoma.</li></ol>
7.	<p><b>Drug - Drug Interactions</b></p> <p>By the end of the lecture the students will be able to</p> <ol style="list-style-type: none"><li>1. Define drug interaction.</li><li>2. Enumerate the drugs most likely involved in interactions.</li><li>3. Enlist the factors contributing to drug interactions.</li><li>4. Classify and explain different types of interactions.</li><li>5. Cite the measures that can be taken to reduce the risk of drug interactions.</li></ol>



**LIST OF PRACTICALS FOR 3<sup>RD</sup> YEAR MBBS**  
**DEPARTMENT OF PHARMACOLOGY**  
**SHARIF MEDICAL & DENTAL COLLEGE LAHORE**

- 1) **Routes of administration:** advantages & disadvantages of different routes of administration with basic techniques employed for different routes are explained to the students. Four sessions, each of 02hrs duration
- 2) **Dosage forms :** Various dosage forms are discussed with their advantages and shown to the students in four sessions each of 02 hrs duration
- 3) **Pharmaceutical calculations:** Following topics are discussed with calculation exercises. One topic in one session of 02hrs duration
  - a) Dilution of stock solutions
  - b) Fractional solutions
  - c) Percentage solutions and powders like ORS.
  - d) Molar solutions
  - e) Equivalent solutions
- 4) **Basic Biostatistics:** Following topics are discussed with exercises. One topic in one session of 02 hrs duration.
  - a) Basic Terminology of biostatistics, Central tendencies, frequencies etc.
  - b) Variance, Standard deviation
  - c) Standard Error of Mean
  - d) Student's 'test' and estimation of value of "*P*".
- 5) **Prescription writing:** Six sessions of 02 hrs each in duration for giving the WHO concept of 'P' Drugs, Importance and parts of prescription and actual prescriptions of fifteen common diseases are taught to the students in these sessions.
- 6) **Standardization of Drugs:** Two sessions of 02 hrs each are reserved for acquainting the students about the importance of standardization of drugs and different methods employed for it are discussed.



**7) Pharmacodynamics' Practicals:** one practical per session is done in the laboratory under supervision of all the faculty members of the department. The practicals are

- a) Effect of drugs on rabbit's eye (Tropicamide, Pilocarpine)
- b) Effect of drugs on rabbit's eye ( Phenylephrine, Proparacaine)
- c) Effect of drugs on isolated rabbit's ileum (Acetylcholine. Atropine)
- d) Dose Response Curve of acetylcholine on rabbit's ileum)
- e) Effect of drugs Frog's Heart ( Acetylcholine, Atropine)
- f) Effect of drugs Frog's Heart ( Adrenaline, Propranolol)
- g) Effect of drugs on Frog's CNS (Caffeine, Strychnine)
- h) Effect of drugs on Frog's CNS ( Diazepam, MgCl<sub>2</sub>, CaCl)

**8) Pharmacy Practicals:**one practical per session of 02hrs duration is performed under the supervision of all the members of the faculty. The practicals are

- a) Prepare and dispense 50 grams of 10% sulfur ointment.
- b) Prepare and dispense 20 ml of KMNO<sub>4</sub> lotion
- c) Prepare and dispense 100 ml of 5% Dextrose water.
- d) Prepare and dispense 100 ml of 0.9% Normal saline.
- e) Prepare and dispense 5 doses of APC powder
- f) Prepare and dispense 50 ml of carminative mixture.



# TIME TABLE

## 3<sup>RD</sup> YEAR MBBS

### PHARMACOLOGY DEPARTMENT

### SMDC, LAHORE



Day & Time	8:30am-9:15am	9:15am-10:00am	10:00am-11:00am	10:00am-11:45am	11:00am-11:45am	11:45am-12:30pm	12:30pm-02:30pm
<b>Monday</b>	Pathology Lecture Patient Safety Lecture (20th & 27th Feb) Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Hospital Work Skill Lab** Batch I (10:00 - 11:00am) Batch II (11:00 - 11:45am)	Hospital Work	Hospital Work	Research Methodology Lecture Hall 2	Practical Pharmacology Pathology Forensic Med. (12:30-01:30) C SDL (01:30-02:30) C
	Pathology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Hospital Work	Hospital Work	Behavioural Sciences Lecture Patient Safety Lecture (7th & 14th Mar) Lecture Hall 2	Practical Pharmacology Pathology Forensic Med. (12:30-01:30) A SDL (01:30-02:30) A	
<b>Tuesday</b>	Pathology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Hospital Work	Hospital Work	Hospital Work	Hospital Work	Hospital Work
	Pathology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Hospital Work	Hospital Work	Hospital Work	Hospital Work	Hospital Work
<b>Wednesday</b>	Pathology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Hospital Work	Hospital Work	Hospital Work	Hospital Work	Hospital Work
	Pathology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Hospital Work	Hospital Work	Hospital Work	Hospital Work	Hospital Work
<b>Thursday</b>	Pathology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Hospital Work	Hospital Work	Hospital Work	Hospital Work	Hospital Work
	Pathology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Hospital Work	Hospital Work	Hospital Work	Hospital Work	Hospital Work
<b>Friday</b>	Pharmacology Lecture Lecture Hall 2	Medicine Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2
	Pharmacology Lecture Lecture Hall 2	Medicine Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2
<b>Saturday</b>	Forensic Medicine Lecture Lecture Hall 2	Medicine Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2
	Forensic Medicine Lecture Lecture Hall 2	Medicine Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2

**Amendments in Time Table ONLY for 2nd Saturday of every month.**

- Break 10:00am - 10:15am (No Pharmacology Lecture)
- Mentorship Session 10:15am - 11:00am
- Surgery Lecture 11:00am - 11:45am

\*\* The students of Clinical batches will spend rest of the time of Hospital Work in their respective wards.  
Skill Lab time table will be applicable from 13th February, 2023 to 26th April, 2023.

Copy Forwarded To:

- Dr. Muhammad Adnan Khan Chief Executive SMC
- Principal SMDC
- Principal, College of Dentistry
- Heads of all concerned Departments.
- Director Administration
- Notice Boards

**Prof. Maria Aslam**  
 Head Deptt. of Pathology  
 Chairperson Time Table Committee



**ASSESSMENT PLAN**  
**DEPARTMENT OF PHARMACOLOGY**  
**SHARIF MEDICAL AND DENTAL COLLEGE LAHORE**

Following modes of assessment are planned for 3<sup>rd</sup> year MBBS class in the subject of Pharmacology and Therapeutics. This plan has been designed keeping in view the university curriculum and hopefully will facilitate the students in preparing for 3<sup>rd</sup> professional examinations in the subject.

**Chapter Tests:**

These will be conducted at the completion of every chapter. The test will comprise of MCQs and SEQs on the pattern of university examinations. A preparatory time of at least 10 days shall be given prior to these tests. Each test will be followed by viva voce, for which the class will be divided into smaller batches.

**Pre-tutorial Tests:**

Tutorial topics will be notified minimum one week before the tutorial class. A small test of 10 - 15 minutes duration, comprising of MCQs, true or false statements or fill in the blanks will be held before the start of each tutorial. The topic will be then discussed by a senior instructor in detail. This will be an interactive session. The paper of the PTT will be marked by demonstrators in quick time and the papers will be returned before the conclusion of each class.

**OSPE Tests:**

In order to prepare the students for practical examinations at least two OSPE tests will be conducted on the pattern of university examinations.

**Term Tests:**

Two term tests shall be conducted in coordination with other subjects. This will comprise of theory, practical and viva segments and a sizeable portion of the total course will be included in each of them.

**Pre-annual Exam:**

This will be undertaken in coordination with other departments, exactly following the format of university professional examinations. It will comprise of MCQs, SEQs, OSPE and Viva voce.

**Internal Assessment:**

Internal assessment will be calculated out of 30 on the basis of all these tests that will be conducted throughout the year.



## **ToS Viva Voce / MBBS Third Professional Examination**

### **Pharmacology and Therapeutics / Clinical Pharmacology**

#### **VIVA & OSPE**

Total Marks =150 (Viva & OSPE 135 + Internal Assessment 15 marks)

a) Viva Voce Structured = 80 Marks

(Internal & External Examiners, equal distribution)

b) OSPE = 50 Marks

c) Practical Notebook = 05 Marks

#### **OSPE**

(Objectively Structured Performance Evaluation)

Total stations = 08 (50 marks)

**I. Non-Observed Stations = 06 stations (30 marks: 05 Marks & 05 minutes for each station)**

Station distribution:

1. Clinical Scenario (patient / mock / video, etc) will be provided to write dosage form, dose calculations (initial, loading & maintenance dosages) according to age, weight, body surface area; and also, calculation of rate IV infusion,
2. Capability to identify abbreviations / weights & measures
3. Clinical Scenario (patient / mock / video, etc) for Prescription Writing and P drug
4. Clinical Scenario (patient / mock / video, etc) for Prescription Writing and P drug
5. Pharmacy Calculations
6. Interpretation of Given Data / Graphs / Tables; Biostatistics

**II. Observed Stations = 02 stations (20 marks)**

1. Experimental pharmacology \* = 14 Marks (10 marks for performance and 4 marks for seat viva; 90 minutes' duration)
2. Pharmacy Practicals = 06 Marks (3 marks for performance and 3 marks for seat viva; 30 minutes' duration)

\* (Practicals assigned by the Internal/External Examiner from the practical list provided by the UHS)





**ToS Theory / MBBS Third Professional Examination**  
**Pharmacology and Therapeutics / Clinical Pharmacology**

Topics	Total SEQs 14 Total Marks 70		Total MCQs 65 Each MCQ 1 mark	Total Marks 135
	SEQ. Nos.	Marks allocated	MCQs. Nos.	
<b>General Pharmacology:</b> Pharmacokinetics; Pharmacodynamics	1-2	5	1-8	18
		5		
<b>ANS:</b> Cholinergic Agonists & Cholinergic Antagonists: Glaucoma, Paralytic Ileus, etc. Myasthenia Gravis, O.P Poisoning; Smooth Muscles Spasmodic States Adrenergic Agonists & Adrenergic Blockers: Shock, Pheochromocytoma, Prostatic Hyperplasia, etc	3-4	5	9-16	18
		5		
<b>Cardiology &amp; Hematology:</b> Diuretics; ACE Inhibitors & Receptors Blockers; Calcium Channels Blockers; Vasodilators. Drugs used in hypertensives, IHDs, Cardiac Failure, Shock, Syncope, Hyperlipidemias, Arrhythmias. Coagulants, Anticoagulants, Thrombolytics, Fibrinolytics, Antiplatelets.	5-6	5	17-26	20
		5		
<b>Neurology, Psychiatry &amp; Anesthesiology:</b> Local & General Anesthetics; Central & Peripheral Skeletal Muscles relaxants; Alcohol; Sedative / Anxiolytics, Hypnotics. Antiepileptics, Antidepressant, Antipsychotics, Antiparkinsonians, Opioids.	7-8	5	27-36	20
		5		
<b>Pulmonology:</b> Drugs used in all types of Bronchial Asthmas, COPDs; Antitussives, Expectorants. <b>Gastroenterology:</b> Anti-emetics, Prokinetics; Antacids; Drugs used in Acid Peptic Disease; IBS; Crohn's Disease; Antidiarrheals,	9	5	37-41	10
<b>Chemotherapy:</b> Inhibitors of Cell Wall synthesis / Protein synthesis & Nucleic Acid synthesis; Antifolates. Anti- mycobacterials; Antiprotozoals, Antifungal, Antivirals, Anticancers; Immunosuppressants, Anthelmintics.	10-11	5	42-51	20
		5		
<b>Rheumatology &amp; Gout</b> NSAIDs; DMARDs, Antigout Drugs; Antihistamines, Corticosteroids;	12	5	52-55	09
<b>Endocrinology:</b> Thyroxin, Anti-thyroids, Anti- Diabetics, Gonadal Hormones & their antagonists; Anabolic agents, Drugs during Pregnancy, Lactation, etc.	13	5	56-60	10
<b>Miscellaneous Topics:</b> Dermatology; Paediatric, Surgery, Vitamins, Geriatrics, Sport Medicine, Heavy Metals & Antidotes, Drug Interactions.	14	5	61-65	10

**STAFF CONTACTS**



**PHARMACOLOGY DEPARTMENT**  
**SMDC, LAHORE**

<b>Sr. No</b>	<b>Name</b>	<b>Email Address</b>
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04	Dr. Fouzia Perveen	drfouziaperveen@gmail.com
05	Dr. Zarish Ghafoor	zarishghafoor12@gmail.com
06	Dr. Ayesha Iqbal	drayasha83@gmail.com



## PRESCRIBED TEXT BOOKS & REFERENCES

### Recommended books:

#### Text Books

1. Basic and Clinical Pharmacology 14th Edition by Bertram Katzung.
2. Katzung & Trevor's Pharmacology Examination and Board Review, 12<sup>th</sup> Edition by Anthony Trevor, Bertram Katzung, Marieke Knudering-Hall.
3. Lippincott Illustrated Reviews: Pharmacology (Lippincott Illustrated Reviews Series) 7th Edition by Karen Whalen PharmD BCPS.

#### Reference Book

1. Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 13 Edition  
Laurence L. Brunton, Randa Hilal-Dandan, Björn C. Knollmann.

#### Practical copies:

1. Handbook of applied pharmacology
2. A manual of experimental pharmacology and pharmacy



# Department of Pathology



## **PREFACE**

Study guide plays a pivotal role in enhancing students' understanding and grasp of a subject. It acquaints the students about the course outline, teaching modules, and methodology. It also briefs about the assessment and evaluation policies in an academic session. This study guide aims to promote self-regulated learning among students. It gives an overview of course outcomes & learning objectives.

This study guide has been carefully planned to keep in view the mission of UHS, Lahore, and the vision of our institute. It is tailored according to the students' needs. This would hopefully enable our young inquisitive minds to develop a good understanding of this subject and adequately prepare for the examination.

**Dr. Maria Aslam**

MBBS, M.Phil, CHPE, CME

Prof & HOD of Pathology Deptt

SMDC, Lahore

Date: 04-02-2023



## LIST OF CONTENTS

Sr. No	Topic
01	Teaching and Learning Strategies
02	List of Lectures
03	List of Practicals & Tutorials (SGDs)
04	Learning Objectives
05	Assessment Plan
06	List of Faculty
07	Recommended Books & References



## TEACHING AND LEARNING STRATEGIES

### a) Modes of Information Transfer

PMC has allocated 250 hours of teaching in the subject of General Pathology & Microbiology for the 3<sup>rd</sup> Year MBBS course. Following teaching modules have been planned to impart core knowledge of General Pathology & Microbiology so that students can grasp the subject fully and is adequately prepared for university examinations.

#### **Large Group Interactive Session (LGIS)**

A total of 175-185 LGIS are planned for the entire year. The session will be conducted by the Professor, associate professors, and assistant professors. The session will be interactive and students should actively participate in them. At the start of each session, the learning outcome will be displayed.

#### **Practical Classes, Demonstration & Individual Performance**

One practical class has been planned per week. The class will be divided into 03 batches to conduct the practicals effectively. Practical will be conducted by demonstrators under the active supervision of senior faculty members. Students are required to enter their work in their practical note books and get them checked by the instructors regularly. It will comprise of practical on microscopic & gross appearance of the various organs & tissues. Practical for the identification of various microbial organisms and laboratory safety procedures will also be conducted.

#### **Small-Group Discussion (SGD) & Case-based learning**

The class will be divided into 03 batches. The batch will be further divided into smaller groups for effective learning. Topics for the SGD will be notified at the start of the month. Case-based learning and small group discussion will be conducted throughout the academic year. Clinical problems will be notified at least one week before the session. A senior demonstrator will be interactively facilitating the session.

#### **Students' presentation**

Presentations by the students were scheduled after the completion of the course. Topics will be allocated to students and each presentation will be of 10-15 minutes duration with a Question & Answer session after it. This will help to increase student's engagement in their learning.

#### **Skill Demonstration**

For appropriate Skill demonstration, the class is divided into 5-6 batches and hands on practical skill demonstration is conducted on specimen and samples with the use of appropriate equipment. For 3<sup>rd</sup> year MBBS Blood sampling /Phlebotomy is demonstrated on specimen and individual students are asked to perform the skill afterwards.

### b) Venue for Learning Outcomes

- Lecture Halls
- Practical Laboratory
- Tutorial rooms
- Skill Laboratory
- Libraries including audio visual



- Online classes- Zoom/Google class room

## LIST OF LECTURES

### 3<sup>rd</sup> YEAR MBBS

#### Cell Injury

Sr. No.	Topic	Doctor Name
1	Cell Injury: Infarction and gangrene oncosis and autolysis, sequence of the ultrastructural and biochemical changes	Prof. M. Tahir Saeed
2	Cell Injury: Causes of cell injury, reversible & irreversible injury	Prof. M. Tahir Saeed
3	Cell Injury: Mechanisms of cell injury	Prof. M. Tahir Saeed
4	Cell Injury: Cellular adaptations	Prof. M. Tahir Saeed
5	Cell Injury: Necrosis & its types	Prof. M. Tahir Saeed
6	Cell Injury: Apoptosis	Prof. M. Tahir Saeed
7	Cell Injury: Intracellular accumulations	Prof. M. Tahir Saeed
8	Cell Injury: Calcification	Prof. M. Tahir Saeed
9	Cell Injury: Metabolic disorders	Prof. M. Tahir Saeed

#### Inflammation and Mediators of Inflammation

Sr. No.	Topic	Doctor Name
1	Inflammation: Role of inflammation, acute inflammation	Prof. Maria Aslam
2	Inflammation: Vascular changes of acute inflammation	Prof. Maria Aslam
3	Inflammation: Cellular events of acute inflammation	Prof. Maria Aslam
4	Inflammation: Chemical mediators of inflammation & arachidonic acid metabolism in inflammation	Prof. Maria Aslam
5	Inflammation: Exogenous and endogenous pyrogens & morphological patterns of acute inflammation	Prof. Maria Aslam
6	Inflammation: Chronic inflammation	Prof. Maria Aslam
7	Inflammation: Systemic effects of acute and chronic inflammation	Prof. Maria Aslam

#### Healing & Repair

Sr. No.	Topic	Doctor Name
1	Wound Healing: Repair and regeneration	Prof. Maria Aslam
2	Wound Healing: Wound healing by first and second intention.	Prof. Maria Aslam
3	Wound Healing: Complications of wound healing	Prof. Maria Aslam





### Disorders of Circulation

Sr. No.	Topic	Doctor Name
1	Disorders of Circulation:Edema	Prof. Maria Aslam
2	Disorders of Circulation:Hyperemia, congestion & role of endothelium	Prof. Maria Aslam
3	Disorders of Circulation:Hemostasis and coagulation	Prof. Maria Aslam
4	Disorders of Circulation:Thrombosis & embolism	Prof. Maria Aslam
5	Disorders of Circulation:Infarction	Prof. Maria Aslam
6	Disorders of Circulation:Shock	Prof. Maria Aslam

### Genetics

Sr. No.	Topic	Doctor Name
1	Introduction	Prof. M. Tahir Saeed
2	Common sex linked, autosomal recessive and autosomal dominant disorders	Prof. M. Tahir Saeed
3	Common genetic mutations	Prof. M. Tahir Saeed
4	Diseases associated with consanguineous marriages	Prof. M. Tahir Saeed
5	Molecular biology techniques	Prof. M. Tahir Saeed

### Immunology

Sr. No.	Topic	Doctor Name
1	Immunology: Innate & acquired Immunity, Antigen, antibody, epitope, hapten	Dr. Attia Lateef
2	Immunology: Structure and function of major histocompatibility complex (MHC)	Dr. Attia Lateef
3	Immunology: Cytokines	Dr. Attia Lateef
4	Immunology: Mechanism of humoral and cell mediated immunity & Cells of Immune System	Dr. Attia Lateef
5	Immunology: Hypersensitivity reactions, Type I & Type II	Dr. Attia Lateef
6	Immunology: Hypersensitivity reactions, Type III, Type IV	Dr. Attia Lateef
7	Immunology: Autograft, homograft, allograft and xenograft, Immunotolerance and immunoparalysis	Dr. Attia Lateef
8	Immunology: Classification of Immunodeficiency disorders, Basis of autoimmunity & Tissue Immunology: transplantation	Dr. Attia Lateef
9	Immunology: Pathology and pathogenesis of AIDS	Dr. Attia Lateef
10	Immunology: Lab diagnosis of immunological diseases	Dr. Attia Lateef

### Neoplasia

Sr. No.	Topic	Doctor Name
1	Agenesis, Dysgenesis, Aplasia, Hypoplasia, Metaplasia, Dysplasia, Neoplasia, Anaplasia, Cell cycle and cell types	Prof. Maria Aslam
2	Classification of tumors: Characteristics of benign and malignant tumors with examples, Nomenclature of tumours. Difference between Carcinoma and Sarcoma	Prof. Maria Aslam



3	Oncogenes, proto oncogenes with examples	Prof. Maria Aslam
4	Mechanism of carcinogenesis & Carcinogenic agents (Radiation, Viral, Chemical & Physical)	Prof. Maria Aslam
5	Routes/Methods of spread of malignant tumours, Importance of sential lymph node biopsy	Prof. Maria Aslam
6	Local & systemic effects of tumours, Paraneoplastic syndrome	Prof. M. Tahir Saeed
7	Tumour markers used in diagnosis & management of cancer	Prof. M. Tahir Saeed
8	Grading & staging of tumours	Prof. M. Tahir Saeed
9	Epidemiology of common cancers in Pakistan & premalignant conditions	Prof. M. Tahir Saeed
10	Cancer screening and diagnosis of cancer & Host defense against tumours	Prof. M. Tahir Saeed

### Parasitology

Sr. No.	Topic	Doctor Name
1	General Parasitology & classification of parasites	Prof. Saima Inam
2	Intestinal & urogenital protozoa	Prof. Saima Inam
3	Blood and tissue protozoa	Prof. Saima Inam
4	Blood and tissue protozoa	Prof. Saima Inam
5	Cestodes	Prof. Saima Inam
6	Cestodes	Prof. Saima Inam
7	Trematodes	Prof. Saima Inam
8	Trematodes	Prof. Saima Inam
9	Nematodes	Prof. Saima Inam
10	Nematodes	Prof. Saima Inam

### Virology

Sr. No.	Topic	Doctor Name
1	General Virology	Dr. Attia Lateef
2	Mumps, measles, rubella	Dr. Attia Lateef
3	Hepatitis A, B, C, D, E	Dr. Attia Lateef
4	Influenza, parainfluenz, RVS	Dr. Attia Lateef
5	Herpes	Dr. Attia Lateef
6	CMV, EBV	Dr. Attia Lateef
7	Rota, rabies	Dr. Attia Lateef
8	Chicken pox	Dr. Attia Lateef
9	HIV	Dr. Attia Lateef

### General Bacteriology

Sr. No.	Topic	Doctor Name
1	History of microbiology, general characteristics of microorganisms	Prof. Saima Inam
2	Morphology of bacteria, gram staining	Prof. Saima Inam
3	Bacterial classification & structure of bacteria	Prof. Saima Inam
4	Structure of bacteria	Prof. Saima Inam



5	Bacterial Genetics: Bacterial genome and its expression, mutation, definition and types	Prof. Saima Inam
6	Bacterial Genetics: Methods of DNA transfer within bacterial cells and between various bacteria	Prof. Saima Inam
7	Bacterial growth including phases of growth & growth curve, classification of bacteria according to temperature & oxygen requirement	Prof. Saima Inam
8	Culture media (definition & their classification with examples & composition, preparation of culture media)	Prof. Saima Inam
9	Culture inoculation technique and interpretation of culture report	Prof. Saima Inam
10	Normal flora, pathogenesis including definitions of communicable disease, epidemic, endemic & pandemic diseases, carriers, pathogens, opportunists, commensals and colonizers, determinants of bacterial pathogenesis, stages of infection	Prof. Saima Inam
11	Pathogenesis: Microbial mechanisms of invasion & resistance, MOA and differences between exotoxin & endotoxin, biofilms, pathogenicity islands	Prof. Saima Inam
12	Antibiotics, selective toxicity, bacteriostatic & bactericidal, host determinants in relation to selection of an antimicrobial drug for therapy	Prof. Saima Inam
13	Mode of action of various antimicrobial drug groups, superinfection & cross sensitivity	Prof. Saima Inam
14	MIC & MBC, Bacterial resistance & the mechanisms involved in acquiring bacterial resistance, Mechanisms involved in transfer of drug resistance to bacterial resistance	Prof. Saima Inam
15	Genetics & non-genetic basis of drug resistance	Prof. Saima Inam
16	Sterilization & disinfection: Definition, difference, methods of sterilization	Prof. Saima Inam
17	Sterilization & disinfection: Methods of disinfection (Facility where the doctor practices, Examination table, Any spillage e.g. sputum, vomitus, stool, urine, blood, Examination tools, e.g., thermometer, nasal and ear specula and spatula	Prof. Saima Inam
18	Sterilization & disinfection: Principles of aseptic techniques such as Venepuncture, urinary catheterization, bandaging, suturing and lumbar puncture	Prof. Saima Inam

### Clinical Bacteriology

Sr. No.	Topic	Doctor Name
1	Gram positive cocci: Pathogenesis, Treatment, Epidemiology, Prevention and Control of Staphylococcus	Prof. Saima Inam
2	Gram positive cocci: Pathogenesis, Treatment, Epidemiology, Prevention and Control of Staphylococcus	Prof. Saima Inam



3	Gram positive cocci: Pathogenesis, Treatment, Epidemiology, Prevention and Control of Streptococcus	Prof. Saima Inam
4	Gram positive cocci: Pathogenesis, Treatment, Epidemiology, Prevention and Control of Streptococcus	Prof. Saima Inam
5	Gram negative cocci: Pathogenesis, Treatment, Epidemiology, Prevention and Control of Neisseria	Prof. Saima Inam
6	Gram positive rods: Classification, Pathogenesis, Treatment, Epidemiology, Prevention and Control of Bacillus	Prof. Saima Inam
7	Gram positive rods: Pathogenesis, Treatment, Epidemiology, Prevention and Control of Clostridium	Prof. Saima Inam
8	Gram positive rods: Pathogenesis, Treatment, Epidemiology, Prevention and Control of Clostridium	Prof. Saima Inam
9	Gram positive rods: Pathogenesis, Treatment, Epidemiology, Prevention and Control of Crynebacterium, Listeria, Gardenella	Prof. Saima Inam
10	Pathogenesis, Treatment, Epidemiology, Prevention and Control of Actinomycetes	Prof. Saima Inam
11	Gram negative rods of Respiratory tract Pathogenesis, Treatment, Epidemiology, Prevention and Control of Haemophilus, Beordetella, Legionella, Mycoplasma	Prof. Saima Inam
12	Epidemiology, Pathogenesis, Treatment, Prevention & Control of Mycobacterium tuberculosis	Prof. Saima Inam
13	Epidemiology, Pathogenesis, Treatment, Prevention & Control of Mycobacterium leprae & atypical mycobacteria	Prof. Saima Inam
14	Salient features, lab diagnosis including culture & biochemical tests	Prof. Saima Inam
15	Epidemiology, Pathogenesis, Treatment, Prevention & Control of E.coli	Prof. Saima Inam
16	Epidemiology, Pathogenesis, Treatment, Prevention & Control of Klebsiella & Enterobacter	Prof. Saima Inam
17	Epidemiology, Pathogenesis, Treatment, Prevention & Control of Proteus, Morganella & Providencia	Prof. Saima Inam
18	Epidemiology, Pathogenesis, Treatment, Prevention & Control of Salmonella & Shigella	Prof. Saima Inam
19	Epidemiology, Pathogenesis, Treatment, Prevention & Control of Pseudomonas	Prof. Saima Inam
20	Epidemiology, Pathogenesis, Treatment, Prevention & Control of Vibrio cholera, Vibrio parahemolyticus, Campylobacter jejuni & Helicobacter pylori	Prof. Saima Inam
21	Epidemiology, Pathogenesis, Treatment, Prevention & Control of Chlamydia & Rickettsia	Prof. Saima Inam
22	Epidemiology, Pathogenesis, Treatment, Prevention & Control of Treponema palladium, Leptospira & Borrelia	Prof. Saima Inam
23	Zoonosis	Prof. Saima Inam



24	Principles of proper collection and submission of specimens for laboratory investigations, and processing of microbiological specimens	Prof. Saima Inam
25	Microorganisms responsible for infection of Central Nervous System, Processing of CSF	Prof. Saima Inam
26	Microorganisms responsible for infection of Respiratory System, Infections of Bones and Joints & Infection of the Skin, Processing of Sputum, Throat Swab & Pus	Prof. Saima Inam
27	Microorganisms responsible for infection of Gastrointestinal System & Hepatic Infections	Prof. Saima Inam
28	Microorganisms responsible for infection of Genital System & Urinary System	Prof. Saima Inam

### **Mycology**

<b>Sr. No.</b>	<b>Topic</b>	<b>Doctor Name</b>
1	General Mycology	Dr. Attia Lateef
2	Cutaneous and subcutaneous	Dr. Attia Lateef
3	Systemic	Dr. Attia Lateef
4	Opportunistic	Dr. Attia Lateef



## LIST OF PRACTICALS & TUTORIALS (SGDs)

### 3<sup>rd</sup> YEAR MBBS

#### Cell Injury

Sr. No.	Topic	Name
	<b>Practicals</b>	
1	Cellular adaptations	Dr. Sameen Hassan
2	Caseous, liquefactive gangrenous necrosis	Dr. Sameen Hassan
3	Caseous, fat & fibrinoid necrosis	Dr. Sameen Hassan
4	Calcification & pigmentation	Dr. Sameen Hassan
	<b>Tutorials (SGD)</b>	
5	Mechanisms of cell injury & reversible & irreversible injury	Prof. M. Tahir Saeed Dr. Attia Lateef
6	Cellular adaptation	Prof. M. Tahir Saeed Dr. Attia Lateef
7	Necrosis & apoptosis	Prof. M. Tahir Saeed Dr. Attia Lateef
8	Calcification and pigmentation	Prof. M. Tahir Saeed Dr. Attia Lateef

#### Inflammation and Mediators of Inflammation

Sr. No.	Topic	Name
	<b>Practicals</b>	
1	Acute Inflammation	Dr. Sameen Hassan
2	Chronic Inflammation	Dr. Sameen Hassan
3	Granulomatous Inflammation	Dr. Sameen Hassan
	<b>Tutorials (SGD)</b>	
4	Vascular & Cellular events of acute inflammation	Prof. Maria Aslam Dr. Attia Lateef
5	Morphological patterns of acute inflammation	Prof. Maria Aslam Dr. Attia Lateef
6	Chronic & Granulomatous Inflammation	Prof. Maria Aslam Dr. Attia Lateef

#### Healing & Repair

Sr. No.	Topic	Name
	<b>Tutorial (SGD)</b>	
1	Wound healing by primary and secondary intention & complications of wound healing	Prof. Maria Aslam Dr. Attia Lateef



### Disorders of Circulation

Sr. No.	Topic	Name
	<b>Practicals</b>	
1	Hyperemia & congestion	Dr. Sameen Hassan
2	Thrombosis	Dr. Sameen Hassan
3	Infarction	Dr. Sameen Hassan
	<b>Tutorials (SGD)</b>	
4	Edema, hyperemia & congestion	Prof. Maria Aslam Dr. Attia Lateef
5	Thrombosis, embolism	Prof. Maria Aslam Dr. Attia Lateef
6	Infarction & shock	Prof. Maria Aslam Dr. Attia Lateef

### Immunology

Sr. No.	Topic	Name
	<b>Practicals</b>	
1	Lab Diagnosis	Dr. Sameen Hassan
2	Lab Diagnosis	Dr. Sameen Hassan
	<b>Tutorials (SGD)</b>	
3	Cell of immune System, MHC, cellular & Humoral Immunity	Prof. M. Tahir Saeed Dr. Attia Lateef
4	Hypersensitivity Reactions	Prof. M. Tahir Saeed Dr. Attia Lateef

### Neoplasia

Sr. No.	Topic	Name
	<b>Practicals</b>	
1	<b>Benign epithelial tumours:</b> Fibroadenoma breast Thyroid adenoma Papilloma Cyst adenomas	Dr. Sameen Hassan
2	<b>Benign mesenchymal tumors</b> Leiomyoma Lipoma Teratoma/dermoid cyst Haemangioma	Dr. Sameen Hassan
	<b>Tutorials (SGD)</b>	
3	<b>Malignant tumours:</b> Squamous cell carcinoma Basal cell carcinoma	Prof. Maria Aslam Dr. Attia Lateef
4	<b>Malignant tumours:</b> Carcinoma breast Papillary carcinoma thyroid	Prof. Maria Aslam Dr. Attia Lateef



### Parasitology

Sr. No.	Topic	Name
	<b>Practical</b>	
1	Lab diagnosis of viral diseases	Dr. Sameen Hassan
	<b>Tutorials (SGD)</b>	
1	Protozoa	Prof. Saima Inam Dr. Navin Bilal
2	Cestodes	Prof. Saima Inam Dr. Navin Bilal
3	Trematodes	Prof. Saima Inam Dr. Navin Bilal
4	Nematodes	Prof. Saima Inam Dr. Navin Bilal

### Virology

Sr. No.	Topic	Name
	<b>Practical</b>	
1	Lab diagnosis of parasitic infestation	Dr. Sameen Hassan
	<b>Tutorials (SGD)</b>	
1	DNA enveloped	Dr. Attia Lateef Dr. Navin Bilal
2	DNA non-enveloped	Dr. Attia Lateef Dr. Navin Bilal
3	RNA enveloped	Dr. Attia Lateef Dr. Navin Bilal
4	RNA non-enveloped	Dr. Attia Lateef Dr. Navin Bilal
5	Hepatitis	Dr. Attia Lateef Dr. Navin Bilal

### Microbiology

Sr. No.	Topic	Name
	<b>Practicals</b>	
1	Study of microscope	Dr. Saleha Maqsood
2	Gram staining	Dr. Saleha Maqsood
3	Culture media	Dr. Saleha Maqsood
4	Sterilization, disinfection & aseptic techniques	Dr. Saleha Maqsood
5	ZN staining and safe processing of sputum sample	Dr. Saleha Maqsood
6	Catalase test, coagulase test	Dr. Saleha Maqsood
7	DNase test, oxidase test	Dr. Saleha Maqsood
8	Biochemical tests-1: TSI, citrate, utilization test	Dr. Saleha Maqsood
9	Biochemical tests-2: Motility, indole, urease test	Dr. Saleha Maqsood
10	Hospital infection prevention & control: Spill management, hand hygiene, prevention of needle	Dr. Saleha Maqsood





	stick injury	
11	Stool examination	Dr. Saleha Maqsood
12	Urine examination	Dr. Saleha Maqsood
<b>Bacteriology - Tutorials (SGD)</b>		
1	Bacterial morphology and structure	Prof. Saima Inam Dr. Navin Bilal
2	Bacterial classification and growth curve	Prof. Saima Inam Dr. Navin Bilal
3	Normal flora & pathogenesis	Prof. Saima Inam Dr. Navin Bilal
4	Bacterial genetics	Prof. Saima Inam Dr. Navin Bilal
5	Sterilization & disinfection	Prof. Saima Inam Dr. Navin Bilal
6	Antimicrobials and resistance to antimicrobials	Prof. Saima Inam Dr. Navin Bilal
7	Gram positive cocci: Staphylococci	Prof. Saima Inam Dr. Navin Bilal
8	Gram positive cocci: Streptococci	Prof. Saima Inam Dr. Navin Bilal
9	Gram negative cocci: Neisseria, moranella	Prof. Saima Inam Dr. Navin Bilal
10	Mycobacteria	Prof. Saima Inam Dr. Navin Bilal
11	Gram positive rods-1	Prof. Saima Inam Dr. Navin Bilal
12	Gram positive rods-2	Prof. Saima Inam Dr. Navin Bilal
13	Gram negative rods: Enterobacteriaceae-1	Prof. Saima Inam Dr. Navin Bilal
14	Gram negative rods: Enterobacteriaceae-2	Prof. Saima Inam Dr. Navin Bilal
15	Gram negative rods: Non-fermenters	Prof. Saima Inam Dr. Navin Bilal
16	Respiratory tract & actinomycetes	Prof. Saima Inam Dr. Navin Bilal
17	Spirochetes and zoonosis	Prof. Saima Inam Dr. Navin Bilal

### **Mycology**

<b>Sr. No.</b>	<b>Topic</b>	<b>Name</b>
<b>Practical</b>		
1	Lab diagnosis of fungal disease	Dr. Sameen Hassan
<b>Tutorials (SGD)</b>		
1	Cutaneous and subcutaneous	Dr. Attia Lateef Dr. Navin Bilal



2	Systemic	Dr. Attia Lateef Dr. Navin Bilal
3	Opportunistic	Dr. Attia Lateef Dr. Navin Bilal



## LEARNING OBJECTIVES

### GENERAL PATHOLOGY:

#### CELLULAR RESPONSES TO STRESS AND TOXIC INSULTS: ADAPTATION, INJURY & DEATH

By the end of this topic, the students will be able to

1. Describe the sequence of ultra structural and biochemical changes which occur in the cell in response to ischemia, immunological injury, anaphylactic reaction, physical agents, genetic defects, nutritional deficiency and infectious agents / organisms.
2. Explain the reversible & irreversible cell injury.
3. Describe free radical and chemical injury.
4. Describe necrosis, list of its types with examples.
5. Describe apoptosis & its significance, and explain mechanism of apoptosis.
6. Enlist intracellular & extracellular accumulations.
7. Enlist exogenous & endogenous pigments.
8. Explain pathological calcification with its types and examples.
9. Identify cell swelling, necrosis, types of calcification, intracellular accumulations and cellular adaptations including atrophy, metaplasia, hypertrophy & hyperplasia on microscopic and gross examination.

#### INFLAMMATION AND REPAIR

By the end of this topic, the students will be able to

1. Describe the role of inflammation in the defense mechanisms of the body.
2. Describe the vascular changes of acute inflammation and relate these to the morphological and tissue effects.
3. Describe the process of chemotaxis, opsonization and phagocytosis.
4. Describe the role of cellular components in inflammatory exudates.
5. Differentiate between exudates and transudate.
6. List the important chemical mediators of inflammation.
7. Describe the pathway of arachidonic acid metabolism.
8. Discuss the role of products of arachidonic acid metabolism in inflammation.
9. Describe the mechanism for development of fever, with reference to exogenous and endogenous pyrogens.
10. Describe chronic inflammation.
11. Describe granuloma and list its type along with causes.
12. Describe the systemic effects of acute and chronic inflammation and their possible outcomes.
13. Describe the significance of ESR.
14. Give two examples of induced hypothermia in medicine.
15. Describe healing in specialized tissue.
16. Describe the differences between repair and regeneration.
17. Describe wound healing by first and second intention.
18. Discuss the factors that influence the inflammatory reparative response.
19. Compare wound contraction with cicatrization.
20. Describe the formation of granulation tissue.



21. Describe the complications of wound healing.
22. Identify the following on microscopic and gross examination:
  - Acute appendicitis
  - Chronic cholecystitis
  - Chronic granulomatous inflammation
  - Morphological patterns of inflammation
23. Draw labeled diagrams of all the inflammatory cells.

## **HEMODYNAMIC DISORDERS, THROMBOEMBOLIC DISEASE & SHOCK**

By the end of this topic, the students will be able to

1. Explain the pathogenesis of thrombosis.
2. Describe the possible consequences of thrombosis.
3. Define and classify emboli according to their composition.
4. Describe the difference between arterial and venous emboli.
5. Define edema, ascites, hydrothorax and anasarca.
6. Describe the pathophysiology of edema with special emphasis on chronic heart failure.
7. Describe the pathogenesis of four major types of shock (hypovolemic, cardiogenic, vasovagal & septic) and list their causes.
8. Describe the compensatory mechanisms involved in shock.
9. Identify the following on microscopic and gross examination:
  - Thrombus and clot
  - Hemorrhage
  - Embolus
  - Infarction

## **NEOPLASIA**

By the end of this topic, the students will be able to

1. Define agenesis, dysgenesis, aplasia, hypoplasia, hyperplasia, metaplasia, dysplasia, neoplasia, anaplasia, atrophy and hypertrophy.
2. Describe the cell cycle and list cell types (stable, labile, permanent).
3. Explain the mechanisms controlling cell growth.
4. Describe the classification systems of tumors.
5. Compare the characteristics of benign and malignant tumors and the difference between carcinoma and sarcoma.
6. Describe the grading and staging system of tumors.
7. Describe the biology of tumor growth.
8. Discuss the process of carcinogenesis.
9. Describe host defense against tumors.
10. Discuss the mechanism of local and distant spread of tumor.
11. Discuss the local and systemic effects of tumors.
12. List tumor markers used in the diagnosis and management of cancers.
13. List common chemical, physical agents and viruses.
14. Microscopic and gross identification of:
  - Malignant cell
  - Benign epithelial tumors
  - Benign mesenchymal tumors
  - Malignant epithelial tumors
  - Malignant mesenchymal tumors



## **GENETICS**

By the end of this topic, the students will be able to

1. List the common sex linked, autosomal recessive and autosomal dominant disorders.
2. Describe and give examples of common genetic mutations.
3. Describe diseases associated with consanguineous marriages.
4. Describe molecular biology techniques.

## **IMMUNOLOGY**

By the end of this topic, the students will be able to

1. Define antigen, antibody, epitope, hapten and adhesion molecules.
2. Differentiate between innate and acquired immunity.
3. Describe the structure and function at major histocompatibility complex (MHC).
4. Describe Cytokines.
5. Describe the mechanism of humoral and cell mediated immunity.
6. Describe type I, Type II, Type III, and type IV hypersensitivity reactions giving relevant examples.
7. Define autograft, homograft, allograft and xenograft.
8. Describe immunotolerance and immunoparalysis.
9. Discuss the mechanism involved in allograft rejection and steps that can be taken to combat rejection.
10. Classify the immunodeficiency disorders.
11. Describe the basis of autoimmunity.
12. Describe tissue transplantation.
13. Describe the pathology and pathogenesis of AIDS.
14. Describe the lab diagnosis of immunological diseases.
15. Discuss various serological diagnostics techniques.

## **MICROBIOLOGY**

### **General Bacteriology**

By the end of general bacteriology, the students will be able to

1. Differentiate between prokaryotes and eukaryotes.
2. Describe general characteristics, morphology, growth of bacteria and culture media.
3. Describe classification & taxonomy of bacteria.
4. Define the terms: communicable, endemic, epidemic, pandemic diseases, carriers, pathogens, opportunists, commensals, colonizers, normal flora, pathogenicity, virulence etc.
5. Explain microbial mechanisms of invasion and virulence.
6. Differentiate between sterilization & disinfection and explain the methods of sterilization & disinfection.
7. Explain hospital acquired or nosocomial infections.
8. Give universal precautions for infection control.
9. Define antibiotic, selective toxicity, broad spectrum & narrow spectrum antibiotic, bacteriostatic and bactericidal drugs, MIC, MBC, superinfection, cross- sensitivity.
10. Describe mode of action of various antimicrobial drugs.
11. Explain bacterial resistance and mechanisms involved in acquiring bacterial resistance.
12. Explain various mechanisms of gene transfer in bacteria and their application.



13. Describe various serological diagnostic techniques for infectious diseases.
14. Disinfect and sterilize the following:
  - Facility where the doctor practices
  - Examination table
  - Any spillage e.g. sputum, vomitus, stool, urine, blood
  - Examination tools, e.g., thermometer, nasal and ear specula and spatula
15. Prepare area for aseptic techniques like:
  - Venepuncture
  - Catheterization
16. Prepare smears from specimens and from culture plates.
17. Perform gram staining and Z.N staining and interpret results.
18. Discuss the procedure of sample collection and transport.
19. Perform complete urine examination: physical, chemical and microscopy and interpret results.

### **Special Bacteriology**

By the end of special bacteriology the students will be able to

1. Describe morphology, cultural characteristics, virulence factors, pathogenesis, epidemiology, treatment, prevention and control of all bacteria that have been listed below:
  - Staphylococcus
  - Streptococcus
  - Neisseria
  - E. coli
  - Klebsiella
  - Salmonella
  - Shigella
  - Enterobacter
  - Citrobacter
  - Proteus
  - Bacillus
  - Corynebacterium diphtheriae
  - Clostridia
  - Listeria monocytogenes
  - Actinomycetes
  - Vibrio
  - Campylobacter
  - Helicobacter
  - Hemophilus
  - Bordetella
  - Legionella
  - Pseudomonas
  - Acinetobacter
  - Mycobacteria
  - Anaerobes
  - Spirochetes
  - Mycoplasma, Chlamydia, Rickettsia



- Zoonosis
2. List the microorganisms responsible for the infection of the following organ systems:
    - Central Nervous System
    - Respiratory System
    - Gastrointestinal System
    - Genital System
    - Urinary System
    - Bones and Joints
    - Zoonosis
    - Skin
    - Liver
  3. Perform the biochemical tests that have been listed and interpret positive and negative results:
    - Catalase test
    - Coagulase test
    - DNase test
    - Bile solubility test
    - Bile esculin hydrolysis test
    - Oxidase test
    - TSI
    - Indole test
    - Citrate utilization test
    - Motility test
    - Urease test
  4. Identification of AFB in Sputum.
  5. Identification of Culture on Lowenstein–Jensen medium.
  6. Identification of  $\alpha$  &  $\beta$  hemolysis on blood agar plate.
  7. Differentiation of LF and NLF on MacConkey and CLED agar plate.

## **PARASITOLOGY**

By the end of parasitology the students will be able to

1. Classify parasites.
2. Explain life cycle, mode of transmission, pathogenesis, clinical findings, treatment, prevention and control of the following parasites:
  - Giardia lamblia
  - Entamoeba histolytica
  - Cryptosporidium
  - Trichomonas vaginalis
  - Plasmodium species
  - Leishmania species
  - Naegleria species
  - Toxoplasma gondii
  - Pneumocystis carinii
  - Ascaris lumbricoides
  - Ancylostoma duodenale
  - Necator americanus



- Trichuris trichuria
  - Enterobius vermicularis
  - Filaria species
  - Strongyloides stercoralis
  - Schistosoma species
  - Echinococcus species
  - Taenia Solium
  - Taenia saginata
  - Diphylobothrium latum
  - Hymenolepis nana
  - Wuchereia
3. Perform stool analysis including physical and microscopic examination and identify cysts / ova.

## MYCOLOGY

By the end of mycology the students will be able to

1. Classify different types of mycosis:
  - Cutaneous mycosis
  - Subcutaneous mycosis
  - Systemic mycosis
  - Opportunistic mycosis
2. Explain clinical findings and lab diagnosis of the following medically important fungi:
  - Cryptococcus neoformans
  - Candida albicans
  - Dermatophytes
3. Microscopic examination of fungal growth.
4. Identification of culture media for fungal growth.

## VIROLOGY

By the end of virology the students will be able to

1. Classify viruses.
2. Describe mode of replication of viruses.
3. Describe diagnostic techniques of various viral infections.
4. Explain morphology general characteristics, pathogenesis, clinical findings, epidemiology, treatment and prevention / control of following viruses:
  - Mumps
  - Herpes
  - Measles
  - Influenza
  - Parainfluenza
  - RSV
  - Hepatitis A, B, C, D, E
  - Rota
  - CMV
  - EBV
  - Rubella





- Chicken Pox
- HIV
- Rabies
- Dengue
- Ebola
- Zika



## ASSESSMENT PLAN

### **Formative Assessment:**

It will be carried out throughout the academic year to provide timely feedback to the students and help them to identify learning gaps. It includes surprise quizzes, tests during SGDs and LGIS. They may be graded so that students can judge themselves in comparison with their peers.

Summative Assessment (Continuous Internal Assessment)



## LIST OF FACULTY

Sr.No	Name	Designation	E-mailAddress
01	Prof. Maria Aslam	Professor & HOD	mariaaslam77@outlook.com
02	Prof. M. Tahir Saeed	Professor	drtahirsaeed@yahoo.com
03	Prof. Saima Inam	Professor	saimainam@ymail.com
04	Dr. Rafiq Ahmed Shahid	Associate Professor	rafiqke@gmail.com
05	Dr. Madiha Ehsan ul Haq	Assistant Professor	madiha_ehsan@hotmail.com
06	Dr. Attia Lateef	Sr. Demonstrator	atialateef@hotmail.com
07	Dr. Sameen Hassan	Demonstrator	sameen.szh@gmail.com
08	Dr. Saleeha Maqsood	Demonstrator	sawleiha@hotmail.com
09	Dr. Naveen Bilal	Demonstrator	naveenbilal25@gmail.com
10	Dr. Ahmad Latif	Demonstrator	fabros50@gmail.com
11	Dr. Hira Ajmal	Demonstrator	hiraajmal47@gmail.com



## RECOMMENDED BOOKS&REFERENCES

### RECOMMENDED READING

1. Kumar, Cortan, Robbins. Pathological Basis of Disease. 9<sup>th</sup>Ed. W.B. Saunders.
2. Levinson, Jawetz. Medical Microbiology and Immunology. 9<sup>th</sup> Ed. Mc Graw-Hill.
3. Jorde. Medical Genetics. 3<sup>rd</sup>Ed. Mosby.
4. AH Nagi. Clinical Pathology Interpretations.

### REFERENCE BOOKS

1. James CE Underwood, Simon S Cross. General and Systematic Pathology: with STUDENT CONSULT Access. 5<sup>th</sup> Ed.
2. JB Walter, MS Israel. General Pathology. 7<sup>th</sup> Ed.
3. David Lowe. General Pathology: Vivas- Questions You Will be Asked.
4. Nicholas P. Money. Microbiology: A Very Short Introduction (Very Short Introductions)
5. Monica Cheesbrough. Medical Laboratory Manual for Tropical Countries: v.2: Microbiology.



# **Department of Forensic Medicine & Toxicology**



## **PREFACE**

Study guides can make a major contribution to learning. They are sometimes likened to a tutor sitting on the student's shoulder-available 24 hours a day to advise the student what he/she should be doing at any stage in their study. Study guides are different from textbooks. They apprise the student at the beginning of an academic session about the course outline, the teaching methodology to be followed throughout the year, learning objectives of each academic activity and the assessment methodology to be followed in an academic session.

At SMDC we follow the traditional annual academic schedule in which the subject of Forensic Medicine & Toxicology is taught in the third academic year of a medical student. Keeping in view the mission of UHS, Lahore and vision of our institute we have designed a training program which is intensive and at the same time interesting for the young minds. This guide includes details about various teaching activities which are to take place throughout the academic year along with the time allocation of each. A list of lectures to be conducted in this session with names of the instructors is attached. Broad learning outcomes of every section of the course accompanied by specific learning objective of every lecture is also included. A complete list of practical work to be carried out in the laboratory is part of this document. Details of various assessments and testing methodology are included and marks distribution for the subject in the 3<sup>rd</sup> Professional examinations has been given. Names and email contacts of faculty have also been mentioned to foster better interaction between the teacher and the taught. A list of prescribed text and reference books forms part of this study guide. Since this document is the first of its kind, we intend to improve upon it in light of the student-feedback every year. For now, happy reading.

Dr. Farah Hanif  
MBBS, DMJ  
Associate Prof & HOD of Forensic Medicine Deptt  
SMDC, Lahore  
Date: 23-02-23



## LIST OF CONTENTS

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01	TIME ALLOCATION FOR ACADEMIC ACTIVITIES
02	PLANNED TEACHING ACTIVITIES
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05	LIST OF PRACTICALS
06	TIME TABLE
07	ASSESSMENT PLAN & DISTRIBUTION OF MARKS FOR 3 <sup>RD</sup> PROFESSIONAL MBBS
08	TOS
09	STAFF CONTACTS
10	PRESCRIBED TEXT BOOKS & REFERENCES



## TIME ALLOCATION FOR ACADEMIC ACTIVITIES

Duration of 3<sup>rd</sup> Year MBBS Session: 36 Wks

Total Teaching Hours (as required by PMC): 100

Topics	Subjects	Durations
	Lectures (50)	38hrs
	Practicals (02hrs each)	22 hrs
Tutorial Time	SGDs(Small groups discussion) (02hrs)	21 hrs
	Seminars (02hrs)	05 hrs
Lecture Time	PBL (Problem based learning)	03 hrs
	TSDL (Time for students directed learning)	03 hrs
Sendup & Annual Examinations		08 hrs
<b>Total:</b>		<b>100 hrs</b>





## **PLANNED TEACHING ACTIVITIES FOR 3<sup>rd</sup> YEAR MBBS DEPARTMENT OF FORENSIC MEDICINE AND TOXICOLOGY**

PMDC has allocated 100 hours of teaching in the subject of Forensic Medicine and Toxicology for the MBBS course. In order to meet this requirement following teaching modules have been planned. These modules have been carefully designed to impart core knowledge of Forensic Medicine and Toxicology in a manner that an undergraduate student can grasp the subject fully and is adequately prepared for university examinations.

### **Lectures:**

A total of 50 lectures are planned for the entire year. The lectures will be conducted by the Professor, associate and assistant professors or by senior lecturers that have teaching experience in the subject of Forensic Medicine and Toxicology. The lectures will be interactive and students should actively participate in them to clear their doubts. The students are required to take notes of the lectures and study the topic with the help of prescribed text books in light of the learning objectives of the topic enunciated by the teacher at the beginning of each lecture.

### **Practical classes:**

One practical class has been planned per week. It will comprise of trace evidence practicals including blood, Hair, semen, feces, urine, milk, vomits. Biological material collection preservation and dispatch to the PFSA, DNA profiling, general toxicology and Toxicology. The class will be divided into 03 batches to conduct the practicals effectively and one batch will be entertained once a week for these sessions. Practical will be conducted by demonstrators under an active supervision of senior instructors. Students are required to enter their work in their practical note books and get them checked by the instructors regularly.

### **Tutorials:**

One tutorial class per week is proposed throughout the academic session. The class will be divided into 03 batches. Topics for the tutorial will be notified at least one week before the class. Two instructors, one senior and one junior, will be deputed for every batch on rotation basis. During this interactive session the students must clear their concepts regarding the topic by actively engaging with their respective teachers.

### **Case based learning:**

The 3<sup>rd</sup> year MBBS class is taken in the batches, each student for 15 days, to the KEMU for medicolegal and autopsy classes. There they learn how the medicolegal cases of live victims and assailants are conducted and how postmortem examinations are conducted at the mortuary, also the collection, preservation and dispatch of various biological and non-biological materials to the PFSA and preparation of reports.



### **Seminars:**

Departmental seminars are to take place periodically once the students have covered a substantial quantum of course work. Preferably Medicolegal and autopsy topics will be allocated to students and they will present a very short case history with ongoing treatment of the poisoning / medicolegal patient along with other available treatment options. Each presentation will be of 10-15 minutes duration with a Q&A session after it. All seminars on Medicolegal and autopsy topics will be conducted in coordination with the staff conducting autopsies and medicolegals and wherever possible, relevant consultant would be requested to participate in the session.



**TRAINING PROGRAM FOR LECTURES**  
**DEPARTMENT OF FORENSIC MEDICINE & TOXICOLOGY**  
**3<sup>rd</sup> YEAR MBBS CLASS**

**GENERAL**

- Forensic Medicine is the application of medical knowledge for the furtherance of justice.
- It is taught to prepare students for the future medicolegal and autopsy work in the field once they become doctors.
- It teaches them various laws governing a medical man and the importance of court evidence he may have to give during the course of his work.
- Interactive modes of teaching e.g. tutorials, seminars, and case – based learning modules etc, should be an essential part of teaching methodology.
- Keeping in view the expanding scope of the subject and an exponential increase in the number of crimes in the society emphasis could be laid on their learning the skills of various aspects of Forensic Medicine and Toxicology.

**FORENSIC MEDICINE.**

<i>Sr. No</i>	<i>Title of Lecture</i>	<i>Instructors</i>
01	Forensic medicine and toxicology: introduction	<b>DR. FARAH HANIF</b>
02	Pakistan's legal system: powers and jurisdiction of courts	
03	Procedures for inquest and legal procedures	
04	Important legal terms	
05	Relevant legal sections of the penal code	
06	Role of a medical doctor in the medico-legal system	
07	Medical evidence in courts	
08	Document information to be prepared by medical doctor for legal procedures	
09	Procedure of court attendance and recording of evidence	

**FORENSIC SCIENCES**

<i>Sr. No</i>	<i>Title of Lecture</i>	<i>Instructors</i>
01	Role of forensic sciences in crime detection	<b>DR. KANWAL NADEEM</b>

**LAW IN RELATION TO MEDICAL MAN**

<i>Sr. No</i>	<i>Title of Lecture</i>	<i>Instructors</i>
01	Privileges of a registered medical practitioner	<b>DR. FARAH HANIF</b>
02	Obligations of a registered medical practitioner	
3	Doctor – patient relationship	
04	Medical ethics	
05	Professional misconduct	
06	Professional secrecy and privileged communication	
07	Consent in medical practice	
08	Medical negligence	



09	Organ transplantation	<b>DR. WAF MANZOO R</b>
10	Artificial insemination, euthanasia, biomedical research	

### **PERSONAL IDENTITY**

<b><i>Sr. No</i></b>	<b><i>Title of Lecture</i></b>	<b><i>Instructors</i></b>
01	Parameters of personal identity	<b>DR. FARAH HANIF</b>
02	Methods of identifying living	
03	Methods of identifying dead	
04	Methods of identifying decomposed, mutilated and burnt bodies	
05	Methods of identifying skeletal and fragmentary remains	<b>DR. KANWAL NADEEM</b>
06	Techniques used: forensic radiology, neutron activation analysis etc	
07	Objectives methods of identification: <ul style="list-style-type: none"> <li>• Osteometry</li> <li>• Dactylography</li> <li>• DNA technique</li> <li>• Super imposition photography</li> </ul>	<ul style="list-style-type: none"> <li>• <b>DR. KANWAL</b></li> <li>• <b>DR. FARAH</b></li> <li>• <b>DR. WAF</b></li> <li>• <b>DR. WAF</b></li> </ul>
08	Methods of determination of age, sex and race by various methods and their medico legal aspects.	<b>DR. FARAH HANIF</b>
09	Methods to trace evidence, Locard's Principle of Exchange and its medico-legal significance	<b>DR. WAF MANZOO R</b>

### **THANATOLOGY**

<b><i>Sr. No</i></b>	<b><i>Title of Lecture</i></b>	<b><i>Instructors</i></b>
01	Scientific study of death	<b>DR. FARAH HANIF</b>
02	Medico-legal aspects of brain death	
03	Indicators of death	
04	Medico-legal aspects of sudden and unexpected deaths	
05	Causes, manner, mode and mechanisms of death	
06	Physicochemical changes subsequent to death occurring in various body tissues and organs under various environmental conditions	
07	A certification of death according to who guidelines	

### **TRAUMATOLOGY**

<b><i>Sr. No</i></b>	<b><i>Title of Lecture</i></b>	<b><i>Instructors</i></b>
01	Mechanical injuries, wound production mechanism	<b>DR. FARAH HANIF</b>
02	Classification of wounds. wounds produced by conventional weapons and their medico-legal aspects	
03	Firearms, ammunition, classification and nomenclature	
04	Wound ballistics and medico legal aspects	
05	Mechanical injuries:- medico-legal considerations	
06	Laws in relation to causing bodily harm, wounding and homicide	
07	Examine an injured person; certify nature, manner of cause. Certify causative agent and dating of wounds	<b>DR. KANWAL NADEEM DR. WAF</b>



		<b>MANZOO R</b>
08	Cause of trauma, its sequelae, relationship of sequelae to pre-existing disease	<b>DR. KANWAL NADEEM</b>
09	Distinguish between ante mortem and post- mortem wounds	<b>DR. FARAH HANIF</b>
10	Diagnose whether death is suicidal, homicidal and accidental	

### **REGIONAL INJURIES**

<b><i>Sr. No</i></b>	<b><i>Title of Lecture</i></b>	<b><i>Instructors</i></b>
01	Mechanism of production of regional injuries, their classification and medico-legal aspects	<b>DR. KANWAL NADEEM</b>
02	Head (scalp, skull, brain) and face injuries	
03	Vertebral column and contents, neck	
04	Chest abdomen, limbs, bones and joints	
05	Special trauma: transportation injuries	
06	Police torture and deaths in custody	<b>DR. FARAH HANIF</b>
07	Medico-legal aspects of heat, cold	<b>DR. WAFI MANZOO R</b>
08	Electrocution, medico-legal aspects	<b>DR. FARAH HANIF</b>

### **VIOLENT ASPHYXIAL DEATHS**

<b><i>Sr. No</i></b>	<b><i>Title of Lecture</i></b>	<b><i>Instructors</i></b>
01	Definition, classification, anatomy of neck structure	<b>DR. FARAH HANIF</b>
02	Physiological, biochemical and pathological signs of violent asphyxial deaths	
03	Mechanical, chemical and environmental asphyxial deaths	
04	Medico-legal aspects of various violent asphyxial deaths	

### **AUTOPSY**

<b><i>Sr. No</i></b>	<b><i>Title of Lecture</i></b>	<b><i>Instructors</i></b>
01	Types of autopsy, objectives and rules	<b>DR. FARAH HANIF</b>
02	Procedure for postmortem examination	
03	Methods for assessment of fatal period and postmortem interval	
04	Postmortem artifacts	
05	Risks and hazards of autopsy	<b>DR. KANWAL NADEEM</b>
06	The autopsy protocol	
07	Procedure for collection and preservation labeling and dispatch of biological and non –biological materials for laboratory examination	<b>DR. WAFI MANZOO R</b>
08	Negative autopsy	<b>DR. FARAH HANIF</b>
09	Exhumation procedure, its value and limitation	

### **FORENSIC SEXOLOGY**

<b><i>Sr. No</i></b>	<b><i>Title of Lecture</i></b>	<b><i>Instructors</i></b>
01	Impotence, sterility, artificial insemination	<b>DR. WAFI MANZOO R</b>
02	Virginitiy, pregnancy and delivery and their medico-legal aspects, examination and reporting	



### **SEXUAL OFFENCES AND RELEVANT SECTIONS OF LAW (ZINA AND HUDOOD ORDINANCE)**

<i>Sr. No</i>	<i>Title of Lecture</i>	<i>Instructors</i>
01	Natural and unnatural sexual offences, examination of a victim and assailant collection preservation and dispatch of samples and medico legal certification	<b>DR. FARAH HANIF</b>
02	Sexual perversions	

### **MISCARRIAGE**

<i>Sr. No</i>	<i>Title of Lecture</i>	<i>Instructors</i>
01	Laws related to miscarriage, medico legal aspects of miscarriage	<b>DR. FARAH HANIF</b>
02	Examination of female and the aborted material, its collection preservation and dispatch to PFSA	

### **CRIME AGAINST NEW-BORN, INFANTS AND CHILD**

<i>Sr. No</i>	<i>Title of Lecture</i>	<i>Instructors</i>
01	Infanticide	<b>DR. WAFI MANZOOR</b>
02	Criminal and non-accidental violence/abuse of a new born, infant or child	

### **FORENSIC PSYCHIATRY**

<i>Sr. No</i>	<i>Title of Lecture</i>	<i>Instructors</i>
01	Mental illness, true and feigned insanity	<b>DR. KANWAL NADEEM</b>
02	Procedure of restraint of the mentally ill	
03	Limitation of civil and criminal responsibilities of mentally ill	

### **EXAMINATION OF BIOLOGICAL SPECIMENS**

<i>Sr. No</i>	<i>Title of Lecture</i>	<i>Instructors</i>
01	Forensic importance of biological specimens (blood, semen, saliva, vomitus, breath, urine, hair)	<b>DR. KANWAL NADEEM</b>
02	The method of their collection, preservation, dispatch and the common laboratory tests performed	<b>DR. WAFI MANZOOR</b>

### **TOXICOLOGY**

#### **GENERAL PRINCIPLES OF TOXICOLOGY**

<i>Sr. No</i>	<i>Title of Lecture</i>	<i>Instructors</i>
01	The scope of toxicology	<b>DR. WAFI MANZOOR</b>
02	Laws regulating drugs and noxious products describe common toxicants in our environments and their abuse describe to cause of drug dependence, the fate and detoxification of poisons in the biological tissues	
03	Diagnose toxicological cases in acute and chronic exposure in living and dead	
04	Utilize general principles of treatment with anti-dotal therapy	



	and management	
05	Handle specimens	
06	work within the framework of duties of doctor in cases of poisoning	
07	Prepare and interpret chemical examiners reports	
08	Autopsy techniques with collection, preservation and dispatch of PFSA	

### **SPECIFIC POISONS**

STUDY OF POISONS/DRUGS OF ABUSE PREVAILING IN OUR SOCIETY ALONG WITH MEDICO-LEGAL ASPECTS.

<b><i>Sr. No</i></b>	<b><i>Title of Lecture</i></b>	<b><i>Instructors</i></b>
01	Alcohol	<b>DR. KANWAL NADEEM</b>
02	Opiates, Opioids and other narcotics	<b>DR. WAFI MANZOOR</b>
03	Salicylates and Paracetamol	<b>DR. KANWAL NADEEM</b>
04	Hypnotics and Sedatives	<b>DR. WAFI MANZOOR</b>
05	Stimulants (cocaine), cannabis	<b>DR. KANWAL NADEEM</b>
06	Poisonous plants (aconite, belladonna, hyoscyamus, stramonium, digitalis, ergot, mushrooms, nux vomica, oleander, tobacco)	
07	Venomous insects (snakes)	<b>DR. WAFI MANZOOR</b>
08	Inorganic elements, antimony, arsenic, lead, mercury, phosphorus	<b>DR. KANWAL NADEEM</b>
09	Volatile poisons and corrosives (carbon monoxide, hydrocarbons, cyanides, sulphuric acid, oxalic acid, carbolic acid and alkalis)	<b>DR. WAFI MANZOOR</b>
10	Pesticides, herbicides and insecticides	<b>DR. KANWAL NADEEM</b>



**LIST OF LECTURES IN THE SUBJECT OF FORENSIC MEDICINE AND TOXICOLOGY AND THEIR LEARNING OBJECTIVES**  
**DEPARTMENT OF FORENSIC MEDICINE AND TOXICOLOGY**  
**3<sup>RD</sup> YEAR MBBS CLASS**

**FORENSIC MEDICINE:**

Forensic Medicine is derived from FORUM and deals with the application of medical knowledge in the administration of justice by correlating such knowledge and applying it for the purposes of law. At the end of course student will be able to discuss that a doctor may be summoned to appear in a court of law as an expert witness and his evidence helps the court to assess the responsibility of the accused. Students will know the scope that it deals with all branches of medical knowledge, administered in a court of law for the purpose of administration of justice.

S.NO.	TITLE OF LECTURES WITH LEARNING OBJECTIVES
1.	Forensic medicine and toxicology: introduction By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>Define what are forensic medicine and its application in the medical field, both in the living and dead.</li><li>Define toxicology and its application in the medical field, both in the living and dead.</li></ol>
2.	Pakistan's legal system: powers and jurisdiction of courts By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>Explain Pakistan's legal system</li><li>Discuss various courts in Pakistan</li><li>Describe the powers of various courts</li><li>Explain the jurisdiction of various courts</li></ol>
3.	Procedures for inquest and legal procedures By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>Describe various procedures for inquest prevalent all over the world</li><li>Procedure for inquest prevalent in Pakistan and its shortcomings</li><li>Describe the legal proceedings in Pakistan</li></ol>
4.	Important legal terms By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>Define and discuss various important legal terms</li><li>Describe the importance of knowing each legal term in order to understand the legal procedure</li></ol>
5.	Relevant legal sections of the penal code By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>Describe the relevant sections of criminal penal code CrPC</li><li>Discuss them in relation to an injured, poisoned, and dead person</li></ol>
6.	Role of a medical doctor in the medico-legal system By the end of the lecture the student will be able to <ol style="list-style-type: none"><li>Discuss the importance of giving evidence in the courts, by helping the victim get the justice through courts and the assailant getting punished thereby</li><li>Describe the importance of having the knowledge and applying it for the betterment of society.</li></ol>





7.	Medical evidence in courts By the end of the lecture the student will be able to i. Define and classify evidence ii. Discuss the importance of giving evidence in the court
8.	Document information to be prepared by medical doctor for legal procedures By the end of this lecture the students will be able to i. Prepare the document that is to be furnished to the court as evidence ii. Whether this document concerns a living or a dead person
9.	Procedure of court attendance and recording of evidence By the end of lecture the students will be able to i. Know the protocol to attend court as a witness ii. Discuss the steps of recording evidence in the court both as a common and as an expert witness
<b>FORENSIC SCIENCES</b>	
1	Role of forensic sciences in crime detection By the end of lecture the students will be able to i. Discuss the role of forensic sciences in the crime detection ii. The importance of collection preservation and dispatch of both biological and non biological material

### **LAW IN RELATION TO MEDICAL MAN**

In Pakistan, the general control of the medical profession is vested with the Pakistan Medical Commission (PMC) and the main functions relate to and students will be able to describe them at the end of course:

- i. The undergraduate and postgraduate medical and dental education
- ii. Medical qualification
- iii. Registration of medical practitioners
- iv. Advising the health ministry on appeals against disciplinary actions taken by the state medical council
- v. Issuing of warning notices
- vi. Issuing certificates of good conduct and character to doctors going abroad
- vii. Sponsoring and organizing continuing medical education (CME programmes)
- viii. Prescribing a code of medical ethics

<b>S.NO.</b>	<b>TITLE OF LECTURES WITH LEARNING OBJECTIVES</b>
1.	Privileges of a registered medical practitioner By the end of lecture the students will be able to i. Know what a registered medical practitioner is ii. Describe the privileges he gets after getting registered
2.	Obligations of a registered medical practitioner By the end of lecture the students will be able to i. Student will be able to discuss the obligations of a RMP ii. He will be able to apply them in his practical life after becoming a doctor.
3.	Doctor – patient relationship By the end of lecture the students will be able to i. Discuss the high ethical and moral values of a doctor patient relationship ii. That it is an ‘implied contract’, a contract not written
4.	Medical ethics:



	<p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss the moral principles for the members of the medical profession in their dealing with each other, 'their patients and the state.</li> <li>ii. Know that aim is to honor and maintain the noble traditions of the medical profession</li> </ol>
5.	<p>Professional misconduct:</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss the conduct on the part of a medical practitioner during the practice of his profession which would be reasonably regarded as disgraceful or dishonorable by his professional colleagues of good repute and competence</li> <li>ii. Describe various examples of professional misconduct</li> </ol>
6.	<p>Professional secrecy and privileged communication</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss the importance of keeping professional secrets as a doctor that he come to know in his professional capacity</li> <li>ii. Describe the communication made by a doctor to a proper authority</li> </ol>
7.	<p>Consent in medical practice:</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss various types of consent</li> <li>ii. Describe the various principles in respect of consent</li> </ol>
8.	<p>Medical negligence:</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss various types of medical negligence</li> <li>ii. Describe the precautions against negligence</li> </ol>
9.	<p>Organ transplantation</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Define brain death and its importance in organ transplantation</li> <li>ii. discuss the human organ and tissue transplant act (HOTTA)</li> </ol>
10.	<p>Artificial insemination, euthanasia, biomedical research:</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss insemination, euthanasia and biomedical research</li> </ol>

### **PERSONAL IDENTITY**

The students are taught that by identity is meant the establishment of the individuality of a person. Identification of a person or dead body means the recognition of that person or dead body and that it is based on certain physical characteristics unique to that individual which they will describe at the end of course.

<b>S.NO.</b>	<b>TITLE OF LECTURES WITH LEARNING OBJECTIVES</b>
1.	<p>Parameters of personal identity:</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Describe the different parameters considered for the establishment of identity</li> <li>ii. Discuss it by giving examples</li> </ol>
2.	<p>Methods of identifying living</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"> <li>i. Discuss the methods of identifying a living person</li> <li>ii. Describe the medico-legal importance of identification of a living person</li> </ol>
3.	<p>Methods of identifying dead:</p>



	By the end of lecture the students will be able to i. Discuss the methods of identifying a dead person ii. Describe the medico-legal importance of identification of a dead person
4.	Methods of identifying decomposed, mutilated and burnt bodies: By the end of lecture the students will be able to i. Discuss the identification of decomposed bodies ii. Describe in detail the methods to identify mutilated and burnt bodies
5.	Methods of identifying skeletal and fragmentary remains: By the end of lecture the students will be able to i. Describe the methods of identifying the skeletal remains of a person ii. Discuss different methods of identifying fragmentary remains
6.	Techniques used: Forensic Radiology, Neutron Activation Analysis etc By the end of lecture the students will be able to i. Discuss different techniques used in the establishment of identity like Radiology, CT SCAN, MRI ii. Describe the techniques used in identification e.g. neutron activation analysis.
7.	Objective methods of identification: By the end of lecture the students will be able to i. Discuss Osteometry and its role in establishment of identification ii. Describe and discuss in detail dactylography and its role in the identification of both living and dead iii. Discuss DNA technique, profiling and its application in identification of living and dead iv. Discuss the role of superimposition photography in identification
8.	Methods of determination of age, sex and race by various methods and their medicolegal aspects By the end of lecture the students will be able to i. Discuss various methods and procedures used to determine age, sex, race of an individual ii. Describe the medico-legal aspects of age, sex and race determination
9.	Methods to trace evidence, Locard's principle of exchange and its medico-legal significance By the end of lecture the students will be able to i. Discuss different methods used to trace evidence ii. Describe what is Locard's principle of exchange iii. Describe the M/L importance of trace evidence, Locard's principle of exchange

## **THANATOLOGY**

The students is imparted knowledge regarding thanatology which is the study of death its related issues. By the end of course the student is able to discuss the medico legal aspects of death and to determine the time since death according to the changes present in the body at the time of examination, after death.

<b>S.NO.</b>	<b>TITLE OF LECTURES WITH LEARNING OBJECTIVES</b>
1.	Scientific study of death By the end of lecture the students will be able to i. Describe the term death scientifically its various types and related issues: ii. Discuss the stoppage of functioning of various systems that is permanent and irreversible



2.	Medico-legal aspects of brain death: By the end of lecture the students will be able to i. Discuss brain death, coma, suspended animation ii. Discuss the transplantation of human organs and tissues
3.	Indicators of death: By the end of lecture the students will be able to i. Discuss various indicators of death ii. Describe various immediate, early and late changes after death
4.	Medico-legal aspects of sudden and unexpected deaths By the end of lecture the students will be able to i. Describe the various sudden and unexpected deaths ii. Discuss the medico-legal aspects of sudden and unexpected death
5.	Causes, manner, mode and mechanism of death By the end of lecture the students will be able to i. Describe the causes, manner, mode and mechanism of death ii. Discuss various aspects of causes, manner, mode and mechanism of death after defining them
6.	Physicochemical changes subsequent to death occurring in various body tissues and organs under various environmental conditions By the end of lecture the students will be able to i. Discuss the role and affect of various environmental conditions in the physicochemical changes subsequent to death occurring in various body tissues and organs ii. Describe these changes in detail
7.	A certification of death according to who guideline By the end of lecture the students will be able to i. Describe what is the importance of WHO specified death certificate ii. Discuss how to fill the different columns of the WHO specified death certificate

## **TRAUMATOLOGY**

The student is imparted knowledge about the mechanical injuries, wound production, classification and various medico legal aspects. By the end of the course the students should be able to discuss wounds produced by conventional weapons and firearms and their medico legal importance, injuries and the laws governing them.

1.	Mechanical injuries, wound production mechanism By the end of lecture the students will be able to i. Discuss the mechanical injuries and the mechanism of wound production ii. Describe the wound types and their production
2.	Classification of wounds. Wounds produced by conventional weapons and their medico-legal aspects By the end of lecture the students will be able to i. Classify wounds



	<ul style="list-style-type: none"> <li>ii. Discuss various wounds produced by conventional weapons</li> <li>iii. Describe the medico-legal aspects of wounds.</li> </ul>
3.	<p>Firearms, ammunition, classification and nomenclature</p> <p>By the end of lecture the students will be able to</p> <ul style="list-style-type: none"> <li>i. Define firearms and ammunition</li> <li>ii. Classify different firearms</li> <li>iii. Discuss the nomenclature used</li> </ul>
4.	<p>Wound ballistics and medicolegal aspects</p> <p>By the end of lecture the students will be able to</p> <ul style="list-style-type: none"> <li>i. Describe the wound ballistics</li> <li>ii. Discuss the medicolegal aspects of wound ballistics</li> </ul>
5.	<p>Mechanical injuries – medico-legal considerations</p> <p>By the end of lecture the students will be able to</p> <ul style="list-style-type: none"> <li>i. Describe the medico-legal aspects of mechanical injuries</li> <li>ii. Discuss in detail mechanical injuries and related medico-legal issues.</li> </ul>
6.	<p>Laws in relation to causing bodily harm, wounding and homicide</p> <p>By the end of lecture the students will be able to</p> <ul style="list-style-type: none"> <li>i. Discuss the law related to bodily harm and wounding</li> <li>ii. Describe the laws related to homicide</li> </ul>
7.	<p>Examine an injured person, certify nature, manner of cause</p> <p>By the end of lecture the students will be able to</p> <ul style="list-style-type: none"> <li>i. Describe how to examine an injured person</li> <li>ii. Discuss how to prepare a medico-legal certificate stating the nature, manner and cause of injury</li> <li>iii. Describe how to certify causative agent and also how to date the wounds</li> </ul>
8.	<p>Cause of trauma, its sequelae, relationship of sequelae to pre-existing disease</p> <p>By the end of lecture the students will be able to</p> <ul style="list-style-type: none"> <li>i. Describe the cause of trauma and its sequelae</li> <li>ii. Discuss the relationship of sequelae to pre existing disease</li> </ul>
9.	<p>Distinguish between ante mortem and post mortem wounds</p> <p>By the end of lecture the students will be able to</p> <ul style="list-style-type: none"> <li>i. Discuss how to distinguish between antemortem and postmortem wounds</li> <li>ii. Describe what an antemortem and postmortem wounds presentation is</li> </ul>
10.	<p>Diagnose whether death is suicidal, homicidal and accidental</p> <p>By the end of lecture the students will be able to</p> <ul style="list-style-type: none"> <li>i. Describe how to diagnose death whether it is suicidal, homicidal or accidental</li> <li>ii. Discuss the medico-legal aspects of death</li> </ul>

### **REGIONAL INJURIES**

The objective of teaching regional injuries to students is to describe the productions classification and medico-legal aspects of various regions of body. By the end of course student must be able to describe head, face, vertebral column and content along with neck injuries. Student must be able to discuss various chest, abdomen, limb, bone joint injuries. Special trauma related to transportation injuries, police torture and custody deaths medico-legal aspects of heat cold and electrocution.

<b>S.NO.</b>	<b>TITLE OF LECTURES WITH LEARNING OBJECTIVES</b>
1.	Mechanism of production of regional injuries, their classification and medico-legal aspects



	By the end of lecture the students will be able to i. Describe in detail the mechanism of production of regional injuries ii. How to classify regional injuries iii. Discuss the medico-legal aspects of regional injuries
2.	Head (scalp, skull, brain) and face injuries By the end of lecture the students will be able to i. Discuss head (scalp, skull, brain) and face injuries ii. Describe the medico-legal importance
3.	Vertebral column and contents, neck By the end of lecture the students will be able to i. Describe the vertebral column, contents and neck injuries ii. Discuss the medico-legal aspects of these injuries
4.	Chest abdomen limbs, bones and joints By the end of lecture the students will be able to i. Describe the chest and abdomen injuries and their medico-legal importance ii. Discuss various limbs, bones and joints injuries and their medico-legal importance.
5.	Special trauma: transportation injuries By the end of lecture the students will be able to i. Discuss various transportation injuries and their medicolegal importance ii. Describe injuries peculiar to that transportation accident
6.	Police torture and deaths in custody By the end of lecture the students will be able to i. Describe the police torture injuries ii. Discuss the deaths in custody
7.	Medicolegal aspects of heat, cold By the end of lecture the students will be able to i. Describe the medicolegal aspects of heat and cold ii. Discuss in details different presentations of such cases
8.	Electrocution , medicolegal aspects By the end of lecture the students will be able to i. Discuss various electrical injuries and their M/L aspects ii. Describe the injuries, death due to electrocution and medicolegal aspects

### **VIOLENT ASPHYXIAL DEATHS**

The objective of teaching violent asphyxial deaths is to highlight the violent aspect of asphyxia as it is relevant to the field of forensic medicine. By the end of course student will be able to define and classify know the anatomy of neck structure, biochemical physiological and pathological signs of violent death the student will know the medicolegal aspects of various violent asphyxial deaths once they complete the course.

<b>S.NO.</b>	<b>TITLE OF LECTURES WITH LEARNING OBJECTIVES</b>
1.	Definition, classification, anatomy of neck structures By the end of lecture the students will be able to I. Discuss the definition and classification of asphyxia II. Describe the anatomy of neck structures
2.	Physiological, biochemical and pathological signs of violent death By the end of lecture the students will be able to i. Describe the physiological and biochemical signs of violent death



	ii. Discuss the pathological signs of violent asphyxial deaths
3.	Mechanical, chemical and environmental asphyxial death By the end of lecture the students will be able to i. Discuss mechanical and chemical asphyxial deaths ii. Describe environmental asphyxial death
4.	Medicolegal aspects of various violent asphyxial deaths By the end of lecture the students will be able to i. Discuss the medicolegal aspects of various violent asphyxial deaths ii. Describe the importance of medicolegal aspects relevant to that type of asphyxial death.

### **AUTOPSY**

The objective of teaching autopsy or postmortem examination is to tell the students what autopsy is, its various types, procedures and final interpretation and preparation of a complete final report. They should know the autopsy protocol, artifacts, its risks and hazards as well. They are expected to know by the end of the course, how to collect, and preserve label and dispatch various biological and non biological materials to the lab for examinations and reporting. How to report when no findings are available even on thorough examination and how to proceed for exhumation and prepare its report, once called to do it.

<b>S.NO.</b>	<b>TITLE OF LECTURES WITH LEARNING OBJECTIVES</b>
1.	Types of autopsy, objectives and rules By the end of lecture the students will be able to i. Describe the types of autopsy ii. Discuss the objectives and rules of autopsy conduction
2.	Procedure for postmortem By the end of lecture the students will be able to i. Describe the various autopsy incisions ii. Discuss the procedure of post mortem conduction
03.	Methods for assessment of fatal period and post mortem interval By the end of lecture the students will be able to i. Describe the methods for assessment of fatal period ii. Discuss the method to determine pm interval
04.	Post mortem artifacts By the end of lecture the students will be able to i. Describe the various types of post mortem artifacts ii. Discuss how to differentiate artifacts from facts at the time of autopsy



05	Risks and hazards of autopsy By the end of lecture the students will be able to  i. Describe various risks of PM examination ii. Discuss the various hazards and how to protect oneself from such risks and hazards
06	The autopsy protocol By the end of lecture the students will be able to  i. Describe the autopsy protocol ii. Discuss the importance of each step of protocol and the dangers of missing any step
07	Procedure for collection, preservation labeling and sealing dispatch of biological and non biological materials for laboratory examination By the end of lecture the students will be able to  i. Discuss the procedure for collection and preservation of various samples ii. Describe the labeling sealing and dispatch for laboratory examination and reporting
08	Negative autopsy By the end of lecture the students will be able to  i. Describe what a negative autopsy is ii. Discuss how to prepare a negative autopsy report
09	Exhumation procedure its value and limitation By the end of lecture the students will be able to  i. Discuss the procedure of exhumation ii. Describe its value and limitations

### **FORENSIC SEXOLOGY**

The objective is to teach students various aspects of forensic sexology like impotence, sterility and artificial insemination. They are expected to know the medicolegal importance of virginity, pregnancy and delivery. By the end of course they will know the medicolegal examination and reporting of these cases.

<b>S.NO.</b>	<b>TITLE OF LECTURES WITH LEARNING OBJECTIVES</b>
1.	Impotence, sterility, artificial insemination. By the end of lecture the students will be able to i. Discuss impotence, sterility, and artificial insemination. ii. Describe the medicolegal aspects of impotence, sterility, and artificial insemination.
2.	Virginity, pregnancy and delivery and their medicolegal aspects, examination and reporting





	By the end of lecture the students will be able to i. Describe virginity pregnancy and delivery in detail both in the living and the dead ii. Discuss the medicolegal aspects and examination and reporting of these cases
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### **SEXUAL OFFENCES AND RELEVANT SECTIONS OF LAW (ZINA AND HUDOOD ORDINANCE)**

Objectives of teaching students this topic is to emphasize the importance of examination of a victim and assailant and collection preservation sealing and dispatch of sample and preparation of report. By the end of course they know about the sexual perversions also

1.	Natural and unnatural sexual offences, examination of a victim and assailant , collection, preservation, sealing and dispatch of sample and m/l certification By the end of lecture the students will be able to i. Discuss the natural and unnatural sexual offences ii. Describe the examination of a victim and assailant , collection, preservation, sealing and dispatch of sample and M/L certification
2.	Sexual perversion By the end of lecture the students will be able to i. Describe sexual perversions ii. Discuss various M/L aspects related to them

### **MISCARRIAGE**

The objective is to teach various laws related to miscarriage and various medicolegal aspects of miscarriage in a woman

1.	Laws related to miscarriage medicolegal aspects of miscarriage By the end of lecture the students will be able to i. Describe the laws related to miscarriage ii. Discuss the medicolegal aspects of miscarriage
2.	Examination of female and aborted material its, collection, preservation sealing and dispatch to PFSA By the end of lecture the students will be able to i. Describe the examination of a female who had miscarriage ii. Discuss the collection, preservation, sealing and dispatch of aborted material to PFSA

### **CRIME AGAINST NEWBORN, INFANTS AND CHILD**

The objective is to teach students about the crimes committed against the newborns and infants. By the end of course students will be able to describe neonatal and infant killing and how to describe the differences between criminal and non accidental violence and abuse of a newborn, infant or child from accidental deaths and injuries.

1.	Infanticide By the end of lecture the students will be able to
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	<ol style="list-style-type: none"><li>i. Describe the term infanticide and differentiate it from natural deaths</li><li>ii. Discuss the live born and dead born child and its medicolegal importance</li></ol>
2.	<p>Criminal and non-accidental violence / abuse of new born infant or child</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"><li>i. Discuss criminal and non-accidental violence / abuse of new born infant or child</li><li>ii. Describe the M/L importance of criminal and non-accidental violence / abuse of new born infant or child</li></ol>

### **FORENSIC PSYCHIATRY**

The objective is to teach students about different mental illnesses, how to differentiate true from feigned insanity. They will be able to describe the procedure of restraint of the mentally ill. By the end of course they will know and discuss the limitations of civil and criminal responsibilities of mentally ill

1.	<p>Mental illness, true and feigned insanity</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"><li>i. Discuss mental illness</li><li>ii. Describe the differences between true and feigned insanity</li></ol>
2.	<p>Procedure of restraint of the mentally ill</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"><li>i. Discuss the procedure of restraint of the mentally ill</li><li>ii. Describe the admission for emergency / or various durations at mental health facility and their discharge also</li></ol>
3.	<p>Limitation of civil and criminal responsibilities of mentally ill</p> <p>By the end of lecture the students will be able to</p> <ol style="list-style-type: none"><li>i. Describe the limitation of civil and criminal responsibilities of mentally ill</li><li>ii. Discuss the criminal responsibilities and its M/L importance</li></ol>



**LIST OF PRACTICALS FOR 3<sup>RD</sup> YEAR MBBS  
DEPARTMENT OF FORENSIC MEDICINE AND TOXICOLOGY  
SHARIF MEDICAL & DENTAL COLLEGE LAHORE**

- 9) **Examination of biological specimens and their medicolegal importance are explained to the students. Various microscopic slides are shown to the students and the common tests performed, spectroscopy, under UV light, TLC. 1 session each of 2 hours duration**
- a. Blood
  - b. Semen
  - c. Hair
- 10) **The method of collection, preservation, sealing and dispatch and the various biological and non biological specimens are discussed and practically done, one practical of 2 hours duration.**
- 11) **Autopsy/postmortem: (6 sessions 2 hours duration)**
- f) autopsy/postmortem examination class at mortuary
  - g) Medicolegal examination of injured at the accident and emergency of the hospital
  - h) Medicolegal examination of poisoned at the accident and emergency of the hospital
  - i) Estimation of age and its medicolegal importance. The role of forensic radiology
  - j) Sexual assaults and sex related cases, preparation of medicolegal report and specimen collection preservation, sealing and dispatch PFSA.
  - k) Procedure of consent taking and medical certification
- 12) **In toxicology: students should have an understanding of and be able to describe: (1 session 2 hours duration)**
- a. Diagnostic and management process (alcohol, narcotics and insecticide poisons)
  - b. Collection, preservation, sealing and dispatch of biological materials
  - c. Visual, olfactory and tactile identification of common poisons found in communities and country
- 13) **Visits: for proper orientation and practical demonstration, visits are also suggested to:**
- a. Court
  - b. Punjab Forensic Science Agency (PFSA)
  - c. Psychiatric unit and jail
  - d. Site during conduction of exhumation



## TIME TABLE<sup>3rd</sup> YEAR MBBS FORENSIC MEDICINE AND TOXICOLOGY DEPARTMENT SMDC, LAHORE

SHARIF MEDICAL & DENTAL COLLEGE					
REVISED TIME TABLE FOR ONLINE CLASSES					
3rd YEAR MBBS (Session 2020 - 2021)					
S.M&D.C No/21/3-25/Path/2249-31/2021 Dated: 10-05-2021					
Day & Time	08:45am - 09:30am	09:30am - 10:15am	10:15am - 11:45am		11:45am - 12:30pm
<b>Monday</b>	Pathology Lecture	Pharmacology Lecture	Hospital Work		Forensic Medicine Lecture Pharmacology Practical
<b>Tuesday</b>	Pathology Lecture	Pharmacology Lecture	Hospital Work		Behavioural Sciences Lecture Pathology Practical
<b>Wednesday</b>	Pathology Lecture	09:30am - 10:15am Pharmacology Lecture	10:15am - 11:45am Hospital Work	11:45am - 12:30pm Forensic Medicine Practical	
				Psychiatry (31st Mar - 18th Aug) Dermatology (25th Aug - 1st Dec) Cardiology (8th Dec - 22nd Dec) Nephrology (5th Jan - 26th Jan)	
<b>Thursday</b>	Pathology Lecture	09:30am - 10:15am Pharmacology Lecture	10:15am - 11:00am Medicine Lecture	11:00am - 12:30pm Hospital Work	
				Pharmacology Tutorial	
<b>Friday</b>	Pharmacology Lecture	Medicine (Gastroenterology) (9th Apr - 8th May) Medicine (Pulmonology) (4th Jun - 20th Aug) Research Methodology (27th Aug - 15th Oct) Medicine (Emergency) (22nd Oct - 3rd Dec) Anesthesia (10th Dec - 28th Jan)	10:15am - 11:00am Forensic Medicine Lecture	11:00am - 12:30pm Pathology Tutorial	
<b>Saturday</b>	Forensic Medicine Lecture	09:30am - 10:15am Medicine Lecture	10:15am - 11:00am Pharmacology Lecture	11:00am - 11:45am Surgery Lecture	11:45am - 12:30pm Pathology Lecture
				12:30pm - 02:30pm Forensic Medicine Tutorial	

Copy Forwarded To:  
 1 Dr. Muhammad Adnan Khan Chief Executive SMC  
 2 Principal SMDC  
 3 Principal, College of Dentistry  
 4 Heads of all concerned Departments  
 5 Director Administration  
 6 Notice Boards

*Dr. [Signature]*  
11/5/21

*[Signature]* 11.5.2021  
*waqar* 11.5.2021

*[Signature]*  
 Prof. Maria Aslam  
 Head Deptt. of Pathology  
 Chairperson Time Table Committee



**ASSESSMENT PLAN**  
**DEPARTMENT OF FORENSIC MEDICINE AND TOXICOLOGY**  
**SHARIF MEDICAL AND DENTAL COLLEGE LAHORE**

Following modes of assessment are planned for 3<sup>rd</sup> year MBBS class in the subject of Forensic Medicine and Toxicology. This plan has been designed keeping in view the university curriculum and hopefully will facilitate the students in preparing for 3<sup>rd</sup> professional examinations in the subject.

**Chapter Tests:**

These will be conducted at the completion of every chapter. The test will comprise of MCQs and SEQs on the pattern of university examinations. A preparatory time of at least 10 days shall be given prior to these tests. Each test will be followed by viva voce, for which the class will be divided into smaller batches.

**Vivas:**

Vivas are conducted before the pre-annual examination conduction, in order to prepare students for annual viva.

**Term Tests:**

Two term tests shall be conducted in coordination with other subjects. This will comprise of theory, practical and viva segments and a sizeable portion of the total course will be included in each of them.

**Term Tests:**

Two term tests shall be conducted in coordination with other subjects. This will comprise of theory, practical and viva segments and a sizeable portion of the total course will be included in each of them

**Pre-annual Exam:**

This will be undertaken in coordination with other departments, exactly following the format of university professional examinations. It will comprise of MCQs, SEQs, OSPE and Viva voce.

**Internal Assessment:**

Internal assessment will be calculated out of 20 on the basis of all these tests that will be conducted throughout the year.



## PRE-TEST NOTIFICATION



**Forensic Medicine & Toxicology Department  
Sharif Medical & Dental College Lahore  
Dated: 26/05/2021**

### Class Test Notice

1<sup>st</sup> Evaluations (**Comprising of MCQ's, SEQ's**) will be held as schedule given under, covering the following topics.

Date	Topics	Time	Venue

Strict compliance by the students is desirable for their better future.

Paper will comprise of **03 SEQs (05 marks each)** and **20 MCQs (01 mark each)**. Total marks 35

**Head of Department,**  
Forensic Medicine & Toxicology



**TEST**

**POST TEST**

**Distribution of Marks in the Subject of Forensic Medicine & Toxicology**

**3<sup>rd</sup> Professional MBBS**

**Theory:**

<u>Internal Assessment</u>	<u>MCQs</u>	<u>SEQs</u>	<u>Total</u>
10	45	45	100

**Practical & Viva Voce:**

<u>Internal Assessment</u>	<u>Viva Voce</u>	<u>OSPE</u>	<u>Practical Copy</u>	<u>Total</u>
10	40	40	10	100

**Practical & Viva Voce:** External & Internal Examiners 20 Marks each

**OSPE:** 1. 08 Unobserved stations of 04 marks each

2. 02 Observed station 04 marks each



## TABLE OF SPECIFICATIONS

Sr.No	CONTENTS/TOPICS	KNOWLEDGE				SKILL				ATTITUDE				PER %
		CI	C2	C3	C4	P 1	P 2	P 3	P 4	A1	A2	A3	A4	
1	<b>FORENSIC MEDICINE</b>													
	Forensic medicine and toxicology: introduction	3	4							3				10%
	Pakistan's legal system: powers and jurisdiction of court	5	5							5				15%
	Procedures for inquest and legal procedures	3	4							3				10%
	Important legal terms	5	5							5				15%
	Relevant legal sections of the penal code	4	3							3				10%
	Role of a medical doctor in the medico-legal system	5	5							5				15%
	Medical evidence in courts	5	5							5				15%
	Role of forensic sciences in crime detection	3	4							3				10%
	<b>TOTAL</b>													<b>100 %</b>
2	<b>LAW IN RELATION TO MEDICAL MAN</b>													
	Privileges of a registered medical practitioner	5	5							5				15%
	Obligations of a registered medical practitioner	5	5							5				15%
	Doctor – patient relationship	5	5							5				15%
	Medical ethics:	5	3							2				10%
	Professional misconduct:	5	5							5				15%
	Professional secrecy and privileged communication	5	5							5				15%
	Consent in medical practice:	5	5							5				15%
	<b>TOTAL</b>													<b>100 %</b>
3	<b>PERSONAL IDENTITY</b>													
	Parameters of personal identity	5	5							5				15%
	Methods of identifying living	4	3							3				10%
	Methods of identifying dead:	3	3							4				10%
	Methods of identifying decomposed, mutilated and burnt bodies:	3	4							3				10%
	Methods of identifying skeletal and fragmentary	4	3							3				15%







	legal considerations													
	Laws in relation to causing bodily harm, wounding and homicide	5	5							5				10%
	Examine an injured person, certify nature, manner of cause	4	3							3				10%
	Cause of trauma, its sequelae, relationship of sequelae to pre-existing disease	3	4							3				10%
	Distinguish between ante mortem and post mortem wounds	3	4							3				10%
	<b>TOTAL</b>													<b>100%</b>
	<b>REGIONAL INJURIES</b>													
	Mechanism of production of regional injuries, their classification and medico-legal aspects	4	3							3				10%
	Head (scalp, skull, brain) and face injuries	3	4							3				10%
	Vertebral column and contents, neck	4	3							3				10%
	Chest abdomen limbs, bones and joints	4	3							3				10%
	Special trauma: transportation injuries	4	3							3				10%
	Police torture and deaths in custody	5	5							5				15%
	Medicolegal aspects of heat, cold	3	4							3				10%
	Electrocution , medicolegal aspects	4	3							3				10%
	Asphyxia	5	5							5				15%
	<b>TOTAL</b>													<b>100%</b>
7	<b>AUTOPSY</b>													
	Types of autopsy, objectives and rules	5	5							5				15%
	Procedure for postmortem	3	4							3				10%
	Methods for assessment of fatal period and post mortem interval	4	3							3				10%
	Post mortem artifacts	3	4							3				10%
	Risks and hazards of autopsy	5	5							5				15%
	The autopsy protocol	3	4							3				10%
	Procedure for collection,	4	3							3				10%







## FORENSIC MEDICINE & TOXICOLOGY

### TABLE OF SPECIFICATIONS

	TOPIC	SEQ'S	MCQ'S
1.	a) Pakistan's Legal System	1	5
	b) Law In Relation To Medical Man		
	c) Forensic Psychiatry		
2.	<b>THANATOLOGY</b>	1	3
3.	<b>TRAUMATOLOGY</b>	1	9
	a) <b>General Traumatology</b>		
	b) <b>Special Traumatology</b>		
	c) Firearm Injuries,		
	d) Transportation Injuries		
	e) Thermal Injuries		
	f) Electrical Injuries		
	g) Violent Deaths Due Asphyxia		
	h) Drowning etc.		
4.	<b>PERSONAL IDENTITY AND EXAMINATION OF BIOLOGICAL SPECIMEN (TRACE EVIDENCE)</b>	1	5
5.	<b>AUTOPSY, EXHUMATION &amp; FORENSIC SCIENCES</b>	1	4
6.	<b>FORENSIC SEXOLOGY</b> Sexual offenses, relevant section of law (Zina and Hudood and named miscarriage / abortion, Pregnancy, delivery, New born , Child Trauma Etc.	1	4
7.	<b>TOXICOLOGY</b>		
	a) <b>GENERAL TOXICOLOGY</b>	1	3
	b) <b>SPECIAL TOXICOLOGY</b>	2	12
	i. Alcohol		2
	ii. Opiates, Opioids and other narcotics		1
	iii. Salicylates and Paracetamol		1
	iv. Hypnotics Secatives		2
	v. Stimulants (ecaine) cannabis		1
	vi. Poisonous Plants (Aconite , Belladonna, Hyscyamus, Stramonium , Digitals, Ergot , Mushrooms , Nux, Vomica, Oleander Tobacco)		1
	vii. Venomous Insects (Snakes)		1
	viii. Inorganic Elements, Antimony, Arsenic Lead, Mercury, Phosphorus.		1
	ix. Volatile Poisons and corrosives (Carbon Monoxide, Carbolic Acid and Alkalis)		1
	x. Pesticides, Herbicides and Insecticides.		1



**STAFF CONTACTS FORENSIC MEDICINE DEPARTMENT  
SMDC, LAHORE**

<b>Sr. No</b>	<b>Name</b>	<b>Email Address</b>
01	DR. Farah Hanif	drfarahhanif@gmail.com
02	Dr. Kanwal Nadeem	nadeemkanwal920@gmail.com
03	Dr. Wafa Manzoor	dr.wafamanzoor@gmail.com



## **PRESCRIBED TEXT BOOKS & REFERENCES**

### **RECOMMENDED BOOKS:**

#### **Text Books**

1. **Simpson's Forensic Medicine** by Barnard Knight, 13<sup>th</sup> Ed., Edward Arnold, London.
2. **Parikh's Text book of Medical Jurisprudence, Forensic Medicine and Toxicology** by C.K. Parikh 6<sup>th</sup> Ed., CBS Publisher.
3. **Buchanan's Text book of Forensic Medicine and Toxicology** by Buchanan, 9<sup>th</sup> Ed., Livingstone.
4. **G. principles and Practice of Forensic Medicine** by Prof. Nasib R. Awan.
5. **Medical jurisprudence and Toxicology** by Dr. Siddique Hussain.

### **PRACTICAL COPIES:**

3. Handbook of applied Forensic Medicine & Toxicology



# **Department of Behavioral Sciences**





## **PREFACE**

Study guide can make a major contribution to learning. It is sometimes likened to a tutor sitting on the student's shoulder 24 hours a day to advise what he/she should be doing at any stage during their study. Study guide is different from textbook as it appraises the student at the beginning of an academic session about the course outline, the teaching methodology to be followed throughout the year, learning objectives of each academic activity and the assessment methodology to be followed in an academic session.

At SMDC we follow the traditional annual academic schedule in which the subject of Behavioral Sciences is taught in the first three academic years of a medical student. Keeping in view the mission of UHS, Lahore and vision of our institute we have designed a training program which is intensive and at the same time interesting for the young minds. This guide includes list of lectures to be conducted in this session, specific learning objectives of every lecture, details of assessment and testing methodology, and marks distribution of subject in the 3<sup>rd</sup> Professional examination. A list of prescribed textbooks and reference books is mentioned at the end.



## LIST OF CONTENTS

<b>Sr. No</b>	<b>Topic</b>
1.	Planned teaching activities
2.	Teaching program for lectures
3.	List of lectures and learning objectives
4.	Assessment plan & distribution of marks
5.	Staff contacts
6.	Recommended textbooks & Reference books



## PLANNED TEACHING ACTIVITIES

Following teaching plan of behavioral sciences has been designed to impart core knowledge, skills and attitude in a manner that an undergraduate student can grasp the subject fully and is adequately prepared for university examinations.

### **Lectures:**

A total of 30-36 lectures by the faculty members are planned for the entire year. The lectures will be interactive and active learning is encouraged. The students are required to study the topic with the help of prescribed textbooks in light of the learning objectives of the topic enunciated by the teacher at the beginning of each lecture.



## TEACHING PROGRAM FOR LECTURES

Sr.#	Topics	Facilitator
1	Health & Normality	Dr. Ayaz
2	Psychological reactions to illness and hospitalization	Dr. Ayaz
3	Psychosocial issues in special hospital settings	Dr. Ayaz
4	Psychosocial aspects of Pain	Ms. Sarah
5	Psychosocial aspects of Death & Dying	Ms. Kanwal
6	Psychotrauma & Psychosocial aspects of Terrorism	Dr. Mehwish
7	Stress management	Ms. Sarah
8	Sleep	Dr. Mehwish
9	Psychosocial aspects of aging	Ms. Kanwal
10	Psychosocial aspects of gender & sexuality	Dr. Ayaz
11	Test	Ms. Sarah
12	Communication Skills	Ms. Sarah
13	Counseling	Ms. Kanwal
14	Informational Care	Dr. Ayaz
15	Breaking Bad News	Dr. Mehwish
16	Crisis Intervention and Disaster Management	Ms. Kanwal
17	Conflict Resolution	Ms. Sarah
18	Medical Ethics	Dr. Ayaz
19	Common Ethical Issues in Medical Practice	Dr. Mehwish
20	Common Ethical Dilemmas in a Health Professional's Life	Ms. Sarah
21	Psychological Reactions in Doctor-Patient Relationship	Ms. Kanwal
22	Test	Ms. Sarah
23	Learning	Ms. Sarah
24	Memory	Dr. Mehwish
25	Emotions	Ms. Kanwal



26	Metacognition,thinking,Intelligence	Dr.Ayaz
27	Motivation	Ms. Kanwal
28	PersonalityDevelopment	Ms. Sarah
29	PersonalityDevelopment	Ms. Sarah
30	SociologyandHealthcare	Ms. Kanwal
31	Stigma,Sickrole	Dr.Mehwish
32	Compliance,HealthBeliefModel	Dr.Ayaz
33	Test	Ms. Sarah
34	OSPE	Ms. Sarah
35	OSPE	Ms. Kanwal
36	PsychosocialAssessment	Dr.Ayaz



## LIST OF LECTURES AND LEARNING OBJECTIVES

Topics	Learning objectives
Health & Normality	<ul style="list-style-type: none"> <li>• Define health and normality</li> <li>• Describe WHO definition of health</li> <li>• Enlist parameters of psychosocial health</li> </ul>
Psychological reactions to illness and hospitalization	<ul style="list-style-type: none"> <li>• Understand the general and specific psychological reactions of patients to illness and hospitalization</li> <li>• Demonstrate the psychosocial interventions to alleviate psychological distress of patients</li> </ul>
Psychosocial issues in special hospital settings	<ul style="list-style-type: none"> <li>• Identify the psychosocial stressors in special clinical settings (CCU, ICU, emergency department, organ transplantation, dialysis unit, reproductive health, pediatrics ward, cancer ward, operation theatre etc.)</li> <li>• Demonstrate the psychosocial interventions to manage stressors in special clinical settings</li> </ul>
Psychosocial aspects of Pain	<ul style="list-style-type: none"> <li>• Identify and describe psychosocial factors contributing towards pain</li> <li>• Demonstrate pain management skills</li> </ul>
Psychosocial aspects of Death & Dying	<ul style="list-style-type: none"> <li>• Identify psychological reactions in a dying patient and his relatives</li> <li>• Describe stages of grief</li> <li>• Demonstrate grief counseling</li> </ul>
Psychotrauma & Psychosocial aspects of Terrorism	<ul style="list-style-type: none"> <li>• Identify and describe psychosocial aspects of terrorism</li> <li>• Understand impact of terrorism on the mental health</li> <li>• Describe psychosocial interventions to deal with terrorism</li> </ul>
Stress management	<ul style="list-style-type: none"> <li>• Define stress and its types</li> <li>• Identify burnout and its causes</li> <li>• Describe the impact of stress on physiological and psychological states of humans</li> <li>• Demonstrate the use of stress management skills towards patients and colleagues</li> <li>• Demonstrate deep breathing exercise</li> <li>• Demonstrate progressive muscle relaxation exercise</li> </ul>
Sleep	<ul style="list-style-type: none"> <li>• Define sleep and its various stages</li> <li>• Diagnose various sleep disorders</li> <li>• Demonstrate sleep hygiene measures</li> <li>• Demonstrate sleep induction technique</li> </ul>



Psychosocial aspects of aging	<ul style="list-style-type: none"> <li>• Identify and describe psychosocial aspects of aging</li> </ul>
Psychosocial aspects of gender & sexuality	<ul style="list-style-type: none"> <li>• Identify and describe psychosocial aspects of gender and sexuality</li> <li>• Identify various sexual disorders</li> <li>• Demonstrate non-judgmental and empathetic attitude towards patients with different sexual orientations</li> <li>• Describe various clinical interventions used to manage sexual disorders</li> </ul>
Test	
Communication Skills	<ul style="list-style-type: none"> <li>• Describe principles of effective communication</li> <li>• Understand verbal and non-verbal communication</li> </ul>
Counseling	<ul style="list-style-type: none"> <li>• Develop empathetic listening skills</li> </ul>
Informational Care	<ul style="list-style-type: none"> <li>• To develop the ability to accurately diagnose medical condition, interpret results and provide appropriate knowledge and treatment to the patient</li> </ul>
Breaking Bad News	<ul style="list-style-type: none"> <li>• To develop effective communication skills</li> <li>• Empathetic patient centered care</li> <li>• Tailoring information</li> <li>• Managing emotional reactions</li> <li>• Providing resources and support</li> </ul>
Crisis Intervention and Disaster Management	<ul style="list-style-type: none"> <li>• To learn crisis assessment</li> <li>• To understand and implement effective emergency response procedures to mitigate harm</li> <li>• To develop the ability to provide psychological first aid</li> </ul>
Conflict Resolution	<ul style="list-style-type: none"> <li>• To comprehend the causes of conflict</li> <li>• To develop effective communication skills</li> <li>• To learn and apply various conflict resolution approaches</li> <li>• To enhance emotional self-awareness and empathy to better navigate and manage emotions in conflict</li> </ul>
Medical Ethics	<ul style="list-style-type: none"> <li>• Define medical ethics</li> <li>• Understand the relevance and scope of medical ethics</li> <li>• Describe principles of medical ethics and their clinical applications</li> <li>• Understand evolution of contemporary bioethics, its characteristics and relevance to practice and research</li> </ul>



Common Ethical Issues in Medical Practice	<ul style="list-style-type: none"> <li>• Identify common ethical omissions in medical practice</li> <li>• Demonstrate confidentiality of the patients' information</li> <li>• Demonstrate undertaking informed consent from the patient</li> </ul>
Common Ethical Dilemmas in a Health Professional's Life	<ul style="list-style-type: none"> <li>• Identify common ethical dilemmas in a health professional's life</li> <li>• Demonstrate ethical behavior towards ethical dilemmas</li> <li>• Debate the implications of euthanasia from social, moral, legal and religious perspectives</li> </ul>
Psychological Reactions in Doctor-Patient Relationship	<ul style="list-style-type: none"> <li>• Comprehend psychological reactions arising in doctor-patient relationship like transference, counter transference, resistance</li> <li>• Demonstrate professional behavior towards psychological reactions of patients</li> </ul>
Learning	<ul style="list-style-type: none"> <li>• Define learning</li> <li>• Describe different types of conditioning and their clinical applications</li> <li>• Comprehend learning principles and techniques for developing new healthy behaviors, shaping patients' behaviors during disease and health and gaining insight into the behaviors of patients, colleagues and other professionals</li> </ul>
Memory	<ul style="list-style-type: none"> <li>• Describe memory, its types and clinical correlates</li> <li>• Demonstrate techniques to improve memory</li> </ul>
Emotions	<ul style="list-style-type: none"> <li>• Define emotion and its types</li> <li>• Understand different types of emotional expression</li> <li>• Explain emotional intelligence</li> <li>• Demonstrate various methods to improve emotional intelligence</li> </ul>
Metacognition, thinking, Intelligence	<ul style="list-style-type: none"> <li>• Define Metacognition</li> <li>• Demonstrate use of metacognition in academic and personal life</li> <li>• Define thinking and its application in problem-solving</li> <li>• Define intelligence</li> <li>• Describe IQ test and its clinical applications</li> </ul>
Motivation	<ul style="list-style-type: none"> <li>• Define motivation</li> <li>• Explain different types of human needs</li> </ul>
Personality Development	<ul style="list-style-type: none"> <li>• Define personality</li> <li>• Identify the stages of normal personality development (psychodynamic, psychosocial, cognitive)</li> <li>• Describe personality disorders</li> </ul>
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Sociology and Healthcare	<ul style="list-style-type: none"> <li>• Define family, social groups, social structures and roles</li> <li>• Describe the influence of socio-cultural factors such as gender, race, social class, family and occupations on health and disease</li> <li>• Identify and explain psychosocial aspects of culturally contingent</li> </ul>





	<p>phenomena e.g. child rearing practices, death and dying</p> <ul style="list-style-type: none"> <li>• Describe the role of social support and religion to support a patient</li> </ul>
Stigma, Sick role	<ul style="list-style-type: none"> <li>• Demonstrate counseling of patient to address stigma related to the illness</li> <li>• Demonstrate counseling of patient to overcome the sick-role</li> </ul>
Compliance, Health Belief Model	<ul style="list-style-type: none"> <li>• Define treatment adherence and various strategies to improve it</li> <li>• Define and elicit health belief model</li> <li>• Demonstrate respectful attitude for social, cultural, religious differences during the clinical interaction</li> </ul>
Psychosocial Assessment	<ul style="list-style-type: none"> <li>• Conduct comprehensive psychosocial assessment using biopsychosocial model</li> <li>• Elicit various psychosocial stressors in the life of patient</li> <li>• Elicit various psychosocial supports available for the patient</li> </ul>
Intelligence & Emotions	<ul style="list-style-type: none"> <li>• Define intelligence</li> <li>• Describe IQ test and its clinical applications</li> <li>• Define emotion and its types</li> <li>• Understand different types of emotional expression</li> <li>• Explain emotional intelligence</li> <li>• Demonstrate various methods to improve emotional intelligence</li> </ul>
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# Timetable

**SHARIF MEDICAL & DENTAL COLLEGE**  
**RAMADAN TIME TABLE, 3rd YEAR MBBS (Session 2022 - 2023)**  
 Dated: 24-03-2023 S.M.D.C. No. 851-ScPath/3554-23/2023 Dated: 23-03-2023

Day & Time	8:30am-9:15am	9:15am - 10:00am	10:00am - 11:30am	11:30am - 12:30pm	12:30pm - 02:00pm
<b>Monday</b>	Pathology Lectures Forensic Safety Lectures (27th & 27th Feb) Lectures Hall 2	Pharmacology Lectures Lectures Hall 2	Skill Lab** Batch I (10:00 - 11:00am) Batch II (11:00 - 11:45am)	Hospital Work Research Methodology Lecture Lecture Hall 2	Pharmacology Pathology Forensic Med. (12:30-01:30) C SDL (01:30-02:30) C
<b>Tuesday</b>	Pathology Lectures Lectures Hall 2	Pharmacology Lectures Lectures Hall 2	Skill Lab** Batch III (10:00 - 11:00am) Batch IV (11:00 - 11:45am)	11:45am - 12:30pm Behavioural Sciences Lecture Patient Safety Lecture (7th & 14th Mar) Lecture Hall 2	12:30pm - 02:00pm Practical Pharmacology Pathology Forensic Med. (12:30-01:30) A SDL (01:30-02:30) A
<b>Wednesday</b>	Pathology Lectures Lectures Hall 2	Pharmacology Lectures Patient Safety Lectures (22nd & 29th Mar) Lectures Hall 2	10:00am - 11:45am Hospital Work Skill Lab** Batch V (10:00 - 10:45am)	11:45am - 12:30pm Psychiatry (15th February - 10th May) Dermatology (17th May - 4th October) Cardiology (11th October - 1st November) Nephrology (8th November - 13th December) Lecture Hall 2	Practical Pharmacology Pathology Forensic Med. (12:30-01:30) B SDL (01:30-02:30) B
<b>Thursday</b>	Pathology Lectures Lectures Hall 2	Pharmacology Lectures Lectures Hall 2	10:00am - 11:00am Medicine Lecture Lecture Hall 2	11:00am - 12:30pm Hospital Work	Tutorial (SGD) Pharmacology Pathology Forensic Med. (12:30-02:00) C SDL (02:00-02:30) C
<b>Friday</b>	Pharmacology Lectures Lectures Hall 2	09:15am - 10:00am Medicine (Gastroenterology) (19th Feb - 21st Mar) Medicine (Pulmonology) (14th Apr - 9th Jun) Medicine (Emergency Med.) (21st Jul - 11th Aug) Research Methodology (18th Aug - 15th Oct) Antibiotics (20 Oct - 15th Dec) Lectures Hall 2	10:00am - 10:45am Forensic Medicine Lecture Lecture Hall 2	10:45am - 12:30pm Tutorial (SGD) Pharmacology Pathology Foren. Med. (10:45-12:00) A SDL (12:00-12:30) A	
<b>Saturday</b>	Forensic Medicine Lectures Lectures Hall 2	09:15am - 10:00am Medicine Lectures Lectures Hall 2	10:45am - 11:30am Surgery Lecture* Lecture Hall 2	11:30am - 11:45am Break	12:30pm - 02:00pm Tutorial (SGD) Pharmacology Pathology Forensic Med. (12:30-02:00) B SDL (02:00-02:30) B

Copy Forwarded To:  
 1. Dr. Muhammad Adam Khan Chief Executive SMC  
 2. Principal SMC  
 3. Principals, College of Dentistry  
 4. Heads of all concerned Departments  
 5. Director Administration

\*\* The students of Clinical faculties will spend rest of the time of Hospital Work in their respective wards.  
 Skill Lab time table will be available from 13th February, 2023 to 26th April 2023



## **ASSESSMENT PLAN**

Following modes of assessment are planned for 3<sup>rd</sup> year MBBS class in the subject of Behavioral Sciences. This plan has been designed keeping in view the university curriculum and hopefully will facilitate the students in preparing for 3<sup>rd</sup> professional examination in the subject.

### **Class Tests:**

These will be conducted at the completion of every section. The test will comprise of MCQs and SEQs on the pattern of university examinations.

### **Sendup Exam:**

This will be undertaken exactly following the format of university professional examinations comprised of MCQs, SEQs, OSPE and Viva voce.

### **Continuous Internal Assessment:**

Internal assessment will be calculated out of 20 marks on the basis of all the tests that will be conducted throughout the year.



## STAFFCONTACTS

<b>Name</b>	<b>Role</b>	<b>Contact</b>
Asst. Prof. Dr. Ayaz M.Khan	Head of Department	dr.ayazmkhan@gmail.com
Mrs. Sarah Shirazi	Course Coordinator	shirazi1255@gmail.com

## RECOMMENDED TEXTBOOKS & REFERENCE BOOKS

### *Recommended Books*

- Hand book of Behavioral Sciences for Medical and Dental Students (3<sup>rd</sup> Edition)  
by Mowadat H. Rana
- BRS Behavioral Science (7<sup>th</sup> Edition) by Barbara Fadem

### *Reference Books*

- Kaplan and Sadock's Synopsis of Psychiatry: Behavioral Sciences/Clinical  
Psychiatry (11<sup>th</sup> Edition) by Benjamin J. Sadock, Virginia A. Sadock, Pedro  
Ruiz
- Shorter Oxford Textbook of Psychiatry (7<sup>th</sup> Edition) by Paul Harrison, Philip Cowen,  
Tom Burns
- Atkinson and Hilgard's Introduction to Psychology (16<sup>th</sup> Edition) by Nolen Et Al,  
Susan Nolen-Hoeksema



# Department of Medicine



## **PREFACE**

Dear students, this study guide is an effort from your college and department of Internal Medicine to facilitate you in improving your understanding and knowledge of this subject and improving your learning as well as performance. This handbook is designed to make you familiar with the subject, learning objectives, detailed plans of lectures & clinical classes, assessments, and detailed course contents. The handbook is prepared according to the requirements of Pakistan Medical Commission and The University of Lahore guidelines.

The noble purpose of making you a competent, responsible, knowledgeable, lifelong learner and ethical doctor will only be possible if you work hard and pay extra attention, take keen interest and make untiring efforts to understand and practice not only the subject of Internal Medicine but your whole curriculum. You can make this possible with your discipline, punctuality, attention, dedication, and self-organization. You are always welcome to come to the department for anything concerning your understanding of the subject or any academic difficulty you face.

*“This document is an outline provided for the guidance of the students to learn & understand Medicine well. Students must clearly understand that no book can completely cover the vastness of the subject of Medicine. Students need to study a variety of books / literature in addition to all the teachings & trainings he/ she receives from the teachers to become a good physician.”*

We from the department of Internal Medicine, Sharif Medical and Dental College wish and pray for your success in future.

May Allah the Greatest of All, helps you and us in achieving this. Ameen

**Department of Internal Medicine  
Sharif Medical and Dental College  
Lahore  
Email: [medicine.smdc@gmail.com](mailto:medicine.smdc@gmail.com)**



# Department of Internal Medicine

## **OUR VISION**

*“To be leaders in academic and clinical medicine by providing sustainable, innovative, collaborative and appropriate health care through our trained best quality, competent and compassionate physicians in the country and abroad”*

## **OUR MISSION**

*“To educate our medical students, future and current health care professionals based on our commitment to excellence, social accountability and lifelong learning, together with the pursuit of novel research and clinical innovation, to improve the health of individuals and populations worldwide. It is also to inculcate values of excellence, research, lifelong learning and professionalism among our students, faculty & staff.”*

## **OUR VALUES**

All we do is guided by our commitment to excellence and innovation, and our values of professionalism, which include:

- Compassion
- Integrity and honesty
- Respect and collaboration
- Openness and team work
- Connectedness to our communities
- Altruism Professionalism
- Life-long learning attitude

## **OUR GOALS**

Department of Medicine as goals, want our students to learn clinical skills so as to provide exemplary, scientifically-based health services to the population. We aim to ensure that available and new knowledge are used to improve the care and well-being of society at all levels.

- Excellence in learning.
- Excellence in Patient’s care.
- Excellence in handling acute medical conditions
- Excellence in research.
- Problem solving skills.
- Develop a life-long learning attitude.
- Inculcating professionalism amongst undergraduates
- Cultivate a sense of responsibility for one’s own behavior and values.





## **Faculty:**

### **Prof. Ayub Latif Khawaja**

MBBS, MRCP

Professor & Head of Medicine Department

CPSP Supervisor & Examiner

### **Prof. Taj Jamshaid**

MBBS, FCPS, CHPE, MACG

Professor of Medicine

CPSP Supervisor & Examiner

### **Dr. Aftab Rabbani**

MBBS, MRCP

Associate Professor of Medicine

### **Dr. Imran Johar**

MBBS, MRCP

Associate Professor of Medicine

### **Dr. Faisal Masood**

MBBS, MD, CHPE

Assistant Professor of medicine



## GENERAL STUDENT LEARNING OBJECTIVES

The MBBS medical students at the end of the undergraduate training program in the subject of Internal Medicine should be able to demonstrate the following outcomes:

- Skillful
- Knowledgeable
- Community health promoter
- Critical thinker
- Professional and role model
- Researcher
- Leader

### **COURSE OBJECTIVES:**

At the end of undergraduate training program in the subject of Internal Medicine, the graduate should possess essential knowledge, skills and attitude in order to enable them to:

1. Take comprehensive history, perform detailed physical examination and make a probable diagnosis with a list of differential diagnoses.
2. Devise an investigation plan, interpret the information and apply his knowledge.
3. Suggest a treatment plan for patients.
4. Apprehend and diagnose possible complications.
5. Document all aspects properly and timely.
6. Write and present the cases.
7. Identify medical diseases presenting in out-patients, in-patients and emergency departments.
8. Provide primary health care, at the community level.
9. Perform essential medical emergency and planned procedures.
10. Communicate and counsel effectively with the patient, their families and the community, regarding disease and its relevant issues.
11. Understand medical ethical issues and their application in reference to Internal Medicine.
12. Maintain the confidentiality of the patient.
13. Counsel patients and families regarding common medical problems.
14. Guide the patients and families regarding rehabilitation.
15. Understand the prevalence and prevention of the common Public Health Problems related to Internal Medicine in the community.
16. Understand the principles of medical research including medical writing.
17. Understand the fundamentals of Information Technology and basic computer soft wares.
18. Understands the principles of sterilization and disinfection techniques to prevent infections to the patients and save himself or herself from patients.
19. Be a life-long self-directed learner.
20. Exhibit Professionalism.



21. Competent in Preventive Medicine.

## COURSE OUTLINE

### **Third Year MBBS:**

The students will be taught important symptoms of systems and theoretical aspects of clinical methods etc. in the lectures. **Dermatology** and **Psychiatry** will be taught in lectures but assessment will be included in the final professional exam. Lectures of medicine specialties (**Gastroenterology**, **Pulmonology**, **Nephrology**, **Emergency Medicine** and **Cardiology**) will be part of the lecture schedule. In clinical classes in hospital, students will learn the practical aspect of the teachings with real patients. They will be trained to clinically practice the art of history taking, history writing & history presentation in addition to the practice of skills of conducting the clinical examination of patients.

## MODES OF INFORMATION TRANSFER

### **LECTURES:**

Lectures are planned to give the theoretical knowledge of the course contents. The main purpose of the lectures is to broadly introduce the topic or disease. The lecture schedule with the name of the tutor is mentioned below in the tabulated form. The lectures are taken at the lecture halls of main college building according to the annual devised schedule or academic calendar.

### **CLINICAL TEACHING:**

Clinical teaching of students of final year MBBS is done at the affiliated hospitals.

1. Sharif Medical City Hospital, Raiwind Road, Lahore.
2. Ittefaq Hospital, Ferozpur road, Lahore.

### **Clinical Teaching Strategies:**

- **Out Door Teaching**
- **Ward Teaching**
  - History taking
  - Clinical methods
  - Bedside teaching
  - Ward rounds
  - Case based learning
- **Small group discussions**
- **Clinical Tutorials**
- **Clinico-pathological Conference**
- **Individual presentations and assignments**
- **Skill lab activities**
- **OSCE Examination Practice**
- **Clinical Cards/Log book**, to document and monitor clinical training.



### Objectives of Clinical Classes / Training:

Clinical classes are meant to develop clinical orientation, and approach in a medical student to make him, knowledgeable and expert in dealing with patients in all aspects including, history taking, general & systematic physical examinations, investigations, treatment, rehabilitations, counselling, follow-ups, and possible complications. Students are taught how to manage a patient as a whole, not the concerned disease only.

## TEACHING HOURS

### Allocated by PMDC:

<b>General Medicine &amp; Allied (Psychiatry &amp; Dermatology)</b>	3 <sup>rd</sup> year
	120 Hours

### Third Year MBBS:

- **Lectures:**

Subject (duration)	No of lectures	Calculated time
Medicine (01 hour)	41	41 hours
Gastroenterology (45 min)	5	3 hours & 45 min
Pulmonology (45 min)	10	7 hours & 30 min
Emergency Medicine (45 min)	7	5 hours & 15 min
Cardiology (45 min)	4	3 hours
Psychiatry (45 min)	15	11 hours 15 min
Dermatology (45 min)	15	11 hours 15 min
Nephrology (45 min)	4	3 hours
<b>Total Lectures (hours)</b>		<b>86 hours / Year</b>

- **Hospital work:**

Clinical Training/ Hospital work (per batch)	Case based learning – (42 hours)	Total Clinical Training/ Hospital working hours – <b>48 hours/ Batch</b>
	Skill labs – (06 hours)	

- **Teaching Hours / year:**

<b>Lectures + Hospital work / batch</b>	<b>86 + 48</b>	<b>134 hours</b>
<b>Total Teaching hours</b>	<b>86 + (48x5)</b>	<b>326 hours</b>



## TEACHING SCHEDULE OF 3<sup>rd</sup> YEAR MBBS

There will be 2 clinical lectures of General Medicine every week in third year MBBS. Lectures for medicine and allied subspecialties (Gastroenterology, Pulmonology, Emergency Medicine) are included in the schedule. These lectures will provide orientation to the students regarding clinical aspects of Medicine at a very basic and initial level. They will be taught history taking, history writing & history presentation, general and systemic physical examinations, especially their theoretical aspects.

Clinical classes will be conducted in the hospital and include clinical rotation in the department of medicine. Class will be divided in 5 sub-batches and each batch attends medicine ward for 8 weeks. During hospital work students also attend the skill labs according to schedule.

- **Lecture Days / Timings:**

- Wednesday **Psychiatry** (15 Feb-10 May) **Dermatology**(17May-4Oct)  
**Cardiology** (11 Oct-13 Dec) **Nephrology** (8Nov-13Dec)
- Thursday 10am-11am
- Friday 9:15am-10am (10Feb-11Aug)
- Saturday 9:15am-10am

DATE	DAY	TOPIC	TEACHER
9-2-23	Thursday	Introduction	Assistant Prof.Dr.Faisal
10-2-23	Friday	Primary Biliary Cholangitis	Assistant Prof.Dr.Faisal
11-2-23	Saturday	Primary Sclerosing Cholangitis	PGR Dr.Sahar
16-2-23	Thursday	Pericarditis	Assistant Prof.Dr.Faisal
17-2-23	Friday	Fever and its pattern	Assistant Prof.Dr.Faisal
18-2-23	Saturday	Dengue Fever	PGR Dr.Sahar
23-2-23	Thursday	Acute febrile illness	Assistant Prof.Dr.Faisal
24-2-23	Friday	Bronchiectasis	Assistant Prof.Dr.Faisal
25-2-23	Saturday	Acute Bronchitis	PGR Dr.Sahar
2-3-23	Thursday	Spontaneous bacterial peritonitis	Assistant Prof.Dr.Faisal
3-3-23	Friday	Pneumonia (Community Acquired)	Assistant Prof.Dr.Faisal
4-3-23	Saturday	Enteric Fever	PGR Dr.Sahar
9-3-23	Thursday	Nosocomial Pneumonia	Assistant Prof.Dr.Faisal
10-3-23	Friday	CURB-65 Score	Assistant Prof.Dr.Faisal
11-3-23	Saturday	H.Pylon	PGR Dr.Sahar



16-3-23	Thursday	Tuberculosis	Assistant Prof.Dr.Faisal
17-3-23	Friday	Tb Drugs & Side Effects	Assistant Prof.Dr.Faisal
18-3-23	Saturday	Prevention of TB	PGR Dr.Sahar
<b>Pakistan Day</b>			
24-3-23	Friday	Amoebiasis	Assistant Prof.Dr.Faisal
25-3-23	Saturday	Malaria & its types	PGR Dr.Sahar
30-3-23	Thursday	Jaundice & and its type	Assistant Prof.Dr.Faisal
31-3-23	Friday	Acute Viral Hepatitis Hepatitis A & E	Assistant Prof.Dr.Faisal
<b>Spring Vacations</b>			
13-4-23	Thursday	Hepatitis B	Assistant Prof.Dr.Faisal
14-4-23	Friday	Hepatitis C	Assistant Prof.Dr.Faisal
15-4-23	Saturday	Portal HTN	PGR Dr.Sahar
20-4-23	Thursday	Cirrhosis	Assistant Prof.Dr.Faisal
<b>EID Holidays</b>			
27-4-23	Thursday	CLD	Assistant Prof.Dr.Faisal
28-4-23	Friday	DCLD	Assistant Prof.Dr.Faisal
29-4-23	Saturday	Ascites	PGR Dr.Sahar
4-5-23	Thursday	Dengue Fever	Assistant Prof.Dr.Faisal
5-5-23	Friday	Management of Dengue Leak Syndrome	Assistant Prof.Dr.Faisal
6-5-23	Saturday	Fungal Infection	PGR Dr.Sahar
11-5-23	Thursday	Hepatocellular Carcinoma	Assistant Prof.Dr.Faisal
12-5-23	Friday	Ulcerative Colitis	Assistant Prof.Dr.Faisal
13-5-23	Saturday	Ulcerative Colitis	PGR Dr.Sahar
18-5-23	Thursday	Crohn's Disease	Assistant Prof.Dr.Faisal
19-5-23	Friday	Crohn's Disease	Assistant Prof.Dr.Faisal
20-5-23	Saturday	Asthma	PGR Dr.Sahar
25-5-23	Thursday	Life Threatening Asthma	Assistant Prof.Dr.Faisal



26-5-23	Friday	Step wise treatment of asthma	Assistant Prof.Dr.Faisal
27-5-23	Saturday	COPD	PGR Dr.Sahar
<b>Eat Pair</b>			
2-6-23	Friday	Pulmonary Function Tests	Assistant Prof.Dr.Faisal
3-6-23	Saturday	COPD	PGR Dr.Sahar
8-6-23	Thursday	Hypersensitivity Pneumonitis	Assistant Prof.Dr.Faisal
9-6-23	Friday	Allergic Rhinitis	Assistant Prof.Dr.Faisal
10-6-23	Saturday	HTN	PGR Dr.Sahar
15-6-23	Thursday	Treatment of HTN	Assistant Prof.Dr.Faisal
<b>Summer Vacations</b>			
21-7-23	Friday	Angina And its Types	Assistant Prof.Dr.Faisal
22-7-23	Saturday	STEMI	PGR Dr.Sahar
27-7-23	Thursday	NSTEMI	Assistant Prof.Dr.Faisal
3-8-23	Thursday	Atrial Flutter	Assistant Prof.Dr.Faisal
4-8-23	Friday	Ventricular Tachycardia	Assistant Prof.Dr.Faisal
5-8-23	Saturday	Brady & Tachyarhythric	PGR Dr.Sahar
10-8-23	Thursday	Dyslipidemia & types	Assistant Prof.Dr.Faisal
12-8-23	Saturday	Treatment of Dyslipidemia	PGR Dr.Sahar
17-8-23	Thursday	Diabetes	Assistant Prof.Dr.Faisal
19-8-23	Saturday	CKD	PGR Dr.Sahar
24-8-23	Thursday	Antidiabetic Drugs	Assistant Prof.Dr.Faisal
26-8-23	Saturday	Insulin types	PGR Dr.Sahar
31-8-23	Thursday	Complication of Diabetes	Assistant Prof.Dr.Faisal
2-9-23	Saturday	Diabetic Foot	PGR Dr.Sahar
7-9-23	Thursday	Diabetic Ketoacidosis	Assistant Prof.Dr.Faisal
9-9-23	Saturday	Diabetic Nephropathy	PGR Dr.Sahar
14-9-23	Thursday	HHS	Assistant Prof.Dr.Faisal
16-9-23	Saturday	Dilated Cardiomyopathy	PGR Dr.Sahar



21-9-23	Thursday	Hypertrophic Cardiomyopathy	Assistant Prof.Dr.Faisal
23-9-23	Saturday	Pericardial Effusion	PGR Dr.Sahar
28-9-23	Thursday	Pericardial Tamponade	Assistant Prof.Dr.Faisal
30-9-23	Saturday	Pneumoconiosis	PGR Dr.Sahar
5-10-23	Thursday	Silicosis	Assistant Prof.Dr.Faisal
7-10-23	Saturday	Asbestosis	PGR Dr.Sahar
12-10-23	Thursday	Systemic Sclerosis	Assistant Prof.Dr.Faisal
14-10-23	Saturday	Gastritis	PGR Dr.Sahar
19-10-23	Thursday	Dyspepsia	Assistant Prof.Dr.Faisal
21-10-23	Saturday	GERD	PGR Dr.Sahar
26-10-23	Thursday	Non Variceal Bleed	Assistant Prof.Dr.Faisal
28-10-23	Saturday	Achlasia	PGR Dr.Sahar
2-11-23	Thursday	SLE	Assistant Prof.Dr.Faisal
4-11-23	Saturday	Esophagits	PGR Dr.Sahar
9-11-23	Thursday	UCE	Assistant Prof.Dr.Faisal
11-11-23	Saturday	AKI	PGR Dr.Sahar
16-11-23	Thursday	CKD	Assistant Prof.Dr.Faisal
18-11-23	Saturday	Hepatic Encephalopathy	PGR Dr.Sahar
23-11-23	Thursday	Arrthymia & types	Assistant Prof.Dr.Faisal
25-11-23	Saturday	Atrial Fibrillation	PGR Dr.Sahar
30-11-23	Thursday	Anticoagulation in Arrhythmias	Assistant Prof.Dr.Faisal





## LECTURES OF CARDIOLOGY DEPARTMENT

DATE	DAY	TOPIC	Teacher
11-10-22	Wednesday	Torsades De Pointes	Assistant Prof.Dr.Faisal
18-10-23	Wednesday	RBBB	Assistant Prof.Dr.Faisal
25-10-23	Wednesday	LBBB	Assistant Prof.Dr.Faisal
1-11-23	Wednesday	Cardiomyopathy	Assistant Prof.Dr.Faisal

## LECTURES OF NEPHROLOGY DEPARTMENT


DATE	DAY	TOPIC	Teacher
8-11-23	Wednesday	Post Streptococcal glomerulonephritis	Dr.Fatima
15-11-23	Wednesday	IgA Nephropathy	Dr.Fatima
22-11-23	Wednesday	Membranous Glomerulonephritis	Dr.Fatima
29-11-23	Wednesday	Nephrotic Syndrome	Dr.Fatima
6-12-23	Wednesday	Nephritic Syndrome	Dr.Fatima
13-12-23	Wednesday	Uremic Encephalopathy	Dr.Fatima

**SHARIF MEDICAL & DENTAL COLLEGE**  
**3<sup>RD</sup> YEAR MBBS CLINICAL ROTATION TIME TABLE**  
**CLASS IS DIVIDED INTO 5 BATCHES ( Session 2021-2022)**  
**DEPARTMENT OF MEDICINE**

Sub batches	Roll Numbers
1	21001,21003-21022
2	21023-21043
3	21044-21061,21063-21065
4	21066-21068,21070-21086


5	21089-21098,21100,20046,20059,20061,20066,19035
---	-------------------------------------------------

Date	Medicine
9 <sup>th</sup> FEB to 12 <sup>th</sup> APRIL,2023	1
13 <sup>th</sup> APRIL to 5 <sup>th</sup> JUNE,2023	2
6 <sup>th</sup> JUNE to 25 <sup>th</sup> AUG,2023	3
26 <sup>th</sup> AUG to 6 <sup>th</sup> OCT,2023	4
7 <sup>th</sup> OCT to 20 <sup>th</sup> NOV,2023	5

 <b>SHARIF MEDICAL &amp; DENTAL COLLEGE</b> <b>REVISED TIME TABLE, 3rd YEAR MBBS (Session 2020 - 2021)</b> S.M&D.C No/ /Path/2A/9- R/1/2021 Dated: 05-06-2021						
Day & Time	8:30am-9:15am	9:15am -10:00am	10:00am - 10:15am	10:15am -11:45am	11:45am - 12:30pm	12:30pm - 02:30pm
<b>Monday</b>	Pathology Lecture Lecture Hall 4	Pharmacology Lecture Lecture Hall 4	<b>Break</b>	Hospital Work <b>Skill Lab**</b> Batch I (10:15 - 11:00am) Batch II (11:00 - 11:45am)	Forensic Medicine Lecture Lecture Hall 4	<b>Practical</b> Pharmacology A Pathology B Forensic Medicine C
<b>Tuesday</b>	Pathology Lecture Lecture Hall 4	Pharmacology Lecture Lecture Hall 4		Hospital Work <b>Skill Lab**</b> Batch III (10:15 - 11:00am) Batch IV (11:00 - 11:45am)	Behavioural Sciences Lecture Lecture Hall 4	<b>Practical</b> Pharmacology B Pathology C Forensic Medicine A
<b>Wednesday</b>	Pathology Lecture Lecture Hall 4	9:15am -10:00am Pharmacology Lecture Lecture Hall 4	10:00am - 10:15am <b>Break</b>	10:15am -11:45am Hospital Work <b>Skill Lab**</b> Batch V (10:15 - 11:00am)	11:45am - 12:30pm Psychiatry (31st Mar - 18th Aug) Dermatology (25th Aug - 1st Dec) Cardiology (8th Dec - 22nd Dec) Nephrology (5th Jan - 26th Jan) Lecture Hall 4	<b>Practical</b> Pharmacology C Pathology A Forensic Medicine B
<b>Thursday</b>	Pathology Lecture Lecture Hall 4	9:15am -10:00am Pharmacology Lecture Lecture Hall 2	10:00am - 11:00am Medicine Lecture Lecture Hall 4	11:00am - 12:30pm Hospital Work	<b>Tutorial (SGD)</b> Pharmacology A Pathology B Forensic Medicine C	
<b>Friday</b>	Pharmacology Lecture Lecture Hall 4	09:15am - 10:00am Medicine (Gastroenterology) (9th Apr - 8th May) Medicine (Pulmonology) (4th Jun - 20th Aug) Research Methodology (27th Aug - 15th Oct) Medicine (Emergency Med.) (22nd Oct - 3rd Dec) Anesthesia (10th Dec - 28th Jan) Lecture Hall 4	10:00am - 10:45am Forensic Medicine Lecture Lecture Hall 4	10:45am - 12:30pm <b>Tutorial (SGD)</b> Pharmacology B Pathology C Forensic Medicine A		
<b>Saturday</b>	Forensic Medicine Lecture Lecture Hall 4	09:15am - 10:00am Medicine Lecture Lecture Hall 4	10:00am - 10:45am Pharmacology Lecture* Lecture Hall 4	10:45am - 11:30am Surgery Lecture* Lecture Hall 4	11:30am - 11:45am <b>Break*</b>	11:45am - 12:30pm Pathology Lecture Lecture Hall 4
						12:30pm - 02:30pm <b>Tutorial (SGD)</b> Pharmacology C Pathology A Forensic Medicine B

Copy Forwarded To:  
 1: Dr. Muhammad Adnan Khan Chief Executive SMC  
 2: Principal SMDC  
 3: Principal, College of Dentistry  
 4: Heads of all concerned Departments.  
 5: Director Administration  
 6: Notice Boards

\* Amendments in Time Table ONLY for 2nd Saturday of every month.  
 1. Break 10:00am - 10:15am (No Pharmacology Lecture)  
 2. Mentorship Session 10:15am - 11:00am  
 3. Surgery Lecture 11:00am - 11:45am  
 \*\* The students of Clinical baces will spend rest of the time of Hospital Work in their respective wards.  
 Skill Lab time table will be applicable from 31st May, 2021 to 8th September, 2021.

  
**Prof. Maria Aslam**  
 Head Deptt. of Pathology  
 Chairperson Time Table Committee



## **THE LOG BOOK/CLINICAL CARD RECORD**

The log book is a collection of evidence that learning has taken place, it is a reflective record of achievements. The students are expected to make a record of his/her achievements in the log book. The log book shall also contain a record of the procedures which student would have performed.

### **FEEDBACK:**

The teaching faculty will give constructive feedback on the performance of the students. This will be individual in clinical classes and collective in class tests and mega tests (however students who fail to perform good in tests or those who want to know about their performance may be given individual feedback). Students should take all the feedbacks in positive spirit & attitude to find out the level of their performance, areas where they need improvements and suggestions and guidance from the teachers, how to improve the weaknesses etc. the sole purpose of feedbacks is to improve the learning of students.

### **ATTENDANCE:**

- Students are required to ensure maximum attendance in all sections including lectures and clinical classes.
- Minimum attendance to qualify for appearing in professional examination is 75% of lectures and clinical classes. But this is not the desired level. All students should make sure that they attend the classes 100%, except some unavoidable circumstances. Because missing one lecture or clinical class means one has missed a topic, a disease or a very important aspect of the subject.
- If a student is continuously absent for 07 days or more, his /her name will be struck off from the college, and he /she will have to get re-admission after consideration by the administration.

### **ASSESSMENT:**

This will comprise of marks in;

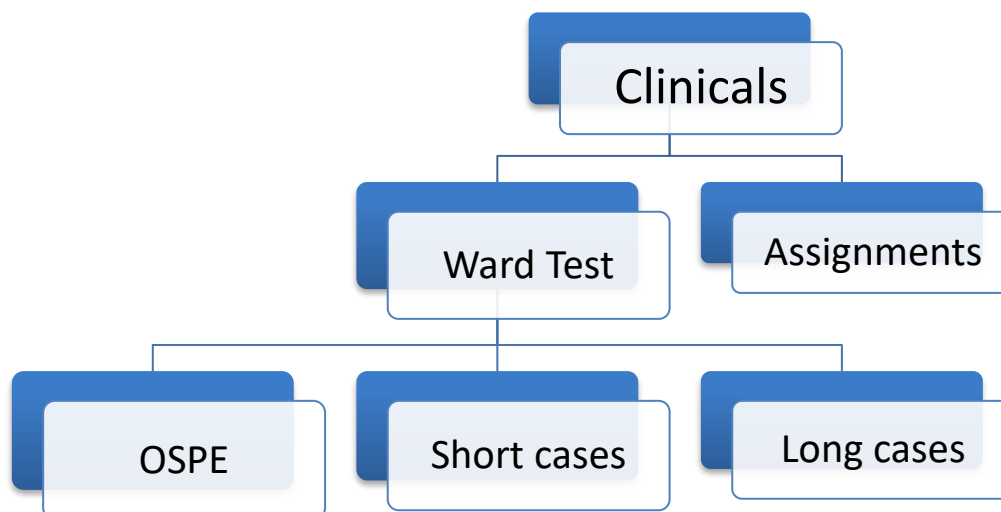
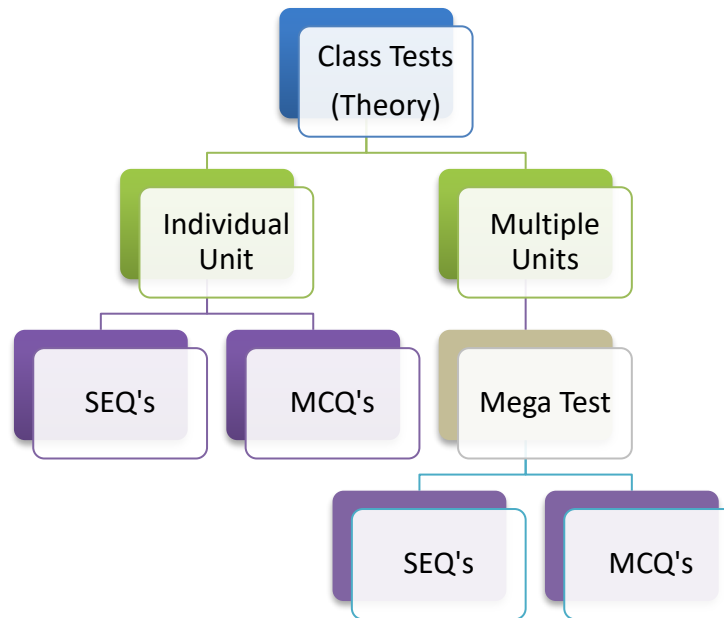
- Class tests
- Mega tests
- Ward test
- Clinical assignment
- Send up examination.

### **Course Learning Outcomes and assessment methods:**

At the end of the session / section; the student will be able to

1. Diagnose a case scenario
2. Devise an investigation plan

3. Write down a comprehensive management plan
4. Describe the common complications and their management
5. Knows the follow up & rehabilitation plan of the common as well as important diseases of a particular system.





## Ward test/ Assessment schedule

Batch	OSPE	Viva/ Clinical case presentation
I	11 april 2023	12 april 2023
II	4 june 2023	5 june 2023
III	24 august 2023	25 august 2023
IV	5 october 2023	6 october 2023
V	19 n0vember 2023	20 n0vember 2023

**Official Medicine department correspondence:** [medicine.smdc@gmail.com](mailto:medicine.smdc@gmail.com)

### RECOMMENDED BOOKS / MATERIALS

1. **Davidson's Principles and Practice of Medicine** by Davidson. 23<sup>rd</sup> edition.
2. **Kumar & Clark's Clinical Medicine** by Parveen J Kumar & Michael Clark. 9<sup>th</sup> Edition
3. **Hutchison's Clinical Methods** by Michael Swash. 21<sup>st</sup> edition
4. **Basic psychiatry** by Myre Sim, e. B. Gordon
5. **Oxford Text Book of Psychiatry**
6. **ABC of Dermatology**. Latest Edition.
7. **Smith's General Urology** by Emil A. Tanagho and Jack W. McAninch 15<sup>th</sup> edition. 2007
8. **Online Journals and Reading Materials** through HECDigitalLibrary Facility.

### RESOURCE PERSONS:

1. **Professor Ayub Latif Khawaja (Head of Department of Medicine)**
2. **Assistant Professor Dr. Faisal Masood**
3. **PGR Dr. Sahar Aslam**



# Department of Surgery



## PREFACE

Dear students, this study guide is an effort from your college and department of General Surgery to facilitate you in improving your understanding and knowledge of this subject and improving your learning as well as performance. The purpose of the study guide is to help you learn the subject of General Surgery. Study guides are different from textbooks. This handbook is designed to make you familiar with the subject, learning objectives, detailed plans of lectures & clinical classes, assessments, and detailed course contents. The handbook is prepared according to the requirements of Pakistan Medical Commission and The University of Lahore guidelines. This guide includes details about various teaching activities which will take place throughout the academic year.

At Sharif Medical and Dental college system what we follow is based on annual assessment in which we teach the subject of General Surgery in all academic years by dividing the syllabi of medical education. The training program we follow is based on the vision of UHS and mission of SMDC. This teaching and training program is friendly and easy to understand for new students. The study guide we developed is detailed and comprehensive. Students can get all the information about the lectures, timetable, ward classes, small group discussion, and paper pattern and marks distribution. List of lectures to be conducted in the session are mentioned with names of the instructors. Every lecture has some purpose and outcome to be achieved that is also included. Complete detail about the examination, surgical procedures and management is included for the students so broad and specific learning objectives are achieved to maximum level. A detail of assessment methods and schedule is also present for students so they can make their timetable for the examination. The entire course outline is given with topic to be taught and the tutors.

Check list of recommended text books are also a part of study guide. We are hopeful that the study guide will be great help for new students.

We from the department of Internal Medicine, Sharif Medical and Dental College wish and pray for your success in future.

May Allah the Greatest of All, helps you and us in achieving this. Ameen.

**Department of General Surgery**  
**Sharif Medical and Dental College,**  
**Lahore**  
**Email: [generalsurgery@sharifmedicalcity.org](mailto:generalsurgery@sharifmedicalcity.org)**



## LIST OF CONTENTS

SR.NO	TOPIC
01	General student learning objectives
02	Course outline
03	Modes of information transfer
04	Teaching Schedule of 3 <sup>rd</sup> year
06	Course outline final year (MBBS & Allied)
07	Continuous internal assessment
08	Staff contact
09	Recommended books/ materials





# **Time Table**

## **3<sup>rd</sup> Year MBBS**



# SHARIF MEDICAL & DENTAL COLLEGE

## TIME TABLE, 3rd YEAR MBBS (Session 2022 - 2023)

S.M.&D.C.No/394-87/Path/33/10-23/2023 Dated: 06-02-2023

Day & Time	8:30am-9:15am	9:15am - 10:00am	10:00am - 11:30am	11:30am - 12:30pm	12:30pm - 02:30pm
<b>Monday</b>	Pathology Lecture Patient Safety Lecture (20th & 27th Feb) Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Hospital Work  Skill Lab** Batch I (10:00 - 11:00am) Batch II (11:00 - 11:45am)	Research Methodology Lecture Lecture Hall 2	Practical Pharmacology A Pathology B Forensic Med. (12:30-01:30) C SDL (01:30-02:30) C
	Pathology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Hospital Work  Skill Lab** Batch III (10:00 - 11:00am) Batch IV (11:00 - 11:45am)	Behavioral Sciences Lecture Patient Safety Lecture (7th & 14th Mar) Lecture Hall 2	Practical Pharmacology B Pathology C Forensic Med. (12:30-01:30) A SDL (01:30-02:30) A
<b>Tuesday</b>	Pathology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Hospital Work  Skill Lab** Batch V (10:00 - 10:45am)	Psychiatry (15th February - 10th May) Dermatology (17th May - 4th October) Cardiology (11th October - 1st November) Nephrology (8th November - 13th December) Lecture Hall 2	Practical Pharmacology C Pathology A Forensic Med. (12:30-01:30) B SDL (01:30-02:30) B
	Pathology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Hospital Work  Skill Lab** Batch V (10:00 - 10:45am)	11:45am - 12:30pm Hospital Work	Tutorial (SGD) Pharmacology A Pathology B Forensic Med. (12:30-02:00) C SDL (02:00-02:30) C
<b>Wednesday</b>	Pathology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Hospital Work  Skill Lab** Batch V (10:00 - 10:45am)	11:45am - 12:30pm Hospital Work	Practical Pharmacology A Pathology B Forensic Med. (12:30-02:00) C SDL (02:00-02:30) C
	Pathology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Hospital Work  Skill Lab** Batch V (10:00 - 10:45am)	11:45am - 12:30pm Hospital Work	Practical Pharmacology A Pathology B Forensic Med. (12:30-02:00) C SDL (02:00-02:30) C
<b>Thursday</b>	Pathology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Hospital Work  Skill Lab** Batch V (10:00 - 10:45am)	11:45am - 12:30pm Hospital Work	Practical Pharmacology A Pathology B Forensic Med. (12:30-02:00) C SDL (02:00-02:30) C
	Pathology Lecture Lecture Hall 2	Pharmacology Lecture Lecture Hall 2	Hospital Work  Skill Lab** Batch V (10:00 - 10:45am)	11:45am - 12:30pm Hospital Work	Practical Pharmacology A Pathology B Forensic Med. (12:30-02:00) C SDL (02:00-02:30) C
<b>Friday</b>	Pharmacology Lecture Lecture Hall 2	Medicine (Gastroenterology) (10th Feb - 31st Mar) Medicine (Pulmonology) (14th Apr - 9th Jun) Medicine (Emergency Med.) (21st Jul - 11th Aug) Research Methodology (18th Aug - 13th Oct) Anesthesia (20 Oct - 15th Dec) Lecture Hall 2	10:00am - 11:45am Medicine Lecture Lecture Hall 2	10:45am - 12:30pm Tutorial (SGD) Pharmacology B Pathology C Foren. Med. (10:45-12:00) A SDL (12:00-12:30) A	Practical Pharmacology A Pathology B Forensic Med. (12:30-02:00) C SDL (02:00-02:30) C
	Forensic Medicine Lecture Lecture Hall 2	Medicine Lecture Lecture Hall 2	10:00am - 11:30am Surgery Lecture* Lecture Hall 2	11:30am - 11:45am Break*	Tutorial (SGD) Pharmacology C Pathology A Forensic Med. (12:30-02:00) B SDL (02:00-02:30) B
<b>Saturday</b>	Forensic Medicine Lecture Lecture Hall 2	Pharmacology Lecture* Lecture Hall 2	10:45am - 11:30am Surgery Lecture* Lecture Hall 2	11:45am - 12:30pm Pathology Lecture Lecture Hall 2	Tutorial (SGD) Pharmacology C Pathology A Forensic Med. (12:30-02:00) B SDL (02:00-02:30) B
	Forensic Medicine Lecture Lecture Hall 2	Pharmacology Lecture* Lecture Hall 2	10:45am - 11:30am Surgery Lecture* Lecture Hall 2	11:45am - 12:30pm Pathology Lecture Lecture Hall 2	Tutorial (SGD) Pharmacology C Pathology A Forensic Med. (12:30-02:00) B SDL (02:00-02:30) B

**Copy Forwarded To:**  
 1: Dr. Muhammad Adnan Khan Chief Executive SMC  
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**\* Amendments in Time Table ONLY for 2nd Saturday of every month.**

1. Break 10:00am - 10:15am (No Pharmacology Lecture)
2. Mentorship Session 10:15am - 11:00am
3. Surgery Lecture 11:00am - 11:45am

\*\* The students of Clinical Batches will spend rest of the time of Hospital Work in their respective wards.  
 Skill Lab time table will be applicable from 13th February, 2023 to 26th April, 2023.

  
**Prof. Maria Aslam**  
 Head Dept. of Pathology  
 Chairperson Time Table Committee

**3<sup>rd</sup> YEAR MBBS CLASS 2023**  
**TRAINING PROGRAM FOR LECTURE**  
**DEPARTMENT OF GENERAL SURGERY**  
**3<sup>rd</sup> YEAR MBBS CLASS 2023**

INCHARGE -Dr Hassan Taqi(consultant)  
 COORDINATOR- Dr. Imran Abbas (PGR)  
 FOCAL PERSON- Dr. Usman (PGR)

<b>FEBRUARY-23</b>					
<b>DATE</b>	<b>DAY</b>	<b>TIME</b>	<b>TOPIC</b>	<b>TUTOR</b>	<b>BOOK</b>
18-02-2023	Saturday	10:45am –11:30am	Introduction to surgery	Dr. Hassan Taqi	Bailey & Love
25-02-2023	Saturday	10:45am –11:30am	Acute Appendicitis	Dr. Hassan Taqi	Bailey & Love
04-03-2023	Saturday	10:45am –11:30am	Abscess	Dr. Hassan Taqi	Bailey & Love
11-03-2023	Saturday	10:45am –11:30am	Head injury	Dr. Hassan Taqi	Bailey & Love
18-03-2023	Saturday	10:45am –11:30am	Abdominal trauma (Blunt)	Dr. Hassan Taqi	Bailey & Love
25-03-2023	Saturday	10:45am –11:30am	Abdominal trauma (penetrating)	Dr. Hassan Taqi	Bailey & Love
15-04-2023	Saturday	10:45am –11:30am	Wound and tissue repair	Dr. Hassan Taqi	Bailey & Love
22-04-2023	Saturday	10:45am –11:30am	Burns-Causes, types, degrees	Dr. Hassan Taqi	Bailey & Love
29-04-2023	Saturday	10:45am –11:30am	Burns- Assessment and Management of burns	Dr. Hassan Taqi	Bailey & Love
06-05-2023	Saturday	10:45am –11:30am	Chest trauma (penetrating)	Dr. Hassan Taqi	Bailey & Love
13-05-2023	Saturday	10:45am –11:30am	Surgical anatomy and surgery related issues of thyroid	Dr. Hassan Taqi	Bailey & Love
20-05-2023	Saturday	10:45am –11:30am		Dr. Hassan Taqi	Bailey & Love
27-05-2023	Saturday	10:45am –11:30am	Goiter, types and management	Dr. Hassan Taqi	Bailey & Love



03-06-2023	Saturday	10:45am –11:30am	Malignancies of thyroid gland	Dr. Hassan Taqi	Bailey & Love
10-06-2023	Saturday	10:45am –11:30am	Peripheral Vascular Disease	Dr. Hassan Taqi	Bailey & Love
22-07-2023	Saturday	10:45am –11:30am	Applied anatomy of abdomen wall	Dr. Hassan Taqi	Bailey & Love
29-07-2023	Saturday	10:45am –11:30am	Applied anatomy of thorax	Dr. Hassan Taqi	Bailey & Love
05-08-2023	Saturday	10:45am –11:30am	Shock	Dr. Hassan Taqi	Bailey & Love
12-08-2023	Saturday	10:45am –11:30am	Management of Shock	Dr. Hassan Taqi	Bailey & Love
19-08-2023	Saturday	10:45am –11:30am	Fluid & Electrolyte	Dr. Hassan Taqi	Bailey & Love
26-08-2023	Saturday	10:45am –11:30am	Fluid & Electrolyte	Dr. Hassan Taqi	Bailey & Love
02-09-2023	Saturday	10:45am –11:30am	Blood Transfusion	Dr. Hassan Taqi	Bailey & Love
09-09-2023	Saturday	10:45am –11:30am	Hemorrhage	Dr. Hassan Taqi	Bailey & Love
16-09-2023	Saturday	10:45am –11:30am	Management of Hemorrhage	Dr. Hassan Taqi	Bailey & Love
23-09-2023	Saturday	10:45am –11:30am	Assessment of thyroid for its diseases	Dr. Hassan Taqi	Bailey & Love
30-09-2023	Saturday	10:45am –11:30am	<b>Test (shock, Fluid electrolyte, Blood transfusion, Hemorrhage)</b>	Dr. Hassan Taqi	Bailey & Love
07-10-2023	Saturday	10:45am –11:30am	Diabetic Foot	Dr. Hassan Taqi	Bailey & Love
14-10-2023	Saturday	10:45am –11:30am	Wound and tissue repair	Dr. Hassan Taqi	Bailey & Love
21-10-2023	Saturday	10:45am –11:30am	Wound and tissue repair	Dr. Hassan Taqi	Bailey & Love
28-10-2023	Saturday	10:45am –11:30am	<b>Test (Metabolic response to injury, Wound and tissue repair)</b>	Dr. Hassan Taqi	Bailey & Love
04-11-2023	Saturday	10:45am –11:30am	Surgical Site infection	Dr. Hassan Taqi	Bailey & Love
11-11-2023	Saturday	10:45am –11:30am	Surgical Site infection	Dr. Hassan Taqi	Bailey & Love
18-11-2023	Saturday	10:45am –11:30am	Surgical Site infection	Dr. Hassan Taqi	Bailey & Love
25-11-2023	Saturday	10:45am –11:30am	Tropical Infections	Dr. Hassan Taqi	Bailey & Love



02-12-2023	Saturday	10:45am –11:30am	Tropical Infections	Dr. Hassan Taqi	Bailey & Love
09-12-2023	Saturday	10:45am –11:30am	<b>Test (SSI, Tropical Infections)</b>	Dr. Hassan Taqi	Bailey & Love
16-12-2023	Saturday	10:45am –11:30am	Test Discussion	Dr. Hassan Taqi	Bailey & Love

**CURRICULUM OF 3<sup>RD</sup> YEAR MBBS**  
**Department of Surgery**

TOPICS	LEARNING OUTCOMES	Knowledge (Recall)	Skills (Psychomotor)	Attitude (Application)	Assesment Tools	Mode of Instruction or Method
<b>Surgical Principles</b> Introduction of Surgery & General Principals, Counselling, Patient and Doctor safety	To know about Principals of General Surgery & Patient counselling, Also to understand patient & doctor safety policy	C1  C1	P3  P3	A+  A+	MCQs SEQs	Lectures
<b>Wound, Tissue Repair &amp; Scars</b> 1. Normal Wound Healing & Abnormal wound healing 2. Type of Wound, Tidy / untidy Wound, Management & factors affecting Wound Healing. 3. Specific wounds, Bites, Puncture wound & Heamatoma, Chronic wounds	1. Able to define normal & abnormal wound healing 2. Should be able to identify different types of wounds & their management 3. Able to identify chronic wounds & management of special area wounds	C1 C2, C3  C1, C2	P3 P2  P3	A+ A+  A+	MCQs SEQs Short Case Long Case	<ul style="list-style-type: none"> <li>Lectures</li> <li>Bed Side Teaching in Surgery Ward &amp; OPD/Small Group discussion</li> </ul>
<b>Fluid, Electrolytes, Acid base balance, Blood and Shock</b>  1. Shock & its types 2. Resuscitation of shock 3. Haemorrhage & its management 4. Blood Transfusion & complications 5. Fluid and Electrolytes management	1. Able to define shock & its types 2. Able to manage the shock. 3. Should know about hemorrhage and its management 4. Able to know about blood transfusion & its complicaions 5. Fluid and electrolyte requirements in the pre- and post-	C1  C2 C1  C1  C2	P1  P3 P3  P3  P2	A+  A+ A+  A+  A+	MCQs SEQs	<ul style="list-style-type: none"> <li>Lectures</li> <li>Bed Side Teaching in Surgery Ward &amp; OPD/Small Group Discussion</li> </ul>



	operative patient					
<b>Nutrition</b> 1. Assessment & Nutritional requirement 2. Enteral nutrition 3. Parenteral nutrition	<b>To understand:</b> 1. The causes and consequences of malnutrition in the surgical patient 2. The nutritional requirements of surgical patients 3. Should know about types of nutrition enteral & parenteral & different approaches and their complications	C1  C2  C2	P1  P2  P2	  A+ +	MCQs SEQs	<ul style="list-style-type: none"> <li>Lectures</li> <li>Bed Side Teaching in Surgery Ward &amp; OPD/Small Group Discussion</li> </ul>
<b>Wound infection</b> 1. Introduction to infection 2. Abscess, Cellulitis, Lymphadenitis & necrotising Fasciitis 3. SIRS & MODS 4. Gas Gangrene, Bacteraemia, Sepsis & tetanus 5. Treatment of wound infection 6. AIDS, HIV, Precautions 7. Bacteria in surgical Wound, Prophylaxis, antimicrobial Treatment	1. Should be able to identify wound infection and define various types of wound infection- abscess, cellulitis, necrotizing fasciitis 2. Able to diagnose gas gangrene, sepsis 3. Should be able to manage wound infections. 4. To know about AIDS, HIV and precautions 5. Should know about antimicrobial prophylaxis	C1, C2  C2  C2  C1  C1	P3  P3  P3  P1  P1	A+  A+  A+	MCQs SEQs Shot Case Long Case	<ul style="list-style-type: none"> <li>Lectures</li> <li>Bed Side Teaching in Surgery Ward &amp; OPD/Small Group Discussion</li> </ul>



<b>Skin &amp; Subcutaneous</b> 1. Ulcer, Sinus, Fistula 2. Inflammatory condition 3. Sebaceous cyst. & benign tumor 4. Premalignant Tumor 5. Malignant Tumor, BCC, SCC, Melanoma 6. Vascular Lesion	1. Should be able to define ulcer, sinus & fistula 2. Should be able to diagnose different benign skin conditions 3. Should diagnose different pre-malignant & malignant skin conditions 4. Should know about vascular skin lesions	C1 C2 C3 C2	P3 P3 P2 P2	A+ A+ A+ A+	MCQs SEQs Short Case Long Case	<ul style="list-style-type: none"> <li>Lectures</li> <li>Bed Side Teaching in Surgery Ward &amp; OPD/ Small Group Discussion</li> </ul>
<b>Burns</b> 1. Classification & Causes 2. Immediate Care, Assessment 3. Fluid resuscitation 4. Management of burn wound & skin grafting	1. Should be able to know classification of burn & its cause 2. Able to resuscitate and manage burn patient. 3. Should be able to define different skin grafting	C1 C2 C2	P3 P2 P2	A+ A+ A+	MCQs SEQs Short Case Long Case	<ul style="list-style-type: none"> <li>Lectures</li> <li>Bed Side Teaching in Surgery Ward &amp; OPD/ Small Group Discussion</li> </ul>



# SHARIF MEDICAL & DENTAL COLLEGE

## 3rd YEAR MBBS CLINICAL ROTATION TIME TABLE

CLASS IS DIVIDED INTO 5 BATCHES (Session 2021 - 2022)

Dated: 07-02-2023 S.M&D.C No/400-5/Path/3311-R3/2023 Dated: 06-02-2023



### Roll Numbers

Subbatches	Roll Numbers
I	21001, 21003 - 21022
II	21023 - 21043
III	21044 - 21061, 21063 - 21065
IV	21066 - 21068, 21070 - 21086
V	21087 - 21098, 21100, 20030, 20046, 20055, 20059, 20061, 20066, 19035

Date	Medicine	Surgery	ENT	Eye	Psychiatry
9th February, 2023 to 12th April, 2023	I	II	III	IV	V
13th April, 2023 to 5th June, 2023	II	III	IV	V	I
6th June, 2023 to 28th August, 2023	III	IV	V	I	II
29th August, 2023 to 22nd October, 2023	IV	V	I	II	III
23rd October, 2023 to 15th December, 2023	V	I	II	III	IV

Copy Forwarded To:

1. Dr. Muhammad Adnan Khan Chief Executive SMC
2. Principal SMDC
3. Principal, College of Dentistry
4. Heads of all concerned Departments
5. Director Administration
6. Student Boards

*(Signature)*

Prof. Dr. Maria Aslam  
Head Deptt. of Pathology  
Chairperson Time Table Committee



## PATIENT ASSESSMENT COMPETENCIES

NO.	PROCEDURE	DESCRIPTION	LEVEL OF COMPETENCE
1	Taking patient's comprehensive history and related components	History covering sociodemographic, complaints, h/o present illness, past history, family & personal history, gynae & obstetrics history and in pediatrics include developmental and immunization history also	Should take and practice independently in every ward
2.	Patient's base line vital signs and their recording well (all wards)	Measure temperature, respiratory rate, pulse rate, blood pressure, oxygen saturations, NG output and urine output.	Safe to practice under indirect supervision
3.	Conducting general physical examination and, systemic examination abdominal, chest, nervous system, CVS, vascular, musculoskeletal, (all wards)	Systemic approach in clinical examination Complete All step-by-step examination and document positive findings for diagnosis	Safe to practice under indirect supervision



## CLINICAL ROTATION SCHEDULE OF 3<sup>rd</sup> YEAR MBBS BATCH II: CLINICAL ROTATION SCHEDULE.

SUBJECT: 3<sup>rd</sup> YEAR MBBS CLINICAL ROTATION TIME TABLE

INCHARGE: DR HASSAN TAQI

DURATION: ( 9<sup>th</sup> February 2023 to 12 April 2023 )

STUDENTS: BATCH II (21023 - 21043)

### TIME:

Day	Time	Domain
Monday	10:00am to 11:30am	Surgery ward
Tuesday	10:00am to 11:45am	Surgery ward
Wednesday	10:15am to 11:45am	Surgery ward
Thursday	11:00am to 12:30pm	Surgery ward



## DISCUSSION OF TOPIC/ASSESSMENT

	<b>Date</b>	<b>Topic/ Assessment</b>	<b>Name of tutor</b>	
<b>Batch-II.</b>	09-2-23	Introduction	DR HASSAN TAQI	
	13-2-23	Orientation History Taking (Pain)	DR HASSAN TAQI	
	14-2-23	History Taking (Pain)	DR HASSAN TAQI	
	15-2-23	History of (Swelling)	DR HASSAN TAQI	
	16-2-23	History and examination in trauma	DR HASSAN TAQI	
	20-2-23	General physical Examination	DR HASSAN TAQI	
<b>Batch-II.</b>	21-2-23	Examination of neck	DR HASSAN TAQI	
	22-2-23	Examination of chest	DR HASSAN TAQI	
	23-2-23	Examination of abdomen	DR HASSAN TAQI	
	27-2-23	Examination of Limbs	DR HASSAN TAQI	
	28-2-23	Examination of thyroid	DR HASSAN TAQI	
	01-3-23	Examination of breast	DR HASSAN TAQI	
	02-3-23	Examination of ENT	DR HASSAN TAQI	
	06-3-23	P/R examination	DR HASSAN TAQI	
	07-3-23	Examination of wound	DR HASSAN TAQI	
	08-3-23	Clinical examination of swelling	DR HASSAN TAQI	
	09-3-23	Clinical examination of ulcer	DR HASSAN TAQI	
	13-3-23	Triage	DR HASSAN TAQI	
	14-3-23	ATLS (Trauma)	DR HASSAN TAQI	
	15-3-23	How to do dressing	DR HASSAN TAQI	
	16-3-23	Blood Sampling	DR HASSAN TAQI	
	20-3-23	I/V Cannulation Protocol	DR HASSAN TAQI	
	21-3-23	I/V cannulation	DR HASSAN TAQI	
	22-3-23	Foley catheterization	DR HASSAN TAQI	
	27-3-23	N/G tube placement	DR HASSAN TAQI	
	28-03-23	Gowning practice	DR HASSAN TAQI	
	29-3-23	Instruments	DR HASSAN TAQI	
	30-3-23	Laparoscopic instruments	DR HASSAN TAQI	
	10-4-23	Revision	DR HASSAN TAQI	
	11-4-23	Revision	DR HASSAN TAQI	
		12-4-23	<b>Ward Test</b>	DR HASSAN TAQI



## CLINICAL ROTATION SCHEDULE OF 3<sup>RD</sup> YEAR MBBS BATCH III: CLINICAL ROTATION SCHEDULE.

SUBJECT: 3<sup>rd</sup> YEAR MBBS CLINICAL ROTATION TIME TABLE

INCHARGE: DR HASSAN TAQI

DURATION: 13<sup>TH</sup> April 2023 TO 05<sup>TH</sup> June 2023

STUDENTS: BATCH III (21044-21061, 21063-21065)

### TIME:

Day	Time	Domain
Monday	10:00am to 11:30am	Surgery ward
Tuesday	10:00am to 11:45am	Surgery ward
Wednesday	10:15am to 11:45am	Surgery ward
Thursday	11:00am to 12:30pm	Surgery ward

### DISCUSSION OF TOPIC/ASSESSMENT

Batch	Date	Topic/ Assessment	Name of tutor
Batch-III	13-4-23	Introduction	DR HASSAN TAQI
	17-4-23	Orientation History Taking (Pain)	DR HASSAN TAQI
	18-4-23	History Taking (Pain)	DR HASSAN TAQI
	19-4-23	History of (Swelling)	DR HASSAN TAQI
	20-4-23	History and examination in trauma	DR HASSAN TAQI
	24-4-23	General physical Examination	DR HASSAN TAQI
	25-4-23	Examination of neck	DR HASSAN TAQI
	26-4-23	Examination of chest	DR HASSAN TAQI
	27-4-23	Examination of abdomen	DR HASSAN TAQI
	02-5-23	Examination of Limbs	DR HASSAN TAQI
	03-5-23	Examination of thyroid	DR HASSAN TAQI
	04-5-23	Examination of breast	DR HASSAN TAQI
	08-5-23	Examination of ENT	DR HASSAN TAQI
	09-5-23	P/R examination	DR HASSAN TAQI
	10-5-23	Examination of wound	DR HASSAN TAQI
	11-5-23	Clinical examination of swelling	DR HASSAN TAQI
	15-5-23	Clinical examination of ulcer	DR HASSAN TAQI
Batch-III	16-5-23	Triage	DR HASSAN TAQI
	17-5-23	ATLS (Trauma)	DR HASSAN TAQI
	18-5-23	How to do dressing	DR HASSAN TAQI
	22-5-23	Blood Sampling	DR HASSAN TAQI
	23-5-23	I/V Cannulation Protocol	DR HASSAN TAQI
	24-5-23	I/V cannulation	DR HASSAN TAQI
	25-5-23	Foley catheterization	DR HASSAN TAQI
	29-5-23	N/G tube placement	DR HASSAN TAQI
	30-5-23	Gowning practice	DR HASSAN TAQI



	31-5-23	Instruments	DR HASSAN TAQI
	01-6-23	Laparoscopic instruments	DR HASSAN TAQI
	05-6-23	<b>Ward Test</b>	DR HASSAN TAQI

**CLINICAL ROTATION SCHEDULE OF 3<sup>rd</sup> YEAR MBBS**  
**BATCH IV: CLINICAL ROTATION SCHEDULE.**

SUBJECT: 3<sup>rd</sup> YEAR MBBS CLINICAL ROTATION TIME TABLE

INCHARGE: DR HASSAN TAQI

DURATION: 6<sup>TH</sup> June 2023 TO 28<sup>TH</sup> August 2023

STUDENTS: BATCH IV:(21066-21068 , 21070-21086)

**TIME:**

<b>Day</b>	<b>Time</b>	<b>Domain</b>
Monday	10:00am to 11:30am	Surgery ward
Tuesday	10:00am to 11:45am	Surgery ward
Wednesday	10:15am to 11:45am	Surgery ward
Thursday	11:00am to 12:30pm	Surgery ward

## DISCUSSION OF TOPIC/ASSESSMENT

Batch	Date	Topic/ Assessment	Name of tutor
Batch-IV	06-06-2023	Introduction	DR HASSAN TAQI
	07-06-2023	Orientation History Taking (Pain)	DR HASSAN TAQI
	08-06-2023	History Taking (Pain)	DR HASSAN TAQI
	12-06-2023	History of (Swelling)	DR HASSAN TAQI
	13-06-2023	History and examination in trauma	DR HASSAN TAQI
	14-06-2023	General physical Examination	DR HASSAN TAQI
	15-06-2023	Examination of neck	DR HASSAN TAQI
	17-07-2023	Examination of chest	DR HASSAN TAQI
	18-07-2023	Examination of abdomen	DR HASSAN TAQI
	19-07-2023	Examination of Limbs	DR HASSAN TAQI
	20-07-2023	Examination of thyroid	DR HASSAN TAQI
	24-07-2023	Examination of breast	DR HASSAN TAQI
	25-07-2023	Examination of ENT	DR HASSAN TAQI
	26-07-2023	P/R examination	DR HASSAN TAQI
	27-07-2023	Examination of wound	DR HASSAN TAQI
	31-07-2023	Clinical examination of swelling	DR HASSAN TAQI
	Batch-IV	01-08-2023	Clinical examination of ulcer
02-08-2023		Triage	DR HASSAN TAQI
03-08-2023		ATLS (Trauma)	DR HASSAN TAQI
07-08-2023		How to do dressing	DR HASSAN TAQI
08-08-2023		Blood Sampling	DR HASSAN TAQI
09-08-2023		I/V Cannulation Protocol	DR HASSAN TAQI
10-08-2023		I/V cannulation	DR HASSAN TAQI
15-08-2023		Foley catheterization	DR HASSAN TAQI
16-08-2023		N/G tube placement	DR HASSAN TAQI
17-08-2023		Gowning practice	DR HASSAN TAQI
21-08-2023		Instruments	DR HASSAN TAQI
22-08-2023	Laparoscopic instruments	DR HASSAN TAQI	
23-08-2023	Revision	DR HASSAN TAQI	
24-08-2023	Revision	DR HASSAN TAQI	
28-08-2023	WARD TEST	DR HASSAN TAQI	



**CLINICAL ROTATION SCHEDULE OF 3<sup>RD</sup> YEAR MBBS (2023)**  
**BATCH V: CLINICAL ROTATION SCHEDULE.**

SUBJECT: 3<sup>rd</sup> YEAR MBBS CLINICAL ROTATION TIME TABLE

INCHARGE: DR HASSAN TAQI

DURATION: 29<sup>TH</sup> August 2023 TO 22 October 2023

STUDENTS: BATCH V: (21087-21098, 21100 ,20030,20046,20055,20059,20061,20066,19035)

**TIME:**

<b>Day</b>	<b>Time</b>	<b>Domain</b>
Monday	10:00am to 11:30am	Surgery ward
Tuesday	10:00am to 11:45am	Surgery ward
Wednesday	10:15am to 11:45am	Surgery ward
Thursday	11:00am to 12:30pm	Surgery ward





## DISCUSSION OF TOPIC/ASSESSMENT

Batch	Date	Topic/ Assessment	Name of tutor
Batch-V	29-08-2023	Introduction	DR HASSAN TAQI
	30-08-2023	Orientation History Taking (Pain)	DR HASSAN TAQI
	31-08-2023	History Taking (Pain)	DR HASSAN TAQI
	04-09-2023	History of (Swelling)	DR HASSAN TAQI
	05-09-2023	History and examination in trauma	DR HASSAN TAQI
	06-09-2023	General physical Examination	DR HASSAN TAQI
	07-09-2023	Examination of neck	DR HASSAN TAQI
	11-09-2023	Examination of chest	DR HASSAN TAQI
	12-09-2023	Examination of abdomen	DR HASSAN TAQI
	13-09-2023	Examination of Limbs	DR HASSAN TAQI
	14-09-2023	Examination of thyroid	DR HASSAN TAQI
	18-09-2023	Examination of breast	DR HASSAN TAQI
	19-09-2023	Examination of ENT	DR HASSAN TAQI
	20-09-2023	P/R examination	DR HASSAN TAQI
Batch-V	21-09-2023	Examination of wound	DR HASSAN TAQI
	25-09-2023	Clinical examination of swelling	DR HASSAN TAQI
	26-09-2023	Clinical examination of ulcer	DR HASSAN TAQI
	27-09-2023	Triage	DR HASSAN TAQI
	28-09-2023	ATLS (Trauma)	DR HASSAN TAQI
	02-10-2023	How to do dressing	DR HASSAN TAQI
	03-10-2023	Blood Sampling	DR HASSAN TAQI
	04-10-2023	I/V Cannulation Protocol	DR HASSAN TAQI
	05-10-2023	I/V cannulation	DR HASSAN TAQI
	09-10-2023	Foley catheterization	DR HASSAN TAQI
	10-10-2023	N/G tube placement	DR HASSAN TAQI
	11-10-2023	Gowning practice	DR HASSAN TAQI
	12-10-2023	Instruments	DR HASSAN TAQI
	16-10-2023	Laparoscopic instruments	DR HASSAN TAQI
	17-10-2023	Revision	DR HASSAN TAQI
18-10-2023	Revision	DR HASSAN TAQI	
19-10-2023	<b>Ward Test</b>	DR HASSAN TAQI	



**CLINICAL ROTATION SCHEDULE OF 3<sup>rd</sup> YEAR MBBS**  
**BATCH I: CLINICAL ROTATION SCHEDULE.**

SUBJECT: 3<sup>rd</sup> YEAR MBBS CLINICAL ROTATION TIME TABLE

INCHARGE: DR HASSAN TAQI

DURATION: 23 October 2023 TO 15 December 2023

STUDENTS: BATCH I (21001,21003-21022)

**TIME:**

<b>Day</b>	<b>Time</b>	<b>Domain</b>
Monday	10:00am to 11:30am	Surgery ward
Tuesday	10:00am to 11:45am	Surgery ward
Wednesday	10:15am to 11:45am	Surgery ward
Thursday	11:00am to 12:30pm	Surgery ward

## DISCUSSION OF TOPIC/ASSESSMENT

Batch	Date	Topic/ Assessment	Name of tutor
<b>Batch-I</b>	23-10-2023	Introduction	DR HASSAN TAQI
	24-10-2023	Orientation History Taking (Pain)	DR HASSAN TAQI
	25-10-2023	History Taking (Pain)	DR HASSAN TAQI
	26-10-2023	History of (Swelling)	DR HASSAN TAQI
	30-10-2023	History and examination in trauma	DR HASSAN TAQI
	31-10-2023	General physical Examination	DR HASSAN TAQI
	01-11-2023	Examination of neck	DR HASSAN TAQI
	02-11-2023	Examination of chest	DR HASSAN TAQI
	06-11-2023	Examination of abdomen	DR HASSAN TAQI
	07-11-2023	Examination of Limbs	DR HASSAN TAQI
	08-11-2023	Examination of thyroid	DR HASSAN TAQI
	09-11-2023	Examination of breast	DR HASSAN TAQI
	13-11-2023	Examination of ENT	DR HASSAN TAQI
	14-11-2023	P/R examination	DR HASSAN TAQI
<b>Batch-I</b>	15-11-2023	Examination of wound	DR HASSAN TAQI
	16-11-2023	Clinical examination of swelling	DR HASSAN TAQI
	20-11-2023	Clinical examination of ulcer	DR HASSAN TAQI
	21-11-2023	Triage	DR HASSAN TAQI
	22-11-2023	ATLS (Trauma)	DR HASSAN TAQI
	23-11-2023	How to do dressing	DR HASSAN TAQI
	27-11-2023	Blood Sampling	DR HASSAN TAQI
	28-11-2023	I/V Cannulation Protocol	DR HASSAN TAQI
	29-11-2023	I/V cannulation	DR HASSAN TAQI
	30-11-2023	Foley catheterization	DR HASSAN TAQI
	04-12-2023	N/G tube placement	DR HASSAN TAQI
	05-12-2023	Gowning practice	DR HASSAN TAQI
	06-12-2023	Instruments	DR HASSAN TAQI
	07-12-2023	Laparoscopic instruments	DR HASSAN TAQI
11-12-2023	Revision	DR HASSAN TAQI	
12-12-2023	Revision	DR HASSAN TAQI	
13-12-2023	Revision	DR HASSAN TAQI	
14-12-2023	<b>Ward Test</b>	DR HASSAN TAQI	



## Department of Medical Education and Clinical Skills

### Sharif Medical & Dental College, Lahore

Tel: (0423) 786 0101-04, Fax: (0423) 786 0122

Web: [www.sharifmedicalcity.com.pak](http://www.sharifmedicalcity.com.pak)

Ref: SMDC/DMECS/0130/23

Dated:04/02/2023

The Head of Concerned Department  
SMDC.

Subject: **Skills labs activity for 3<sup>rd</sup> year MBBS (2023)**

The following Departments are requested to nominate a focal persons to organize the activity in skills lab/marked area as under and coordinate with Dr. Maria Aslam, Department of Pathology in this regard:-

No	Skill	Department	Venue	Batch and Timings	Day & Dates
1	Blood Sampling	Pathology	Pathology Lab	Batch I(10:15-11:00am) Batch II(11:00-11:45am) Batch III(10:15-11:00am) Batch IV(11:00-11:45am) Batch V(10:15-11:00am)	Mon:13 <sup>th</sup> Feb&20 <sup>th</sup> Feb 23 Mon:13 <sup>th</sup> Feb&20 <sup>th</sup> Feb 23 Tues:14 <sup>th</sup> Feb & 21 <sup>st</sup> Feb 23 Tues: 14 <sup>th</sup> Feb & 21 <sup>st</sup> Feb 23 Wed:15 <sup>th</sup> Feb & 22 <sup>nd</sup> Feb 23
2	Blood pressure measurement	Medicine	Medical Ward	Batch I(10:15-11:00am) Batch II(11:00-11:45am) Batch III(10:15-11:00am) Batch IV(11:00-11:45am) Batch V(10:15-11:00am)	Mon:27 <sup>th</sup> Feb & 06 <sup>th</sup> Mar 23 Mon: 27 <sup>th</sup> Feb & 06 <sup>th</sup> Mar 23 Tues:28 <sup>th</sup> Feb & 07 <sup>th</sup> Mar 23 Tues:28 <sup>th</sup> Feb & 07 <sup>th</sup> Mar 23 Wed:01 <sup>st</sup> Mar & 8 <sup>th</sup> Mar 23
3	Injections	Medicine	Skills Lab	Batch I(10:15-11:00am) Batch II(11:00-11:45am) Batch III(10:15-11:00am) Batch IV(11:00-11:45am) Batch V(10:15-11:00am)	Mon: 13 <sup>th</sup> Mar & 20 <sup>th</sup> Mar 23 Mon: 13 <sup>th</sup> Mar & 20 <sup>th</sup> Mar 23 Tues: 14 <sup>th</sup> Mar & 21 <sup>st</sup> Mar 23 Tues: 14 <sup>th</sup> Mar & 21 <sup>st</sup> Mar 23 Wed: 15 <sup>th</sup> Mar & 22 <sup>nd</sup> Mar 23
4	Aseptic measures	Surgery	Operation Theater	Batch I(10:15-11:00am) Batch II(11:00-11:45am) Batch III(10:15-11:00am) Batch IV(11:00-11:45am) Batch V(10:15-11:00am)	Mon:27 <sup>th</sup> Mar &10 <sup>th</sup> April 23 Mon: 27 <sup>th</sup> Mar &10 <sup>th</sup> April 23 Tues: 28 <sup>th</sup> Mar &11 <sup>th</sup> April 23 Tues: 28 <sup>th</sup> Mar &11 <sup>th</sup> April 23 Wed: 29 <sup>th</sup> Mar &12 <sup>th</sup> April 23
5	Foley's catheterization	Medicine	Skills Lab	Batch I(10:15-11:00am) Batch II(11:00-11:45am) Batch III(10:15-11:00am) Batch IV(11:00-11:45am) Batch V(10:15-11:00am)	Mon:17 <sup>th</sup> April &24 <sup>th</sup> April 23 Mon: 17 <sup>th</sup> April &24 <sup>th</sup> April 23 Tues:18 <sup>th</sup> April &25 <sup>th</sup> April 23 Tues: 18 <sup>th</sup> April &25 <sup>th</sup> April 23 Wed:19 <sup>th</sup> April &26 <sup>th</sup> April 23



## **THE LOG BOOK/ CLINICAL CARD RECORD**

The log book is a collection of evidence that learning has taken place, it is a reflective record of achievements. The students are expected to make a record of his/her achievements in the log book. The log book shall also contain a record of the procedures which student would have performed in final year.

### **FEEDBACK:**

The teaching faculty will give constructive feedback on the performance of the students. This will be individual in clinical classes and collective in class tests and mega tests (however students who fail to perform good in tests or those who want to know about their performance may be given individual feedback). Students should take all the feedbacks in positive spirit & attitude to find out the level of their performance, areas where they need improvements and suggestions and guidance from the teachers, how to improve the weaknesses etc. the sole purpose of feedbacks is to improve the learning of students.

### **ATTENDANCE:**

- Students are required to ensure maximum attendance in all sections including lectures and clinical classes.
- Minimum attendance to qualify for appearing in final professional examination is 75% of lectures and clinical classes. But this is not the desired level. All students should make sure that they attend the classes 100%, except some unavoidable circumstances. Because missing one lecture or clinical class means one has missed a topic, a disease or a very important aspect of the subject.
- If a student is continuously absent for 07 days or more, his /her name will be stuck off from the college, and he /she will have to get re-admission after consideration by the administration.



## Continuous Internal Assessment

### Course Learning Outcomes and assessment methods:

At the end of the session / section; the student will be able to

1. Diagnose a case scenario
2. Devise an investigation plan
3. Write down a comprehensive management plan
4. Describe the common complications and their management
5. Knows the follow up & rehabilitation plan of the common as well as important diseases of a particular system.

### FORMATIVE ASSESSMENT (MCQ/SEQ TEST)

There is continuous internal assessment in the form of MCQ's SAQ's, OSPE and Viva.

Subject		Marks	Evaluation Tool
<b>Surgery</b>	Class test	30 each test	MCQ's, SAQ's MCQ's, SAQ's MCQ's, SAQ's MCQ's, SAQ's
	1		
	2		
	3		
	4		
Ward test	100	OSPE & Viva	

ASSESSMENT	TOOLS	WEIGHTAGE
Formative	D During CBL, MCQs, SAQs. By taking feedback from students.	25



## ASSESSMENT

Student's knowledge as about the subject is assessed at various levels.

1. **Class Tests** are held after the completion of each topic in class lecture hall which includes
  - (a) Multiple choice question (MCQ's)
  - (b) Short Assay question (SAQ's)
2. **Ward Tests** it has two parts
  - (a) OSPE
  - (b) Long case and Viva

Each student is required to pass in the ward test.

**Skill Demonstration** Student's knowledge and its effectiveness are checked by skill demonstration on mannequin.

**Communication Skills** Communication skills of student are polished and assessed in counseling sessions on patients.



## **INTERNAL ASSESSMENT POLICY**

### **DEPARTMENT OF SURGERY**

- 10% of total marks of Final Professional exam (50 marks) are from internal assessment.
- These marks are evaluated as follow:
  - Total Attendance of Students in 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> year M.B.B.S ----- 20% (10Marks).
  - Total marks in all class tests in 3<sup>rd</sup>,4<sup>th</sup>, 5<sup>th</sup> year M.B.B.S ----- 20% (10Marks).
  - Total Attendance in ward in 3<sup>rd</sup>,4<sup>th</sup>, 5<sup>th</sup> year M.B.B.S----- 20% (10Marks).
  - Total marks in ward test in 3<sup>rd</sup>,4<sup>th</sup>, 5<sup>th</sup> year M.B.B.S----- 20% (10Marks).
  - Send-up exam----- 20% (10Marks).





## STAFF CONTACTS GENERAL SURGERY DEPARTMENT

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## RECOMMENDED BOOKS

- Bailey & Love's Short Practice of Surgery 27th Edition
- The Washington Manual of Surgery, 8th Edition
- Netter's surgical anatomy review

## LEARNING RESOURCES

- Lectures
- Small group demonstrations and discussion
- Outpatient department clinical evaluation as short cases
- Causality and Emergency room clinical examination and management logarithm learning ATLS
- Ward rounds / bedside teaching and skills training of pre and post operative care as long cases
- Operation room observations and assistance
- Post emergency morning meetings
- Morbidity committee meeting
- Mortality committee meeting
- Journal club
- CPC in collaboration with other specialties including Department of Radiology and Pathology etc.
- Videos on clinical signs and operative procedures
- Skill labs/models
- Seminars
- Study Guide

## RESOURCE PERSON

- Prof Muhammad Mohsin Gillani (HOD General Surgery)
- Dr Salman Akhtar (Assistant professor General Surgery)
- Dr. Hassan Taqi (SR)



# Department of Dermatology



## **PREFACE**

Study guides can make a major contribution to learning. They are sometimes likened to a tutor sitting on the student's shoulder-available 24 hours a day to advise the student what he/she should be doing at any stage in their study. Study guides are different from textbooks. They apprise the student at the beginning of an academic session about the course outline, the teaching methodology to be followed throughout the year, learning objectives of each academic activity and the assessment methodology to be followed in an academic session. At SMDC we follow the traditional annual academic schedule in which the subject of Dermatology is taught in the fourth academic year of a medical student. Keeping in view the mission of UHS, Lahore and vision of our institute we have designed a training program which is intensive and at the same time interesting for their young minds. This guide includes details about various teaching activities which are to take place throughout the academic year along with the time allocation of each. A list of lectures to be conducted in this session with names of the instructors is attached. Broad learning outcomes of every section of the course accompanied by specific learning objective of every lecture is also included. A list of prescribed text and reference books forms part of this study guide. Since this document is the first of its kind we intend to improve upon it in light of the student-feedback every year.

**Prof. Dr Uzma Ahsan**  
**Head Department of Dermatology**  
**SMDC**

**Date: 27-2-23**



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## TIME ALLOCATION FOR ACADEMIC ACTIVITIES

### Duration of 3<sup>rd</sup> Year MBBS Session: Weeks

Total Teaching Hours (as required by PMDC):

TOPIC	SUBJECT	DURATION
LECTURE	Dermatology	
OPD	Dermatology	
	SENDUP&ANNUAL EXAMINATIONS	
	TOTAL	

### Duration of 4<sup>th</sup> Year MBBS Session: Weeks

Total Teaching Hours (as required by PMDC):

TOPIC	SUBJECT	DURATION
LECTURE	Dermatology	
OPD	Dermatology	
	SENDUP&ANNUAL EXAMINATIONS	
	TOTAL	



## **PLANNED TEACHING ACTIVITIES FOR 4<sup>th</sup> YEAR MBBS DEPARTMENT OF DERMATOLOGY**

In order to meet the requirement following teaching modules have been planned. These modules have been carefully designed to impart core knowledge of Dermatology in a manner that an undergraduate student can grasp the subject fully and is adequately prepared for university examinations.

### **Lectures:**

A total of 15 lectures in 3<sup>rd</sup> year MBBS are planned for the entire year. The lectures will be conducted by the faculty that have completed their post- graduation in the subject of Dermatology. The lectures will be interactive and students should actively participate in them to clear their doubts. The students are required to take notes of the lectures and study the topic with the help of prescribed text books in light of the learning objectives of the topic enunciated by the teacher at the beginning of each lecture.

### **CLINICAL ROTATIONS (OPD):**

MBBS Students attend the outdoors of Dermatology for 3 weeks during 4<sup>th</sup> year MBBS in their clinical rotation in the Department of Medicine.

### **CLASS TEST:**

At the end of lectures, a test is held which includes MCQ's and clinical slides.



## Teaching Schedules For 3<sup>rd</sup> Year MBBS Class

<b>Sr.#</b>	<b>Topic</b>	<b>No. of Lectures</b>
1	General Dermatology (Anatomy & Physiology of Skin)	01
2	Infestations	01
3	Bacterial & Mycobacterial Infections	01
4	Viral Infections	01
5	Fungal infections	01
6	Acne Vulgaris	01
7	Eczema	01
8	Psoriasis	01
9	Lichen Planus	01
10	Bullous Disorders	
11	Pigmentary Disorders	01
12	Disorders of Nails	01
13	Disorders of Hair	
14	Collagen Vascular Diseases	01
15	Sexually Transmitted Diseases Cutaneous Malalignencies	01





**LIST OF LECTURES IN THE SUBJECT OF DERMATOLOGY IN 3<sup>rd</sup>  
YEAR AND THEIR LEARNING OBJECTIVES  
DEPARTMENT OF DERMATOLOGY  
3<sup>rd</sup> YEAR MBBS CLASS**

At the end of 3<sup>rd</sup> Year MBBS students shall be able to

**General Dermatology**

Explain the anatomy and physiology of skin in relation to clinical Dermatology.  
Recognize primary and secondary skin lesions.  
Summarize the salient features in history and clinical examination of a patient with a dermatological problem.

**Infestations**

Identify the lesions of Scabies and Pediculosis.  
Discuss their management.

**Bacterial and Mycobacterial Infections**

Describe the etiology, pathogenesis, complications and management plans of common Cutaneous Bacterial Infections (Folliculitis, Furuncles, Carbuncle, Cellulitis, Erythrasma, and Ecthyma).  
Describe the pathogenesis and recognize the clinical lesions of Leprosy.  
List the common Cutaneous Mycobacterial infections identify their clinical lesions.  
Discuss the treatment strategies.

**Fungal Infections**

Identify the common Superficial Fungal Infections (Dermatophytes, Candida, and Pitryasis Versicolor).  
Discuss the management options.

**Viral Infections**

Recognize the lesions of Varicella, Herpes zoster, Herpes simplex, Molluscum Contagiosum, and Common warts.  
Correlate the patho-physiology.  
Describe treatment options

**Acne vulgaris**

Describe the clinical features of Acne Vulgaris; describe its etiology and pathogenesis.  
Formulate a treatment plan for various stages of Acne Vulgaris.

**Eczemas**

Identify the causes, clinical lesions of Acute, Sub-acute and Chronic eczema and discuss management.  
Define the causes of erythroderma, identify its complications and discuss the management.  
Identify the lesions seborrhea and list the treatment strategies.  
Discriminate clinically between the lesions of Psoriasis, Eczema and Dermatophytic infection.

**Psoriasis**

Describe the etiology, pathogenesis, and treatment plans for various clinical types of Psoriasis.



**LIST OF LECTURES IN THE SUBJECT OF DERMATOLOGY IN 4<sup>th</sup> YEAR MBBS  
AND THEIR LEARNING OBJECTIVES  
DEPARTMENT OF DERMATOLOGY**

<p><b>Lichen Planus</b> Identify the lesions of Lichen Planus. Describe its etiology and clinical variants. Enlist treatment options.</p>
<p><b>Bullous Disorders</b> Interpret the genetic basis of Epidermolysis Bullosa and identify the essential clinical features. Recognize the lesions of common autoimmune blistering disorders (Pemphigus Vulgaris, Bullous Pemphigoid). Differentiate between genetic blistering and immunoblistering disorders. Discuss various management options.</p>
<p><b>Pigmentary Disorders</b> Recognize the clinical features and discuss the management of Vitiligo. Differentiate between clinical types of Melasma and enlist the risk factors. Describe the treatment modalities.</p>
<p><b>Collagen Vascular Disorders</b> Enumerate the diagnostic criteria of collagen vascular disorders (SLE, Dermatomyositis, Systemic sclerosis, CREST Syndrome) and describe their management.</p>
<p><b>Disorders of Nails</b> Identify patterns of nail involvement in cutaneous and systemic diseases.</p>
<p><b>Disorders of Hair</b> Differentiate clinically between scarring and non-scarring alopecia and discuss the management of each.</p>
<p><b>Sexually Transmitted Diseases</b> Recognize the clinical lesions of Syphilis and other sexually transmitted diseases (genital warts, genital herpes, gonorrhoea, HIV).</p>
<p><b>Cutaneous Malignancies</b> Differentiate between the clinical features of Squamous cell carcinoma, Basal cell carcinoma and malignant melanoma.</p>



**ASSESSMENT PLAN  
DEPARTMENT OF DERMATOLOGY  
SHARIF MEDICAL AND DENTAL COLLEGE LAHORE**

Student's knowledge as about the subject is assessed at various levels.

**Class Tests** are held after the completion of each topic in class lecture hall which includes

- (a) MCQ's      (b) SAQ's

**Ward Tests**: It has two parts

- (a) Clinical Slides Session

Each student is required to pass in the ward test.

**Skill Demonstration** Student's knowledge and its effectiveness are checked by skill demonstration in clinical sessions on patients for the following skills

**a) Clinical Skills**

- History taking in Dermatology
- Clinical examination of various skin lesions.
- Interpretation of related radiological and laboratory investigations
- General medication and prescription writing in Dermatology

**b) Procedures (Observe/ Assist):**

- Scraping for fungus
- Use of magnifying glass
- Observe skin biopsy
- Use of Wood's lamp

**c) Communication skills:** Communication skills of student are polished and assessed in counseling sessions on patients.

**d) Formative assessment:**

e) There is continuous internal assessment in the form of MCQ's, SAQ's, OCSE and Mini Cex.



### SAQ's, OCSE and Mini Cex.

Subject	Marks	Evaluation tool
General Dermatology & Infections	10	MCQ SEQ
Inflammatory Disorders	10	MCQ SEQ
Collagen Vascular Disorders	10	MCQ SEQ
Disorders of Hair, Nail and Mucosae	10	MCQ SEQ
Blistering Disorders	10	MCQ SEQ
Sexually Transmitted Diseases	10	MCQSEQ
Ward Test		Clinical Slides Session Mini-Cex OSCE

### PRESCRIBED TEXT BOOKS & REFERENCES

#### Text Books:

- Text book of Medicine Davidson
- Clinical Medicine P.J. Kumar
- ABC of Dermatology by Dr. TS .Haroon.

#### Reference Books:

- Macleod's Clinical Examination
- Oxford's Book of Clinical Medicine
- Rook's Text Book of Dermatology 9th Edition (Referencebook)
- Fitz Patrick Clinical Dermatology (Reference book)

