STUDY GUIDE – 2025-2026

3rd YEAR MBBS

BATCH 08 (2024-2028)

BLOCK VII

Study Guide is a tool to facilitate and support students' learning, provide guidance and highlight required information to students. It aims to maximize the personal benefit each individual can attain from the academic program.

The Guide Provides:

- Information on organization and management of the academic year. This will help you contact the right individual in case you have any difficulty
- Course objectives which you will be expected to achieve at the end of each course
- Information on learning methods that you will experience during the course
- Learning resources available for the sessions. These include books, computer assisted learning programs, videos and others
- Information on the methods of assessment including formative and summative assessment

Curriculum Framework

The KIMS Third Year MBBS curriculum follows a horizontally integrated, system-based modular structure aligned with Harden's Level 7 (Interdisciplinary Integration). Teaching is organized into blocks comprising related organ systems and multisystem themes, with coordinated input from basic science and clinical departments to promote seamless integration of knowledge.

What is Integrated Curriculum?

- An integrated curriculum is a system-based approach in which basic science and clinical subjects are taught together as a meaningful whole.
- System-based modules such as foundation, blood, cardiovascular, respiratory, and multisystem blocks link basic science knowledge to clinical problems.
- Repeated exposure to clinical correlations enhances understanding and long-term retention of basic sciences.
- Teaching–learning methods include case-based discussions, computer-based assignments, and skills acquisition in skills laboratories, supporting application-oriented learning and clinical competence.

Academic Calendar for 3RD Year MBBS

Events	From	To
Block-VII (11+1 = 12)		
NUMS Starting Date	24 Nov 2025	01 week late
KIMS Starting, Duration of Block -VII (11/12 weeks)	01 Dec 2025	15 Feb 2026
Block VII Exam (01/12 week) *	**16 Feb 2026**	**22 Feb 2026**
Block-VIII (10+1=11)		
Duration of Block -VIII (02/11 weeks)	23 Feb 2026	06 March 2026
Eid-ul-Fitr* Vacation (17 days)	**07 March 2026**	**23 March 2026**
Duration of Block -VIII (02/11 weeks)	24 March 2026	01 April 2026
Sports week (01 Week)	**02 April 2026**	**06 April 2026**
Duration of Block -VIII (06/11 weeks)	07 April 2026	17 May 2026
Block VIII Exam (01/11 week) *	**18 May 2026**	**22 May 2026**
Eid-ul-Azha* and Summer Vacation (16 days)	**23 May 2026**	**07 June 2026**
Block-IX (10+2=12)		
Duration of Block -IX (10/13 weeks)	08 June 2026	16 Aug 2026
Pre-Annual Exam (02/13 weeks) *	**17 Aug 2026**	**30 Aug 2026**
Prep Leave for Annual (04/07 weeks)	**31 Aug 2026**	**28 Sept 2026**
Annual Exam*	**29 Sept 2026**	

*Subject to moon sighting & as per approval from the Principal

*Exams plan will be provided by Examination department

Holiday Calendar
Year 2026

EVENTS	DATE & DAY
Kashmir Solidarity Day	5th February, Wednesday
Jumma-Tul-Vida	20th March, Friday
Eid ul-Fitr	21st March – Saturday 22nd March – Sunday 23rd March – Monday
Pakistan Day	23rd March, Monday
Labor Day	1st May, Thursday
Summer break	23rd May – 7th June
Eid ul-Adha	27th May – Wednesday 28th May – Thursday 29th May – Friday
Ashura	25th June- Thursday 26th June – Friday
Independence Day Of Pakistan	14th August, Friday
12 Rabiul Awal	25th August, Tuesday
Iqbal Day	9th November , Monday
Quaid-E-Azam's Birthday/Christmas Day	25th December, Friday

Departmental Teams

Team of Pathology Department	
Positions	**Name**
Head of the Department	Prof. Dr. Nazia Qamar
Subject Representative for 3RD Year	Dr Sadia Kashif

Team of Pharmacology Department	
Positions	**Name**
Head of the Department	Prof. Dr Tahira Zamir
Subject Representative for 3RD Year	Dr. Mahnoor Ahsan

Team of Forensic Medicine Department	
Positions	**Name**
Head of the Department	
Subject Representative for 3RD Year	Dr. Muhammad Nadeem uddin

Team of Community Medicine Department	
Positions	**Name**
Head of the Department	Prof. Dr. Seema N. Mumtaz
Subject Representative for 3RD Year	Dr. Samira Faiz

Team of Research Methodology & EBM Department	
Positions	**Name**
Head of the Department	Prof. Dr. Seema N. Mumtaz
Subject Representative for 3RD Year	Dr. Samira Faiz

Team of Medicine & Allied Department	
Positions	**Name**
Head of the Department	Prof. Dr. Arshad Ali
Subject Representative for 3RD Year	Dr. Nimra Nabi

Team of Surgery & Allied Department	
Positions	**Name**
Head of the Department	Prof. Dr. Arshad Malik
Subject Representative for 3RD Year	Dr. Sharjeel Basheer

Team of Obstetrics & Gynecology Department	
Positions	**Name**
Head of the Department	Prof. Dr Sughra Abbasi
Subject Representative for 3RD Year	Dr. Saima Amir

Team of Paediatrics Department	
Positions	**Name**
Head of the Department	Prof. Dr. Arshad Ali
Subject Representative for 3RD Year	Dr. Adeela Ilyas

Team of Infection Control Department	
Positions	**Name**
Head of the Department	Dr. Ruqayyah Q. Hashmi
Subject Representative for 3RD Year	Dr. Tanzeela Shaikh

Team of Behavioral Sciences Department	
Positions	**Name**
Head of the Department	Miss Tahira Fatima
Subject Representative for 3RD Year	

Leadership and Management	
Positions	**Name**
Head of the Department	Miss Tahira Fatima
Subject Representative for 3RD Year	

Professionalism	
Positions	**Name**
Head of the Department	Miss Tahira Fatima
Subject Representative for 3RD Year	

Team of Medical Education Department	
Positions	**Name**
Head of the Department	Dr. Ruqayyah Q. Hashmi
Subject Representative for 4TH Year	Dr. Tanzeela Shaikh

Study Guide Compiled By:

Dr. Tanzeela Shaikh

Assistant Professor

Department of Medical Education

VISION

To be the best medical university by conducting world-class bio-medical research and creative research activities that develop knowledge and contribute to improving the health care system and social advancement for the people of Pakistan and benefit humanity as a whole with a standard of excellence

MISSION

KIMS aims to produce ethical, knowledgeable, skilled professionals, enhancing community health services, through leadership, evidence-based practice and innovative research.

PROGRAM OUTCOMES

1. Utilize knowledge of basic and clinical sciences for patient care.
2. Take appropriate decisions based on focused history, physical examination, and management plan for common health problems.
3. Demonstrate effective communication with patients, as part of a team and with other healthcare service providers.
4. Demonstrate professional behaviors that embodies lifelong learning by using self-directed learning skills.
5. Identify problems, critically review literature, conduct research and disseminate knowledge
6. Demonstrate leadership and management skills with other team members as per situational needs for quality health service.
7. Apply evidence-based practices for protecting, maintaining and promoting the health of individuals, families and community.

SEVEN STAR PMDC COMPETENCIES

The expected generic competencies in a medical graduate are grouped together under the umbrella of seven-star doctor and are as follows:

1. Knowledgeable
2. Skillful
3. Professional
4. Scholar & Researcher
5. Critical thinker
6. Leader & Role model
7. Community Health Promotor

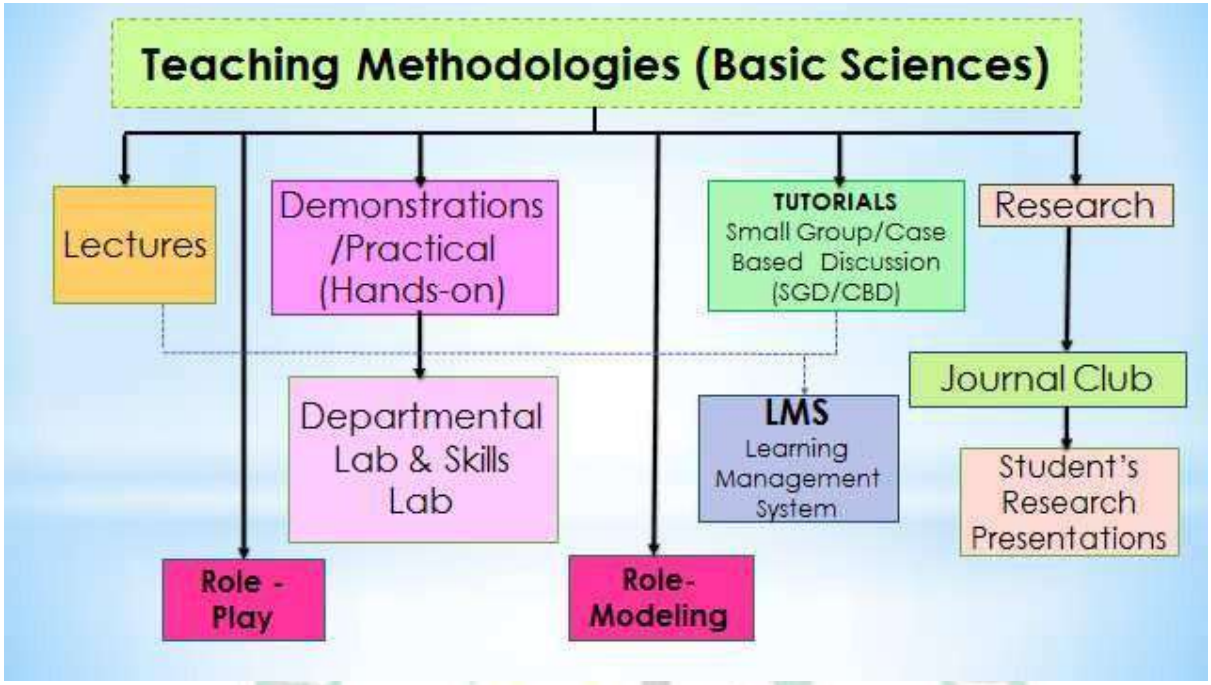
A ‘seven-star doctor’ Pakistani medical graduate should be able to demonstrate various attributes as detailed under each competency. These attributes are minimum and not exhaustive by any means.

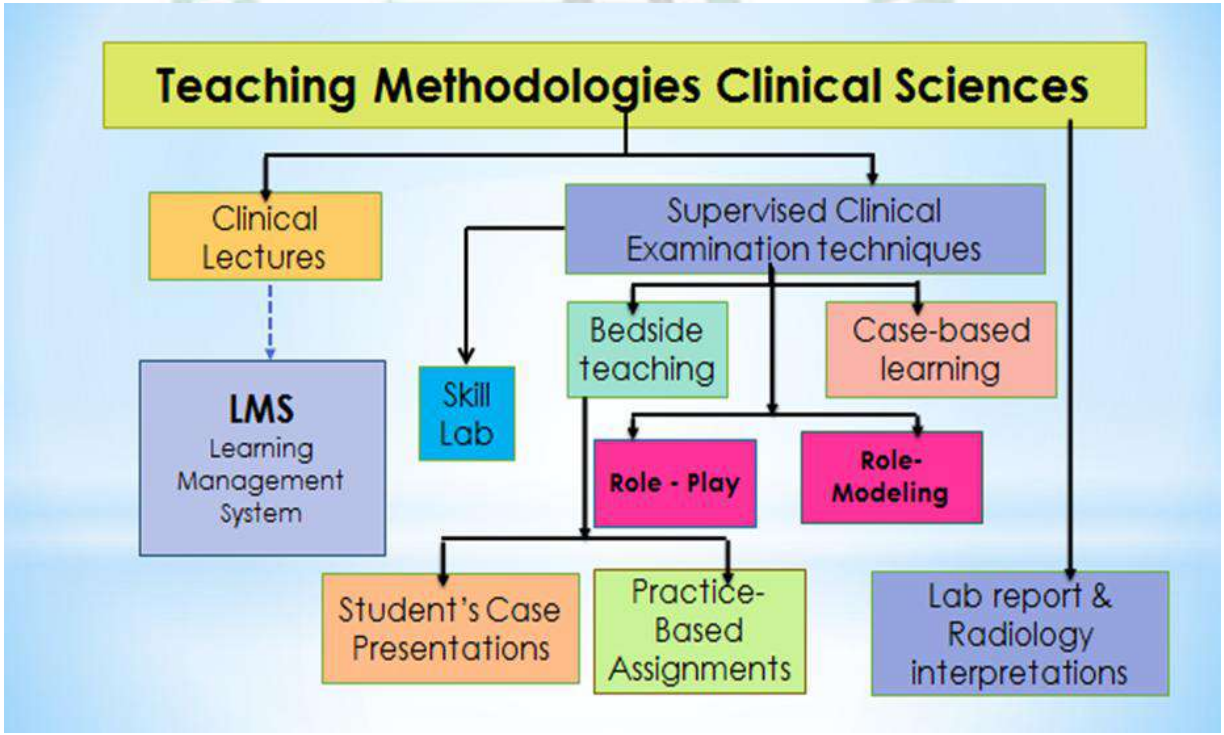
YEARLY LEARNING OUTCOMES OF MBBS THIRD YEAR

By the end of third year, KIMS students will be able to:

- Integrate principles of pathology and microbiology to explain disease mechanisms and relate them to appropriate treatment modalities and clinical diagnosis.
- Perform and interpret basic pathological, pharmacological, and forensic practicals in the laboratory.
- Apply the principles of forensic medicine and medical jurisprudence to analyze medico-legal cases, conduct basic forensic examinations, and interpret findings in accordance with ethical and legal responsibilities.
- Take relevant history effectively.
- Classify patients' signs and symptoms according to relevant body systems for accurate clinical interpretation.
- Demonstrate professionalism and social responsibility consistently in academic, clinical, and community settings.
- Apply behavioral science principles to patient interactions, clinical communication, and health promotion.
- Apply leadership and management principles in team activities and small-group projects.
- Describe research methodology, biostatistics, and principles of critical appraisal.
- Demonstrate knowledge of infection prevention, sterilization, and hospital-acquired infection control measures.
- Recognize common risks and errors in clinical practice and their impact on patient safety.

Teaching and Learning Methods





Learning Methodologies: The following teaching / learning methods are used to encourage self-directed learning of students
• Interactive Lectures • Theme-based learning • Small Group Discussions (Tutorials/ Case- Based Learning) • Practical • Skills session • Bed-Side Teaching • e-Learning through LMS • Teaching Ward Rounds • Case presentations • Case based Discussion • Short cases in OPD

Interactive Lecture

A student-centered teaching method that combines brief presentations with active learner participation through questioning, discussions, polls, or short activities. Unlike traditional lectures, interactive lectures aim to engage students, promote critical thinking, and enhance understanding by encouraging two-way communication between teacher and learners.

Small Group Discussions

Tutorial is a participative teaching learning method which promotes discussion and better understanding of a topic. Tutorial classes for medical students are imparted to develop and test their own ideas, clarify material presented in lectures, apply general concepts to the solution of specific problems, define new problems and seek solutions to them, hone problem-solving skills and encourage students in self-learning

Case based learning (CBL) is very similar to PBL, but focuses on specific patient cases to identify learning objectives. It is also taught using small groups with a tutor to guide group discussions. Uses real or simulated cases

CBL encourages critical thinking, problem-solving, and decision-making

Theme based Sessions (TBS) are integrated teaching sessions where multiple subjects are taught together around a single clinical theme (e.g., jaundice). They link basic sciences with clinical application, promoting holistic and contextual learning.

Self-Directed Learning (SDL)

A learning approach where the student takes responsibility for identifying learning needs, finding resources, and evaluating progress, with the teacher only as a facilitator.

Directed Self-Learning (DSL)

A modified form of SDL where the teacher guides the process by giving specific topics, resources, or questions, but students still learn on their own.

Practicals: A practical is a 'hand-on' class which allows you apply the theories you are learning in your course in practical situations. For example in a science course, practicals may include conducting experiments in a laboratory.

Skill Sessions: The aim of these sessions is to support students to develop skills and awareness of skills that have been identified to the workplace and successful recruitment.

Bed-Side Teaching:

Bedside teaching is a specialized form of small group teaching that takes place in the presence of the patient. It improves students' history taking, examination skills, and knowledge of clinical ethics, can teach them professionalism, and can foster good communication and role modelling skills.

Journal Club

A journal club is an educational meeting in which a group of individuals discuss published articles, to keep themselves abreast of new knowledge, promoting in them the awareness of current research findings.

Clinicopathological Conference (CPC)

A structured teaching session where clinical cases are presented and discussed, linking clinical findings with pathological evidence to enhance diagnostic reasoning and integrative learning.

Simulations

An interactive learning approach using mannequins, standardized patients, or virtual tools to replicate real-life clinical scenarios, allowing students to practice skills and decision-making in a safe, controlled environment.

Morning Reports

Regular departmental discussions where students and faculty review recent or interesting clinical cases, emphasizing clinical reasoning, diagnostic approach, and patient management.

Self-Directed Learning (SDL)

A process where students take initiative in identifying their learning needs, resources, and strategies, promoting independent and lifelong learning skills essential for medical practice.

Reflective Writings

A learning activity encouraging students to analyze and reflect on their clinical experiences, challenges, and personal growth to foster critical thinking and professional development.

Case Presentations

Structured presentations of patient cases where students demonstrate their ability to collect data, formulate differential diagnoses, discuss management plans, and apply theoretical knowledge to clinical practice.

Case-Based Discussion (CbD)

A method in which a faculty member engages a student in a structured discussion about a real or observed clinical case to evaluate their clinical reasoning, decision-making, and application of knowledge. It focuses on individual reflection and feedback, helping identify strengths and areas for improvement in clinical competence.

Role-Play

Role play is a learning structure that allows students to immediately apply content as they are put in the role of a decision maker who must make a decision regarding a policy, resource allocation, or some other outcome

Role-Modelling

Role modeling is a powerful teaching tool for passing on the knowledge, skills, and values of the medical profession, but its net effect on the behavior of students is often negative rather than positive

e-Learning through LMS

e-learning is web-based training delivered via the internet or a corporate intranet. A **learning management system (LMS)** is a

software application or web-based technology used to plan, implement and assess a specific learning process.

Introduction to Learning Management System

A Learning Management System (LMS) is a web-based platform (also available as software application) which is designed to facilitate the delivery of educational content. LMS is used to streamline the learning process and manage educational resources efficiently.

Key features of LMS at KIMS include:

Lectures:

Content include lecture slides, recorded video lectures and YouTube links of related content (for animated videos).

Assessment and Evaluation:

LMS include quizzes, assessments, and assignments.

Automated grading and feedback help in evaluating the learners' progress.

Communication and Collaboration:

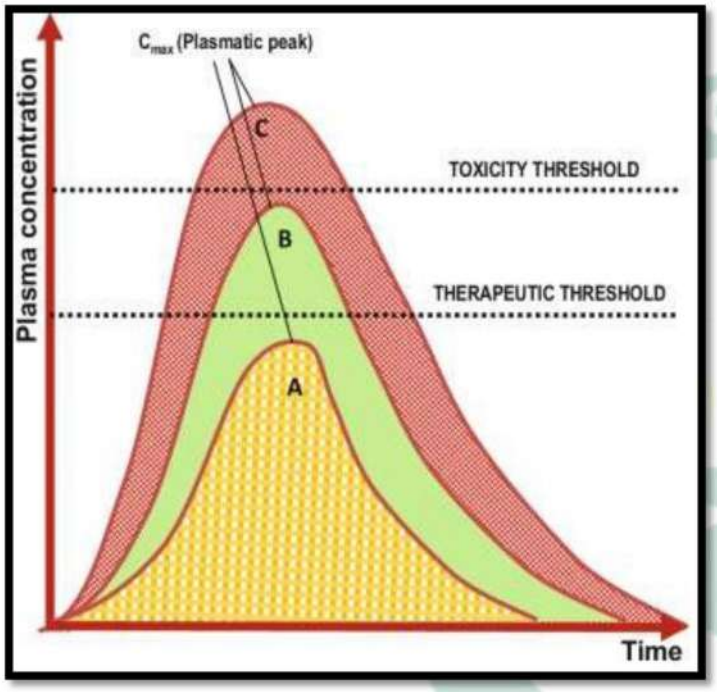
LMS include discussion forums to facilitate interaction between learners and instructors.

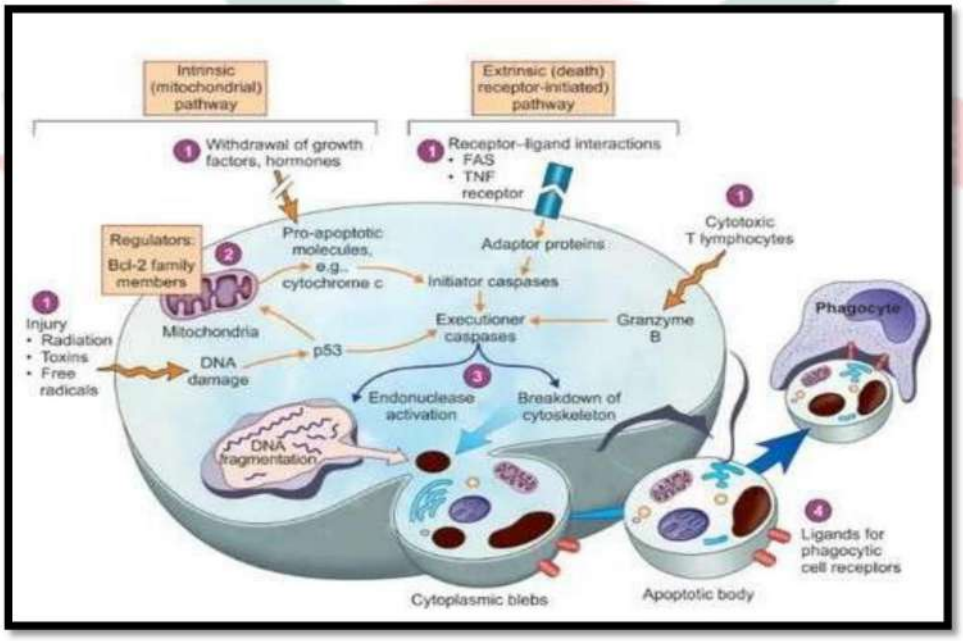
MBBS THIRD YEAR BLOCKS AND MODULES SEQUENCE 2025-2026

BLOCK	DURATION (WEEKS)	MODULES	WEEKS
VII	12	I. Foundation II	5 WEEKS
		II. Cardiovascular System II	4 WEEKS
		III. Renal module	2 WEEKS
		EOB	1 WEEK
VIII	11	I. Haem & Immunology II	3 WEEKS
		II. Genetics & Neurosciences	4 WEEKS
		III. Respiratory System II	3 WEEKS
		EOB	1 WEEK
IX	13	I. Digestive System & Metabolism II	3 WEEKS
		II. Multisystem I (Neoplasia)	4 WEEKS
		III. Multisystem II (Infectious diseases)	4 WEEKS
		I. EOB	1 WEEK
		Pre-annual	2 WEEKS

Total Study Weeks: 35 weeks

MODULE-XII
FOUNDATION -II





Module name	Foundation - II Module
Year	3RD Year MBBS, Batch
Duration	5 weeks
Total Contact Hours	**Pathology= hours** Lectures = Small group discussion = Practical = Demonstration=
	Pharmacology= hours Lectures = Small group discussion = Practical =
	Forensic Medicine= hours Lectures = Small group discussion = Practical =
	Community Medicine = hours Lectures = Small group discussion = Skill sessions =
	Research Methodology & EBM= hours Lectures = Small group discussion = Skill sessions/ Workshop =
	General Surgery & Allied = hours Lectures = Small group discussion = Skill sessions =
	General Medicine & Allied = hours Lectures = Small group discussion = Skill sessions =

	Paediatrics= hours Lectures = Small group discussion = Skill sessions/ Workshop =
	Obstetrics/ Gynae= hours Lectures = Small group discussion = Skill sessions/ Workshop =
	Infection Control= hours Lectures = Small group discussion = Skill sessions/ Workshop =
	Behavioral Sciences= hours Lectures = Small group discussion = Skill sessions/ Workshop =
	Leadership & Management= hours Lectures = Small group discussion = Skill sessions/ Workshop =
	Professionalism= hours Lectures = Small group discussion = Skill sessions/ Workshop =
Module Coordinator	Dr. Farhia & Dr, Ayesha Khan
Year Coordinator	Dr. Mahnoor Ahsan

Module Learning Outcome:

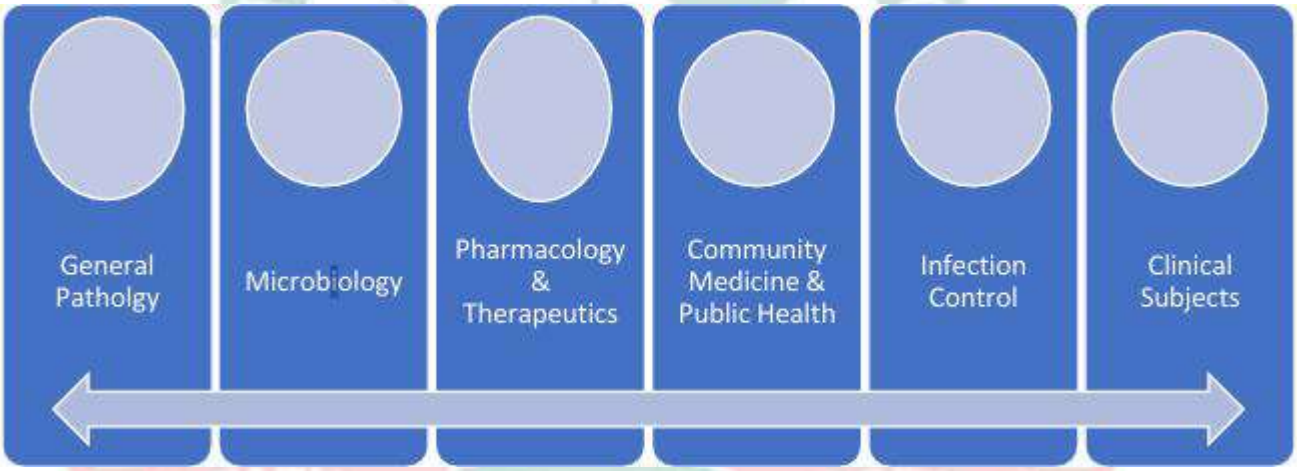
By the end of the module, students will be able to;

- Identify the fundamental principles of disease mechanisms, including cellular injury, inflammation, neoplasia, and alterations in homeostasis.
- Explicate the basic principles of pharmacokinetics and pharmacodynamics, including drug absorption, distribution, metabolism, and elimination, as well as mechanisms of drug action.
- Integrate pathological understanding with pharmacological concepts to comprehend how drugs interact with diseased states.
- Correlate the mechanisms and morphological features of cellular injury, cell death, deputations, aging, and intracellular accumulations with their clinical and pathological significance.
- Demonstrate a systematic and safe approach to patient assessment across specialties, ensuring accurate correlation of clinical signs with underlying pathology while minimizing risks to patient safety.
- Correlate the pharmacology of cholinergic and adrenergic agents to clinical conditions
- Correlate the pathological knowledge of inflammation and repair to understand underlying mechanism of healing
- Justify the use of anti-inflammatory agents and antiseptics in clinical practice.
- Describe the role of public health in medicine, focusing on substance abuse risk factors, disease transmission, and prevention of communicable diseases
- Interpret the morphological and virulent characteristics of bacteria, viruses, fungi, and parasites
- Apply basic pharmacokinetic and pharmacodynamic principles to justify rational drug use based on clinical conditions and patient factors

- Correlate the mechanisms and morphological features of cellular injury, cell death, deputations, aging, and intracellular accumulations with their clinical and pathological significance.

Rationale

Foundation II is the first module of Year III and therefore is an introduction to all preclinical sciences, the contents of which will be delivered and assessed during this year. This module will introduce the students to basic concepts required for understanding of disease process, its prevention and treatment which in turn will help them to apply these key concepts in future system-based modules. In the 2nd spiral, before students study any organ systems' pathology, it is essential for them to have clear concepts underlying them. At least one integrated session in a week/ will enable the students to integrate their knowledge acquired from different disciplines.



GENERAL PATHOLOGY & MICROBIOLOGY

Foundation Module II		
Subject Learning Outcomes:		
Topics of the Module	**Objectives: By the end of the module the students will be able to:**	**Teaching Strategies**
Types of cellular adaptation	• **Describe** major types of cellular adaptation with clinical examples.	Interactive Lecture
Causes of Cell injury	• **Discuss** the common causes of cell injury.	Interactive Lecture
Mechanism of cell injury	• **Explain** the biochemical mechanisms responsible for cell injury.	Interactive Lecture
Necrosis	• **Differentiate** the morphological patterns of necrosis.	Interactive Lecture
Apoptosis	• **Illustrate** the pathways and morphological features of apoptosis.	Interactive Lecture
Intracellular accumulation and calcification	• **Classify** the types of intracellular accumulations and types of calcifications.	Interactive Lecture
Inflammation	• Explain the vascular and cellular events of acute inflammation. Compare acute and chronic inflammatory responses	Interactive Lecture
Chemical mediators of Inflammation	• Summarize the major chemical mediators of inflammation and their actions.	Interactive Lecture
Morphological patterns of acute inflammation/ outcomes	• Identify morphological patterns and outcomes of acute inflammation.	Interactive Lecture

Chronic Granulomatous inflammation and its outcome	• Distinguish caseating from non-caseating granulomas and their etiologies.	Interactive Lecture
Healing and repair	• Describe the steps and cellular players involved in wound healing. Discuss factors affecting healing and complications of wound repair.	Interactive Lecture

MICROBIOLOGY **Foundation module**		
Introduction general microbiology	• Define the scope and importance of general microbiology.	Interactive Lecture
Basic Structure of bacteria	• Describe the basic structure and components of bacteria.	Interactive Lecture
Bacterial Growth and genetics	• Explain the principles of bacterial growth and genetics.	Interactive Lecture
Infection control	• Discuss standard infection control measures.	Interactive Lecture
Host defense and lab diagnosis	• Describe host defense mechanisms and principles of laboratory diagnosis.	Interactive Lecture
Gram negative cocci/ diplococci (Introduction)	• Recognize key features of gram-negative cocci and diplococci.	Interactive Lecture
Gram positive bacilli (introduction)	• Summarize the characteristics of gram-positive bacilli.	Interactive Lecture
gram positive cocci (Introduction)	• Describe the general properties of gram-positive cocci.	Interactive Lecture
Gram negative bacilli introduction	• Outline major groups of gram-negative bacilli.	Interactive Lecture

Bacterial pathogenesis	• Explain fundamental mechanisms of bacterial pathogenesis	Interactive Lecture
Sterilization and disinfection	• Describe methods of sterilization and disinfection.	Interactive Lecture
Bacterial vaccine	• **Classify** different types of bacterial vaccines.	Interactive Lecture
Viruses and its classification	• **Classify** viruses based on structure, genome, and replication strategy.	Interactive Lecture
Introduction to parasitology	• **Define** basic concepts and importance of parasitology.	Interactive Lecture
General mycology, cutaneous and subcutaneous mycoses	• **Explain** the characteristics of general mycology, including cutaneous and subcutaneous mycoses.	Interactive Lecture

PRACTICALS*

Topics	Students will be participating actively with hands-on-activities to reinforce their learning through lab performance.
1. Observe the Histopathological specimens in hospital labs **2. Observe formalin and Cytology Immersion in hospital labs**	• Observe histopathological specimens to recognize basic pathological changes. • Observe formalin handling and cytology immersion steps to understand safe specimen processing.
3. Hyperplasia and Atrophy **4. Metaplasia and Hydropic change** **5. Fatty Change (tutorial)**	• **Identify** microscopic features of hyperplasia and atrophy on given slides. **Differentiate** metaplasia from hydropic change based on morphology. • Explain the morphological changes associated with fatty change.

6. Microscopy technique and its application	Apply microscopy techniques to examine and interpret clinical specimens. And study parts of microscope
7. Intracellular accumulations (Melanin, Hemosiderin) **8. Coagulative necrosis and caseous necrosis**	• Recognize intracellular pigments such as melanin and hemosiderin on histology. • Distinguish coagulative necrosis from caseous necrosis on slides.
9. Infection control (Hand hygiene, Donning & Doffing)	• Demonstrate correct hand hygiene and PPE donning/doffing practices.
10. Normal flora	• Identify normal flora and their significance
11. Gram staining and interpret its results	• Perform **and interpret** Gram staining to differentiate bacteria by Gram reaction and morphology.
12. Acute inflammation and Chronic inflammation	• Differentiate acute and chronic inflammation microscopically.
13. Identify the different types of Culture Media (Blood agar, chocolate agar, Mac Conkey agar, CLED agar) and interpret the associated bacterial growth.	• Identify different culture media and **interpret** bacterial growth patterns on each.
14. Identify following on slides **a. Hyperemia/Congestion** **b. Coronary thrombus and Atherosclerosis** 15. • **Myocardial Infarction**	• Identify hyperemia, congestion, coronary thrombus, and atherosclerosis on slides.
16. Observe FNAC procedure in hospital labs	• Observe the FNAC procedure to understand sample collection and smear preparation.
17. Steps in management of spill of fluids/blood	• Demonstrate proper steps for managing spills of blood or body fluids.
18.. Types of blood collection tubes, Order of Draw, Interferences	• Identify blood collection tubes and **follow** the correct order of draw while noting potential interferences.
19. Lipid profile interpretation(case)	• Interpret lipid profile findings in a clinical case scenario.
20.. Identify bacteria based on their biochemical reactions 21. Application of Sugar sets / API in	• Identify bacteria based on characteristic biochemical reactions.

identification of clinically important bacteria 22. Application of Coagulase, Catalase test, Oxidase test in identification of clinically important bacteria	• Apply sugar sets/API systems to identify clinically important bacteria. • Use coagulase, catalase, and oxidase tests for bacterial identification.
23. Clinical correlation of Motility in bacteriology and parasitology	• Correlate motility test findings with bacterial and parasitic identification.
24. Slide microscopy of GPC, E. coli and N. Gonorrhoea	• Identify Gram-positive cocci, E. coli, and N. gonorrhoeae on microscopy slides.
25. Identification of Anaerobic bacterial culture systems (Incl Identify Anaerobic jars used for growth of anaerobic bacteria)	• Recognize anaerobic culture systems and identify anaerobic jars used for bacterial growth.
26. Urine sample collection in catheterised and non-catheterised patient	• Demonstrate correct urine sample collection in catheterized and non-catheterized patients.
27. Interpret Urine D/R and Urine C/S	• Interpret Urine D/R and Urine C/S results.
28. Interpret Pregnancy test practical	• Perform **and interpret** a pregnancy test accurately.

CASE BASE LEARNING	
Topics of the Module	**Objectives: By the end of the module the students will be able to:**
Types of Necrosis (case discussion)	Explain the morphological types, causes, and clinical relevance of necrosis through a case-based discussion**.**
Chronic granulomatous inflammation (case discussion)	Describe the key features, causes, mechanisms, diagnosis, and management of chronic granulomatous inflammation through a case-based discussion.
Hemodynamic Disorders (case Discussion) edema/ embolism/DVT	Describe the mechanisms, causes, and clinical implications of edema, embolism, and DVT through a case-based discussion.”

PHARMACOLOGY

TOPIC: General Pharmacology, Autonomic Nervous System, Treatment of Glaucoma, Overview of Autacoids, Antiseptic, Disinfectant		
Subject Learning Outcomes:		
Topics of the Module	**Objectives: By the end of the module the students will be able to:**	**Teaching Strategies**
Introduction of Pharmacology	• Describe the basic concepts of Pharmacology and its branches • Discuss Pharmacokinetics and Pharmacodynamics • Describe the basic concepts related to drug • Enlist the key mechanisms of drug action • Describe drug administration, therapeutic uses and side effects of drugs • Discuss drug development processes and regulation • Enumerate drug classification systems and nomenclature • Describe the key concepts of drug, affinity and intrinsic activity	Interactive lecture
Sources, active principals and forms of drug	• Differentiate different forms of drug • Enlist different types of solid medications • Enlist different types of semi-solid medications • Differentiate different types of liquid medications	Interactive Lecture
Routes of drug	• Discuss the classification of routes of drug administration • Describe the advantages of commonly used routes • Enlist the disadvantages of commonly used routes • Describe the methods of administration of drugs by various routes	Interactiv e Lecture
Drug transport mechanisms	• Describe the definition of permeation • Enumerate various types of drug transport mechanisms • Discuss the characteristics of Passive diffusion • Discuss the characteristics of Aqueous diffusion • Discuss the characteristics of carrier mediated/facilitated diffusion • Describe the characteristics of active transport • Describe the characteristics of endocytosis and exocytosis	Interactive Lecture

Drug absorption	• Describe the definition of Absorption • Discuss the processes defining absorption • Describe drug related factors affecting absorption • Discuss patient related factors affecting absorption • Discuss clinical application of Ion trapping • Describe Fick's law of diffusion • Describe methods of enhancing drug absorption • Describe methods of delaying drug absorption	Interactive Lecture

Bioavailability	• Discuss the concept of bioavailability • Enlist the effect of various factors on bioavailability • Describe bioavailability by various routes • Describe the concept of first pass elimination • Discuss the concept of extraction ratio • Enlist drugs with high and low extraction ratio • Describe the definition of half life • Discuss the clinical significance of half life • Describe the concept of steady state concentration • Describe the clinical significance of steady state concentration • Differentiate the difference among bioequivalence, therapeutic equivalence, pharmacological equivalence and therapeutic equivalence	Interactive Lecture
Biotransformation	• Describe the definition of biotransformation • Discuss the role of drug metabolism in the body • Discuss the effects of drug metabolism • Describe the major sites of drug metabolism • Describe the hepatic microsomal and non-microsomal enzyme systems • Enlist types of hepatic reactions • Describe details of cytochrome P450 enzyme system and its various isoforms • Describe enzyme induction, inhibition and its clinical significance • Enlist various factors affecting drug metabolism • Describe the effect of genetic factors • Discuss the drug interactions occurring due to the enzymes	Interactive Lecture

Excretion and Clearance	• Describe the definition of excretion • Enlist various organs of excretion • Discuss the processes of renal excretion • Describe factors affecting drug excretion • Describe the definition of clearance • How to calculate clearance • Discuss about extraction ratio • Describe different kinetics of elimination • Differentiate between first and zero order elimination	Interactive Lecture
Mechanism of drug Action	• Describe various types of receptors • Discuss about agonist and its types • Differentiate types of antagonism • Discuss the concept of potency of drug • Describe the concept of efficacy • Discuss about different mechanisms of drug action • Enumerate factors affecting drug action	Interactive Lecture
Dose Regime and therapeutic index	• Define different types of doses • Describe loading dose and its calculation • Describe the concept of Maintenance dose • How to calculate pediatric dose • Describe the concept of Effective dose and median effective dose • Describe the concept of lethal dose and median lethal dose • Discuss the concept of therapeutic index • Enlist various drugs having high and low therapeutic index • How to calculate therapeutic index or safe dose	Interactive Lecture
Factors affecting Drug action	• Discuss factors affecting drug action • Describe various Pharmacokinetic factors • Discuss various Pharmacodynamic factors • Discuss various Psychological factors affecting drug action • Describe the concept of Tolerance, types of Tolerance, Cross tolerance and it's mechanism • Differentiate between tolerance and tachyphylaxis	Interactive Lecture
Mechanism of drug Action	• Enumerate various types of receptors • Describe agonist and its types • Describe types of antagonism • Discuss the concept of potency of drug • Discuss the concept of efficacy • Differentiate different mechanisms of drug action • Enlist factors affecting drug action	Interactive Lecture

Dose Regime and therapeutic index	• Define different types of doses • Define loading dose and its calculation • Discuss the concept of Maintenance dose • How to calculate pediatric dose • Describe the concept of Effective dose and median effective dose • Describe the concept of lethal dose and median lethal dose • Describe the concept of therapeutic index • Describe various drugs having high and low therapeutic index • How to calculate therapeutic index or safe dose	Interactive Lecture
Factors affecting Drug action	• Discuss factors affecting drug action • Discuss various Pharmacokinetic factors • Enlist various Pharmacodynamic factors • Discuss about various Psychological factors affecting drug action • Describe the concept of Tolerance, types of Tolerance, Cross tolerance and it's mechanism • Differentiate between tolerance and tachyphylaxis	Interactive Lecture
Cholinergic Agonist	• Describe the introduction of cholinergic system • Describe the locations and types of cholinergic receptors • Discuss the post receptor cell signaling mechanisms • Classification of cholinergic drugs • Describe the mechanism of action of direct and indirect acting drugs • Describe the pharmacokinetics of cholinergic drugs • Discuss the pharmacologic actions of direct acting cholinergic drugs • Discuss the therapeutic uses of direct acting cholinergic drugs • Enumerate the side effects of direct acting cholinergic drugs • Enlist the contraindications of direct acting cholinergic drugs • Classification of indirect acting drugs • Describe the mechanism of action of indirect acting drugs • Describe the pharmacologic actions of indirect acting cholinergic drugs • Enlist the therapeutic uses of indirect acting cholinergic drugs	Interactive Lecture

	• Enumerate the side effects and contraindications of indirect acting cholinergic drugs • Discuss the symptoms and management of Organophosphate poisoning	
Cholinergic Antagonists	• Know the classification of cholinergic antagonists • Know the pharmacokinetics of cholinergic antagonists. • Know the mechanism of action of cholinergic antagonists. • Explain the organ-system effects of atropine. • Know about the therapeutic uses of anti-muscarinic drugs. • Know the adverse effects of anti-muscarinics. • Know the contraindications of anti-muscarinic drugs.	Interactive Lecture
Adrenergic drugs	• Discuss the adrenergic drugs • Classification of adrenergic drugs • Enlist the characteristics of catecholamines and non-catecholamines • Difference between catecholamines and non-catecholamines • Describe the locations and actions of adrenergic receptors • Discuss concept of receptor affinity • Describe concept of agonist affinity • Describe the mechanism of action of adrenergic drugs • Describe the pharmacologic actions of adrenergic drugs • Enlist the therapeutic uses of adrenergic drugs • Enlist the side effects of adrenergic drugs • Enumerate Describe the contraindications of adrenergic drugs	Interactive Lecture
Alpha blockers and centrally acting sympathoplegics	• Define the types, location and actions of alpha receptors • Classification of alpha blocker drugs • Discuss receptor affinity of alpha antagonists • Discuss mechanism of action of alpha blockers • Describe Pharmacological actions of alpha blockers • Enlist the therapeutic uses of alpha blockers • Enlist the side effects of alpha blockers • Enlist the contraindications of alpha blockers • Describe the mechanism of action of centrally acting drugs	

	• Enlist therapeutic uses of central sympatholytic drugs • Enumerate side effects of centrally acting sympathoplegic drugs	
Anti-muscarinic drugs	• Classification of antimuscarinic drugs • Discuss atropine, its origin, sources, half life • Describe the mechanism of action of anti-muscarinic drugs • Describe the pharmacokinetics of antimuscarinic drugs • Discuss the organ system effects of antimuscarinic • Enumerate therapeutic uses of anti-muscarinic drugs • Enlist side effects of antimuscarinic drugs • Enlist contraindications of antimuscarinic drugs • Discuss symptoms and management of atropine poisoning	Interactive Lecture
Ganglion blocking drugs	• Classification of ganglion blockers • Enlist the therapeutic uses of ganglion blocking drugs • Enlist side effects of ganglion blocking drugs	Interactive Lecture
Neuromuscular blockers	• Describe the normal neuromuscular function • Define of skeletal muscle relaxants • Classification of neuromuscular blockers • Discuss the mechanism of action of non depolarising agents • Discuss the pharmacokinetics of nondepolarizing agents • Describe the pharmacologic actions of non depolarising agents • Describe the pharmacologic actions of depolarizing agents • Describe the pharmacokinetics of depolarizing drugs • Differentiate between Phase 1 and Phase 2 block • Describe the therapeutic uses of neuromuscular blockers • Discuss the reversal of neuromuscular blocking drugs • Describe the pharmacologic actions of depolarising drugs • Discuss the interaction of depolarising drugs with other agents	Interactive Lecture
Spasmolytic	• Describe the definition of spasticity • Describe the pathogenesis of spasticity • Classification of spasmolytic drugs • Describe the pharmacokinetics of spasmolytic drugs • Describe the mechanism of action of spasmolytic • Enlist the therapeutic uses of spasmolytic • Enlist the side effects of spasmolytic drugs	Interactive Lecture

	• Discuss the symptoms of malignant hyperthermia • Describe the pathogenesis of malignant hyperthermia • Discuss the treatment of malignant hyperthermia	
Beta blockers	• Describe the types, locations and actions of beta receptors • Classification of beta blockers • Discuss pharmacokinetics of beta blockers • Enumerate therapeutic uses of beta blockers • Enumerate the side effects of beta blockers	Interactive Lecture
Drug treatment for Glaucoma	• Describe Glaucoma • Describe the pathophysiology of glaucoma • Describe the drugs used for management of glaucoma • Discuss the treatment for acute and chronic glaucoma • Discuss the rationale of various drug groups in treatment of glaucoma	Interactive Lecture
Overview of Autocoids NSAIDS	• Describe Prostaglandins • Describe the types of prostaglandins • Discuss the pharmacological actions of prostaglandins • Discuss the therapeutic uses of prostaglandins • Enlist the side effects and contraindications of prostaglandins • Discuss the use of NSAIDS in inflammation	Interactive Lecture
Antiseptics and Disinfectants	Describe the rationalize selection and application of antiseptics and disinfectants in clinical and laboratory setting with reference to microbiological control and infection prevention	Interactive Lecture

ASSIGNMENTS		
S. No	Topics of Assignments	Learning Objectives
1	Branches of Pharmacology and pharmacokinetic calculations	• Describe the basic concepts of Pharmacology and its branches • Discuss Pharmacokinetics calculations
2	Signaling mechanism	• Describe various signaling mechanism
3	Half life	• Write down the calculation of half life • Clinical significance of half life
4	Advantages and Disadvantages of routes of drug administration	• Discuss the classification of routes of drug administration • Describe the advantages of commonly used routes • Enlist the disadvantages of commonly used routes
5	Drug transport mechanisms	• Enumerate various types of drug transport mechanisms
6	Bioavailability	• Enlist factors affecting bioavailability
7	Absorption of drugs	• Discuss absorption of drugs in pathological states
8	Metabolic reactions	• Compare phase I and II reactions
9	Kinetics of eliminations	• Compare zero and first order kinetics of elimination

10	Adverse drug reactions	• Discuss various side effects related to drugs
11	Indirect acting cholinergic agonists	• Compare physostigmine with neostigmine
12	Organophosphate poisoning	• Discuss the management of organophosphate poisoning
13	Atropine poisoning	• Discuss the management of Atropine poisoning
14	Catecholamine vs non-catecholamines	• Catecholamine vs non-catecholamines
15	Therapeutic uses of antimuscarinic drugs	• Enlist clinical uses of antimuscarinic drugs
16	Therapeutic uses of Alpha blockers	• Enlist therapeutic uses of Alpha blockers
17	Therapeutic uses of beta blockers	• Enlist clinical uses of beta blockers
18	Glaucoma	• Classy drugs used to treat glaucoma • Discuss mechanism of action of each drug group • Enlist therapeutic uses
19	Myasthenia Gravis	• Discuss the drug treatment of Myasthenia Gravis
20	Benign prostatic Hyperplasia	• Discuss drugs used to treat the condition

PRACTICALS*

Topics	Students will be participating actively with hands-on-activities to reinforce their learning through lab performance.
Introduction , definitions and forms of drug	1. Define key terms (e.g., pharmacology, drug, dosage forms). 2. Understand different types of drugs (e.g., solid, liquid, semisolid). 3. Familiarize yourself with common dosage forms (e.g., tablets, capsules, injections).
Routes of drug administration	1. Identify different routes (e.g., oral, parenteral, topical). 2. Understand advantages and disadvantages of each route. 3. Apply knowledge to select suitable routes.
Laboratory Equipments	1. Identify common lab equipment (e.g., syringes, pipettes). 2. Understand their uses and handling. 3. Demonstrate proper use and maintenance.
Handling of laboratory Animals	1. Understand principles of animal welfare. 2. Learn safe handling techniques. 3. Demonstrate proper care and handling.
Phenomena pf Physiological Antagonism on Rabbit's eye	1. Define physiological antagonism. 2. Observe effects on rabbits eye. 3. Analyze mechanisms.
Phenomena pf Pharmacological Antagonism on Rabbit's eye	1. Define pharmacological antagonism. 2. Understand mechanisms and examples. 3. Apply knowledge to clinical scenarios.
Weight, Measurements and Conversion	1. Understand units and conversions (e.g., mg to g). 2. Apply conversions in practical scenarios. 3. Ensure accuracy in calculations.
Effect of drugs on frog's heart	1. Understand cardiac physiology. 2. Analyze drug effects (e.g., adrenaline, acetylcholine). 3. Relate findings to clinical
Effect of drugs on bloods vessels of frog	1. Understand vascular physiology. 2. Analyze drug effects on blood vessels. 3. Apply knowledge to human physiology.

• Justify the selection of priority drugs for following indications of CVS and renal systems and prescribe medicine, HTN, IHD,CCF	1. Identify first-line treatments for HTN, IHD, and CCF. 2. Justify drug selection. 3. Prescribe appropriately.

CASE BASED LEARNING	
Topics of the Module	**Objectives: By the end of the module the students will be able to:**
Dosage Forms of Drugs	1. Identify different dosage forms (e.g., tablets, capsules, injections). 2. Understand advantages and disadvantages of each form. 3. Apply knowledge to select suitable dosage forms for patients.
Absorption of Drugs	1. Describe factors affecting drug absorption (e.g., pH, solubility). 2. Understand mechanisms of absorption (e.g., passive diffusion, active transport). 3. Apply knowledge to predict drug interactions and bioavailability.
Concept and calculation of volume of distribution and clearance	1. Define volume of distribution (Vd) and clearance (Cl). 2. Calculate Vd and Cl using given data. 3. Interpret values to understand drug pharmacokinetics.
Pharmacodynamics	1. Describe mechanisms of drug action (e.g., receptor binding, enzyme inhibition). 2. Understand dose-response relationships. 3. Apply knowledge to predict therapeutic effects and side effects.
Myasthenia Gravis	1. Describe pathophysiology and symptoms. 2. Understand treatment options (e.g., cholinesterase inhibitors, immunosuppressant). 3. Apply knowledge to manage patients.
Beta blockers	1. Describe mechanism of action and therapeutic uses. 2. Understand benefits and risks (e.g., bronchospasm, heart failure). 3. Apply knowledge to select suitable patients.
Coagulation Disorders	1. Describe coagulation cascade and disorders (e.g., hemophilia, thrombosis). 2. Understand treatment options (e.g., anticoagulants, clotting factors). 3. Apply knowledge to manage patients.
Angina Pectoris	1. Describe pathophysiology and symptoms. 2. Understand treatment options (e.g., nitrates, beta blockers). 3. Apply knowledge to manage patients.
Arrhythmias	1. Describe types of arrhythmias (e.g., atrial fibrillation, ventricular tachycardia). 2. Understand treatment options (e.g., antiarrhythmics, cardioversion). 3. Apply knowledge to manage patients.
Diuretics	1. Describe mechanisms of action and types (e.g., loop, thiazide). 2. Understand therapeutic uses and side effects. 3. Apply knowledge to select suitable patients.

FORENSIC MEDICINE

Introduction to Forensic Medicine & Toxicology	• Define forensic medicine & explain its medico legal practice.	**LGIS**
Personal Identity	• Describe the medico legal importance of establishing identity. • List parameters used for identification of living the dead individual.	**LGIS**
Thanatology	• Define thanatology & explain its importance. • Differentiate between somatic & molecular death. • Describe early postmortem changes. • Describe late postmortem changes.	**LGIS**
Mechanical Injuries	Define mechanical injuries & explain their ML significance. Classification mechanical injuries into abrasion, laceration, incised, stab, chop, firearm wounds etc. Describe injuries (size site shape margin) etc.	**LGIS**
Exhumation	1. Define exhumation and state its ML importance. 2. Describe the legal authority & procedure for exhumation. 3. Explain difficulties & limitations encountered in exhumed bodies.	**LGIS**
Blast Injuries	Define blast injuries and list the four categories (primary, secondary, tertiary, quaternary). Explain the mechanism of injury for each category. Identify characteristic clinical and forensic features of blast injuries. Describe systemic effects of blast waves (e.g., pulmonary, auditory, gastrointestinal). Outline the principles of assessment and medicolegal documentation in blast injury cases.	**LGIS**
Sexual offences Reproduction	Classify sexual offences according to legal definitions of natural and unnatural acts. Recognize key clinical and forensic findings in alleged sexual offences. Understand medicolegal responsibilities including examination, documentation, and reporting.	**LGIS**

CASE BASED LEARNING		
Topics of the Module	**Objectives: By the end of the module the students will be able to:**	**Teaching Strategies**
Time Since Death	• To witness medicolegal cases at DUHS on clinical rotation, examine a body and document physical post-mortem changes (rigor mortis, livor mortis, algor mortis) and record findings systematically to estimate time since death.	**Case Scenario**
Mechanism of Wound Production, Classification, and Medico-Legal Significance	• Examine and classify wounds based on physical characteristics (e.g., lacerations, abrasions, incised wounds) and identifying the weapons causing these wounds	**Case Scenario**
Examination of an Injured Person	• To witness medicolegal cases at DUHS on clinical rotation, Perform a systematic physical examination of an injured person following medico-legal protocol. • Document injuries accurately using diagrams, measurements, and descriptive terminology.	**Case Scenario**
Role of Forensic Experts in Blast Injuries	• To witness medicolegal cases at DUHS on clinical rotation, Examine blast-injury patterns on the body or specimens. • Collect and document forensic evidence from • blast-injury cases (e.g., soot, fragments).	**Case Scenario**
Collection, Preservation, and Preparation of Slides in Sexual Offences	• Prepare microscopic slides for analysis of semen, hair, blood, or epithelial cells.	**Case Scenario**
Artificial Insemination	• Explain the procedure of artificial insemination through video	**Case Scenario**
Medico-Legal Report of a Rape Victim & Assailant	• On clinical rotation to witness medicolegal cases at DUHS Perform a medico - legal physical examination following rape-exam protocol. • Complete a structured medico-legal report with collection, preservation of evidence and injury documentation and specimen details.	**Case Scenario**
Medico-legal Report of a Passive Agent of Sodomy	• on clinical rotation to witness medicolegal cases at DUHS • Perform a systematic medico-legal examination of a passive sodomy victim following approved protocol and write a medico-legal report, recording findings clearly and objectively.	**Case Scenario**
Sexual Offence in the	• Prepare case documentation and evidence	**Case**

Light of Hudood Ordinance	chains according to legal standards for Hudood-related cases. • Demonstrate proper handling and preservation of samples to maintain admissibility in court.	**Scenario**

PRACTICALS		
Topics	**Students will be participating actively with hands-on-activities to reinforce their learning through lab performance.**	**Teaching Strategies**
Determination of Age by: teeth, X-rays (Ossification of bone), stature and sex by bones	• Demonstrate the ability to handle and examine basic forensic-medicine tools/materials used in medico-legal work • Examine dental structures to identify developmental stages for age estimation. • Record dental findings using standard forensic charts. • Interpret radiographs to identify ossification centers relevant to age determination. • Measure ossification features accurately on X-ray images using appropriate tools. • Handle and examine skeletal remains to identify sexually dimorphic features. • Measure long bones using anthropometric instruments to estimate stature.	**PPT & Interactive**
Writing a Death Certificate	• To witness medicolegal cases at DUHS on clinical rotation, and complete a death certificate using standard medico - legal format. • Document cause, manner, and circumstances of death clearly and precisely.	**PPT & Interactive**
Identification by Finger Print	• Explain the medicolegal importance of finger prints in personal identification • Describe the structure, formation and uniqueness of finger print. • Identify the finger prints patterns.	**PPT & Interactive**

DOW VISIT	
Topics	**Learning Objectives**
Medicolegal Cases	• Define a medicolegal case and identify situations that require medicolegal reporting. • Describe the chain of medicolegal procedures (examination,

	documentation, evidence collection, reporting). • Explain the role of a medical officer in managing medicolegal cases within the Pakistani legal system. • Recognize common types of injuries and correlate them with mechanisms of trauma. • Understand medicolegal terms such as assault, battery, grievous injury, dying declaration, FIR, and MLC report.

THEME BASED SESSIONS

Topic	Lead Departments
Cell injury and drug response	Pharmacology, Pathology ,Peads
Drug Biotransformation and it's implications in bacterial growth and genetics.	Pharmacology, Pathology ,Peads
Inflammation to Drug Action	Pharmacology, Pathology , Medicine
Influence of inflammatory chemical mediators on drug bioavailability	Pharmacology, Pathology, Medicine
Gram negative bacilli and their link to adrenergic amines.	Pharmacology, Pathology, Surgery

COMMUNITY MEDICINE & PUBLIC HEALTH

Topic	Learning Objectives	Teaching Strategies
Foundation of Public Health	• Introduction To Public Health. • Identify History Of Public Health • Evolution Of Public Health As A Scientific Discipline. • Future Directions Of Public • Discuss The Importance Of Public Health In Medicine	**LGIS**
Intro To Healthcare System In Pakistan	• Differentiate Different Sectors Of Health System • Various Levels Of Health Care And Referral Mechanism	**LGIS**
Infectious Disease Epidemiology (General)	• Introduction & Terminologies	**LGIS**
Dynamics Of Diseases Transmission (I)	• Identify Basic Links In The Chain Of Transmission Of Infection Reservoir And Source Of Infection, Escape Of Organism, Modes Of Transmission, Entry Into The Body, Susceptible Host. Epidemic And Its Types, Investigation Of An Outbreak Or An Epidemic Sterilization & Disinfection Sterilization	**LGIS**
Dynamics Of Diseases Transmission (II)	• Disinfection Methods And Recommendations On Identifying gaps	**LGIS**
Dynamics Of Diseases Transmission (III)		**LGIS**

RESEARCH METHODOLOGY & EBM

Topic	Learning Objectives	Teaching Strategies
1.Research process overview	• Overview of research process	**LGIS**
2. Research question	• Formulate research question & research objectives	**LGIS**
3. Study designs	• Select study design according to research objectives	**LGIS**
4. Literature review	• Scientific literature search	**LGIS**
5. Data collection tools	• Formulation of data collection tool	**LGIS**
6. Data collection tools validity	• Discuss validity of data collection tool	**LGIS**
7. Validity for research design	• Discuss validity of research design	**LGIS**
8. Data types	• Identify the different types of data	**LGIS**
9. Data presentation	• Describe differ ways of data presentation (graphs, charts)	**LGIS**
10. Systemic review & meta-analysis	• Able to conduct steps of systematic review • Develop an answerable question using PICO • Interpret result of meta-analysis	**LGIS**
11. Sampling techniques	• Identify sampling techniques according to research objectives	**LGIS**
12. Sample size estimation & sampling errors	• Determine sample size • Identify sampling errors	**LGIS**

13. Statistical data analysis	• Enter data in software • Describe results • Formulation of charts and graphs	**LGIS**
14. SPSS data entry (hands on)	• Enter data in software • Describe results • Formulation of charts and graphs	**LGIS**
15. SPSS data entry (hands on)	• Enter data in software • Describe results • Formulation of charts and graphs	**LGIS**
16. Guidelines for medical writing	• Able to write manuscript according to guidelines	**LGIS**
17. Reference writing	• Style of references. Sources of references, Bibliography, citations	**LGIS**
18. Vancouver style	• Able to make a list of references according to recommended style	**LGIS**
19. Research ethics (I)	• Able to identify research ethics for publications • Publications ethics	**LGIS**
20. Research ethics (II)	• Authorship guidelines using ICMJE	**LGIS**

GENERAL MEDICINE

Topic	Learning Objectives	Teaching Strategies
Introduction to Medicine.	Understand the scope and role of internal medicine in patient care. • Learn the basic principles of clinical reasoning and diagnosis. • Recognize the importance of history taking and physical examination. • Understand common medical specialties and their focus areas. • Appreciate the role of evidence-based medicine and guidelines in management. • Learn the ethical and professional responsibilities of a physician. • • Understand basic approaches to common medical presentations (e.g., fever, cough, pain).	**Interactive lecture**
Signs and symptoms in medicine	Understand the difference between signs and symptoms. • Recognize common presenting complaints in medicine. • Learn the importance of systematic history taking and examination. • Identify red-flag symptoms and warning signs. • Understand how signs and symptoms guide diagnosis and management. • • Appreciate the role of patient-reported symptoms in clinical reasoning.	**Interactive lecture**

Basics of medical investigations in medicine	• Describe components of CBC, LFT, RFT, electrolytes. • Recognize abnormal basic lab results. • Understand indications for urinalysis. • Describe fundamentals of a chest X-ray approach. • Recognize the basics of ECG interpretation (rate & rhythm). • Identify indications for basic imaging modalities (X-ray, USG, CT).	**Interactive lecture**
Basics of clinical reasoning	• Describe the steps of diagnostic reasoning. • Explain how to generate and refine differential diagnoses. • Identify red flags in common presentations. • Explain the concept of evidence-based medicine. • Understand the principles of risk assessment and prognosis.	**Interactive lecture**
Fluids and electrolytes	• Describe body fluid compartments. • Understand maintenance vs replacement fluids. • Recognize basic signs of dehydration. • Identify commonly used IV fluids. • Understand simple concepts of sodium and potassium imbalance.	**Interactive lecture**

Basics of emergency in medicine	• Describe the ABCDE approach to a sick patient. • Recognize signs of shock. • Understand principles of basic resuscitation • Distinguish a sick patient from a stable one. • Know when to seek senior or emergency help.	**Interactive lecture**
Understanding of health system	• Describe hospital structure (OPD, ER, wards, ICU). • Understand referral pathways. • Understand the importance of clinical documentation. • Describe the roles of different healthcare team members.	**Interactive lecture**
Ethics and law in medicine	• Define consent and explain when it is required. • Understand privacy and patient data protection. • Recognize basic legal responsibilities of doctors. • Describe ethical dilemmas and principles of decision-making.	**Interactive lecture**

Nutrition in medicine	• Describe the basic components of nutrition, including macronutrients and micronutrients. • Explain daily caloric and nutrient requirements in simple terms. • Outline how to assess nutritional status using dietary history, weight, height, and BMI. • Identify common clinical signs of malnutrition. • Summarize key features of common nutritional deficiencies such as iron, B12/folate, and vitamin D deficiency. • Describe the role of nutrition in common medical conditions like diabetes, hypertension, anemia, and chronic liver disease. • Recognize examples of iron-rich and vitamin-rich foods. • Explain the importance of nutrition in immunity, healing, and overall recovery. • Identify situations where further nutritional evaluation or referral is needed	**Interactive lecture**

History taking	• Understand how to establish rapport and ensure patient comfort and confidentiality. • Elicit the chief complaint in the patient's own words. • Explore the history of presenting illness using a structured, logical approach (onset, duration, progression, associated symptoms, relieving/worsening factors). • Obtain past medical history including chronic illnesses, hospitalisations, surgeries, and previous similar episodes. • Review medication history including prescriptions, OTC drugs, herbal remedies, and adherence. • Assess allergies and prior adverse drug reactions. • Inquire about family history of relevant genetic or familial diseases. • Explore social history including smoking, alcohol, substance use, occupation, environment, travel, and support system. • Assess functional status and daily living limitations if relevant. • Perform a systemic review to identify associated symptoms across major systems. • Formulate a clinical impression based on the history. • Identify areas requiring focused examination or urgent intervention. • Communicate the history clearly and concisely in oral or written form.	**Bedside teaching**

General physical examination GPE	• Demonstrate a professional approach by ensuring patient comfort, consent, and privacy. • Assess the patient's overall appearance and general condition. • Identify any obvious abnormalities on initial inspection. • Evaluate the patient's level of consciousness and orientation. • Observe posture, mobility, and ability to perform basic movements. • Examine the skin and visible mucosa for any general clues to systemic disease. • Evaluate the hands, face, and neck for general signs relevant to systemic illness. • Perform a brief assessment of hydration and nutritional status. • Look for generalized swelling or deformities. • Detect any abnormalities suggestive of acute or chronic disease. • Integrate general findings to guide the focused systemic examination • Summarize general physical findings and integrate them into the overall clinical impression.	**Bedside teaching**

GPE- Anemia	• Identify pallor in conjunctiva, tongue, nails, and palms. • Recognize signs of jaundice that may accompany hemolytic anemia. • Assess for glossitis, angular cheilitis, or koilonychia. • Detect signs of bleeding such as petechiae or ecchymoses. • Evaluate heart rate, pulse volume, and signs of high-output cardiac state. • Observe for lymphadenopathy or splenomegaly suggestive of underlying causes. • Correlate physical findings with severity and type of anemia	**Bedside teaching**
GPE-Cyanosis	• Identify peripheral vs central cyanosis (fingertips, lips, tongue, mucous membranes). • Assess oxygen saturation and signs of hypoxia. • Observe associated signs: clubbing, respiratory distress, or heart murmurs. • Correlate cyanosis with underlying cardiopulmonary or hematological causes. • Recognize acute vs chronic cyanosis and associated systemic effects. • Note temperature, perfusion, and capillary refill to differentiate causes	**Bedside teaching**

GPE- Jaundice	• Identify yellow discoloration of the sclera, skin, and mucous membranes. • Differentiate pre-hepatic, hepatic, and post-hepatic jaundice based on clinical signs. • Assess for associated features: hepatomegaly, splenomegaly, ascites, or signs of chronic liver disease. • Recognize stigmata of chronic liver disease: spider nevi, palmar erythema, caput medusae. • Evaluate for pale stools or dark urine indicating obstructive causes. • Correlate findings with systemic symptoms like fever, pruritus, or weight loss.	**Bedside teaching**
GPE- Lymphadenopathy	• Identify enlarged lymph nodes in all accessible regions: cervical, axillary, inguinal, epitrochlear. • Assess size, consistency, tenderness, mobility, and warmth of lymph nodes. • Look for associated systemic signs: fever, weight loss, night sweats, or organomegaly. • Correlate findings with possible local or systemic causes (infection, malignancy, autoimmune).	**Bedside teaching**

History taking of specific symptoms- Cough	Identify onset, duration, and nature of the cough (acute, subacute, chronic). • Distinguish dry vs productive cough and note sputum characteristics. • Recognize red flags such as hemoptysis, weight loss, fever, and dyspnea. • Elicit associated symptoms: wheeze, nasal symptoms, heartburn, chest pain. • Assess smoking history, occupational exposures, and environmental triggers. • Review relevant past history: asthma, COPD, TB, allergies, GERD, heart failure. • Identify medication-related causes (especially ACE inhibitors). • Ask about TB risk factors and aspiration risks. • Understand the impact on daily activities and sleep. • Clarify patient's concerns and expectations to guide assessment.	**Bedside teaching**

History taking of specific symptoms – shortness of breath	• Determine onset, duration, and progression of breathlessness (acute vs chronic). • Assess triggers and relieving factors (rest, exertion, position, environment). • Identify associated symptoms: chest pain, cough, wheeze, fever, edema, palpitations. • Recognize red flags: sudden severe SOB, pink frothy sputum, hemoptysis, syncope. • Explore cardiac and respiratory risk factors: smoking, hypertension, asthma, COPD, IHD, DVT/PE risks. • Review past medical history including heart, lung, and systemic diseases. • Assess functional limitation (exercise tolerance, orthopnea, PND). • Ask about relevant medications (diuretics, beta-blockers, inhalers). • Understand patient concerns, expectations, and the impact on daily life.	**Bedside teaching**

BLS	Recognize unresponsiveness and assess breathing safely. • Activate the emergency response system promptly. • Perform high-quality chest compressions: correct rate, depth, recoil, and minimal interruptions. • Provide effective rescue breaths using mouth-to-mouth or barrier devices. • Use an AED correctly: attach pads, follow prompts, deliver shock safely. • Maintain scene safety and ensure safe practice throughout resuscitation. • Coordinate CPR in a team-based setting, ensuring role clarity and communication. • Know when to start, pause, and stop CPR based on guidelines.	**Skills lab/Interactive lecture**

History taking in medicine- Fever	Determine onset, duration, pattern, and progression of fever (intermittent, continuous, relapsing). • Identify associated symptoms: chills, rigors, headache, myalgia, cough, rash, abdominal pain, urinary symptoms. • Elicit exposure history: travel, sick contacts, mosquito exposure, contaminated food/water. • Assess any red flags associated with fever. • Review past medical history: immunosuppression, chronic diseases, recent infections. • Ask about recent medications, antibiotics, vaccines, and drug reactions. • Inquire about occupational, environmental, and animal exposures. • Assess impact on daily activities and hydration status. • Clarify patient's concerns, expectations, and any self-treatment taken.	**Bedside teaching/tutorial**

History taking in medicine- Hemetemesis	Determine the onset, amount, and frequency of hematemesis to assess severity of bleeding. • Describe the character of hematemesis (fresh blood, clots, "coffee-ground") to identify the likely source of bleeding. • Identify symptoms associated with hematemesis such as dizziness, syncope, melena, abdominal pain, or prior vomiting. • Assess risk factors for hematemesis, including peptic ulcer disease, liver disease, varices, NSAID use, alcohol use. • Recognize red flags in hematemesis, such as hypotension, tachycardia, persistent vomiting, confusion, or large-volume bleed. • Review past history relevant to hematemesis, including prior GI bleeds, endoscopies, liver disease, coagulopathies, and medications. • Ask about triggers or causes of hematemesis, such as forceful retching, ingestion of toxins, anticoagulant use. • Explore impact of hematemesis on daily function, hydration, and previous self-management.	**Bedside teaching**

History taking in medicine- Jaundice	• Determine the onset, duration, and progression of jaundice to identify acute vs chronic causes. • Describe symptoms associated with jaundice such as dark urine, pale stools, pruritus, abdominal pain, fever, weight loss. • Assess risk factors for jaundice, including viral hepatitis exposure, alcohol use, drug-induced liver injury, transfusions, high-risk behaviors. • Identify red flags in jaundice, such as altered mental status, bleeding, severe abdominal pain, or rapid worsening. • Review past history relevant to jaundice, including liver disease, gallstones, hemolytic disorders, autoimmune disease, surgeries. • Ask about medications and toxins causing jaundice, including herbal supplements, hepatotoxic drugs, and occupational chemicals. • Explore family history of jaundice or inherited liver/hemolytic conditions. • Assess the impact of jaundice on daily activities, appetite, and overall health.	**Bedside teaching**

History taking in medicine – Abdominal distension	• Determine the onset, duration, and progression of abdominal distension to distinguish acute from chronic causes. • Describe symptoms associated with abdominal distension such as pain, bloating, nausea, vomiting, constipation, diarrhea, early satiety, or weight changes. • Assess risk factors for abdominal distension, including liver disease, heart failure, malignancy, pregnancy, prior surgeries, and dietary triggers. • Identify red flags in abdominal distension, such as severe pain, vomiting, fever, GI bleeding, or inability to pass stool/flatus. • Review past history relevant to abdominal distension, including ascites, bowel obstruction, IBS, IBD, malignancies, and infections. • Ask about medications and substances contributing to distension, such as laxatives, diuretics, opioids, carbonated drinks. • Explore dietary patterns and intolerances (lactose, gluten) related to abdominal distension. • Assess the impact of abdominal distension on daily activities, appetite, and breathing.	**Bedside teaching**

History taking in medicine-dyspepsia	Ask about onset, duration, and pattern of dyspepsia. • Identify main symptoms: epigastric pain, bloating, nausea, heartburn. • Check risk factors: NSAIDs, alcohol, smoking, diet, stress. • Recognize red flags: weight loss, vomiting, anemia, difficulty swallowing, GI bleeding. • Review past medical history: PUD, GERD, gallstones, pancreatitis. • Ask about medications that may cause dyspepsia. • Explore diet and lifestyle factors affecting symptoms. • Assess impact on daily life and appetite. • Understand the patient's concerns and expectations.	**Bedside teaching**
Lumber puncture	• Understand the types of needles used for lumbar puncture. • Describe the parts and design of the lumbar puncture needle. • Learn the differences between cutting and atraumatic needles. • Recognize the advantages and limitations of each type. • Understand needle size selection based on patient age and clinical scenario. • Learn basic handling, insertion technique, and orientation principles. • Recognize potential complications related to the needle.	**Skills labs**

GENERAL SURGERY

TOPIC: Evaluation of limb ischemia, gangrene, and varicose veins.		
Subject Learning Outcomes:		
Topics of the Module	**Objectives: By the end of the module the students will be able to:**	**Teaching Strategies**
Deep venous thrombosis.	• Describe the pathophysiology of DVT. • To learn the salient clinical features particular to DVT. • Enumerate the diagnostic investigations required to confirm the diagnosis of DVT. • Describe the diagnostic criteria & risk factors of DVT. • Elaborate the different treatment modalities of DVT.	Interactive Lecture
Varicose veins	• Define and differentiate between various venous pathologies. • Describe the important risk factors that contribute in pathogenesis of varicose veins. • Elaborate the important points of history of patient with varicose veins. • Enumerate the clinical features specific to varicose vein disease. • Discuss the various investigations & management strategies of dealing the patient with varicose veins.	Interactive Lecture
Gangrene	• To understand the pathophysiology of gangrene. • To know the types of gangrene and their points of differentiation. • Enumerate the clinical features consistent with gangrene. • Discuss the diagnostic & management plan of gangrene	Interactive Lecture

PAEDIATRICS

Topic	Learning Objectives	Teaching Strategies
Paediatrics	▪ Recognize growth development and maturation. ▪ Justify use of the tools for measuring growth and development. ▪ Identify the genetic, nutritional and environmental factors that can influence child growth and development.	**Theme based Sessions**

GYNAECOLOGY& OBSTETRICS

Topic	Learning Objectives **At the end the students will be able to describe**	Teaching Strategies
Female genital tact	• Anatomy and physiology of female genital tract and menstruation	Theme based learning Session
Physiology of pregnancy	• Cardiovascular changes • Body fluid balance • Hematological changes	Theme based learning Sessions
Prenatal Care	• First trimester invasive tests- karyotyping and role of folic acid • Early pg ultrasound and its importance	Theme based learning Sessions\
Antenatal Care	• Importance of ANC, follow ups, • Balanced nutrition / supplementation • Screening for medical diseases • Vaccination schedule	Theme based learning Sessions Lecture

INFECTION CONTROL

Introduction to Infection Control	*Community Medicine*
Role of infection control in hospital environment	*Community Medicine*
Orientation to lab safety ,Hand Hygiene & WHO 5 Moments, Collection of different specimens for microbiological laboratory	*Pathology*
Personal Protective Equipment (PPE): Donning & Doffing	*General Surgery*

BEHAVIOURAL SCIENCES

Topic	Learning Objectives	Teaching Strategies
Non-Pharmacological Interventions: Communication Skills	• Define effective communication in a healthcare setting • Demonstrate verbal and non-verbal communication skills with patients • Apply active listening and empathy in clinical encounters • Identify common barriers to effective doctor–patient communication	Lectures/ Presentations
Non-Pharmacological Interventions: Counseling Skills	• Explain the principles and goals of counseling • Differentiate between counselling and psychotherapy • Demonstrate basic counselling micro-skills (empathy, paraphrasing, summarizing) • Apply counselling techniques in common clinical scenarios (stress, non-compliance	Lectures/ Presentations
Non-Pharmacological Interventions: Crisis Intervention	• Define a psychological crisis and its types • Identify patients requiring immediate crisis intervention • Apply basic crisis intervention steps in emergency situations • Demonstrate appropriate referral and safety planning	Lectures/ Presentations

Non-Pharmacological Interventions: Conflict Resolution in Healthcare Settings	• Identify sources of conflict between healthcare providers and patients • Explain different conflict resolution styles • Apply negotiation and de-escalation techniques in clinical conflicts • Demonstrate professional behaviour during disagreements	Lectures/ Presentations
Non-Pharmacological Interventions: Informational Care (Patient Education)	• Define informational care and its importance in treatment adherence • Explain medical information in patient-friendly language • Assess patient understanding using teach-back methods • Recognize the role of health literacy in patient outcomes	Lectures/ Presentations
Non-Pharmacological Interventions: Breaking Bad News	• Define bad news in a medical context • Explain structured approaches (e.g., SPIKES protocol) • Demonstrate breaking bad news with empathy and professionalism • Manage emotional reactions of patients and families	Lectures/ Presentations
Non-Pharmacological Interventions: Empathy and Emotional Support	• Define empathy and differentiate it from sympathy • Recognize emotional needs of patients during illness • Demonstrate empathetic responses in clinical interactions • Explain the impact of empathy on patient satisfaction and outcomes	Lectures/ Presentations
Non-Pharmacological Interventions: Behavioral Modification Techniques	• Define behaviour change and its relevance in healthcare • Identify basic behavioural techniques (reinforcement, motivation) • Apply behavioural strategies to improve lifestyle-related conditions • Encourage patient self-management and adherence	Lectures/ Presentations

Non-Pharmacological Interventions: Stress Management and Relaxation Techniques	• Identify common sources of stress in patients and healthcare professionals • Explain basic relaxation techniques (deep breathing, mindfulness) • Apply stress management strategies in clinical settings • Recognize the role of stress reduction in overall health	Lectures/ Presentations
Non-Pharmacological Interventions: Supportive Psychotherapy / Supportive Care	• Define supportive psychotherapy and its indications • Explain the role of reassurance, guidance, and encouragement • Apply supportive techniques for patients with chronic illness • Recognize limitations and indications for specialist referral	Lectures/ Presentations

LEADERSHIP & MANAGEMENT

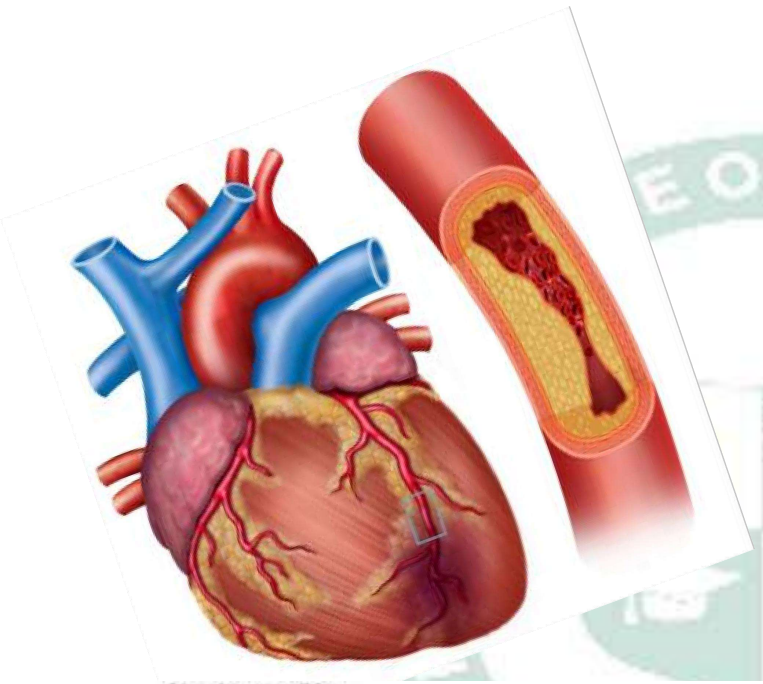
Topic	Learning Objectives	Teaching Strategies
Personal Development Plan (PDP)	Prepare personal developmentplan (PDP)	Lectures/ Presentations

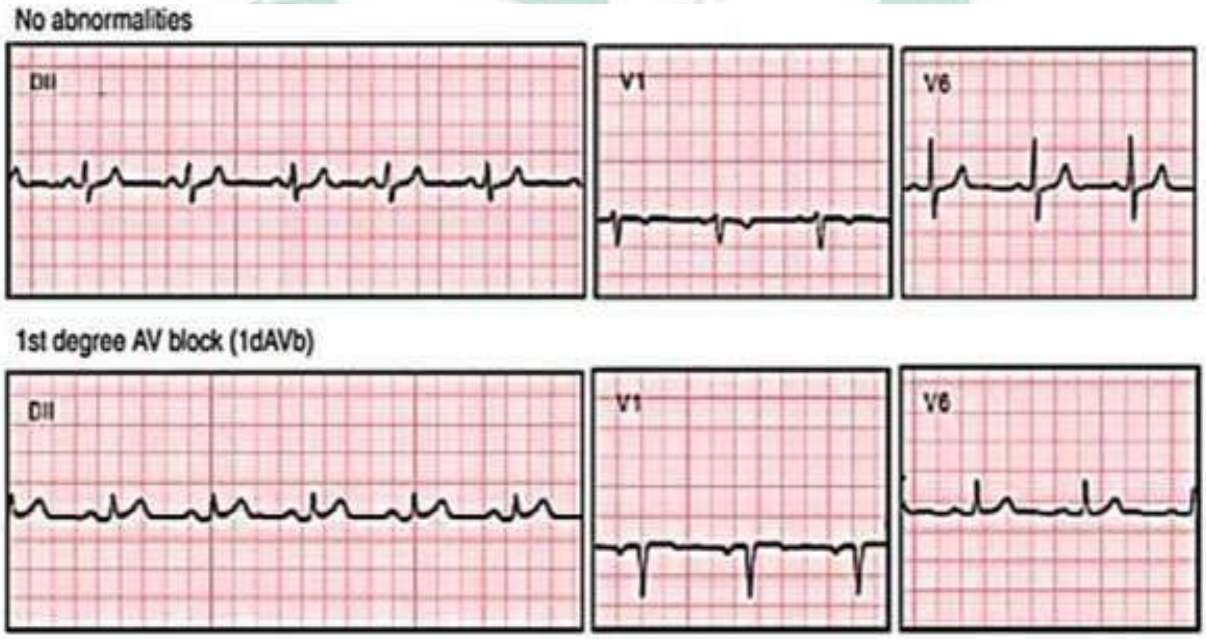
PROFESSIONALISM

Topic	Learning Objectives	Teaching Strategies
Interprofessional Education: Tips for Design and Implementation	Understand the importance and use of Interprofessional education: Tips for design and implementation	Lectures/ Presentations

MODULE-XIII

CARDIOVASCULAR SYSTEM II





Module name	Cardiovascular System - II Module
Year	3RD Year MBBS, Batch
Duration	4 weeks
Total Contact Hours	**Pathology= hours** Lectures = Small group discussion = Practical = Demonstration=
	Pharmacology= hours Lectures = Small group discussion = Practical =
	Forensic Medicine= hours Lectures = Small group discussion = Practical =
	Community Medicine = hours Lectures = Small group discussion = Skill sessions =
	Research Methodology & EBM= hours Lectures = Small group discussion = Skill sessions/ Workshop =
	General Surgery & Allied = hours Lectures = Small group discussion = Skill sessions =
	General Medicine & Allied = hours Lectures = Small group discussion = Skill sessions =
	Paediatrics= hours Lectures = Small group discussion = Skill sessions/ Workshop =

	Obstetrics/ Gynae= hours Lectures = Small group discussion = Skill sessions/ Workshop =
	Infection Control= hours Lectures = Small group discussion = Skill sessions/ Workshop =
	Behavioral Sciences= hours Lectures = Small group discussion = Skill sessions/ Workshop =
	Leadership & Management= hours Lectures = Small group discussion = Skill sessions/ Workshop =
	Professionalism= hours Lectures = Small group discussion = Skill sessions/ Workshop =
Module Coordinator	Dr. Umme -E- Farwa
Year Coordinator	Dr. Mahnoor Ahsan

Module Learning Outcome:

By the end of the module, students will be able to;

1. Relate the pathophysiology of heart and vessels to its treatment modalities

2. Interpret various injuries and causes of death and relate them with their medicolegal aspects

3. Perform and interpret the effects of cardiac specific drugs on frog's heart.

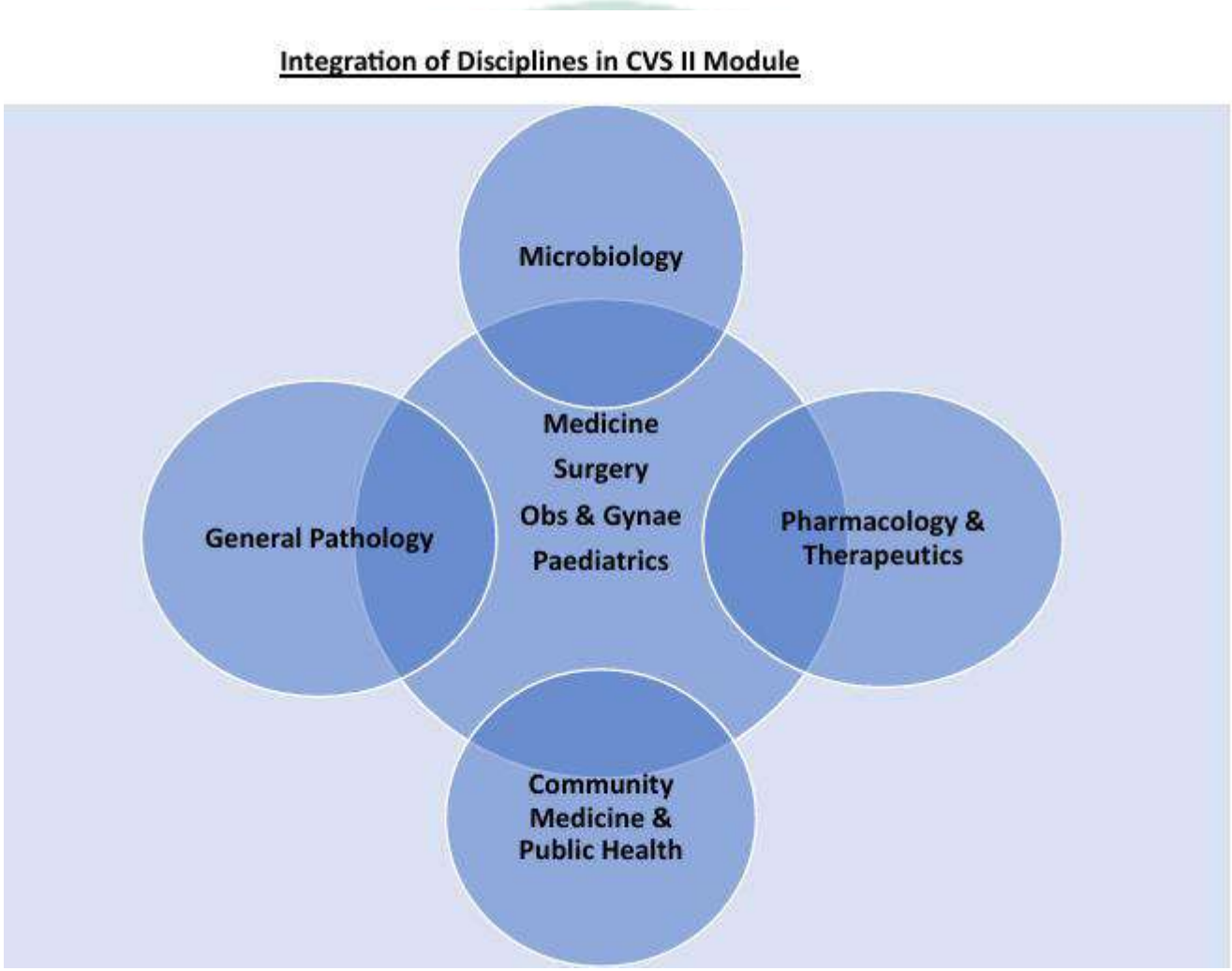
4. Evaluate the effect of drugs on blood vessels of frogs

5. Demonstrate all steps of history taking and examination of cardiac patients in medical and

surgical clinics

Rationale

This module focuses on underlying pathology of various cardiac disorders along with their prevention and treatment options. Relevant topics of forensic medicine are taught side by side for better understanding of the students. Students will have opportunities to relate their knowledge through integrated sessions. At least one integrated session in a week/ will enable the students to integrate their knowledge acquired from different disciplines. Students will be taught CVS history taking and physical examination in Medicine/Surgery rotations to enhance their clinical



PATHOLOGY & MICROBIOLOGY

	Cardiovascular Module II	
Edema, hyperemia and congestion	Explain the mechanisms of edema, hyperemia, and congestion.	Interactive Lecture
Hemostasis	Describe the processes of primary and secondary hemostasis.	Interactive Lecture
Embolism	Classify types of embolism and their clinical significance.	Interactive Lecture
Infarction	Differentiate red and white infarcts based on pathogenesis.	Interactive Lecture
Hemorrhage and shock	Describe types of hemorrhage and stages of shock.	Interactive Lecture
DIC	Describe the pathogenesis, laboratory abnormalities and clinical complications	Interactive Lecture

	MICROBIOLOGY **Cardiovascular module**	
Septic emboli pathogens	Identify pathogens commonly responsible for septic emboli. • Staph. Aureus, Strep saprophyticus, candida	Interactive Lecture
Pathogens of infective endocarditis	List major pathogens causing infective endocarditis. (Strep viridians, Staph aureus, Enterococci	Interactive Lecture

PHARMACOLOGY

TOPIC: Anticoagulants, Anti-platelets, Thrombolytics, Drug selection for ischemic heart disease and Hypertension, Pharmacotherapy for Heart Failure, Arrythmias, Hyperlipidaemia		
Subject Learning Outcomes:		
Topics of the Module	**Objectives: By the end of the module the students will be able to:**	**Teaching Strategies**
Anticoagulants	• Describe the pathophysiology of coagulation disorders • Classification of anticoagulant drugs • Discuss the pharmacokinetics and pharmacodynamics of heparin • Describe the toxicity and reversal of heparin overdose • Discuss the pharmacokinetics and pharmacodynamics of direct thrombin inhibitors • Enumerate the clinical uses of direct thrombin inhibitors • Describe the toxicity and reversal of direct thrombin inhibitors • Discuss the pharmacokinetics and pharmacodynamics of warfarin • Enumerate the clinical uses of warfarin • Enumerate the toxicity and reversal of warfarin • Describe the pharmacokinetics and pharmacodynamics of oral Xa inhibitors • Enumerate the clinical uses of oral Xa inhibitors • Describe the toxicity and reversal of oral Xa inhibitors	Interactive Lecture
Antiplatelets	• Classification of antiplatelet drugs • Describe the pharmacokinetics and pharmacodynamics of aspirin • Enumerate the clinical uses of aspirin • Describe the toxicity of aspirin • Describe the pharmacokinetics and pharmacodynamics of GP IIb/IIIa inhibitors • Enumerate the clinical uses of GP IIb/IIIa inhibitors • Describe the toxicity of GP IIb/IIIa inhibitors • Describe the pharmacokinetics and pharmacodynamics of ADP ($P2Y_{12}$) inhibitors	Interactive Lecture

	• Enumerate the clinical uses of ADP inhibitors • Describe the toxicity of ADP inhibitors • Describe the pharmacokinetics and pharmacodynamics of PDE inhibitors • Enumerate the clinical uses of PDE inhibitors • Describe the toxicity of PDE inhibitors • Describe the pathophysiology of bleeding disorders • Describe the role of clotting factors and desmopressin in bleeding disorders • Describe the role of vitamin K in bleeding disorders • Discuss the various antiplasmin agents and their role in bleeding disorders	
Thrombolytics	• Classification of thrombolytic drugs • Describe the pharmacokinetics and pharmacodynamics of t-PA derivatives • Describe the pharmacokinetics and pharmacodynamics of streptokinase • Enumerate the clinical uses of thrombolytic agents • Describe the toxicity of thrombolytic drugs	Interactive Lecture
Drug selection for ischemic heart disease	• Describe the pathophysiology of angina • Describe the signs and symptoms of angina • Classify the types of angina • Classification of anti-anginal drugs • Classification of nitrates • Describe the pharmacokinetics and mechanism of action of nitrates • Enumerate the organ-system effects of nitrates • Enumerate the therapeutic uses of nitrates • Enlist the side effects and contraindications of nitrates • Classification of calcium channel blockers (CCBs) • Describe the types of calcium channel blockers used in angina • Describe the pharmacological actions, therapeutic uses, and side effects of calcium channel blockers • Discuss the pharmacological actions, therapeutic uses, and side effects of beta-blockers • Discuss the principles of angina therapy • Describe newer drugs for angina	Interactive Lecture

Antihypertensive Drugs	• Describe the pathophysiology of hypertension • Classify the types of hypertension • Classification of antihypertensive drugs • Describe the mechanism of action, therapeutic uses, and side effects of calcium channel blockers • Describe the mechanism of action, therapeutic uses, and side effects of ACE inhibitors • Discuss the mechanism of action, therapeutic uses, and side effects of ARBs • Describe the mechanism of action, therapeutic uses, and side effects of diuretics • Describe the mechanism of action, therapeutic uses, and side effects of sympathoplegics • Describe the mechanism of action, therapeutic uses, and side effects of miscellaneous newer antihypertensive drugs	Interactive Lecture
Pharmacotherapy for heart failure	• Describe the pathophysiology, signs and symptoms, and types of heart failure • Discuss the drugs used in the treatment of heart failure • Describe the mechanism of action of digoxin • Enumerate the therapeutic uses and side effects of digoxin • Describe electrical and mechanical effects of digoxin • Discuss the signs and symptoms of digoxin toxicity • Describe the role of other drugs in heart failure (e.g., ACE inhibitors, ARBs, beta-blockers, diuretics, vasodilators, SGLT2 inhibitors) • Describe the management of acute and chronic heart failure	Interactive Lecture

Anti-Arrhythmic Drugs	• Describe arrhythmias, including their pathophysiology and types • Classification of antiarrhythmic drugs • Describe the mechanism of action, pharmacological actions, and side effects of Class I antiarrhythmic drugs • Discuss mechanism of action, pharmacological actions, and side effects of Class II antiarrhythmic drugs • Describe mechanism of action, pharmacological actions, and side effects of Class III antiarrhythmic drugs • Describe the mechanism of action, pharmacological actions, and side effects of Class IV antiarrhythmic drugs • Discuss the miscellaneous antiarrhythmic drugs	Interactive Lecture
Anti-Hyperlipidmic Drugs	• Define hyperlipidemia and its types • Describe the pathophysiology of hyperlipidemia • Classification of antihyperlipidemic drugs • Describe the mechanism of action of statins • Enlist the clinical uses of statins • Enlist the adverse effects of statins • Discuss the mechanism of action of fibrates • Enumerate the clinical uses of fibrates • Enlist the adverse effects of fibrates • Discuss the mechanism of action of ezetimibe • Enlist the clinical uses of ezetimibe • Enumerate the adverse effects of ezetimibe • Discuss the mechanism of action of bile acid resins • Describe the clinical uses of bile acid resins • Enumerate the adverse effects of bile acid resins • Describe the mechanism of action of niacin • Enlist the clinical uses of niacin • Enumerate the adverse effects of niacin	Interactive Lecture

FORENSIC MEDICINE

Subject Learning Outcomes:		
Topics of the Module	**Objectives: By the end of the module the students will be able to:**	**Teaching Strategies**

No.	Topics of Assignments	Learning Objectives
1	Methyldopa	• Clinical uses and side effects of methyldopa
2	Hypertensive emergencies	• Discuss the management of Hypertensive emergencies
3	Nitrates	• Enlist drugs belong to Nitrates • Discuss mechanism of action with flow chart • Discuss toxicity of Nitrates
4	Digoxin Toxicity	• Discuss the management of Digoxin Toxicity
5	Heart failure	• Compare management of acute vs chronic heart failure
6	Pathophysiology of arrhythmias	• Describe the pathogenesis of arrhythmias and drugs used to treat arrhythmias
7	Hypertension	• Classify drugs used to treat hypertension • Discuss the uses of antihypertensive drugs in various clinical scenarios

Overview of General Toxicology & Autopsy Findings in case of poisoning	• Understand the basic principles of toxicology, including types of poisons, routes of exposure, and general mechanisms of toxicity. • Recognize the medicolegal significance of poisoning cases and the roles of clinicians in diagnosis, documentation, and reporting • Identify the general autopsy features that may suggest poisoning, including external signs and non-specific internal changes. • Understand the role of sample collection, preservation, and interpretation in determining cause of death in suspected poisoning.	**LGIS**
Alcohol Poisoning	• Understand the clinical features, types, and toxic effects of alcohol intoxication relevant to forensic medicine. • Recognize the medicolegal significance, autopsy findings, and documentation requirements in alcohol-related deaths.	**LGIS**
Cocaine and Cannabis	• Understand the pharmacology, toxic effects, and clinical features of cocaine and cannabis relevant to forensic medicine. • Recognize the medicolegal significance, including autopsy findings, detection, and documentation in suspected substance-related cases.	**LGIS**
Mentally illness - Terminologies, Diagnosis, legal aspects, insanity & Responsibility	• Understand key terminologies, classification, and diagnostic principles of mental illnesses relevant to forensic practice. • Recognize the legal aspects of insanity, criminal responsibility, and the medico-legal duties of the examiner.	**LGIS**
Regional Injuries	• Identify common types, mechanisms, and clinical features of injuries to the head, face, chest, and vertebral column. • Understand the medicolegal significance, including assessment, documentation, and interpretation of regional trauma	**LGIS**
Thermal Injuries	• Describe the causes, patterns, and clinical manifestations of injuries from heat, cold, and electricity. • Explain the forensic relevance, including proper evaluation, recording, and reporting of these injuries.	**LGIS**
Asphyxial Poisoning	• Describe the types, mechanisms, and clinical features of asphyxial poisoning. • Explain the forensic importance, including autopsy findings, evaluation, and documentation in suspected cases.	**LGIS**

Transportation Injuries	• Identify common types, patterns, and mechanisms of injuries resulting from road, rail, and other transport accidents. • Understand the medicolegal significance, including injury assessment, documentation, and interpretation for legal purposes.	**LGIS**
Asphyxial Death	• Describe the different types and mechanisms of asphyxial death, including strangulation, suffocation, and hanging. • Understand the causes, mechanism, and clinical features of traumatic asphyxia. • Describe the mechanism, types, and clinical features of drowning as a cause of death. • Identify key autopsy findings and understand the medico-legal importance of drowning cases.	**LGIS**

CASE BASED LEARNING		
Topics of the Module	**Objectives: By the end of the module the students will be able to:**	**Teaching Strategies**
Corrosive Poison & Carbolic Acid	• The student will be able to identify, corrosive poison samples (H_2SO_4, oxalic acid, carbolic acid, alkali) from physical characteristics, clinical and medico-legal scenarios.	**Case Scenario**
Opium Poisoning	• The student will be able to demonstrate the acute and chronic poisoning management steps and medico-legal handling of a suspected opium poisoning case.	**Case Scenario**
Hypnotic + Sedative	• The student will be able to demonstrate the acute and chronic management of hypnotic and sedative poisoning and perform the essential medico-legal procedures required in such cases, during clinical visit to Dow.	**Case Scenario**
Venomous Insect (Snake)	• The student will be able to demonstrate the immediate first-aid measures, medical management steps, and medico-legal handling of a venomous snakebite.	**Case Scenario**
Cerebral Injuries (Coup & Counter Coup Injuries, Cerebral Concussion,	• The student will be able to demonstrate the clinical assessment, recognition, and medico-legal documentation of cerebral injuries including coup and contrecoup injuries, cerebral concussion, and cerebral hemorrhage on case pictures and on a case	**Case Scenario**

Cerebral Hemorrhage)	scenario, while ensuring accuracy and legal compliance.	
Skull Fractures	• The student will be able to demonstrate clinical assessment, recognition, and medico-legal documentation of skull fractures	**Case Scenario**
Suicidal and Homicidal Cut Throat	• Suicidal or homicidal cut throat injuries on a case scenario, ensuring accurate evaluation, patient safety, and legal compliance."	**Case Scenario**
Resuscitation of a drowned person Difference between ante mortem & post mortem Asphyxial Death	• The student will be able to demonstrate the steps for resuscitation of a drowned person and differentiate between ante-mortem and post-mortem drowning through internal and external findings on drowning model.	**Case Scenario**

DOW VISIT	
Topics	**Learning Objectives**
Medicolegal Cases	• Define a medicolegal case and identify situations that require medicolegal reporting. • Describe the chain of medicolegal procedures (examination, documentation, evidence collection, reporting). • Explain the role of a medical officer in managing medicolegal cases within the Pakistani legal system. • Recognize common types of injuries and correlate them with mechanisms of trauma. • Understand medicolegal terms such as assault, battery, grievous injury, dying declaration, FIR, and MLC report.

Hospital-Acquired Infections (HAIs): Introduction	*Community Medicine*
Central Line–Associated Bloodstream Infection (CLABSI) Prevention	*Medicine & Allied*

THEME BASED SESSIONS

COMMUNITY MEDICINE & PUBLIC HEALTH

Topic	Learning Objectives	Teaching Strategies
NCD Coronary heart disease CHD	• Relate different risk factors to particular patients and general Population. • Estimate the extent of damage to individuals and community in terms of morbidity and mortality burden • Suggest preventive measures for Coronary heart disease in individuals and populations at risk	**LGIS**
NCD Hypertension /Stroke	• Relate different risk factors to particular patients and general Population. • Estimate the extent of damage to individuals and community in terms of morbidity and mortality burden • Suggest preventive measures for Hypertension /Stroke in individuals and populations at risk	**LGIS**
NCD Rheumatic heart disease RHD	• Relate different risk factors to particular patients and general Population. • Estimate the extent of damage to individuals and community in terms of morbidity and mortality burden • Suggest preventive measures for Rheumatic heart disease in individuals and populations at risk	**LGIS**

GENERAL MEDICINE

Topic	Learning Objectives	Teaching Strategies
Ischemic heart disease	• Define ischemic heart disease and describe its basic pathophysiology. • Identify major risk factors for IHD, including modifiable and non-modifiable factors. • Describe the typical and atypical clinical presentations of stable angina and acute coronary syndromes. • Outline the initial assessment of a patient with suspected IHD, including history, examination, ECG, and basic labs. • Explain the role of investigations such as cardiac enzymes and stress testing in diagnosing IHD. • Summarize the immediate management principles for acute chest pain. • Describe the long-term management of stable IHD, including lifestyle modification and pharmacotherapy. • Recognize red flags that require urgent intervention or referral.	**Interactive lecture**
Hypertension.	• Define hypertension and classify it according to commonly used guidelines. • Identify common risk factors for hypertension (modifiable and non-modifiable). • Describe the basic pathophysiology of primary (essential) hypertension. • Recognize secondary causes of hypertension (intro level). • Explain how to measure blood pressure accurately in clinic and at home. • Identify clinical features, if any, and recognize the concept of "silent killer." • Describe basic investigations used in hypertension work-up (urine, blood, ECG, fundoscopy). • Outline general principles of management, including lifestyle modification.	**Interactive lecture**

Dyslipidemia	• Define dyslipidemia and understand its significance in cardiovascular risk. • Identify major types of lipid abnormalities (elevated LDL, low HDL, high triglycerides). • Recognize primary (genetic) and secondary causes of dyslipidemia. • Describe basic pathophysiology of lipid disorders and atherosclerosis. • Understand the role of screening and risk assessment for cardiovascular disease. • Identify basic laboratory investigations: lipid profile components and interpretation. • Explain general management principles, including lifestyle modification in dyslipidemia. • Outline pharmacologic therapy of the disease • Recognize complications of untreated dyslipidemia, especially cardiovascular events.	**Interactive lecture/CBL**
Acute coronary syndrome	• Define Acute Coronary Syndrome and differentiate between unstable angina, NSTEMI, and STEMI. • Describe the basic pathophysiology of ACS (plaque rupture, thrombosis, myocardial ischemia). • Identify common risk factors for ACS (modifiable and non-modifiable). • Recognize typical and atypical clinical presentations (chest pain, dyspnea, nausea, diaphoresis). • Explain the importance of rapid assessment and triage in suspected ACS. • Outline initial evaluation: history, physical examination, ECG changes, and cardiac biomarkers. • Summarize immediate management principles, including oxygen, antiplatelets, nitrates, and reperfusion strategies. • Describe basic long-term management: lifestyle modification, secondary prevention, and pharmacotherapy. • Recognize common complications of ACS	**Interactive lecture/bedside teaching**

Basics of ECG	• Define electrocardiography and understand its purpose in clinical practice. • Describe the components of a normal ECG tracing: P wave, QRS complex, T wave, PR interval, and QT interval. • Understand the normal heart rate, rhythm, and cardiac axis. • Recognize the 12-lead ECG placement and basic lead orientation. • Identify normal versus abnormal rhythms, including bradycardia and tachycardia. • Understand basic conduction abnormalities (e.g., AV blocks, bundle branch blocks – introductory level). • Recognize ECG changes suggestive of myocardial ischemia or infarction (ST elevation, ST depression, T wave inversion). • Appreciate the importance of correlating ECG findings with clinical presentation. • Identify common artifacts and recording errors. • Understand ECG as a tool for diagnosis, monitoring, and guiding management in cardiac patients.	**Skills lab/tutorial**
Valvular lesion of heart -1	• Define valvular stenosis and understand its basic pathophysiology. • Identify the valves most commonly affected by stenosis (mitral, aortic, tricuspid, pulmonary). • Describe the hemodynamic consequences of stenotic lesions. • Recognize clinical features of mitral stenosis (dyspnea, fatigue, palpitations). • Recognize clinical features of aortic stenosis (exertional dyspnea, angina, syncope). • Understand initial diagnostic investigations (ECG, chest X-ray, echocardiography – intro level). • Appreciate the importance of early recognition and referral for management.	**Interactive lecture**

Valvular lesion of heart-2	• Define valvular regurgitation and understand its basic pathophysiology. • Identify valves commonly affected by regurgitation (mitral, aortic, tricuspid, pulmonary). • Describe the hemodynamic consequences of regurgitant lesions. • Recognize clinical features of mitral regurgitation (dyspnea, fatigue, palpitations). • Recognize clinical features of aortic regurgitation (dyspnea, widened pulse pressure, bounding pulses). • Identify basic auscultatory findings (murmurs) associated with regurgitation. • Understand initial diagnostic investigations (ECG, chest X-ray, echocardiography – intro level). • Appreciate the importance of monitoring progression and timely intervention.	**Interactive lecture**
CVS examination	• Demonstrate proper inspection techniques, including general appearance, signs of cyanosis, pallor, edema, and chest deformities. • Identify and assess the jugular venous pressure (JVP) and venous waveforms. • Palpate the precordium for apex beat, thrills, and heaves. • Auscultate the heart to identify normal heart sounds (S1, S2) and recognize splitting. • Detect abnormal heart sounds, including S3, S4, and murmurs	**Bedside teaching**
Examination of pulse	• Identify common sites for palpating peripheral pulses Describe the technique for accurate pulse palpation. • Assess pulse rate, rhythm, and regularity. • Evaluate pulse volume, character, and symmetry between limbs. • Recognize abnormal pulse patterns (e.g., tachycardia, bradycardia, irregularly irregular, pulsus alternans, collapsing pulse). • Understand the relationship between pulse findings and underlying cardiovascular conditions. • Correlate pulse examination with blood pressure and cardiac auscultation findings. • Appreciate the importance of pulse examination as part of a	**Bedside teaching**

	complete cardiovascular assessment.	
Blood pressure measurement.	• Demonstrate the correct technique for measuring blood pressure manually (sphygmomanometer) and using an automated device. • Select the appropriate cuff size and position the patient correctly. • Recognize common sources of error in blood pressure measurement. • Interpret blood pressure readings according to standard classifications (normal, elevated, hypertension). • Assess both arms for significant differences in blood pressure. • Correlate blood pressure findings with cardiovascular risk and clinical conditions. • Appreciate the importance of accurate blood pressure measurement in diagnosis, monitoring, and management of patients. •	**Skills lab/bedside teaching**

GENERAL SURGERY

TOPIC:		
Subject Learning Outcomes:		
Topics of the Module	**Objectives: By the end of the module the students will be able to:**	**Teaching Strategies**
Deep venous thrombosis.	• Describe the pathophysiology of DVT. • To learn the salient clinical features particular to DVT. • Enumerate the diagnostic investigations required to confirm the diagnosis of DVT. • Describe the diagnostic criteria & risk factors of DVT. • Elaborate the different treatment modalities of DVT.	Interactive Lecture

Varicose veins	• Define and differentiate between various venous pathologies. • Describe the important risk factors that contribute in pathogenesis of varicose veins. • Elaborate the important points of history of patient with varicose veins. • Enumerate the clinical features specific to varicose vein disease. • Discuss the various investigations & management strategies of dealing the patient with varicose veins.	Interactive Lecture
Gangrene	• To understand the pathophysiology of gangrene. • To know the types of gangrene and their points of differentiation. • Enumerate the clinical features consistent with gangrene. • Discuss the diagnostic & management plan of gangrene	Interactive Lecture

PAEDIATRICS

Topic	Learning Objectives	Teaching Strategies
Thrombosis	Identify hypercoagulability and thrombotic events (e.g., nephrotic syndrome) •	**Theme based sessions**

GYNAECOLOGY& OBSTETRICS

Topic	Learning Objectives At the end the students will be able to know	Teaching Strategies
Thromboembolism risk in pregnancy and post-partum period	• Risk factors for thromboembolism during pregnancy and their complications • Diseases of postpartum period • Thromboprophylaxis	Theme based learning session Lecture

INFECTION CONTROL

BEHAVIOURAL SCIENCES

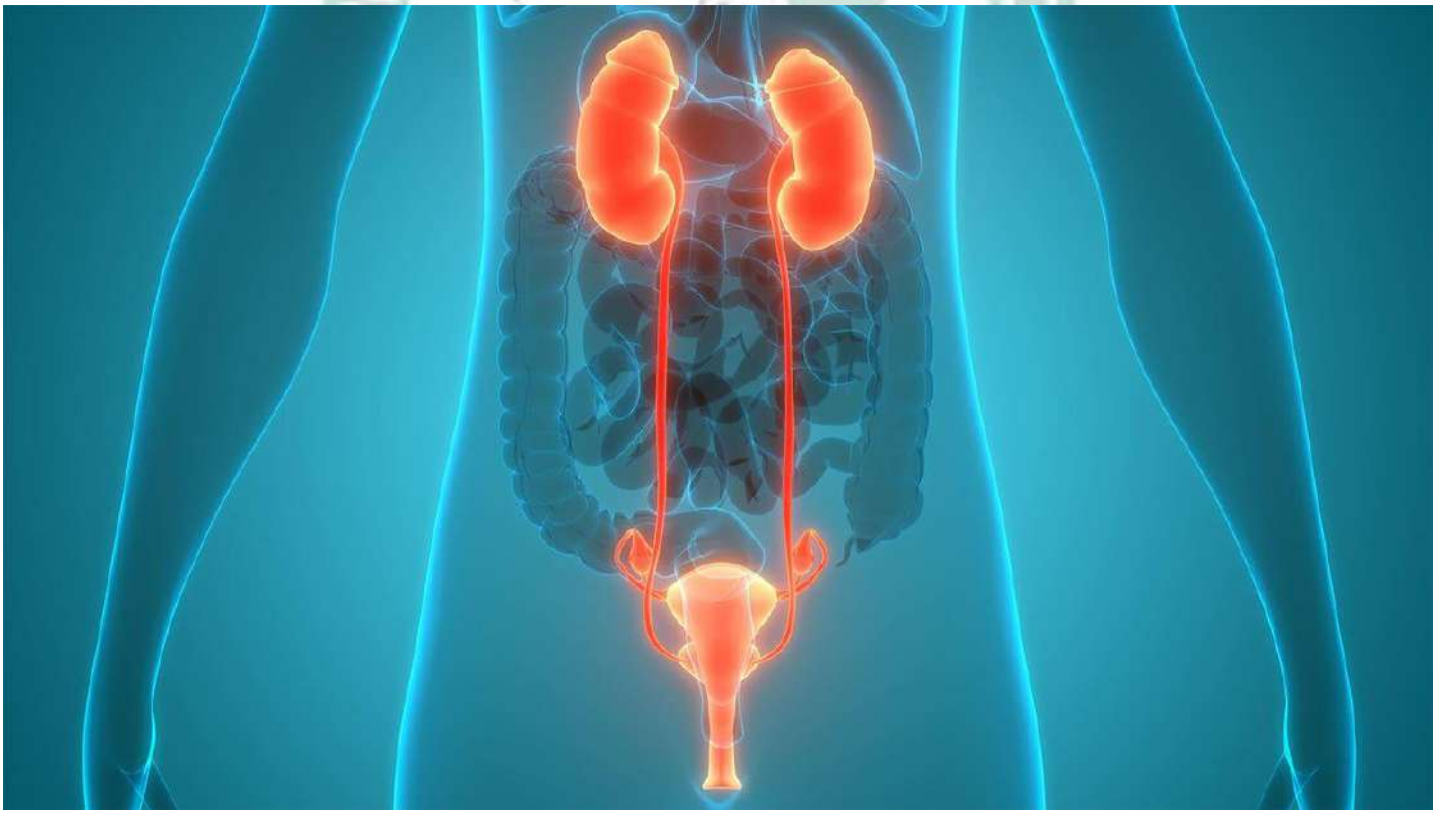
Topic	Learning Objectives	Teaching Strategies
Pain, Consciousness, and Sexuality: Psychological Aspects of Pain	• Define pain using the biopsychosocial model • Differentiate acute and chronic pain • Explain psychological factors influencing pain perception • Demonstrate empathetic pain assessment in clinical settings	Lectures/ Presentations
Pain, Consciousness, and Sexuality: Pain Perception, Pain Behavior, and Cultural Influences	• Explain mechanisms of pain perception • Differentiate pain perception from pain behaviour • Describe cultural and gender-related variations in pain expression • Apply appropriate pain assessment tools	Lectures/ Presentations
Pain, Consciousness, and Sexuality: Consciousness and Disorders of Consciousness	• Define consciousness and levels of awareness • Differentiate delirium, stupor, and coma • Identify psychological vs organic causes of altered consciousness • Recognize red flags requiring urgent referral	Lectures/ Presentations

Cardiovascular System I	Hospital-Acquired Infections (HAIs): Introduction	*Community Medicine*
Cardiovascular System I	Central Line–Associated Bloodstream Infection (CLABSI) Prevention	*Medicine & Allied*

Pain, Consciousness, and Sexuality: Sexual Development, Sexual Identity, and Gender Identity	• Define sexual development, sexual identity, and gender identity • Differentiate biological sex, gender identity, and gender roles • Explain psychosocial influences on identity formation • Maintain professional, non-judgmental clinical attitudes	Lectures/ Presentations

MODULE-XIV

GENITOURINARY MODULE



Module name	Genitourinary Module
Year	3RD Year MBBS, Batch
Duration	2 weeks
Total Contact Hours	**Pathology= hours** Lectures = Small group discussion = Practical = Demonstration=
	Pharmacology= hours Lectures = Small group discussion = Practical =
	Forensic Medicine= hours Lectures = Small group discussion = Practical =
	Community Medicine = hours Lectures = Small group discussion = Skill sessions =
	Research Methodology & EBM= hours Lectures = Small group discussion = Skill sessions/ Workshop =
	General Surgery & Allied = hours Lectures = Small group discussion = Skill sessions =
	General Medicine & Allied = hours Lectures = Small group discussion = Skill sessions =

	Paediatrics= hours Lectures = Small group discussion = Skill sessions/ Workshop =
	Obstetrics/ Gynae= hours Lectures = Small group discussion = Skill sessions/ Workshop =
	Infection Control= hours Lectures = Small group discussion = Skill sessions/ Workshop =
	Behavioral Sciences= hours Lectures = Small group discussion = Skill sessions/ Workshop =
	Leadership & Management= hours Lectures = Small group discussion = Skill sessions/ Workshop =
	Professionalism= hours Lectures = Small group discussion = Skill sessions/ Workshop =
Module Coordinator	Dr. Danya
Year Coordinator	Dr. Mahnoor Ahsan

Module Learning Outcome:

By the end of this module, student should be able to:

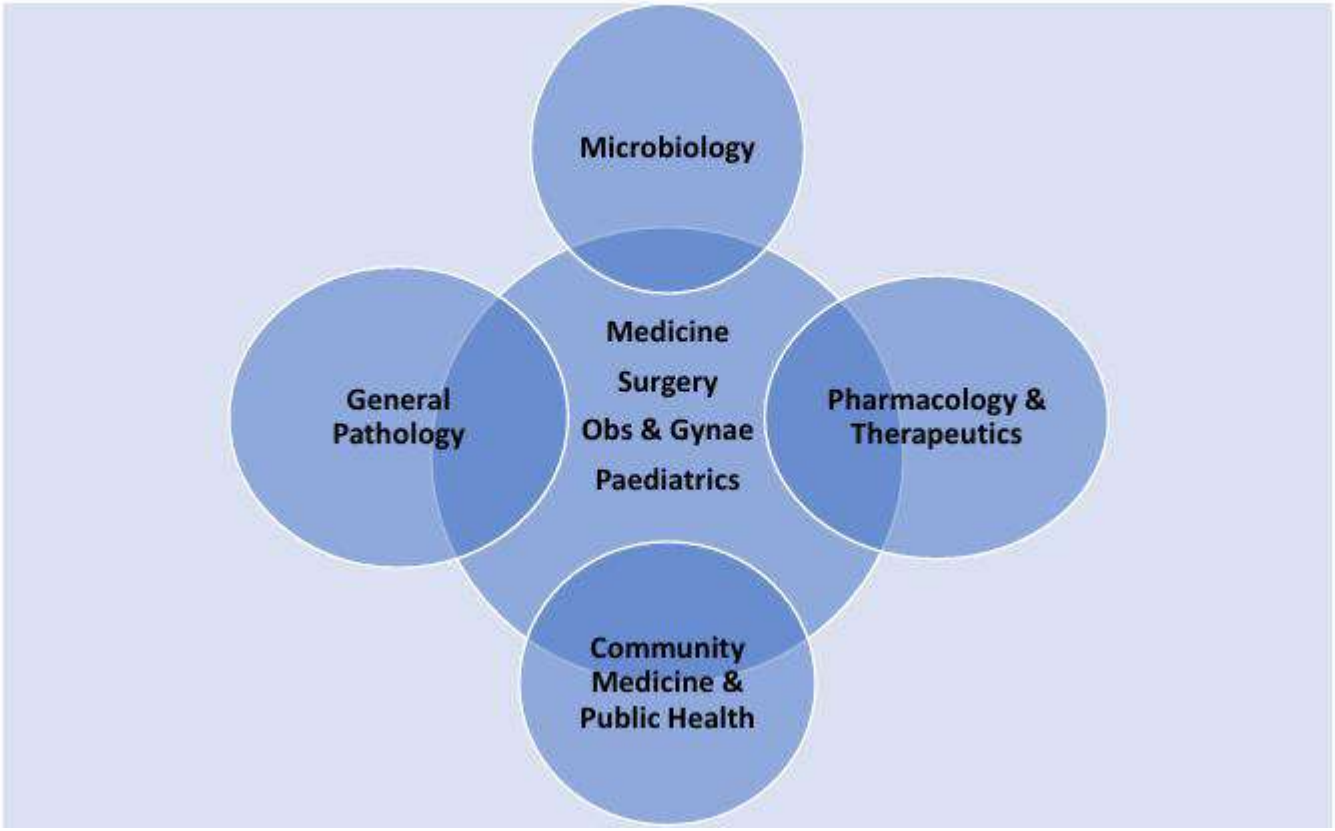
1. Relate the pathology of infarction/ shock for understanding different clinical disorders
2. Identify bacterial pathogens causing infections of renal system and relate them clinically
3. Differentiate between therapeutic application of different diuretics
4. Assess the sexual offences and relate with their medicolegal aspects
5. Interpret Urine D/R and Urine C/S

6. Demonstrate all steps of history taking and examination of renal patients in medical and surgical clinics

Rationale

This module focuses on underlying pathology of various renal disorders along with their prevention and treatment options. Relevant topics of forensic medicine are taught side by side for better understanding of the students. Students will have opportunities to relate their knowledge through integrated sessions. A least one integrated session in a week/ will enable the students to integrate their knowledge acquired from different disciplines. Students will be taught renal history taking and physical examination in Medicine/Surgery rotations to enhance their clinical examination skills. Research methodology and Behavioral Sciences will be taught as a part of the longitudinal theme. Apart from attending daily scheduled sessions, students should engage in self-directed learning to achieve the desired objectives

Integration of Disciplines in Genitourinary System Module



PATHOLOGY & MICROBIOLOGY

	MICROBIOLOGY Genitourinary Module	
Genitourinary pathogens 1 Proteus, Saprophyticus, Chlamydia	Differentiate genitourinary pathogens such as Proteus, Saprophyticus, Chlamydia	Interactive Lecture
Genitourinary pathogens 2 Syphilis	• **Describe** common genitourinary pathogens causing sexually transmitted infections (Syphilis).	Interactive Lecture
Genitourinary pathogens 3 Schistosoma haematobium Trichomonas, Gardinella Vaginallis	• **Explain** characteristics of Schistosoma haematobium, Trichomonas, Gardinella Vaginallis	Interactive Lecture

PRACTICALS*

Topics	Students will be participating actively with hands-on-activities to reinforce their learning through lab performance.
29. Observe the Histopathological specimens in hospital labs **30. Observe formalin and Cytology Immersion in hospital labs**	• Observe histopathological specimens to recognize basic pathological changes. • Observe formalin handling and cytology immersion steps to understand safe specimen processing.
31. Hyperplasia and Atrophy **32. Metaplasia and Hydropic change** **33. Fatty Change (tutorial)**	• **Identify** microscopic features of hyperplasia and atrophy on given slides. **Differentiate** metaplasia from hydropic change based on morphology. • Explain the morphological changes associated with fatty change.

Page 10

34. Microscopy technique and its application	Apply microscopy techniques to examine and interpret clinical specimens. And study parts of microscope
35. Intracellular accumulations (Melanin, Hemosiderin) **36. Coagulative necrosis and caseous necrosis**	• Recognize intracellular pigments such as melanin and hemosiderin on histology. • Distinguish coagulative necrosis from caseous necrosis on slides.
37. Infection control (Hand hygiene, Donning & Doffing)	• Demonstrate correct hand hygiene and PPE donning/doffing practices.
38. Normal flora	• Identify normal flora and their significance
39. Gram staining and interpret its results	• Perform **and interpret** Gram staining to differentiate bacteria by Gram reaction and morphology.
40. Acute inflammation and Chronic inflammation	• Differentiate acute and chronic inflammation microscopically.
41. Identify the different types of Culture Media (Blood agar, chocolate agar, Mac Conkey agar, CLED agar) and interpret the associated bacterial growth.	• Identify different culture media and **interpret** bacterial growth patterns on each.
42. Identify following on slides **a. Hyperemia/Congestion** **b. Coronary thrombus and Atherosclerosis** 43. • **Myocardial Infarction**	• Identify hyperemia, congestion, coronary thrombus, and atherosclerosis on slides.
44. Observe FNAC procedure in hospital labs	• Observe the FNAC procedure to understand sample collection and smear preparation.
45. Steps in management of spill of fluids/blood	• Demonstrate proper steps for managing spills of blood or body fluids.
46..Types of blood collection tubes, Order of Draw, Interferences	• Identify blood collection tubes and **follow** the correct order of draw while noting potential interferences.
47. Lipid profile interpretation(case)	• Interpret lipid profile findings in a clinical case scenario.

48.. Identify bacteria based on their biochemical reactions 49. Application of Sugar sets / API in identification of clinically important bacteria 50. Application of Coagulase, Catalase test, Oxidase test in identification of clinically important bacteria	• Identify bacteria based on characteristic biochemical reactions. • Apply sugar sets/API systems to identify clinically important bacteria. • Use coagulase, catalase, and oxidase tests for bacterial identification.
51. Clinical correlation of Motility in bacteriology and parasitology	• Correlate motility test findings with bacterial and parasitic identification.
52. Slide microscopy of GPC, E. coli and N. Gonorrhoea	• Identify Gram-positive cocci, E. coli, and N. gonorrhoeae on microscopy slides.
53. Identification of Anaerobic bacterial culture systems (Incl Identify Anaerobic jars used for growth of anaerobic bacteria)	• Recognize anaerobic culture systems and identify anaerobic jars used for bacterial growth.
54. Urine sample collection in catheterised and non-catheterised patient	• Demonstrate correct urine sample collection in catheterized and non-catheterized patients.
55. Interpret Urine D/R and Urine C/S	• Interpret Urine D/R and Urine C/S results.
56. Interpret Pregnancy test practical	• Perform **and interpret** a pregnancy test accurately.

CASE BASED LEARNING	
Topics of the Module	**Objectives: By the end of the module the students will be able to:**
Types of Necrosis (case discussion)	Explain the morphological types, causes, and clinical relevance of necrosis through a case-based discussion**.**
Chronic granulomatous inflammation (case discussion)	Describe the key features, causes, mechanisms, diagnosis, and management of chronic granulomatous inflammation through a case-based discussion.
Hemodynamic Disorders (case Discussion) edema/ embolism/DVT	Describe the mechanisms, causes, and clinical implications of edema, embolism, and DVT through a case-based discussion.”

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PHARMACOLOGY

TOPIC: Diuretics		
Subject Learning Outcomes:		
Topics of the Module	**Objectives: By the end of the module the students will be able to:**	**Teaching Strategies**
Diuretics	• Describe the regulation of fluid and electrolytes at kidney • Classification of diuretics • Discuss the site of action and mechanism of action of thiazide diuretics • Describe the therapeutic uses and indications of thiazide diuretics • Enumerate the side effects and contraindications of thiazide diuretics • Discuss the site of action and mechanism of action of loop diuretics • Enlist the therapeutic uses and indications of loop diuretics • Enumerate the side effects and contraindications of loop diuretics • Describe the site of action and mechanism of action of potassium sparing diuretics • Enumerate the therapeutic uses and indications of potassium sparing diuretics • Enlist the side effects and contraindications of potassium sparing diuretics • Describe the site of action and mechanism of action of carbonic anhydrase inhibitors • Enlist the side effects and contraindications of carbonic anhydrase inhibitors	Interactive lecture

FORENSIC MEDICINE

TOPIC:		
Subject Learning Outcomes:		
Topics of the Module	**Objectives: By the end of the module the students will be able to:**	**Teaching Strategies**
Acetaminophen Poisoning & Nicotine Poisoning	• Identify clinical features, diagnosis ML issues related to nicotine poisoning	**LGIS**
Nux Vomica & Arsenic Poisoning	• Describe the source, active principles, and common forms of Nux Vomica (Strychnine, Brucine). • Explain the mechanism of action of strychnine on the central nervous system (glycine inhibition leading to exaggerated reflexes). • Identify the toxic dose, fatal dose, and fatal period of strychnine. • Describe the sources and forms of arsenic, including inorganic and organic compounds. • Explain the mechanism of action of arsenic State the toxic dose, fatal dose, and fatal period of arsenic. • Classify arsenic poisoning (acute, chronic)	**LGIS**
Lead Poisoning & Mercury Poisoning	• Define lead poisoning and identify common sources • Describe the absorption, distribution, and excretion of lead in the human body. • Explain the mechanism of toxicity, including inhibition of heme synthesis and effects on the nervous system. • State the toxic and fatal doses of lead and differentiate between acute and chronic lead poisoning. • Recognize clinical features of acute lead Poisoning. • Describe the forms of mercury • Explain the mechanism of mercury toxicity • Classify mercury poisoning into acute and chronic forms	**LGIS**
Belladonna,	• Understand the botanical sources, active	**LGIS**

Hyoscyamus Niger & Stramonium Dhatura Poisoning	anticholinergic alkaloids (atropine, hyoscine, hyoscyamine), and distinguishing features of each plant. • Learn their pharmacological actions, therapeutic uses, and toxicological manifestations of anticholinergic poisoning. • Recognize clinical identification, poisoning management (including physostigmine), and medico-legal importance of these toxic plants.	
Organophosphorus Poisoning	• Understand the mechanism of action—irreversible inhibition of acetylcholinesterase leading to cholinergic crisis. • Identify clinical features (muscarinic, nicotinic, CNS signs) and complications of acute and chronic exposure. • Learn principles of management including decontamination, atropine, pralidoxime (oximes), and supportive care.	**LGIS**
Power and Jurisdiction of courts & inquest, Legal Terminologies & Medicolegal Procedures	• Define Inquest • Describe types of Inquest • Tabulate the differences between police and magistrate inquest report	**LGIS**
Role of Doctor in the Medicolegal system & court Attendance / Recording of Medical Evidence.	• Define the procedure of attending the court • Enlist the types of evidence • Discuss how evidence is recorded in court Proceedings • Define Role of Medical Doctor in Medico legal System • Describe Medico legal case reporting in ER • Distinguish between medical report and medical certificate.	**LGIS**
Medical Ethic, Medical Negligence, Professional Misconduct	• Define Medical Ethics • Differentiate between Medical Negligence & Professional Misconduct • Enlist duties of Medical Professional	**LGIS**
Consent, Professional	• Define & differentiate types of consent explain professional secrecy and condition under which it	**LGIS**

Secrets, Privileged Communication & Sections of the penal code	may breached define privileged communication and its legal exceptions. • Identify relevant IPC sections	
Organ Transplant, Euthanasia	• Define & explain medicolegal aspects of organ transplant. • Describe types of euthanasia and their ethical status in Pakistan.	

CASE BASED LEARNING		
Topics of the Module	**Objectives: By the end of the module the students will be able to:**	**Teaching Strategies**
Salicylates Poisoning	• The student will be able to identify, corrosive poison samples (H_2SO_4, oxalic acid, carbolic acid, alkali) from physical characteristics, clinical and medico-legal scenarios.	**Case Scenario**
Role of PM & DC	• Describe the functions of PM&DC • Understand its role in licensing & regulation • Appreciate the ethical and legal impact of PM&DC's work	**Case Scenario**
Aconite & Oleander Poisoning	• The student will be able to Identify characteristic clinical signs and symptoms through systematic physical examination (arrhythmias, neurological deficits, GI symptoms) Document, findings and maintain proper chain of custody for toxicology evidence.	**Case Scenario**
Antimony Poisoning	• Identify source and routes on antimony poisoning • Describe clinical features of antimony poisoning • Outline diagnostic methods and management strategies.	**Case Scenario**
Phosphorus Poisoning	• The student will be able to Identify phosphorous poison and discuss its signs and symptoms.	**Case Scenario**
Mushroom Poisoning	• Define Mushroom Poisoning • Disturbed clinical features of mushroom poisoning • Outline diagnosis method & management	**Case Scenario**
Principles of Inter-professional and Patient Interaction	• Describe the importance of interprofessional collaboration • Explain ethical and legal implications of poor communication with patient's and other professionals • Demonstrate principles of respectful and professional	**Case Scenario**

	interaction in medicolegal situation	
Digitalis & Ergot Poisoning	• Define digitalis & ergot • Describe sign & symptom diagnosis & treatment. • Discuses Medicolegal importance postmortem finding.	**Case Scenario**

DOW VISIT	
Topics	**Learning Objectives**
Medicolegal Cases	• Define a medicolegal case and identify situations that require medicolegal reporting. • Describe the chain of medicolegal procedures (examination, documentation, evidence collection, reporting). • Explain the role of a medical officer in managing medicolegal cases within the Pakistani legal system. • Recognize common types of injuries and correlate them with mechanisms of trauma. • Understand medicolegal terms such as assault, battery, grievous injury, dying declaration, FIR, and MLC report.

THEME BASED SESSIONS

Topic	
Fever with burning micturition	Pharmacology, Pathology , Medicine
Shock	Pharmacology, Pathology, Medicine

GENERAL MEDICINE

Topic	Learning Objectives	Teaching Strategies
Urinary tract infections	• Define urinary tract infection and understand its clinical significance. • Identify the common causative organisms (e.g., E. coli, Klebsiella, Proteus). • Recognize risk factors for UTI (female sex, urinary stasis, catheterization, diabetes). • Describe the common clinical presentations: dysuria, frequency, urgency, hematuria, flank pain, fever. • Differentiate between lower (cystitis) and upper (pyelonephritis) urinary tract infections. • Understand basic laboratory investigations: urinalysis, urine culture, and sensitivity. • Summarize principles of initial management, including empiric antibiotic therapy. • Recognize complications of untreated or recurrent UTIs (e.g., pyelonephritis, sepsis, renal scarring).	**Bedside teaching/interactive lecture**

Foleys	• Define a Foley's catheter and understand its purpose in clinical practice. • Identify indications for urinary catheterization (acute urinary retention, accurate urine output monitoring, perioperative use, immobilized patients). • Recognize contraindications and precautions for catheter insertion. • Describe the types and sizes of urinary catheters. • Demonstrate or explain the correct technique for aseptic insertion of a Foley's catheter (male and female). • Understand basic care and maintenance of an indwelling catheter. • Recognize common complications: urinary tract infection, trauma, blockage, urethral injury. • Explain proper removal technique and monitoring after catheter removal.	**Skills lab/tutorial**
Acute kidney disease	• Define acute kidney injury and understand its clinical significance. • Describe the common causes of AKI: pre-renal, intrinsic renal, and post-renal. • Recognize common risk factors for developing AKI. • Identify clinical features suggestive of AKI, including oliguria, edema, hypertension, and uremic symptoms • Understand basic laboratory investigations: serum creatinine, blood urea, electrolytes, urinalysis, and imaging (ultrasound) for obstruction. • Recognize common complications of AKI, such as fluid overload, hyperkalemia, and metabolic acidosis. • Outline initial management principles: fluid management, correction of electrolytes, and addressing underlying causes.	**Interactive lecture/bedside teaching**
Chronic kidney disease	• Define chronic kidney disease and understand its clinical significance. • Describe common causes of CKD, including diabetes, hypertension, and glomerular diseases. • Recognize risk factors that predispose to CKD progression. • Identify clinical features of CKD, including fatigue, edema, hypertension, anemia, and uremic symptoms. • Take a focused history and perform a basic physical examination in a patient with suspected CKD. • Understand key laboratory investigations: serum creatinine, blood urea, electrolytes, urinalysis, estimated GFR, and imaging for structural abnormalities.	**Interactive lecture/bedside teaching**

	• Describe the complications of CKD: anemia, mineral and bone disorder, cardiovascular disease, metabolic acidosis. • Outline principles of management, including blood pressure control, glycemic control, dietary modification, and pharmacologic therapy. • Understand indications for renal replacement therapy (hemodialysis, peritoneal dialysis, transplantation) at an introductory level.	
Nephrotic syndrome	• Define nephrotic syndrome and its key features. • Recognize the typical clinical presentation. • Understand the basic pathophysiology. • Identify possible complications. • Know general principles of management.	**Interactive lecture/CBL**
Nephritic syndrome	• Define nephritic syndrome and its key features. • Recognize the typical clinical presentation. • Understand the basic pathophysiology. • Identify possible complications. • Know general principles of management.	**Interactive lecture/CBL**

GENERAL SURGERY

TOPIC:		
Subject Learning Outcomes:		
Topics of the Module	**Objectives: By the end of the module the students will be able to:**	**Teaching Strategies**
Shock	Define shock and explain its pathophysiology (inadequate tissue perfusion and oxygenation). Classify types of shock relevant to surgery: hypovolemic, cardiogenic, distributive (septic, anaphylactic), and obstructive. Describe the stages of shock (compensated, decompensated, irreversible). Explain the clinical features and diagnostic criteria of shock (vital signs, perfusion markers, laboratory findings).	Interactive Lecture

	Discuss common surgical causes of shock (hemorrhage, sepsis, trauma, burns). Outline principles of management: fluid resuscitation, blood transfusion, vasopressors, oxygen therapy, source control in sepsis.	

PAEDIATRICS

Topic	Learning Objectives	Teaching Strategies
pediatric septic shock	Recognize pediatric septic shock and fluid loss. •	**Theme Based sessions**

GYNAECOLOGY& OBSTETRICS

Topic	Learning Objectives	Teaching Strategies
Upper/ Lowe genital tract infection	• The difference between upper and lower genital tract infections • Differentiating findings on clinical symptoms • Invasive and noninvasive methods of diagnosis	Theme based Session Lecture

Catheter-Associated Urinary Tract Infection (CAUTI) Prevention, Safe Handling & Disposal of Body Fluids	*Urology / Medicine & Allied*

INFECTION CONTROL

BEHAVIOURAL SCIENCES

Topic	Learning Objectives	Teaching Strategies
Pain, Consciousness, and Sexuality: Psychological Aspects of Pain	• Define pain using the biopsychosocial model • Differentiate acute and chronic pain • Explain psychological factors influencing pain perception • Demonstrate empathetic pain assessment in clinical settings	Lectures/ Presentations
Pain, Consciousness, and Sexuality: Pain Perception, Pain Behavior, and Cultural Influences	• Explain mechanisms of pain perception • Differentiate pain perception from pain behaviour • Describe cultural and gender-related variations in pain expression • Apply appropriate pain assessment tools	Lectures/ Presentations
Pain, Consciousness, and Sexuality: Consciousness and Disorders of Consciousness	• Define consciousness and levels of awareness • Differentiate delirium, stupor, and coma • Identify psychological vs organic causes of altered consciousness • Recognize red flags requiring urgent referral	Lectures/ Presentations
Pain, Consciousness, and Sexuality: Sexual Development, Sexual Identity, and Gender Identity	• Define sexual development, sexual identity, and gender identity • Differentiate biological sex, gender identity, and gender roles • Explain psychosocial influences on identity formation • Maintain professional, non-judgmental clinical attitudes	Lectures/ Presentations

Pain, Consciousness, and Sexuality: Sexual Behavior and Gender Differences in Sexual Behavior	• Describe normal sexual behavior across the lifespan • Explain gender differences in sexual behavior • Identify sociocultural influences on sexual behavior • Address sexual concerns in a culturally sensitive manner	Lectures/ Presentations
Pain, Consciousness, and Sexuality: Masturbation and Sexual Orientation	• Define masturbation and sexual orientation • Address myths, misconceptions, and guilt related to masturbation • Differentiate sexual orientation from sexual identity • Demonstrate respectful and ethical clinical communication	Lectures/ Presentations
Pain, Consciousness, and Sexuality: Psychiatric Morbidity Related to Sexuality	• Identify common psychiatric conditions associated with sexual issues • Explain the relationship between sexual problems, anxiety, and depression • Recognize stigma as a barrier to care • Screen sensitively for associated mental health concerns	Lectures/ Presentations
Pain, Consciousness, and Sexuality: Sexual Disorders and Sexual Dysfunction	• Define sexual disorders and sexual dysfunction • Classify sexual dysfunctions (desire, arousal, orgasm, pain disorders) • Identify psychological and organic causes • Outline basic principles of non-pharmacological management	Lectures/ Presentations
Pain, Consciousness, and Sexuality: Disorders of Sexual Preference (Paraphilic Disorders)	• Define paraphilia and paraphilic disorders • Differentiate atypical sexual interests from disorders • Recognize ethical, legal, and clinical implications • Identify indications for psychiatric referral	Lectures/ Presentations

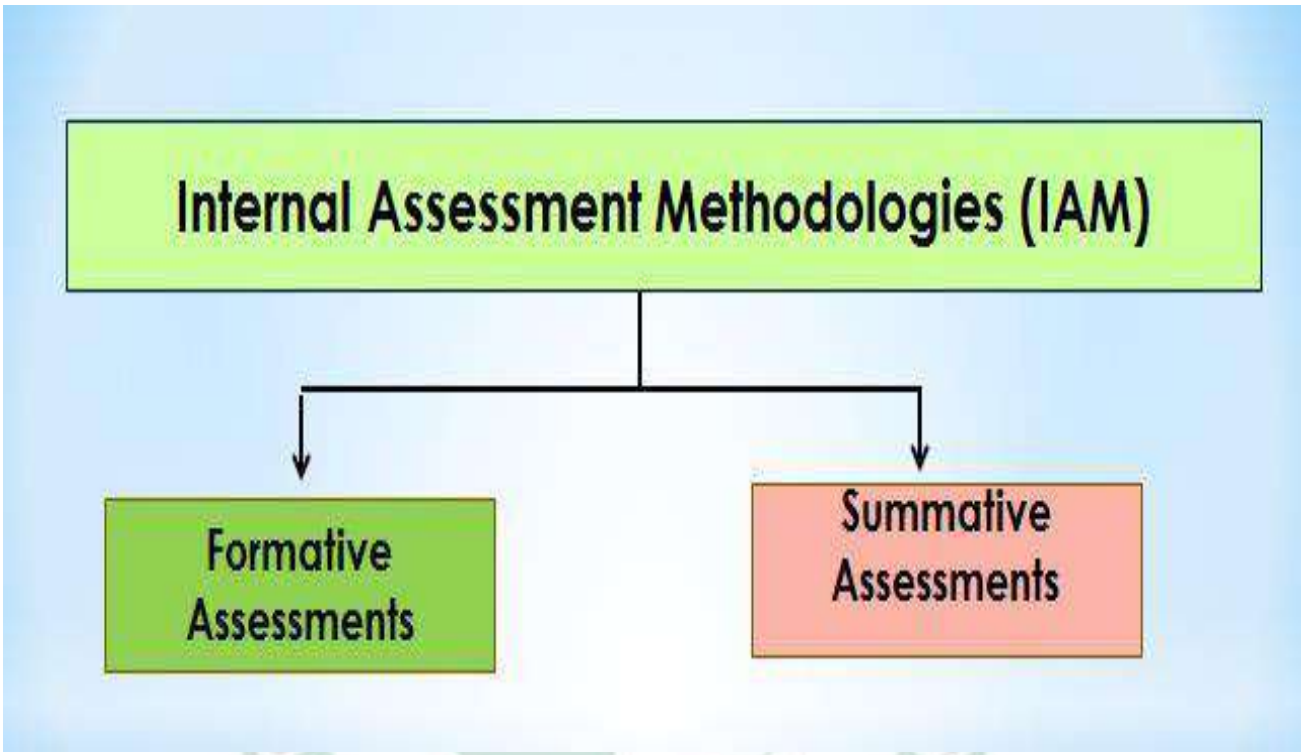
Pain, Consciousness, and Sexuality: Gender Dysphoria and Management of Gender & Sexuality Issues	• Define gender dysphoria (gender identity disorder) • Differentiate gender dysphoria from sexual orientation • Explain principles of counseling and multidisciplinary management • Demonstrate ethical, patient-centered, and culturally appropriate care	Lectures/ Presentations

PROFESSIONALISM

Topic	Learning Objectives	Teaching Strategies
Civic Engagement and its importance in Medical Practice	Discuss the ways in which welfare concerns of community can be added to concerns for individual patient care Manage to keep pace with modern changes in practice and in the community.	Lectures/ Presentations

EXAMINATION

Each student undergoes internal and external series of examinations at KIMS



Internal Assessment focuses on the process of learning. It gives priority to psychomotor and affective skills. Its results are usually immediately made known to the learner and discussed with him/her to make the process of learning better.

There are two types of internal assessments

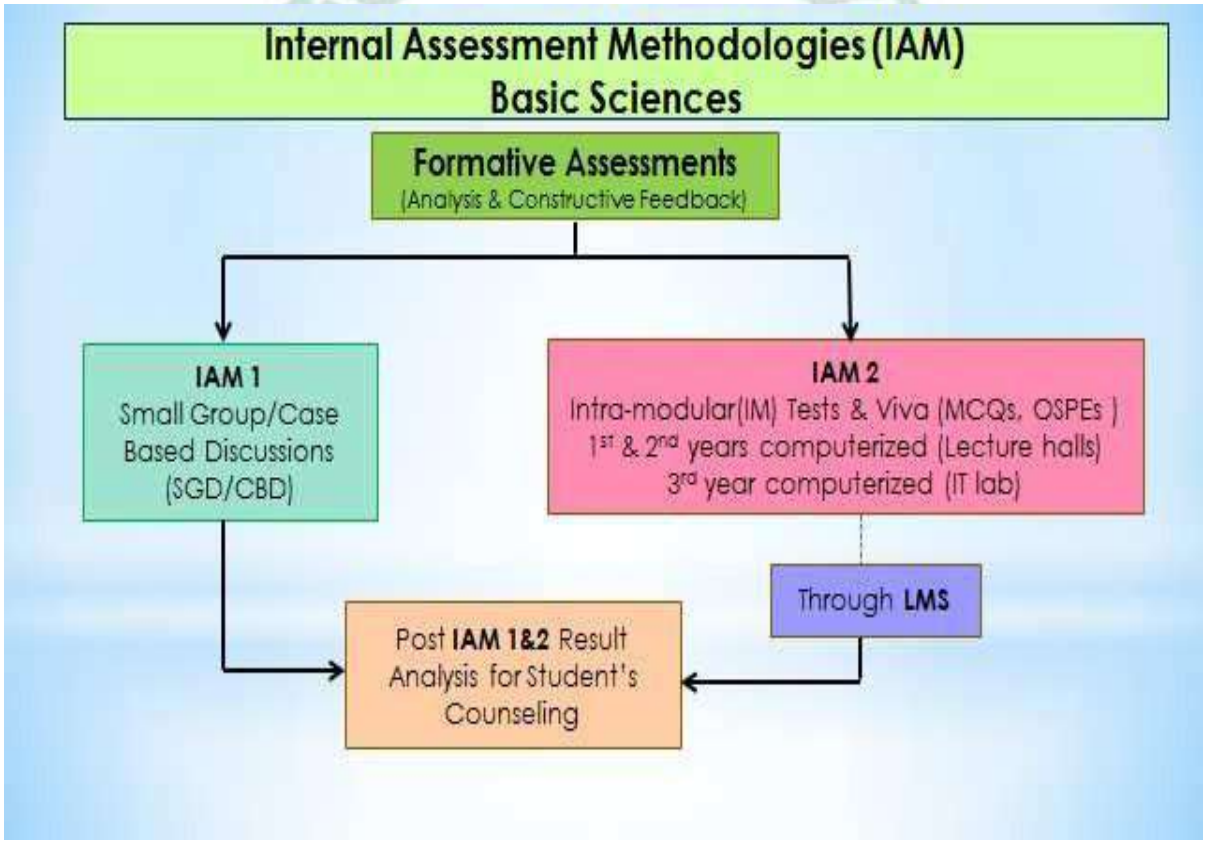
1. Formative Assessment
2. Summative Assessment

Formative Assessment

Formative assessment monitors students' learning and provides ongoing feedback that can be used by teachers to improve their teaching and by students to improve their learning.

They are meant to help students identify their strengths and weaknesses and target areas that need work.

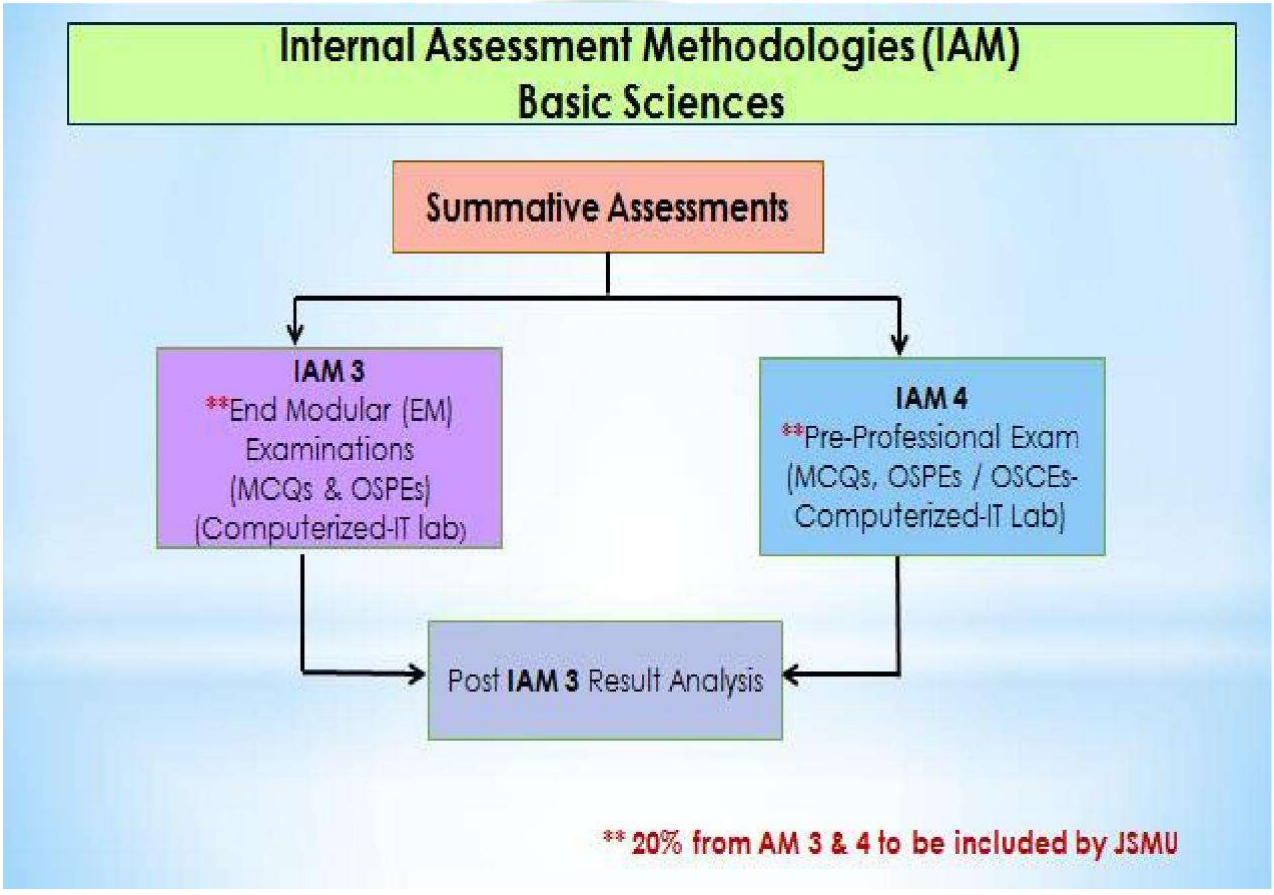
At KIMS students undergo series of written class tests (MCQs, Short Answer Questions), OSPE, Viva Exam and Journal Clubs to enhance their learning experiences.



Summative Assessment

The goal of summative assessment is to evaluate student learning at the end of a module by comparing it against some standard or benchmark. Summative assessments are counted in the internal assessment which carries 20% weightage of total exam marks.

All theory summative exams will be computer-based.



Summative/Continuous Assessment:

This will include:

1. Module Tests
2. Pre-Prof Examination

The college will send your continuous assessment marks directly to JSMU

Prof-Exam conducted by NUMS will include:

1. Theory paper of One Best Answer
2. OSPE Exam
3. Continuous Assessment results

FEEDBACK AND COUNSELING FACILITIES FOR STUDENTS

A. Senior faculty members of all departments are actively involved in resolving academic and non-academic issues of allocated students and carrier counseling.

B. Psychosocial counseling sessions (life skills) are regularly conducted by qualified student counselor

C. Individual students are also referred to the student counselor, if needed

Robust feedback systems

1. **Feedback on attendance**

Attendance report is forwarded to students and parents on daily basis

2. **Feedback on academic performance**

Academic performance reports are also regularly forwarded to students and parents. Moreover, individual students are given feedback on their academic performance during tutorials. MCQ and SEQ papers are also discussed with students in small groups.

3. **Parents of weak students are regularly contacted (PTM sessions)**

1. Students' feedback on assessment strategies will be taken in a preformed proforma for feedback twice a year i.e., Mid-term and pre-prof exams.

2. Feedback of theory as well as OSPE/OSCE & Viva will be taken.

3. Department of Medical Education & Quality Enhancement Cell in collaboration with Exam Cell of AIMI is responsible for conducting this exercise.