

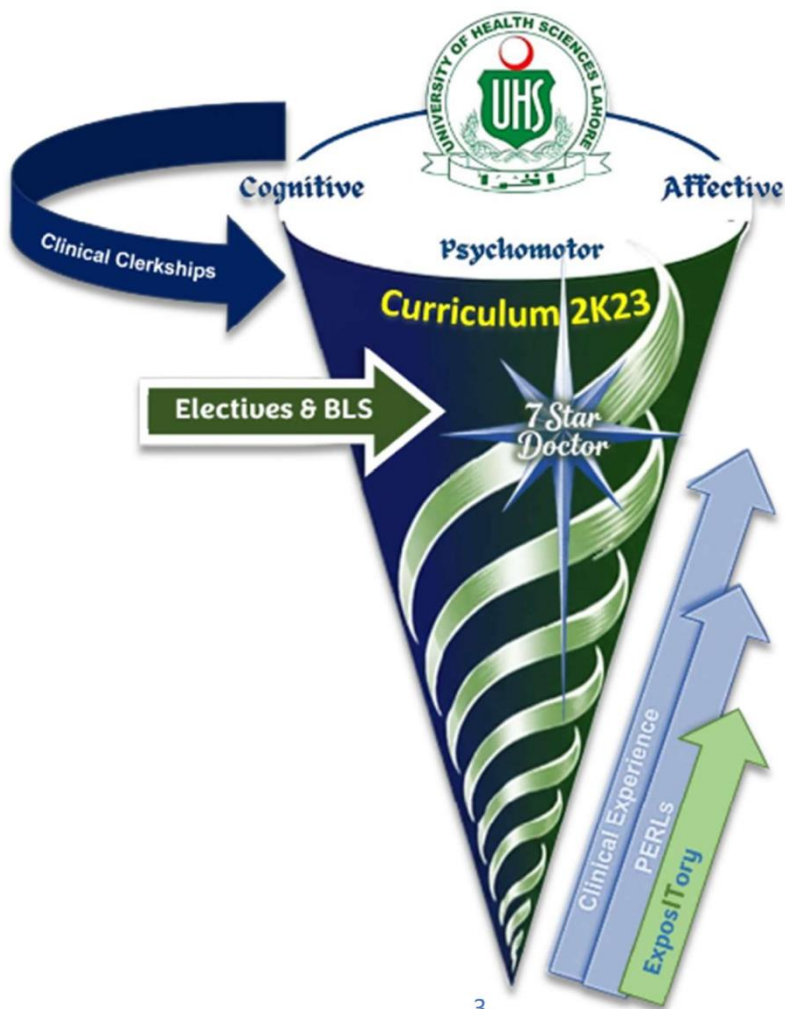






ModularIntegrated Curriculum 2K23

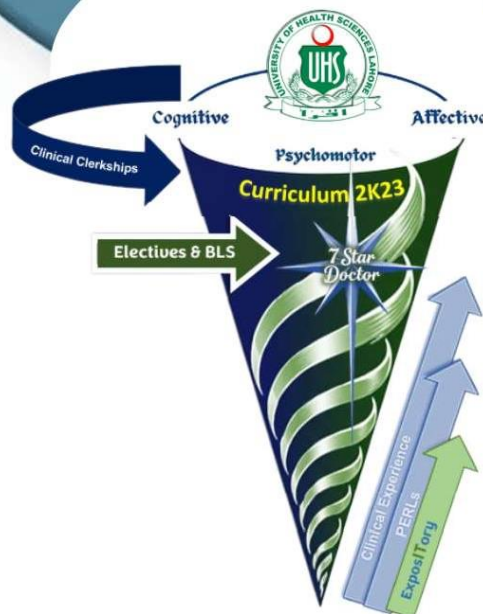
Year-03





Modular Integrated Curriculum 2K23 MBBS Year-03

BLOCK-7





Block-7

StudyGuide202

6

3rd Year MBBS

ISLAM MEDICAL COLLEGE

Sialkot-Pakistan

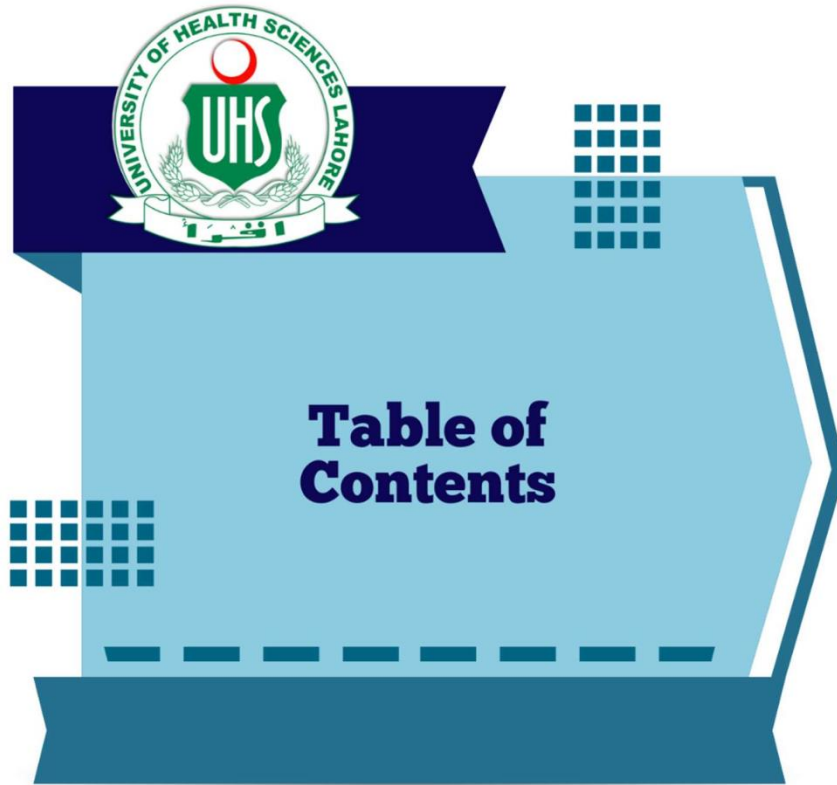
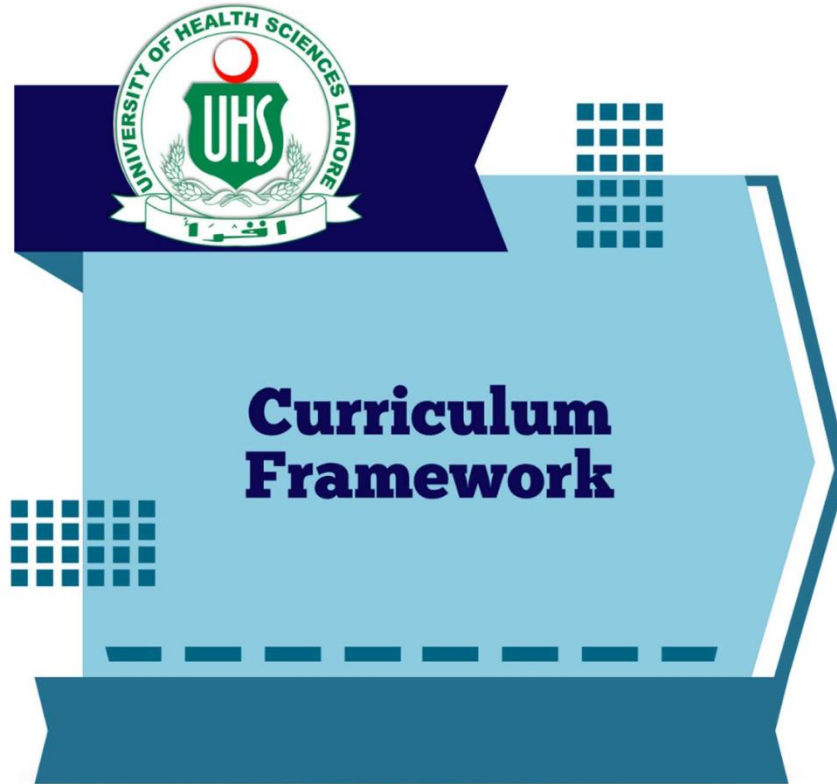


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BLOCKLEADDETAILS

Hello, I am Dr. Rana Muhammad Asad Khan working as aAssistant Professor in Pathology department of Islam Medical and Dental College, Sialkot and now acting as **Lead of Block 7**.I completed my graduation from Islam Medical and Dental College, Sialkot in 2019,and MPhil Microbiology in 2024 at Institute of Molecular Biology and Biotechnology, Lahore. You can come to meet me in Pathology department office, Academic Block 2 from 08:00 – 15:00 hours on weekdays. You can also contact me freely on my email assadmanj786@gmail.com.



**Modular Integrated
Curriculum 2K23**
Volume-03

MODULE

12

FOUNDATION-II & EBM



THE UNIVERSITY OF HEALTH SCIENCES VISION

UHS is a leading University aiming to keep its graduates apt with the ever-emerging global health challenges, evolving educational methodologies and emerging technological advancements to maintain its distinguishable position as a Medical University.

(<https://www.uhs.edu.pk/vision-mission.php>)

ISLAM MEDICAL COLLEGE VISION AND MISSION

VISION

"To be a globally recognized center of excellence, where Islam Medical College empowers competent and ethical healthcare professionals through holistic education, innovative teaching, and groundbreaking research."

MISSION

"Islam Medical College is dedicated to comprehensive medical education that instills values of integrity, empathy, and professionalism. We empower our Students with knowledge, skills, and a patient-centered attitude for lifelong learning."

CURRICULAR OUTCOMES (PLOS)

The PLOs are articulated in view of the desirable competencies of four graduates. Following are the PLOs of MBBS Program desired to highlight the attributes amongst our graduates after their graduation

PLO-1 Demonstrate the ability to independently manage non-critical clinical problems (Knowledge, Skill)

PLO-2 Exhibit proficiency in life-saving procedures and the ability to assist in the management of critically ill patients. (Skill)

PLO-3 Adhere to ethical principles and display attributes such as honesty, integrity, and confidentiality. (Attitude)

PLO-4 Conduct research that contributes to the advancement of medical knowledge and brings relevance to healthcare practices (Knowledge, Skill)

PLO-5 Act as an efficient community health promotor by advocating for health promotion and disease prevention. (Skill)

PLO-6 Exhibit comprehensive scientific knowledge in all professional activities. (Knowledge)

PLO-7 Demonstrate clear and efficient written and verbal communication skills to effectively communicate with patients, colleagues and other healthcare professionals. (Skills, Attitude)

PLO-8 Embrace a lifelong learning mind set to maintain expertise, keep up with advancements in medical practices and improve professional development. (Knowledge, Skill)

MODULERATIONALE

The Foundation 2 module is designed to build upon and consolidate the foundational knowledge acquired in the earlier years of medical education, particularly from the Foundation-I module. As students transition into their clinical years, it is crucial to reinforce and deepen their understanding of basic medical sciences to support the integration of new, clinically relevant concepts.

This module serves as a bridge, revisiting core topics in general Pharmacology, Pathology, and Forensic medicine with an emphasis on their clinical applications. By doing so, it ensures that students develop a more comprehensive understanding, which is vital for the advanced study of organ systems in subsequent modules (e.g., CVS 2, Respiratory-2, GIT-2, Neurosciences-2, and Reproduction 2). Mastery of these topics is essential before students can effectively approach the complexities of clinical scenarios.

The revisiting of these concepts throughout the curriculum ensures a robust and integrated understanding, laying a solid foundation for clinical competence.

MODULE OUTCOMES

- **Apply Integrated Knowledge of Basic and Clinical Sciences:** Synthesize concepts from general Pharmacology, Pathology, and Forensic Medicine to better understand the physiological and pathological processes underlying common clinical conditions. Correlate the foundational knowledge of disease mechanisms with their clinical presentations in Surgery and Medicine. (PLO-6, PLO-1)
- **Demonstrate Competency in Core Pharmacological Principles:** Understand and explain the pharmacokinetics and pharmacodynamics of commonly used drugs in clinical practice. Analyze drug interactions, adverse effects, and therapeutic uses in various organ systems, including cardiovascular, respiratory, gastrointestinal, and neurological systems. (PLO-6)
- **Interpret Pathological Findings:** Interpret key pathological processes such as inflammation, infection, neoplasia, and tissue repair in the context of disease progression. Apply knowledge of histopathology and laboratory medicine in diagnosing common diseases seen in clinical practice. (PLO-1, PLO-6)
- **Apply Forensic Medicine Principles in Clinical Contexts:** Demonstrate understanding of medicolegal aspects of medical practice, including documentation, consent, patient rights, and legal responsibilities. Analyze and interpret findings relevant to forensic medicine, such as injury patterns, cause of death, and toxicology, and understand their clinical significance. (PLO-1, PLO-6)

- **Develop Surgical and Medical Clinical Reasoning:** Utilize foundational knowledge to assess and plan appropriate management strategies for common surgical and medical conditions. Integrate surgical principles with an understanding of anatomy and pathology to explain clinical presentations and operative approaches. (PLO-6)
- **Practice Patient Safety Principles:** Identify potential risks to patient safety in clinical settings, including medication errors, procedural risks, and diagnostic mistakes. Apply strategies to mitigate risks and promote patient safety, including adhering to clinical guidelines, infection control measures, and communication best practices. (PLO-1, PLO-2, PLO-6)
- **Demonstrate Ethical and Professional Conduct:** Recognize the importance of ethical decision-making and professionalism in both clinical practice and forensic medicine. Engage in responsible clinical practice, demonstrating accountability, integrity, and respect for patient autonomy and confidentiality. (PLO-1, PLO-2, PLO-6)
- **Employ Critical Thinking and Problem-Solving Skills:** Use clinical reasoning to solve complex problems related to pharmacological treatment plans, pathological diagnoses, and surgical management. Analyze case scenarios that integrate knowledge across multiple subjects, drawing from basic and clinical sciences to reach accurate clinical conclusions. (PLO-3, PLO-7)
- **Communicate Effectively in Multidisciplinary Teams:** Demonstrate the ability to collaborate and communicate clearly with peers and healthcare professionals from various specialties. Present clinical findings, diagnoses, and management plans effectively in both written and verbal formats, ensuring clarity and precision. (PLO-5, PLO-6, PLO-8)

SUBJECTS INTEGRATED IN THE MODULE

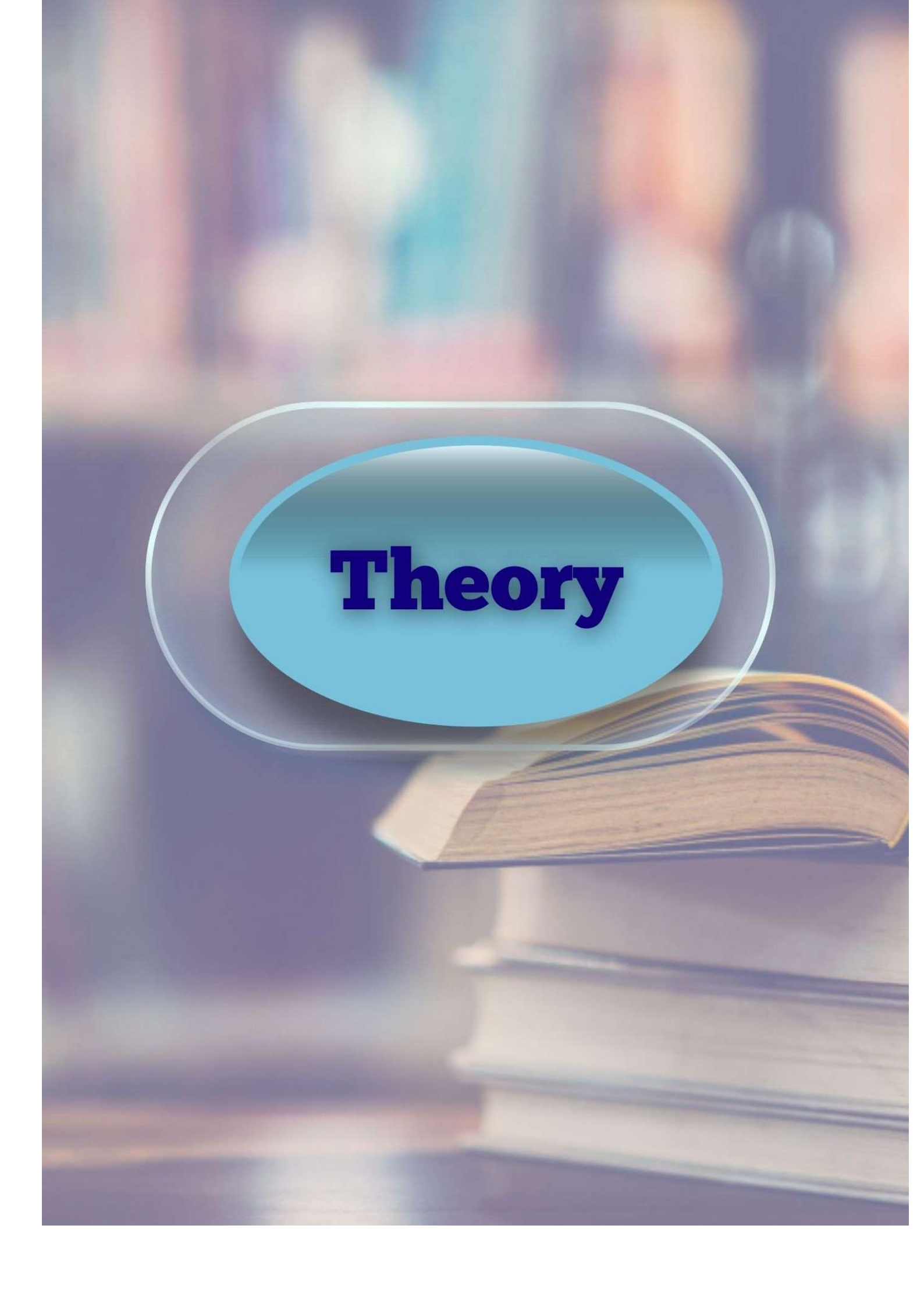
1. Pathology
2. General pharmacology
3. Community medicine
4. Forensic Medicine
5. Patient Safety
6. Surgery
7. Medicine
8. Psychiatry

IMPLEMENTATION TORs

- The time calculation for completion of modules and blocks is based on 35 hours per week. Total hours of teaching, learning and formative/summative internal assessment to be completed in a year are 1200.
- The hours mentioned within each module are the mandatory minimum required. The rest of the hours are left to the discretion of the institution that can be used in teaching, learning and assessment as per decision of the institutional academic council.
- The content and the intended learning outcomes written are mandatory, to be taught, at the level required, as the end year assessment will be based on these.
- However, the level of cognition can be kept at a higher level by the institution.
- The Table of Specifications provided will be used for the three papers of the first professional examination. The same table of specifications should be used for the respective three block exams for internal assessment.

Syllabus





Theory

GENERAL PHARMACOLOGY

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS=17			
		DISCIPLINE	TOPIC	TEACHING/LEARNING	ASSESSMENT TOOLS
F2-Ph-001	Define Pharmacology, different branches of pharmacology, pharmacopoeias	Pharmacology	Introduction	LIGS	MCQS
F2-Ph-002	Identify the sources and active principles of drugs with clinical applications of active principles. Tabulate differences between fixed oils and volatile oils as sources of drugs.		Sources of drugs and active principles	LIGS	MCQS
F2-Ph-003	Summarize definitions of various pharmacokinetic and pharmacodynamic parameters.		Parameters	LIGS	MCQS
F2-Ph-004	Name various routes of drug administration. Discuss the advantages & disadvantages of various routes of drug administration. Describe the factors that influence the route of administration of a drug. Discuss the clinical relevance of the selection of route of administration.		Routes of Administration	LIGS	MCQS
F2-Ph-005	Enlist the different processes by which drugs are transported across cell membranes. Describe and differentiate each transport process.	Pharmacology	Permeation	LIGS	MCQS
	Describe drug absorption. Describe drug-based factors affecting rate and extent of drug absorption. Predict the relative permeation of a clinically useful weak acid or a weak base from knowledge of its pKa, the pH of the medium using the Henderson Hasselbalch equation. Determine percentage of drug ionized or			LIGS	MCQS

	unionized when placed in a certain Ph media. Explainiontrapping.	Pharmacology	Absorption		
F2-Ph-006	Describedrugabsorption. Describe drug-based factors affecting rate and extent of drug absorption. Predict the relative permeation of a clinically useful weak acid or a weak base from knowledge of its pKa, the pH of the medium using the Henderson Hasselbalch equation. Determine percentage of drug ionized or unionized when placed in a certain Ph media. Explainiontrapping.	Pharmacology	Absorption	LIGS	MCQS

	Describe patient-based factors affecting rate and extent of drug absorption. Describe the clinical significance of drug absorption.			LIGS	MCQS
F2-Ph-007	Define bioavailability. Describe factors affecting bioavailability. Define area under the curve (AUC). Explain first pass elimination. Explain extraction ratio. Describe how bioavailability and the first pass effect affect the different clinical conditions. Explain bioequivalence and equivalence.	Pharmacology	Bioavailability and first pass effect	LIGS	MCQS
F2-Ph-008	Define drug distribution. Describe the distribution of a drug through various body compartments. Describe factors affecting distribution of a drug. Explain volume of distribution (Vd) and how to calculate Vd. Explain the clinical significance of Vd. Explain the characteristics of a drug that is bound to plasma proteins. Describe the clinical consequences of displacement of a drug from plasma protein binding.	Pharmacology	Distribution	LIGS	MCQS
F2-Ph-009	Explain metabolism and biotransformation. Describe the outcomes of metabolism and biotransformation. Explain a 'prodrug' Enlist and describe characteristics of Phase 1 and Phase 2 reactions of biotransformation.	Pharmacology	Metabolism and biotransformation	LIGS	MCQS

	Describe microsomal and non-microsomal biotransformation reactions. Describe the microsomal oxidation system. Explain Hoffman's elimination. Describe factors affecting metabolism & biotransformation.				
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	Describe the clinical significance of enzyme induction and enzyme inhibition with their examples. Describe the clinical significance of metabolism & biotransformation. Describe clinical significance of enterohepatic recycling of drugs.			LIGS	MCQS
F2-Ph-010	Define plasma half-life and explain the concept of plasma half-life. Describe factors affecting half-life and clinical significance of plasma half-life. Explain the concept of drug clearance. Describe factors affecting drug clearance. Explain steady state plasma concentration. Explain clinical significance of steady state plasma concentration. Define and explain elimination and orders of elimination – first & zero order kinetics with examples. Describe clinical significance of first & zero order kinetics. Tabulate differences between first order kinetics and zero order kinetics. Define, explain and calculate maintenance dose and loading dose using appropriate formula.	Pharmacology	Elimination	LIGS	MCQS
F2-Ph-011	Describe drug excretion. Enlist routes of drug excretion. Describe processes of drug excretion through the kidneys. Describe factors affecting glomerular filtration & tubular reabsorption. Describe the clinical significance of glomerular filtration, active tubular secretion and passive tubular reabsorption of drugs	Pharmacology	Excretion	LIGS	MCQS

GENERALPATHOLOGY					
CODE	SPECIFICLEARNINGOUTCOMES	TOTALHOURS=06			
		INTEGRATING DISCIPLINE	TOPIC	TEACHING/LEARNING	ASSESSMENT TOOL
F2-Pa-001	Define mutation and classify different types. Describe the features and examples of the following: I. Autosomal dominant disorders II. Autosomal recessive disorders III. X-linked disorders Enlist types and steps of PCR.	Pathology	Genetics	LIGS	MCQS
F2-Pa-002	Define karyotyping Describe the salient features and lab diagnosis along with genetic abnormalities in the following syndromes: i. Marfan syndrome ii. Ehlers-Danlos syndrome iii. Down syndrome iv. Klinefelter syndrome v. Turner syndrome	Pathology	Genetic syndromes	LIGS	MCQS
F2-Pa-003	Differentiate between Gram positive and Gram negative cell wall. Discuss how it affects the choice of antibiotic.	Pharmacology	Comparison of Gram-positive and negative Bacterial cell wall structure, how bacteria differ from Viruses	LIGS	MCQS
MICROBIOLOGY					
CODE	SPECIFICLEARNINGOUTCOMES	TOTALHOURS=09			
		INTEGRATING DISCIPLINE	TOPIC	TEACHING/LEARNING	ASSESSMENT TOOL

F2-Pa-004	Classify gram positive and gram negative cocci. Classify gram positive and gram negative rods. Classify spirochetes and atypical bacteria.	Microbiology	Microbiology	LIGS	MCQS
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	Classify culture media and describe blood, chocolate, McConkey, nutrient, CLED, TCBS, TSI, citrate & urease media, blood culture and seaboard agar. Define conjugation, transduction, transformation and describe mechanisms of antimicrobial resistance. Define colonization resistance and enlist normal flora of skin, gut, respiratory tract, and vagina. Classify DNA viruses and RNA viruses. Classify medical mycoses fungi. Classify medically important parasites.			LIGS	
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FORENSIC MEDICINE

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS=02			
		INTEGRATING DISCIPLINE	TOPIC		
F2-For- 001	Define forensic medicine and describe its various branches.	Forensic Medicine & Jurisprudence	Introduction to the subject of Forensic Medicine	LIGS	
F2-For- 002	Describe evidence, its types & recording of evidence	Jurisprudence 22	Chain of evidence	LIGS	
F2-For- 003	Describe the importance of diagnosis of death		Introduction to Thanatology	LIGS	

F2-For- 004	Describe the WHO format of the death certificate.		Death certificate	LIGS	
COMMUNITY MEDICINE					
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS=03			
		INTEGRATING DISCIPLINE	TOPIC		
F2-CM- 001	Define health. Describe health dimensions.	Community medicine	Health dimensions &	LIGS	
	Describe the good health indicators.		Indicators	LIGS	MCQS
	Calculate and interpret health indicators of public health importance.			LIGS	MCQS
PATIENT SAFETY					
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS=04			
		INTEGRATING DISCIPLINE	TOPIC		
F2-PS-001	Explain patient safety as a critical concern in healthcare and its impact on the quality of patient care.	Medicine	Patient safety concept	LIGS	MCQS
F2-PS-002	Discuss the relationship between human factors and patient safety.	Surgery	Human factors and patient safety	LIGS	MCQS
GENERAL SURGERY					
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS=03			
		INTEGRATING DISCIPLINE	TOPIC		
F2-S-001	Describe the basic stages of surgical wound healing. Differentiate between primary and wound healing.	Surgery	Wound Healing	LIGS	MCQS

F2-S-002	Classify burns based on depth and surface area. Outline the principles of initial surgical management of burns.	Surgery	Burns	LIGS	MCQS
F2-S-003	Identify clinical signs of external and internal hemorrhage in trauma patients. Describe early features of hypovolemic shock. Outline the initial steps in managing hemorrhage and shock	Surgery	Shock & hemorrhage	LIGS	MCQS
GENERAL MEDICINE					
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS=02			

		INTEGRATING DISCIPLINE	TOPIC		
F2-M-001	Describe the common clinical features of infectious diseases. Explain the differences in clinical presentation between viral and bacterial infections.	Medicine	Bacterial & viral diseases	LIGS	MCQS
F2-M-002	Identify warning signs in infection that require urgent referral or intervention. Outline basic principles of management and prevention of infections.			LIGS	MCQS
PSYCHIATRY					
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS=02			
		INTEGRATING DISCIPLINE	TOPIC		
F2-BhS- 001	Define health behavior and discuss the importance of behavioral sciences in medical practice. Identify biological, psychological, and social factors that influence health behaviors and decision-making. Discuss key behavioral change models (e.g., Health Belief Model, Theory of Planned Behavior) and their application in patient care.	Behavioral sciences	Introduction to Health Behavior and Its Determinants	LIGS	MCQS

The background is a blurred laboratory scene. On the left, a portion of a microscope is visible. On the right, a hand wearing a blue nitrile glove holds a test tube with a blue cap. The test tube has a label with 'POSITIVE' and 'NEGATIVE' checkboxes, and the 'POSITIVE' checkbox is checked. Below the hand, a white test tube rack holds another test tube with a blue cap. The word 'Practicals' is centered in a dark blue oval with a white border.

Practicals

PRACTICAL

FORENSIC MEDICINE

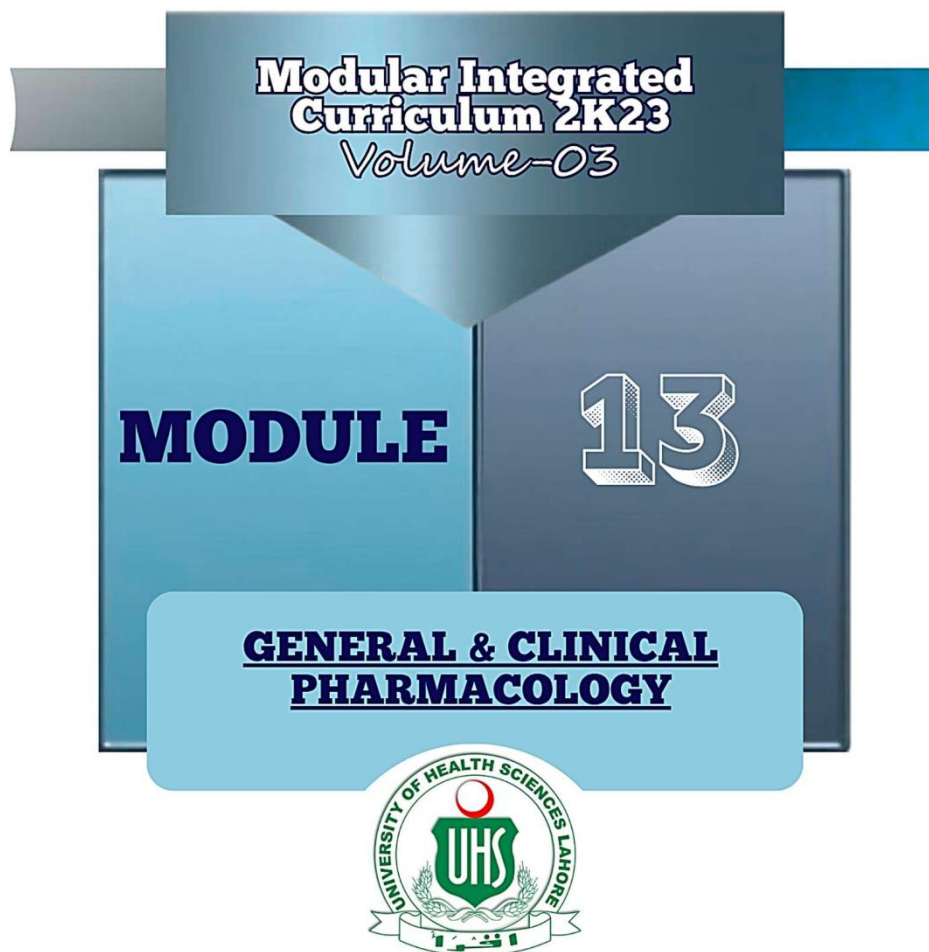
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS=04			
		INTEGRATING DISCIPLINE	TOPIC	TEACHING/ LEARNING	ASSESSMENT TOOLS
F2-For-005	Describe trace evidence and its types.	Forensic Medicine	Trace evidence	LGIS& SGD	VIVA OSPE
F2-For- 006	Describe the types of fingerprints and their medicolegal importance. Demonstrate the method of recording different types of fingerprints.		Dactylography Recording of evidence	LGIS& SGD	VIVA OSPE
	Demonstrate the procedure for recording dying declaration. Explain its significance in medicolegal practice.			LGIS& SGD	VIVA OSPE
F2-For- 007	Take written informed consent for various procedures.		Consent form	LGIS& SGD	VIVA OSPE

PATHOLOGY

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS=02			
		INTEGRATING DISCIPLINE	TOPIC		
F2-Pa-005	Demonstrate the correct steps of Gram staining on a specimen. Interpret the results of Gram staining to guide antibiotic choice.	Microbiology	Use of Microscope & Gram staining	LGIS& SGD	VIVA OSPE

PHARMACOLOGY

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS=03			
		INTEGRATING DISCIPLINE	TOPIC		
F2-Ph- 012	Calculate drug dosing (e.g., IV infusion) and dose in children.	Pharmacology	Drug dosing	LGIS& SGD	VIVA OSPE
	Calculate mean, mode, median, range, standard deviation, standard error, t-test. Interpret metrology and abbreviations.			LGIS& SGD	VIVA OSPE



MODULERATIONALE

The General & Clinical Pharmacology module consists of General Pharmacology and Autonomic Nervous System Pharmacology. It is designed to emphasize on various pharmacodynamic processes, drug interactions, and adverse drug reactions, all of which are integral in understanding how the drugs work and how they are used in clinical practice.

Additionally, it highlights the role of pharmacogenetics in drug responses and explores the phases of drug development, providing students with the basic knowledge necessary for safe, effective, and personalized pharmacological interventions in clinical practice.

The Autonomic Pharmacology module introduces third-year medical students to the pharmacological principles of the autonomic nervous system (ANS), which regulates essential involuntary functions such as heart rate, blood pressure, digestion, and respiratory function. The module covers both the cholinergic and adrenergic systems, providing a strong foundation for understanding how drugs interact with these systems to treat diseases/conditions. Given the wide-ranging clinical applications of autonomic drugs, this module plays a critical role in bridging basic pharmacology with clinical medicine, particularly in fields like cardiovascular, gastrointestinal, and respiratory medicine.

MODULE OUTCOMES

- Explain the fundamentals of pharmacodynamics and how drugs interact with biological systems and their mechanism of action. Describe dose-response relationships, drug efficacy, and potency.
- Recognize therapeutic windows and factors influencing drug response.
- Apply pharmacodynamic principles to predict drug effects and optimize therapy.
- Understand different types of drugs that act on the autonomic nervous system and their clinical usage.

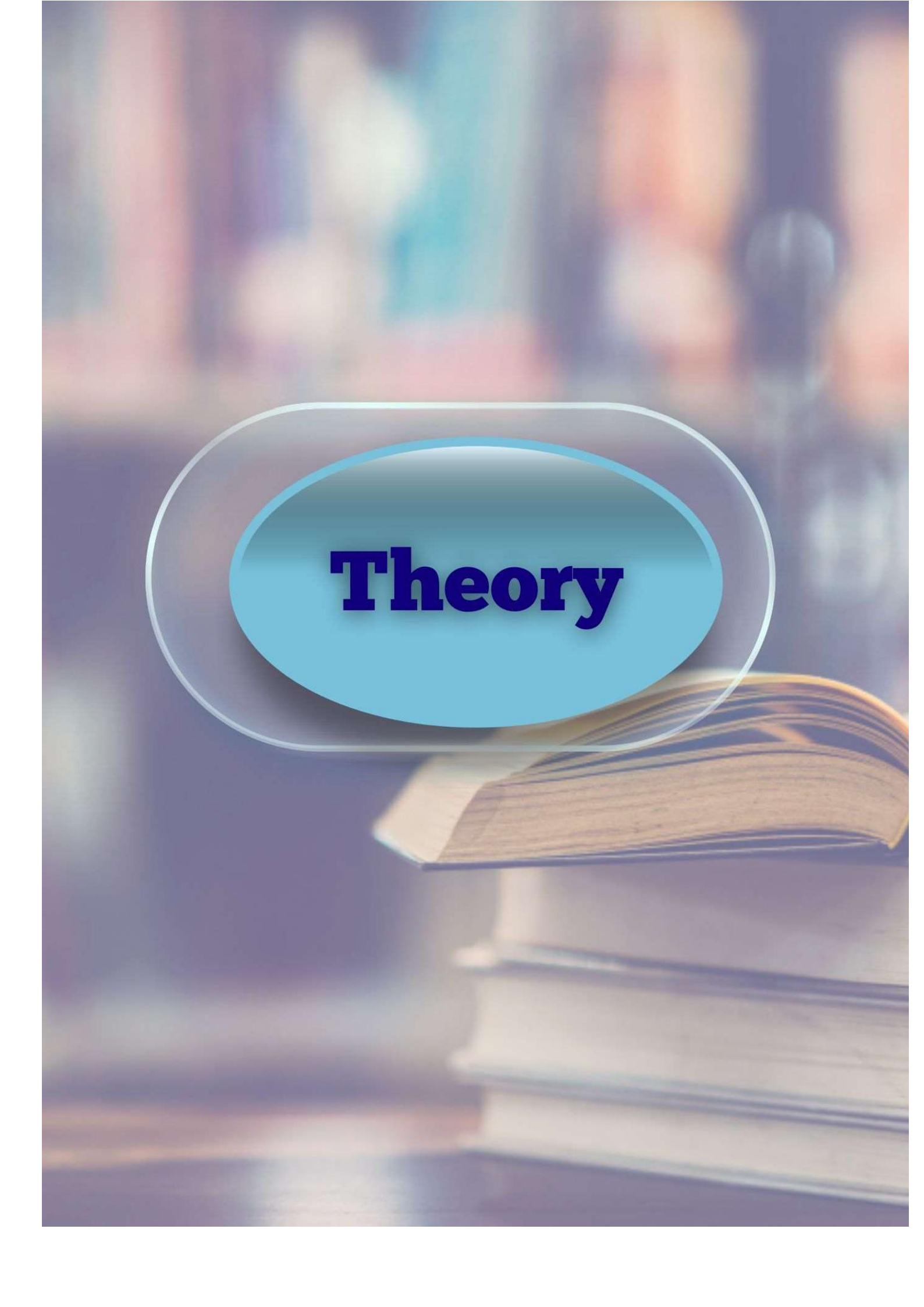
SUBJECTS INTEGRATED IN THE MODULE

1. Pharmacology & Therapeutics
2. Biochemistry
3. Physiology
4. Behavioural Sciences
5. General Medicine

IMPLEMENTATION TORs

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The image features a stack of several books, with the top one slightly open, resting on a dark surface. A blue oval with a white border is superimposed over the books. Inside the oval, the word "Theory" is written in a bold, dark blue, serif font.

Theory

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS=58			
		INTEGRATING DISCIPLINE	TOPIC	TEACHING/LEARNING	ASSESSMENT TOOLS
GCP h- Ph- 001	Define pharmacodynamics, affinity, efficacy, potency.	Pharmacology	Pharmacodynamics	LIGS	MCQS
	Explain agonists, (partial, inverse, and bias), allosteric modulators with examples.				
	Describe spare receptors with their clinical importance.				
	Elaborate transmembrane signaling pathways.				
	Name the effectors controlled by G-proteins.				
	Describe various drug-antagonism types with examples. Compare and discuss the information derived from Graded and Quantal dose-response curves. Explain the significance of semi-log transformation.				
	Define Median Effective (ED50), Median Toxic (TD50) & Median Lethal Dose (LD50) with clinical relevance.				
	Define therapeutic index and give its clinical importance.				
	Define therapeutic window and explain its clinical importance.				
	Define the following with examples: desensitization, tachyphylaxis, tolerance, resistance, super sensitivity, hypersensitivity, superinfection,				

	iatrogeniceffect, andidiosyncrasy.			LIGS	MCQS
	Describe the phenomenon of regulation of receptors.				
	Describe pharmacogenetics with examples.				
	Illustrate various phases of drug development.				
GCP h- Ph- 002	List the cholinergic receptors with their site of action and 2 nd messenger system.	Pharmacology	Autonomic Pharmacology Cholinergic System	LIGS	MCQS
	Classify cholinergic agonists and antagonists.			LIGS	MCQS

	Discuss the pharmacological actions / systemic effects of cholinergic agonists and antagonists.	Pharmacology		LIGS	MCQS
	Outlinetheclinicalusesandadverseeffectsof cholinomimetics.			LIGS	MCQS
	Differentiate between myasthenic crisis and cholinergiccrisis.	Pharmacology		LIGS	MCQS
	OutlinethemanagementofMyastheniagravis.			LIGS	MCQS
	Explain the pharmacological management of Alzheimer’s disease.			LIGS	MCOS
		Pharmacology		LIGS	MCQS
	Describe the process of ‘aging’ in OPC poisoning and its management. DiscussthemangementofOrganophosphate(OPC) poisoning.			LIGS	MCQS

	Discuss the therapeutic uses of antimuscarinics.	Pharmacology		LIGS	MCQS
	Discuss the role of anticholinergic drugs in the management of Parkinson's disease.			LIGS	MCQS
	Enlist the toxicity and contraindications of atropine along with their rationale.			LIGS	MCQS
	Enlist the toxic effects and pharmacological treatment of nicotine poisoning.			LIGS	MCQS
	Enlist the toxic effects and pharmacological treatment of mushroom poisoning.			LIGS	MCQS
GCPH- Ph-003	Enlist the adrenergic receptors with their site of action and transduction mechanism. Classify adrenergic agonists.	Pharmacology	Autonomic Pharmacology (Adrenergic System)	LIGS	MCQS
	Describe general characteristics of catecholamines. Compare the structural characteristics of catecholamines & non-catecholamines				
	Discuss the pharmacological actions / systemic effects of direct and indirect-acting adrenergic agonists. Discuss the therapeutic uses, adverse effects, and contraindications of direct-acting adrenergic agonists.			LIGS	MCQS

	Classifyalphanblockers. Discuss the clinical usesand adverse effects of alpha-blockers. Discussepinephrinereversal. Discusstheadverseeffectsofalpha-blockers.	Pharmacology		LIGS	MCQS
	Classifybeta-blockers. Discusstheclinicalindicationsandadverseeffects. of using beta antagonists. Enlisttheiradverseeffects.			LIGS	MCQS
	Compare and contrast the characteristics of ReserpineandGuanethidine.			LIGS	MCQS
	Explainthepharmacologicalactionsofganglionblockers.			LIGS	MCQS
	Discussthemechanismofaction,clinicaluses,and adverse effects of centrally acting sympatholytic drugs (clonidine and methyldopa).			LIGS	MCQS
	BIOCHEMISTRY				
CODE	SPECIFICLEARNINGOUTCOMES	TOTALHOURS=02			
		INTEGRATING DISCIPLINE	TOPIC	TEACHING/ LEARNING	ASSESSMENT TOOL

GCPH-B-001	Describe the features of signal transduction. Describe types of second messengers. Differentiate the G-protein and non-G-protein mediated signal transduction pathways.	Biochemistry	Signal Transduction & Second Messengers	LIGS	MCQS
PHYSIOLOGY					
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS=02			

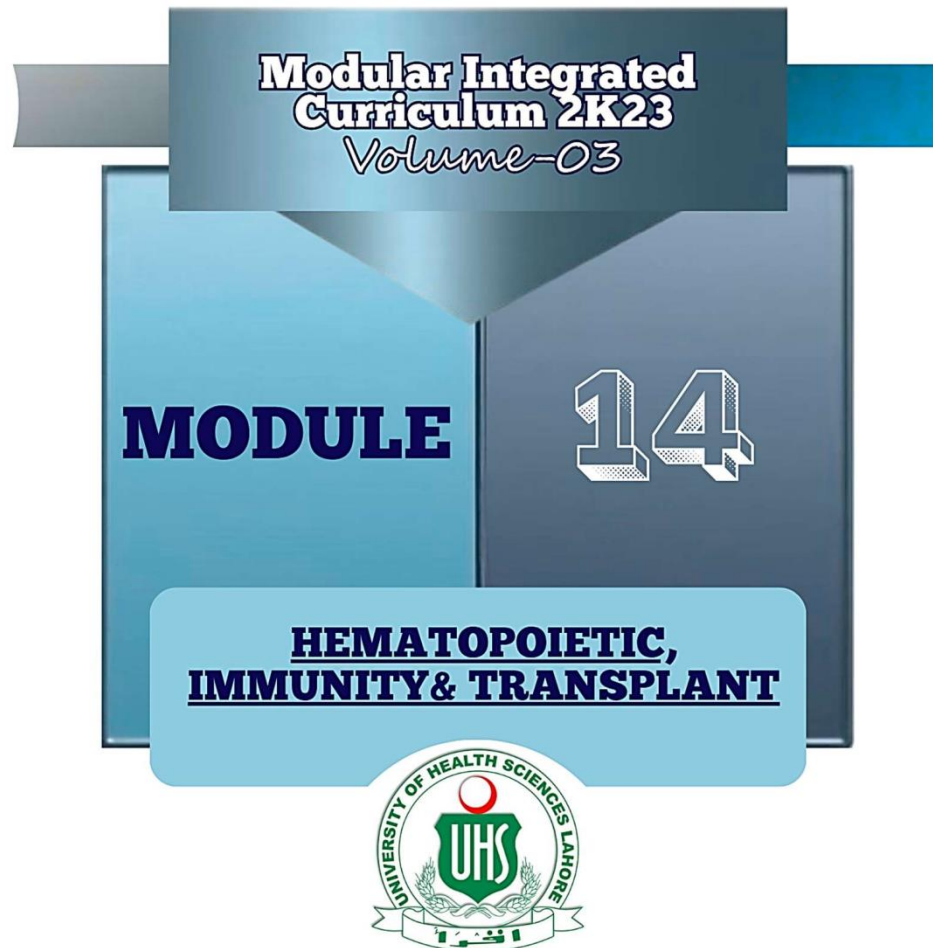
		INTEGRATING DISCIPLINE	TOPIC	TEACHING/LEARNING	ASSESSMENT TOOL
GCPH-P-001	Describe the types of adrenergic and cholinergic receptors and their functions. Explain the effects of sympathetic and parasympathetic on various organs/systems of the body.	Medical Physiology	Autonomic Nervous System	LIGS	MCQS
BEHAVIOURAL SCIENCES					
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS=02			
		INTEGRATING DISCIPLINE	TOPIC		
GCPH-BhS-001	Describe common ethical dilemmas in drug trials & pharmaceutical industry.	Behavioural sciences	Ethical dilemmas	LIGS	MCQS
PATIENT SAFETY					
		TOTAL HOURS=03			

CODE	SPECIFIC LEARNING OUTCOMES	INTEGRATING DISCIPLINE	TOPIC		
GCPH-PS-001	Describe the terms error, slip, lapse, mistake, violation, near miss and hindsight bias.	Pharmacology	Learning from errors to prevent harm	LIGS	MCQS
GCPH-PS-002	Explain the ways to improve the safety of medication use.		Medication safety	LIGS	MCQS

The background of the slide is a blurred laboratory setting. On the left, a portion of a microscope is visible. On the right, a hand wearing a blue nitrile glove holds a test tube with a blue cap. Below the hand, a white test tube rack holds several other test tubes, some containing red liquid. The overall color palette is light blue and white.

Practicals

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS=12			
		INTEGRATING DISCIPLINE	TOPIC	TEACHING / LEARNING	ASSESSMENT TOOLS
GCPH-Ph-004	Identify and describe components of prescription including its format, types, and rationale of prescription.	Pharmacology	Prescription writing & Drug preparation and dispensing	LGIS& SGD	VIVA OSPE
	Write prescription of the following conditions:				
	motion sickness, anaphylactic shock, cardiogenic shock, iron deficiency anemia, and scabies.				
	Prepare and dispense 100 ml of 0.1% KMnO ₄ solution using stock solution.				
	Prepare and dispense 12 g of Sulphur ointment B-P 10%.				
GCPH-Ph-005	Analyze and interpret the pharmacological effects of Drugs (Acetylcholine, Atropine, Adrenaline, Propranolol) on animal through online videos/ simulations/ graphs/ practical performance.	Pharmacology	Autonomic Nervous System	LGIS& SGD	VIVA OSPE
	Analyze and interpret different concentrations of acetylcholine on rabbit's ileum through online videos/ simulations/ graphs/ practical performance.				
	Analyze and interpret drug antagonism between acetylcholine and atropine on rabbit's ileum through online videos/ simulations/ graphs/ practical performance.				
	Analyze and interpret drugs (pilocarpine, adrenaline, atropine, homatropine, proparacaine) on rabbit's eye through online videos/ simulations/ graphs/ practical performance.				



MODULERATIONALE

The study of hematopoietic immunity and transplantation is critical for 3rd-year MBBS students as it forms the foundation for understanding the pathological basis for immune function, blood disorders, and the life-saving field of organ and tissue transplantation. This module integrates immunology, hematology, and clinical medicine, providing students with essential knowledge, skills and behavior about hematopoietic stem cells, immune responses, and their role in diseases like leukemia, lymphoma, and immunodeficiencies.

Understanding graft rejection, immunosuppression, and transplant-related complications prepares students to manage clinical cases involving blood transfusions, organ transplants, and autoimmune diseases. In addition, it integrates key concepts from pharmacology, general medicine, surgery and ethics, preparing students for future clinical practice, decision-making, and research in advanced therapies like immunotherapy and bioengineered organs.

The module also emphasizes the ethical and legal considerations of organ donation, helping students navigate the complexities of modern transplantation medicine.

MODULE OUTCOMES

- Describe the process of hematopoiesis including sites of blood cell formation in embryonic and adult stages.
- Describe the differentiation of stem cells into various mature blood cell lines
- Classify the key factors and signaling pathways for haemopoietic stem cell development and maintenance.
- Describe the characteristics of various blood cells, including erythrocytes, leukocytes and platelets.
- Explain the various hematological disorders such as inherited and acquired anemias, acute and chronic leukemias, Hodgkin and Non Hodgkin lymphomas and coagulation disorders in terms of inheritance, etiology, classification, pathogenesis, clinical features, diagnosis and prognosis.
- Explain and interpret the data of inheritance, etiology, classification, pathogenesis, clinical features, diagnosis and prognosis of Primary & Secondary Polycythemia and other myeloproliferative neoplasms.
- Interpret the patient and laboratory/radiological data of various hematological disorders such as inherited and acquired anemias, acute and chronic leukemias, Bone Marrow Failure

Syndromes, Hodgkin and Non-Hodgkin lymphomas and coagulation disorders in terms of inheritance, etiology, classification, pathogenesis, clinical features, diagnosis and prognosis.

- Classify and explain mechanisms which can cause neutropenia/agranulocytosis, eosinophilia, lymphocytosis, neutrophilia and basophilia
- Differentiation between infective and malignant causes of leukocytosis with special reference to infectious mononucleosis, acute and chronic non-specific lymphadenitis.
- Explain and interpret the data of multiple myeloma with respect to etiology, pathogenesis, morphology, clinical features and diagnosis.
- Explain and apply knowledge of different drugs used to treat anemias, polycythemia, coagulation disorders, myeloproliferative disorders and bone marrow failure syndromes.
- Explain ABO and Rhesus blood groups, their clinical importance and method of group typing.
- Explain and identify common indications of blood products (red cells, platelets and plasma) in different clinical scenarios.
- Explain and interpret the data regarding hazards of blood transfusion and apply methods of their prevention in different clinical scenarios.
- Describe concepts of immune system and different immunities as passive, active, innate and adaptive
- Compare and contrast the various immune cells
- Elaborate the primary (bone marrow and thymus) and secondary (Spleen, lymph nodes and MALT {mucosa associated lymphoid tissue}) lymphoid organs.
- Analyze the mechanisms of antigen recognition/presentation and interpret the data regarding the related diseases.
- Describe the processes involved in antibody production and B cell role in humoral immunity.
- Describe the complement activation pathways and interpret the data regarding their role in immune response to infections, autoimmunity, transplant rejection and immune deficiency diseases.
- Explain and interpret the data regarding clinical aspects of hypersensitivity reactions (infectious diseases and autoimmune diseases).
- Describe the principles of organ and tissue transplantation including the various types as allograft, isograft etc.
- Identify the common organs/tissue transplanted such as kidneys, liver, cornea, lung etc.
- Understand the role of Human Leukocyte Antigen (HLA) system and tissue matching.
- Illustrate the pharmacological drugs used in immunosuppression along with their mechanism of action.

- Explain the different types of rejection as hyperacute, acute and chronic.
- Apply knowledge of haemopoietic, immune and transplant principles to clinical scenarios along with management of hematological disorders and transplant patients
- Explain recent advancements in haemopoietic stem cell research, immunotherapy and transplantation techniques.
- Describe the ethical considerations such as consent, national and international laws governing organ donation and transplantation.
- Identify the future challenges in the field of transplantations such as bioengineered organs.

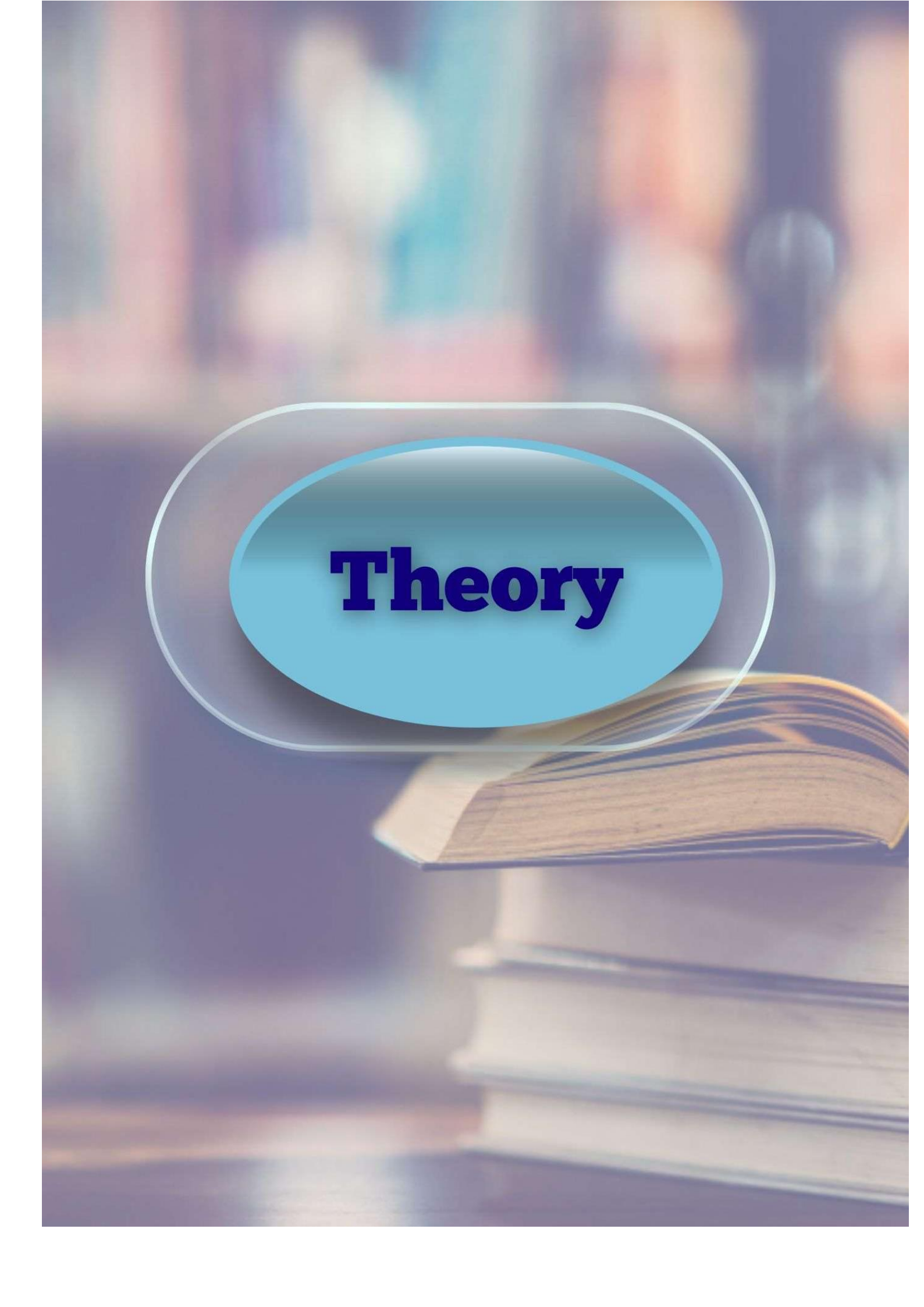
SUBJECTS INTEGRATED IN THE MODULE

1. Pharmacology & Therapeutics
2. General Medicine
3. General Surgery
4. Biochemistry

IMPLEMENTATION TORs

- The time calculation for completion of modules and blocks is based on 35 hours per week. Total hours of teaching, learning and formative/summative internal assessment to be completed in a year are 1200.
- The hours mentioned within each module are the mandatory minimum required. The rest of the hours are left to the discretion of the institution that can be used in teaching, learning and assessment as per decision of the institutional academic council.
- The content and the intended learning outcomes written are mandatory, to be taught, at the level required, as the end year assessment will be based on these.
- However, the level of cognition can be kept at a higher level by the institution.
- The Table of Specifications provided will be used for the three papers of the first professional examination. The same table of specifications should be used for the respective three block exams for internal assessment.



The image features a stack of several books, with the top one slightly open, resting on a dark surface. A blue oval with a white border is superimposed over the books. Inside the oval, the word "Theory" is written in a bold, dark blue, serif font.

Theory

HEMATOLOGY					
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS=39			
		INTEGRATING DISCIPLINE	TOPIC	LEARNING /TEACHING	ASSESSMENT TOOL
HIT-H-001	Describe the stages in formation of red blood cells (RBCs), white blood cells (WBCs), platelets.	Hematology	Hematopoietic system	LGIS	MCQS
	Correlate hematopoiesis with various hematopoietic growth factors along with normal bone marrow morphology.				
	Identify normal values of RBC, WBC, hemoglobin level, packed cell volume, MCH, MCV, MCHC and platelet count.				
	Classify and interpret the anemias on basis of morphology and underlying pathogenesis of RBC production.				
	Describe and interpret data related to causes, clinical features, clinical presentation and diagnosis of hypochromic anemia, megaloblastic anemia, anemia of chronic disease, Hereditary Spherocytosis, aplastic anemia and hemolytic anemias				
	Explain the biochemical basis of megaloblastic anemia in vitamin B ₉ and B ₁₂ deficiency.				

Explain the biochemical basis of microcytic anemia in vitamin B ₆ , vitamin B ₂ , vitamin C, vitamin A, and iron deficiencies.	Hematology			
Explain the biochemical mechanisms of hemolysis in pyruvate kinase and glucose-6-phosphate dehydrogenase deficiencies.				
Explain the biochemical mechanisms of hemolysis in hereditary spherocytosis and elliptocytosis.				
Explain the biochemical basis of hemolysis in vitamin E deficiency.				

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hemoglobinopathies(HbS,HbC,HbSC). Enlist the inherited and acquired causes of methemoglobinemia's and elaborate the consequences.			LGIS	MCQS
			LGIS	MCQS
			LGIS	MCQS
			LGIS	MCQS

	Describe etiology, clinical features, lab diagnosis of Von Willebrand's disease, Hemophilia A&B and Polycythemia. Explain the biochemical basis of hemorrhage in vitamin K and vitamin C deficiencies. Explain underlying mechanisms of neutropenia/agranulocytosis. Explain how does deficiency of glucose-6-phosphate translocase result in neutropenia and recurrent infections.	Hematology/ Biochemistry		LGIS	MCQS
HIT-H-002	Differentiate between infective and malignant causes of leukocytosis with reference to infectious mononucleosis, acute and chronic non-specific lymphadenitis.	Hematology	Lymphoid system	LGIS	MCQS
	Explain Non-Hodgkin's lymphoma in terms of classification, etiology, pathogenesis, clinical features, diagnosis, staging and prognosis. Explain Hodgkin's lymphoma in terms of classification, etiology, pathogenesis, clinical features, diagnosis, staging and prognosis.			LGIS	MCQS

	Explain the pathophysiology of lymphomas, including gastric MALT and diffuse large B-cell types. Explain the indications, procedure, and significance of lymph node biopsy in the diagnosis of lymphoma.	Surgery		LGIS	MCQS
HIT-H-003	Explain classification, etiology, pathogenesis, clinical features, diagnosis, staging and prognosis of acute and chronic leukemia. Describe the clinical manifestations, clinically differentiating features and clinical course of patient with leukemia.	Hematology/ Medicine	Haemopoietic system	LGIS	MCQS

	Explainetiology,pathogenesis,morphology,clinical features, diagnosis, staging and prognosis of multiple myeloma.			LGIS	MCQS
	Explainetiology,pathogenesis,morphology,clinical features,diagnosis,prognosisandmanagementof disseminatedintravascularcoagulation(DIC).	Hematology		LGIS	MCQS
	Classifyanticoagulatingdrugs. Describe the mechanisms of action, clinical uses and adverse effects of anticoagulants. Compareunfractionatedheparin,LMWheparinsand oralanticoagulants.	Pharmacology		LGIS	MCQS
	Differentiate the mechanism of action, clinical uses, and toxicities of the oral anticoagulants (warfarin, rivaroxaban, and dabigatran). Explainthepharmacokineticandpharmacodynamic druginteractionsofwarfarin.			LGIS	MCQS
	Describe the mechanisms of action, clinical uses and adverse effects of antiplatelet drugs. Illustratewhere thesiteof actionofmajorclassesof antiplatelet drugs act. DifferentiatebetweenClopidogreandTiclopidine.			LGIS	MCQS

	Discuss the mechanism of action, clinical uses, adverse effects and contraindications of thrombolytics. Tabulate differences between streptokinase and recombinant tissue plasminogen activators. Enlist the drugs used to treat bleeding disorders	Pharmacology		LGIS	MCQS
	Enumerate hematopoietic growth factors. Explain their mechanism of action, uses and adverse effects.			LGIS	MCQS

	Classify thrombocytopenia based on etiology. Explain the pathogenesis of decreased platelet production and survival. Describe the morphological changes in peripheral blood smear and bone marrow. Identify the clinical features of thrombocytopenia. Outline the diagnostic approaches for thrombocytopenia. Interpret the prognosis in different causes of thrombocytopenia. Describe the management strategies for thrombocytopenia. Interpret coagulation profile for bleeding disorders.	Hematology		LGIS	MCQS
HIT-H-004	Explain the ABO and Rhesus blood groups, their clinical importance, and the methods of blood group typing.	Hematology	Blood Transfusion	LGIS	MCQS
	Explain the common indications for transfusion of blood products (red cells, platelets, and plasma). Identify the hazards and complications of blood transfusion. Discuss methods to prevent transfusion-related hazards. Apply knowledge of indications, risks, and preventive measures to different clinical scenarios.			LGIS	MCQS

	Enlistthebiochemicalchangesthatoccurinstored blood. Explainthesignificanceofrejuvenationofstored blood.	Biochemistry			
GENERALPATHOLOGY					
CODE	SPECIFICLEARNINGOUTCOMES	TOTALHOURS=10			
		INTEGRATING DISCIPLINE	TOPIC	TEACHING/ LEARNING	ASSESSMEN T TOOL
HIT-Pa-001	Explaintheclinicalaspectsofinnateandacquiredimmunity. Explaintheclinicalaspectsofactiveandpassive immunity.	General Pathology	Immunology	LGIS	MCQS
	Classifythetypesofcellsinvolvedintheimmune response (phagocytes, T cells, B cells, and NK cells). Explaintheclinicalimportanceoftheseimmunecells.			LGIS	MCQS
	Correlatecomplementactivationpathwayswiththeir role in immune response to infections, autoimmunity,transplant rejection and immune deficiency disease.			LGIS	MCQS
	ExplainthetypesofMajorHistocompatibilityComplex (MHC)andelaboratetheirroleinclinicaldiseases.			LGIS	MCQS

	Classify different types of antibodies. Describe the structure and functions of major immunoglobulins (IgG, IgA, IgM, IgE, IgD). Explain the role of antibodies in immune defense and immunopathology. Interpret the clinical significance of antibodies in diagnosis. Discuss the pathological consequences of abnormal antibody responses.			LGIS	MCQS
HIT-Pa-002	Classify immunosuppressants and antibodies Explain their mechanism of action, clinical uses, and toxicities.	Pharmacology	Hematopoietic system	LGIS	MCQS
	Identify the major cytokines and other immunomodulating agents with their clinical applications.			LGIS	MCQS
HIT-Pa-003	Classify the types of hypersensitivity reactions. Describe the immunological mechanisms underlying each type. Explain the clinical features and examples of diseases associated with each type. Discuss the laboratory and pathological findings in hypersensitivity reactions.	General Pathology	Immunology	LGIS	MCQS

	Interpret the clinical relevance of hypersensitivity reactions in infectious and autoimmune diseases.				
				LGIS	MCQS
	Describe the types of transplant rejection. Explain graft-versus-host disease and apply this knowledge to different clinical scenarios.		Transplantation	LGIS	MCQS
HIT-Pa-004	Explain the concept and pathogenesis of autoimmunity. Classify autoimmune diseases and describe their pathological and clinical features.		Autoimmune diseases	LGIS	MCQS

The background of the slide is a blurred laboratory setting. On the left, a microscope is visible. On the right, a hand in a blue glove holds a test tube with a red cap. In the foreground, a white test tube rack holds several test tubes, some containing red liquid. The word "Practicals" is centered in a dark blue oval with a light blue border.

Practicals

PRACTICAL

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS=15			
		INTEGRATING DISCIPLINE	TOPIC	TEACHING/LEARNING	ASSESSMENT TOOL
HIT-H-005	Perform CBC on analyzer and interpret the report.	Hematology	Hematopoietic and Lymphoid System	LGIS&SGD	VIVA OSPE
HIT-H-006	Analyze RBC indices, Platelet Indices and WBC parameters.		Hematopoietic System	LGIS&SGD	VIVA OSPE
	Perform PT, APTT and Bleeding Time. Interpret the reports.			LGIS&SGD	VIVA OSPE
	Perform Blood Group and Cross Match. Interpret the reports.			LGIS&SGD	VIVA OSPE
	Identify normal blood cells.			LGIS&SGD	VIVA OSPE
	Identify common malignant disorders e.g. CML, CLL, Acute Leukemias.			LGIS&SGD	VIVA OSPE
HIT-Pa-005	Interpret ELISA results for various immunological tests.	Pathology/Immunology	Immunology	LGIS&SGD	VIVA OSPE



**Modular Integrated
Curriculum 2K23
MBBS Year-3**



MODULE-15
**Forensic Medicine
& Toxicology-I**



POLICE LINE - DO NOT CROSS



MODULERATIONALE

The Forensic Medicine and Toxicology Module 1 prepares the medical graduate to handle the complexities of life and death and the medico-legal cases they encounter in their early career as doctors. The Autopsy training provides them with diagnostic skills for determining the cause of death, personal identity is essential for disaster victim identification, and medico-legal cases involving unidentified bodies. The death indicators and certification of death are important in their clinical practice. Introducing these topics in the 3rd year builds a strong foundation for handling medico-legal cases; ensuring students are ready to navigate the complexities of death-related issues in their future careers.

MODULE OUTCOMES

- Explain the concept of death and its medico-legal aspect
- Discuss the indicators of death
- Describe the inter-relationship of cause, mechanism, mode, and manner of death
- Determine the parameters of personal identification in living and dead
- Describe the types, objectives, rules, and techniques of autopsy
- Discuss the post-mortem artifacts and their medic-legal significance
- Discuss the methodologies and techniques employed for personal identification.
- Describe the methods of age certification

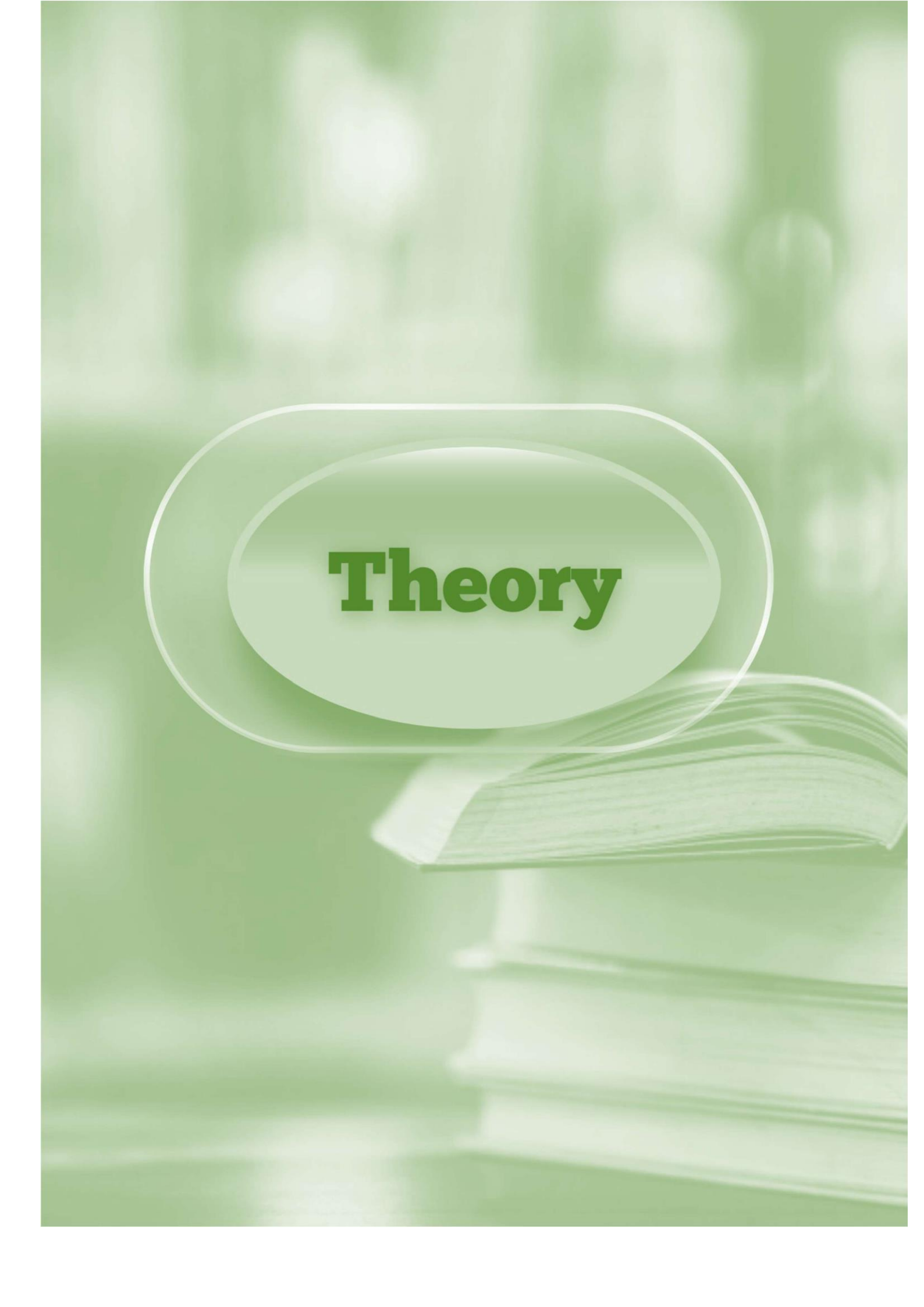
SUBJECTS INTEGRATED IN THE MODULE

1. Anatomy
2. Biochemistry
3. Pathology
4. Medicine

IMPLEMENTATION TORs

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The image features a green-tinted background showing a stack of books. A speech bubble with a white border and a light green fill is positioned in the center. Inside the bubble, the word "Theory" is written in a bold, dark green, serif font.

Theory

THEORY					
THANATOLOGY					
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS=05			
		INTEGRATING DISCIPLINE	TOPIC	TEACHING/ LEARNING	ASSESSMENT TOOL
For1- Th-001	Define life and death.	Forensic Medicine	Life&Death	LGIS	MCQS
	Describe views about death of different authorities.			LGIS	MCQS
	Differentiate between somatic and molecular death.			LGIS	MCQS
	Diagnose a case of death clinically.			LGIS	MCQS
	Describe the legal procedure of disposal of a dead body-known/unclaimed.			LGIS	MCQS
	Describe brain death.			LGIS	MCQS
	Explain criteria of diagnosis of brain death.			LGIS	MCQS
	Enlist guiding principles to diagnose a case of brain death.			LGIS	MCQS
	Describe the medicolegal importance of brainstem death.			LGIS	MCQS
	Summarize ethical, legal and moral considerations related with organ transplant and brain death.			LGIS	MCQS
	Differentiate between death and apparent/suspended animation.			LGIS	MCQS

	Describe different clinical conditions simulating with suspended animation.			LGIS	MCQS
For-Th-002	Classify post-mortem changes.	Forensic Medicine	Post-mortem changes - (Immediate early and late)	LGIS	MCQS
	Describe immediate signs of somatic death.			LGIS	MCQS
	Explain early eye changes after death.			LGIS	MCQS
	Explain post-mortem cooling of dead body (Algor Mortis) and its medicolegal implications.			LGIS	MCQS

Describe methods of recording the temperature of a dead body.				LGIS	MCQS
Explain cooling curve of a dead body.				LGIS	MCQS
State different formulas applied for calculating body temperature after death.				LGIS	MCQS
Summarize factors affecting Algor Mortis.				LGIS	MCQS
Explain post mortem lividity and its mechanism of development.				LGIS	MCQS
Explain its medicolegal implications.				LGIS	MCQS
Summarize factors affecting post-mortem lividity.				LGIS	MCQS
Differentiate post mortem lividity from congestion and bruise.				LGIS	MCQS
Explain Rigor Mortis and its mechanism of development.				LGIS	MCQS
Describe its medicolegal implications.				LGIS	MCQS
Summarize factors affecting Rigor Mortis.				LGIS	MCQS
Summarize conditions simulating Rigor Mortis.				LGIS	MCQS
Distinguish rigor mortis from cadaveric spasm and instantaneous rigor.				LGIS	MCQS
Enlist late changes after death.				LGIS	MCQS
Explain the process of putrefaction.				LGIS	MCQS
Describe different stages of putrefaction.				LGIS	MCQS
Summarize factors affecting putrefaction.				LGIS	MCQS
Describe forensic entomology and its role in the estimation of post mortem interval.				LGIS	MCQS

	Summarizetheproceduretocollectspecimensof forensicentomology.			LGIS	MCQS
	Drawandlabelgraphicrepresentationofpost-mortem changes.			LGIS	MCQS
	Infertheimportanceofputrefactionin toxicologicalanalysis.			LGIS	MCQS
	Describetheprocessofmummification.			LGIS	MCQS
	Describetheprocessofadiopocereformation.			LGIS	MCQS
For1- Th-003	Summarizethebiochemicalchangesinblood,	Forensic Medicine	Biochemical changes,	LGIS	MCQS

	vitreous humour and CSF after death.		after death.	LGIS	MCQS
For1-Th-004	List of different parameters to determine PMI. Describe a ratemethod and concurrent methodsto estimate PMI.	Forensic Medicine	Estimation of Post-mortem interval	LGIS	MCQS
For1-Th-005	Define sudden death. Summarize common causes of sudden death.	Forensic Medicine	Sudden death	LGIS	MCQS
For1-Th-006	Differentiate between modes, manner cause and mechanism of death.		Mechanism, manner, cause, modes of death,	LGIS	MCQS
For1-Th-007	Define and classify post mortem artefacts Explain medico legal significance of artefacts.	Forensic medicine	Post-mortem artefacts	LGIS	MCQS
For1-Th-008	Discuss the use of flow-cytometry in forensic medicine.		Flow-cytometry	LGIS	MCQS
For1-Th-009	Define sudden infant death syndrome. Describe the risk factors and clinical features associated with SIDS. Describe preventive strategies and parental counseling.	Forensic Medicine	Sudden infant death syndrome (SIDS)	LGIS	MCQS
AUTOPSY					
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS=6			
		INTEGRATING DISCIPLINE	TOPIC	TEACHING/LEARNING	ASSESSMENT TOOL
	Define autopsy			LGIS	MCQS
	Summarize types of autopsies			LGIS	MCQS

For1- Au-001	Differentiatebetweenmedicalandmedicolegal autopsy.	Forensic medicine	Autopsy,Its types and objectives.	LGIS	MCQS
	Enlistobjectivesandessentialsofautopsy			LGIS	MCQS
For1- Au-002	Differentiatefourdeathinvestigationsystems i. Coronerssystem, ii. Medicalexaminersystem, iii. Continentalsystem, iv. ProcuratorfiscalsysteminScotland.		Global systems of death investigations	LGIS	MCQS
	Defineautopsyprotocol.			LGIS	MCQS

For1-Au-003	i. Preliminary documents required for autopsy ii. Biodata. iii. Identification iv. External examination v. Internal examination vi. Conclusion. vii. Documentation.		Autopsy Protocol	LGIS	MCQS
	Differentiate between narrative and numerical autopsy protocol.			LGIS	MCQS
For1-Au-004	Differentiate primary, secondary, and tertiary autopsy incisions.		Autopsy incisions	LGIS	MCQS
	Explain autopsy incision to dissect neck, heart, brain, spinal cord, limb and bone marrow.			LGIS	MCQS
	Explain incision to reveal pneumothorax, DVT, Fat embolism and pulmonary embolism.			LGIS	MCQS
For1-Au-005	Differentiate Letulle, Ghon, Virchow, and Rokitsky autopsy techniques.		Autopsy techniques	LGIS	MCQS
For1-Au-006	List the viscera with quantity to be taken for toxicological and histopathological analysis.		Collection of viscera at autopsy	LGIS	MCQS
	List the preservatives used for autopsy samples.			LGIS	MCQS
	Explain the process of preserving viscera for forensic analysis.			LGIS	MCQS
	Explain the autopsy protocol for collection/recovery, preservation, labelling and dispatch of biological and non-biological material.			LGIS	MCQS

For1-Au-007	Describe standard autopsy suite.
	Summarize the requirements of autopsy room.
For1-Au-008	Summarize the hazards of autopsy.
For1-Au-009	Define Negative autopsy.
	Explain the causes of negative autopsy.
For1-Au-010	Define exhumation.
	Enlist the objectives of exhumation.

Essential of autopsy suite	LGIS	MCQS
	LGIS	MCQS
Hazards of autopsy	LGIS	MCQS
Negative autopsy	LGIS	MCQS
	LGIS	MCQS
Exhumation	LGIS	MCQS
	LGIS	MCQS

	Explain the procedure and limitations of exhumation.			LGIS	MCQS
	Enlist the specimens collected in exhumation.			LGIS	MCQS
	Summarize the precautions during exhumation			LGIS	MCQS
For1-Au-011	Summarize the objectives of autopsy on mutilated dead body/fragmentary remains.	Anatomy	Examination of fragmentary / Mutilated / Skeletal remains	LGIS	MCQS
PERSONAL IDENTITY					
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS=05			
		INTEGRATING DISCIPLINE	TOPIC	TEACHING/LEARNING	ASSESSMENT TOOL
For1-PI-001	Define Personal Identity.		Personal Identity	LGIS	MCQS
	Describe types of personal identity.			LGIS	MCQS
	List the purpose of identification in living & dead.			LGIS	MCQS
	Describe the parameters of personal identity in living and dead.			LGIS	MCQS
	Describe methods of determining personal identity.			LGIS	MCQS
	Enlist the ages of medico-legal importance for civil & criminal responsibility.			LGIS	MCQS
	Determine the age of a living person for medico-legal purpose.	Forensic Medicine	Age determination	LGIS	MCQS
	Determine the age of a fetus regarding its length, weight, and morphological features.			LGIS	MCQS

For1-PI-002	Determinetheapproximateageofanindividualbased on physical appearance and the union of ossificationcenters of different bones.			LGIS	MCQS
	Identifythesequenceofappearanceofossification centersduringintrauterinelife.			LGIS	MCQS
	Relatethemedico-legalimportanceofbonesinthe identification.			LGIS	MCQS
For1-PI-003	Differentiate male and female sex based on anatomicalfeaturesandchromosomeanalysis.	Anatomy	Sex determination	LGIS	MCQS

	Identify the disorders of sexual development.			LGIS	MCQS
	Describe the medico legal importance of sex determination.			LGIS	MCQS
	Enlist limitations of sex determination in dead.			LGIS	MCQS
For1-PI-004	Describe the process of estimation of age from primary, secondary & mixed dentition.	Forensic Medicine	Forensic Odontology	LGIS	MCQS
	Describe different methods for age estimation from odontology.			LGIS	MCQS
	Enlist the information obtained from dental forensic examination. Relate medico legal importance of identification with odontology.			LGIS	MCQS
For1-PI-005	Describe the parameters to determine race of a person.		Race determination	LGIS	MCQS
For1-PI-006	Explain methods to determine stature of a person.		Stature estimation	LGIS	MCQS
For1-PI-007	Describe anthropometry with reference to age Determination.		Anthropometry	LGIS	MCQS
For1-PI-008	Classify fingerprint patterns according to Galton's classification.		Dactylography	LGIS	MCQS
	Explain different methods of recording fingerprints.			LGIS	MCQS
	Describe the advantages & medico legal importance of Dactylography			LGIS	MCQS
	Define Poroscopy/Locards method			LGIS	MCQS

For1-PI-009	Describe the role of DNA fingerprinting in identification.	Pathology	DNA Profiling	LGIS	MCQS
	Enlist the samples required for DNA profiling in medicolegal cases.			LGIS	MCQS
	Describe the medicolegal importance of DNA Fingerprinting.			LGIS	MCQS
For1-PI-010	Discuss different methods of identification in case of mutilated, burnt and decomposed dead bodies.	Forensic Medicine	Mass Disaster Identification	LGIS	MCQS
	Apply the international SOP of disaster Victim Identification (DVI) in mass disaster.			LGIS	MCQS

The background of the slide is a light green, semi-transparent image of a laboratory. On the left, a microscope is visible. On the right, a hand in a white glove is holding a test tube. In the foreground, there is a white rack holding several test tubes, some of which contain a yellow liquid. The overall scene is a typical laboratory setting.

Practicals

PRACTICAL/LABWORK					
THANATOLOGY					
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS=06+05+05			
		INTEGRATING DISCIPLINE	TOPIC	TEACHING/ LEARNING	ASSESSMENT TOOL
For1-Th-010	Identify the immediate, early, and late changes after death.	Forensic Medicine	Autopsy	LGIS/SGD	OSPE
	Calculate the estimated times since death on the basis of findings noted in the corpse.			LGIS/SGD	OSPE
For1-Au-011	Prepare a death certificate of cause of death according to WHO guidelines.		WHO guidelines of death certificate	LGIS/SGD	OSPE
For1-Au-012	Observe the procedure of autopsy examination and dissection.	Forensic medicine	Autopsy	LGIS/SGD	OSPE
	Write a structured autopsy report using the standard format.			LGIS/SGD	OSPE
	Demonstrate the correct method of preservation and labeling of specimens. Dispatch specimens for histopathological and toxicological analysis following standard protocols.			LGIS/SGD	OSPE
For1-PI-011	Determine age and sex for identification in medico-legal cases.	Forensic medicine	Personal identification	LGIS/SGD	OSPE
	Take fingerprints by plain and rolling method and classify according to Galton's Classification.			LGIS/SGD	OSPE
	Estimate the age of a person for medico-legal purposes.			LGIS/SGD	OSPE
For1-PI-012	Identify and analyse the bite marks.		Bite marks analysis	LGIS/SGD	OSPE
For1-PI-013	Estimate the age of the person from the oral examination of the teeth. Interpret the findings from x-rays of bones for appearance and union of ossification centres for age determination. Identify the sex and age from morphological features of different bones Differentiate human/animal hair from cotton fiber, polyester fiber	Forensic medicine	Age & sex determination	LGIS/SGD	OSPE

3 rd year MBBS 2026								
WEEK- 02								
Day/Date	8:00-8:50	8:50-9:40	9:40-11:30	11:30-12:10	12:10-1:10	1:10-1:40	1:40-2:20	2:20-3:00
Monday 23/3/2026								
Tuesday 24/3/2026	Pharmacology LGIS Introduction Prof. Shah Murad	Pathology LGIS Mutation Dr Ahsan Ul Haq	Clinical Ward	Practical Pharmacology B Pathology C Forensic Medicine A	SGD/CBL Pharmacology B Pathology C Forensic Medicine A	B R E A K	Forensic Medicine LGIS	Patient safety Prof.Dr Alvina
Wednesday 25/3/2026	Forensic Medicine LGIS Introduction of forensic medicine Prof.Dr Alvina	Pathology LGIS Gram positive and gram negative Dr Qamar Aziz	Clinical Ward	Practical Pharmacology C Pathology A Forensic Medicine B	SGD/CBL Pharmacology C Pathology A Forensic Medicine B		Medicine LGIS Introduction of medicine Dr Momin	Pharmacology LGIS Sources and active principles of drugs, Fixed and Volatile Oils Prof. Abdul.Sattar
Thursday 26/3/2026	Pathology LGIS Blood indices and platelet count Dr Sidra Izhar	Pharmacology LGIS Pharmacokinetic and harmacodynamic parameters(Definition) Prof. Shah Murad	Clinical Ward	Biochemistry LGIS Signal Transduction Dr Adnan	Community Medicine LGIS Define Health. What are health dimensions Dr Maham		Pharmacology LGIS Pharmacokinetic and harmacodynamic parameters(Definition) Prof. Shah Murad	Pathology LGIS Morphological classification of anemia Dr Sidra Izhar
Friday 27/3/2026	PERLS	Pharmacology LGIS Routes of drug administration Dr Azan Hassan	Clinical Ward	Surgery Wound healing and repair Dr Shafaq	Pathology LGIS Stages and formations of blood cells Dr Nadeem Mansoor		CFRC/Skill Lab	Medicine LGIS Multiple Myeloma Dr Momin

3 rd year MBBS 2026								
WEEK- 03								
Day/Date	8:30-9:20	9:20-10:10	10:10-11:00	11:00-12:00	12:00-1:10	1:10-1:40	1:40-2:20	2:20-3:00
Monday 30/3/2026	Forensic Medicine LGIS Introduction of personal identification Dr. Gul Maria	Physiology LGIS ANS	Clinical Ward	Practical Pharmacology A Pathology Forensic Medicine C	SGD Pharmacology A Pathology B Forensic Medicine C	B R E A K	Pharmacology LGIS Introduction Prof. Shah Murad	Surgery Wound healing and repair Dr Shafaq
Tuesday 31/3/2026	Pharmacology LGIS Sources and active principles of drugs, Fixed and Volatile Oils Prof. Abdul.Sattar	Pathology LGIS Classification of bacteria Dr Qamar Aziz	Clinical Ward	Practical Pharmacology B Pathology C Forensic Medicine A	SGD/CBL Pharmacology B Pathology C Forensic Medicine A		Forensic Medicine LGIS Determination of age Dr. Gul Maria	Patient safety
Wednesday 01/4/2026	Forensic Medicine LGIS Determination of age Dr. Gul Maria	Pathology LGIS Gram positive and gram negative Dr Qamar Aziz	Clinical Ward	Practical Pharmacology C Pathology A Forensic Medicine B	SGD/CBL Pharmacology C Pathology A Forensic Medicine B		Expository	Pharmacology LGIS Pharmacokinetic and harmacodynamic parameters(Definition) Prof. Shah Murad
Thursday 02/04/2026	Community Medicine LGIS What are the good health indicators Dr Maham	Pharmacology LGIS Pharmacokinetic and harmacodynamic parameters(Definition) Prof. Shah Murad	Clinical Ward	Biochemistry LGIS Signal Transduction 2 Dr Adnan	Pathology LGIS Hypochromic microcytic anemia Dr Sidra Izhar		Pharmacology LGIS Routes of drug administration Dr Azan Hassan	Pathology LGIS Megaloblastic anemia Dr Sidra Izhar
Friday 03/04/2026	PERLS	Pharmacology LGIS Drug transport across cell membrane Dr Azan Hassan	Clinical Ward	Pathology LGIS Stages and formations of blood cells Dr Nadeem Mansoor	Medicine LGIS Iron Deficiency anaemia Dr Momin		CFRC/Skill Lab	Medicine LGIS Megaloblasti Anaemia Dr Momin

ASSESSMENT TOOLS

Students will be assessed by the following methods

1. *Fortnightly assessments*

Assessments will be conducted every Monday covering all the lectures conducted in the previous week consisting of MCQs only.

2. *Assignments/CBLs:*

Assignments/CBLs will be given monthly.

3. *End of Module Exam:*

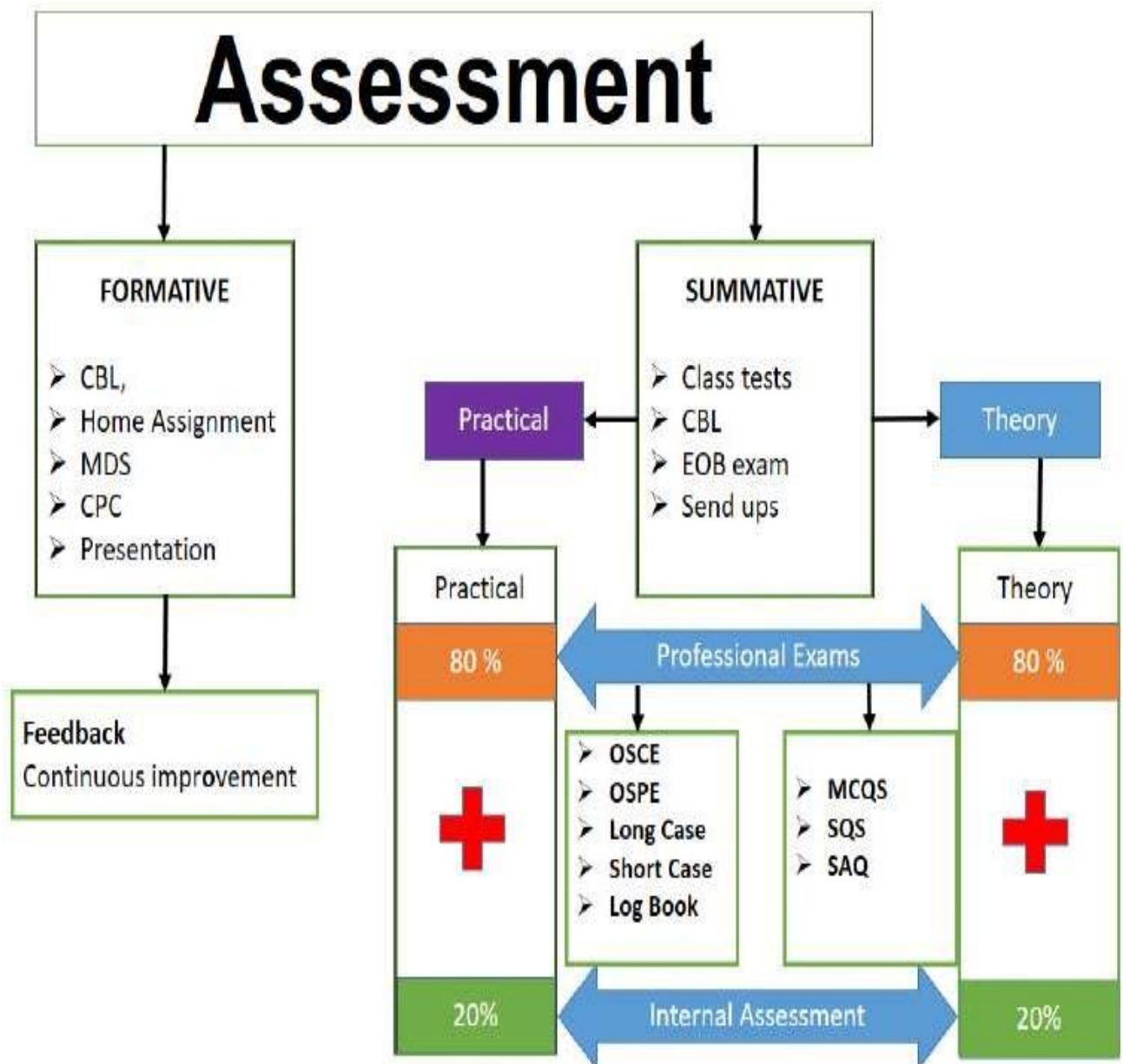
At the end of Foundation and H&L module, end of module exam covering all the LOs of the module consisting of MCQs would be conducted.

4. *Block Exam:*

At the end of block, an exam will be conducted comprising of theory (MCQs) and practical/OSPE content.

5. *Departmental quizzes, presentations & group projects:*

Above mentioned can be the assessment tools for different departments on their will.





MBBS3rd Professional

Block-7

Subject	WrittenExam		Oral/Practical/ClinicalExam			
	MCQ (1 mark)	Marks	OSPE /OSCE (8 marks each observed)	OSCE (10marks each observed)	OSVE (14marks each observed)	Marks
Pharmacology	55	55	03	-	01	38
Pathology	50	50	03	-	01	38
CommunityMedicine	02	02	01		-	08
Surgery	05	05	01	-	-	08
Medicine	05	05	01	-	-	08
Forensic	18	18	01	-	01	22
Behavioral	02	02	-	-	-	-
PatientSafety	03	03	-	-	-	-
CFRC	-	-	01	-	-	08
PERLs+ ExposITory	-	-	-	01	-	10

Total	140	140	11 stationsx 08 = 88	01stationsx 10=10	03stationsx 14=42	140
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List of Resources



Anatomy

- Snell's Clinical Anatomy 10th ed.
- Langman's Medical Embryology 12th ed
- Medical Histology by Laiq Hussain Siddiqui 8th edition.
- General Anatomy by Laiq Hussain Siddiqui 6th edition.

Biochemistry

- Harper's Illustrated Biochemistry (latest edition). Rodwell. V. W. M. C. Graw Hill publishers.
- Lippincott Illustrated Review (latest edition). Kluwer. W.
- Essentials of Medical Biochemistry vol 1 & 2 by Mushtaq Ahmed.

Pathology

- Vinay Kumar, Abul K. Abbas and Nelson Fausto Robbins and Cotran, Pathologic basis of disease. W. B. Saunders.
- Robbins and Cotran Pathological Basis of Disease. Kumar, V., Abbas, A. and Aster, J. Latest Edition
- Richard Mitchell, Vinay Kumar, Abul K. Abbas and Nelson Fausto Robbins and Cotran, Pocket Companion to Pathologic basis of diseases, Saunders Harcourt.
- Walter and Israel. General Pathology. Churchill Livingstone.
- Robbins & Kumar, Medical Microbiology and Immunology Levinson.

General Medicine

- Principles and Practice of Medicine by Davidson (latest edition)
- Clinical Medicine by Parveen J. Kumar & Michael Clark
- Oxford Handbook of Medicine
- Macleod's Clinical Examination book
- Medicine and Toxicology by C. K. Parikh
- Hutchison's Clinical Methods by Michael Swash. 21st edition

Pharmacology And Therapeutics

- Katzung and Trevor's Pharmacology: Examination and Board Review-15th Edition
- Basic and Clinical Pharmacology by Bertram G. Katzung (cases scenarios only)-16th Edition-
- Current Medical Diagnosis and Treatment-reference book—Edition-2024
- Basic and Clinical Pharmacology by Bertram G. Katzung (cases scenarios only)-15th Edition
- Basic and Clinical Pharmacology by Katzung, McGraw-Hill. 16th Edition.
- Pharmacology by Champe and Harvey, Lippincott Williams & Wilkins 8th Edition.

- Katzung Basic and Clinical pharmacology, Lippincott Illustrated reviews.
- Clinical Pathology Interpretations by A.H. Nagi

Behavioural Sciences

- Handbook of Behavioural Sciences by Prof. Mowad H. Rana, 3rd Edition
- Medical and Psychosocial aspects of chronic illness and disability 6th edition by Donna R. Falvo and Beverly E. Holland,
- Integrating behavioral sciences in healthcare, Asma Humayun, 2003, 1st edition

Community medicine

- Parks Textbook of Preventive and Social Medicine. K. Park
- Public Health and Community Medicine by Ilyas Ansari
- MSDS manual of Government of Punjab
- Textbook of Community Medicine by Park J.E. Latest Edition

Surgery

- Bailey & Love's Short Practice of Surgery (latest edition)
- Browse's Introduction to the Symptoms & Signs of Surgical Disease 4th Edition
- Bailey & Love Short Practice of Surgery, Clinical Surgery pearls by Dayananda Babu RACS for Surgical Audits.

Patient Safety

- Patient Safety Curriculum Guide: Multi Professional Guide

Microbiology

- Levinson's review of Microbiology
- Medical Microbiology and Immunology by Levinson and Jawetz,

Pediatrics Medicine

- Nelson Textbook of Pediatrics
- Basis of Pediatrics by Pervez Akbar Khan

Gynecology

- Gynecology by Ten Teachers

Infection Control

- National Guidelines Infection Prevention and control, National Institute of Health Pakistan

Biosafety

- Biosafety in Microbiological and Biomedical Laboratories, 6th Edition (CDC, USA)
- WHO Laboratory Biosafety Manual, Fourth Edition, And Associated Monographs
- WHO safe management of wastes from health care facilities chapter 7-8 page 77-99, 105-125)

Family medicine

- Oxford Handbook of General Practice, 5th Edition

Orthopedics

- Apley and Solomon's System of Orthopaedics and Trauma by Ashley Blom (Editor)

Rheumatology

- Davidson's Principles and Practice of Medicine
- Clinical Medicine by Parveen J. Kumar & Michael Clark
- Hutchison's Clinical Methods by Michael Swash

Radiology

- Aids to Radiological Differential Diagnosis by Chapman S. and Nakielnny R. 4th edition. Elsevier Science Limited; 2003.

Forensic Medicine

- Knight's Forensic Pathology by Barnard Knight 3rd edition
- G. Principles and Practice of Forensic Medicine by Prof. Nasib R. Awan, 2nd edition
- Forensic DNA Typing – 2nd Edition, Author: John M. Butler
- Parikh's Text book of Medical Jurisprudence, Forensic Medicine and Toxicology by C.K. Parikh 6th Ed., CBS Publisher.
- Gun Shot Wounds 2nd edition by V.J. De Maio
- Knight B. Simpson's Forensic Medicine.
- Knight and Pekka. Principles of Forensic Medicine

Forensic Pathology

- Forensic pathology 2nd edition by V.J. De Maio CRC Press Boca Raton London New York Washington DC

Toxicology

- Principles of clinical toxicology 3rd edition Thomas Gossel CRC Press Taylor and Francis group

Forensic Sciences

- Fundamentals of Forensic Science - 3rd Edition: Author: Max M. Houck, Jay A. Siegel
- Text Book of forensic medicine and toxicology Principles and Practice 5th edition by Krishan Vig

Biomedical ethics

- Principles of Biomedical ethics, 8th edition by Tom L. Beauchamp, James F. Childress.

EvidenceBasedMedicine

- Databasesforthelatestarticles/manuscripts
- ClinicalPracticeGuidelines-localandinternational-(withinlast3years)
- Books(Latestedition-withinlast5years)

Pediatrics

- Nelson'sBookofPediatric22editionIllustratedbookofPediatrics,PervaizAkbartextbookpeads medicine

Islamiyat

- StandardIslamiyat(compulsory)forB.A,BSc,MA,MSc,MBBSbyProfMSharifIslahi.
- IlmiIslamiyat(compulsory)forBA,BSc&equivalent.

04

Section

VOLUME:03

C-FRC

**CLINICAL-FOUNDATION
ROTATION CLERKSHIPS**



**Modular Integrated
Curriculum 2K23**



YEAR-03



Clinical Skills

C-FRC-03

YEAR-03

Clinical Rotations

GUIDELINES FOR DEVELOPING CFRC 3rd YEAR

University of Health Sciences has designed a very detailed and comprehensive CFRC- Logbook document which provides a proper guideline for all the institutions to design and implement the logbooks for Clinical rotations as these log books will be assessed in Annual Examination. For reference “**Modular Integrated Curriculum 2K23 Final Version, Volume:1 & Volume:2**” at UHS official website: [Downloads/Syllabus MBBS/BDS\(https://www.uhs.edu.pk/Downloadslink.php\)](https://www.uhs.edu.pk/Downloadslink.php).

C-FRC IMPLEMENTATION

C-FRC is a spiral which ensures the psychomotor skill development. The framework provides as a basis for skill development relevant to different study modules and ward rotations. All the psychomotor and affective skill development has also been mentioned in the module's sections of the [Curriculum 2K23 version 3.0](#).

Considering the institutional diversity in terms of the student strength, resources and clinical rotation schedules, the C-FRC module and logbook can be adopted and implemented by every affiliated institution with an adaptive approach.

The logbook of C-FRC has been categorized in sections to establish relevance with the modules as well as the ward rotations independent of the module. This division can provide diverse learning opportunities for the students.

Comprehensiveness of training based on the provided framework will be enhanced by the respective institutional learning opportunities, ward rotation plans, tangible resources, timetables, skill labs, manikins, laboratory setups and virtual learning platforms.

The spiral of the C-FRC has the core concept that the student's skill acquisition should be aligned for better outcomes as they proceed to the clerkship year. The utilization of the allotted hours by PMDC and UHS should be utilized in an effective manner, maximizing the utility of the available resources. It is suggested that the **Academic Council** along with the **Department of Medical Education** should discuss and document the following:

- Institutional 'Clinics rotation plan'.
- Community rotation schedule
- Family Medicine rotations
- **EOR-assessment** ('end-of-rotation assessment') framework with blockwise vs batchwise details.
- **EOR-assessment** methodologies (as mentioned in the following section) to be adopted.

- Planner for timely internal assessments submission

Based on the decisions made by the college academic council, the Departments of Medical Institution can develop their own respective rotation plans keeping in view the sections and coding. The Principal/DMEs will ensure the following principles while developing the rotational plans:

- Third year students will have laboratory, community and clinical rotations to maximize all the learning content mentioned in the main **Curriculum 2K23 version 3.0** as well as the **C-FRC logbook**.
- At least one third of the logbook entries must be completed for each block to secure marks in the internal assessment.
- DMEs will manage, monitor and document clinical assessments conducted as **EOR- assessment** ('end-of-rotation assessment').
- The **EOR-assessments** can comprise of at least two of the following workplace-based methods.
 - OSCE
 - Case-based discussion
 - Clinical Viva
 - Clinical encounter cards
- The **EOR-assessment** plan will be developed and submitted to the examination department UHS with the students' scores as part of the internal assessment.
- The **Prescription Inference Cards** will be a part of the log-book entries.
- At least two **Prescription Inference Cards** per block will be a part of the log entries
- The marks obtained by the students will be based on the log-book entries, and the Prescription Inference Cards
- Principal/DME will ensure that in addition to securing marks in the internal assessment the ward assessments are a college's internal criteria for proceeding to the block examination.
- Principal/DME will ensure that all the sections have been filled out before final submission to the University for the professional Examination.
- Before signing the logbook entry, the DME/HOD will ensure that the skill/task has been achieved by the student.



Clerkships

Rotation

Foundation

Clinical Skills -FRC

SECTION A



BLOCK-07

CFRC Code	Task/Skill
CFRC3-001	MedicalHistorytakingskills Take focused medical history including presenting complaints, history of presenting illness, past medical and surgical history, drug and allergy history, family history, social history, and systems review to identify symptoms, risk factors, and relevant clinical information.
CFRC3-002	Generalphysicalexamination: Perform asystematicgeneralphysicalexaminationtoassessvitalsignsandabnormal clinical findings.
CFRC3-003	Assessment of Growth and Nutritional Status Measure BMI and interpret nutritional status. Record height,weight,andcalculategrowthpercentilesinOPD/community settings.
CFRC3-004	Anemia Identify signsofanemia(pallor,koilonychia,glossitis)duringexamination.
CFRC3-005	Bloodsamplingtechnique Observe and narrate the correct technique for collecting, labeling, and storing blood samples while maintaining aseptic precautions and ensuring specimen integrity. (see annexure 1)
CFRC3-006	CBCAnalysis Interpret CBCandperipheralsmearfindings. Differentiate microcytic,macrocytic,andhemolyticanemiapatternsonreports.
CFRC3-007	Coagulationprofileanalysis Interpret PT, APTT, and platelet count results. Identify clinicalsignsofbleedingdisorders(petechiae,ecchymoses).
CFRC3-008	Bloodtransfusion Demonstrate correct patient identification and crossmatch verification before blood transfusion. Observe and describe steps of blood transfusion setup. Document bloodtransfusionrecord.
CFRC3-009	WHODeathcertificate Fillout aWHOdeathcertificatebasedoncasedata.
CFRC3-010	Informedconsent Take informedwrittenconsentforcommonprocedures.
CFRC3-011	Communicationskills Demonstrate empatheticcommunicationduringpatientinteraction.

CFRC3-012	Wound Assessment Inspect and describe the physical appearance of a wound, including its size, shape, edges, wound bed characteristics, exudate, surrounding skin, and signs of infection. Identify signs of wound infection.
CFRC3-013	Wound dressing Assist in wound dressing using sterile technique.
CFRC3-014	Burn wound care Observe and narrate the initial management steps for a burn patient (cooling, covering, fluids). Counsel on burn wound care and infection prevention.
CFRC3-015	Assessment of hemorrhage Measure and interpret vital signs in suspected shock. Identify signs of external/internal bleeding. Initiate first aid management for hemorrhage.
CFRC3-016	Infection prevention & management Demonstrate isolation precautions and hand hygiene. Counsel patients on infection prevention and immunization. Monitor fever charts and interpret temperature trends. Observe antibiotic administration and IV fluid therapy.
CFRC3-017	Routes of drug administration: Observe and identify various routes of drug administration (oral, intravenous, intramuscular, subcutaneous, inhalational, topical, and rectal) and describe the rationale for selecting a specific route for drug administration.
CFRC3-018	Aseptic precautions in parenteral drug administration: Demonstrate and practice aseptic precautions during parenteral drug administration. <i>(hand hygiene, use of sterile equipment, skin antisepsis, wearing gloves, avoiding contamination of sterile parts, clean environment, verifying drug integrity, single-use of syringes/needles, safe disposal of sharps, applying sterile dressing).</i>
CFRC3-019	Scrubbing technique Perform the correct technique of scrubbing in for surgical procedures in operation theatre while adhering to aseptic principles and infection control protocols.
CFRC3-020	Surgical History taking

	Perform focused surgical history-taking (e.g., neck lump, trauma, abdominal pain) and conduct physical examination to identify key findings for diagnosis and management.
CFRC3-021	Suturing Observe the steps of basic suturing techniques, including instrument handling, knot tying, and wound edge approximation, while following principles of asepsis.
CFRC3-022	Post-surgical infections Observe appropriate antimicrobial prophylaxis by selecting and justifying pre-operative antibiotics, and management of post-surgical infections according to standard guidelines.

Note: Before signing the logbook entry, the DME/HOD will ensure that the skill/task has been achieved by the student.

Annexure I

Collection, Transport and Storage of Blood Culture Specimen

Learning Outcomes:

The students will be able to:

- Explain the role of blood cultures in diagnosing bloodstream infections (e.g., sepsis, endocarditis).
- Describe the clinical significance of accurate and timely blood culture collection.
- Identify the correct site for collection of blood culture specimen.
- Describe aseptic technique to minimize contamination.
- Determine the appropriate blood volume required for adult and pediatric patients.
- Differentiate between aerobic and anaerobic culture bottles and their use.
- Timely collection of specimens (before antibiotic administration, during fever spikes if possible).
- Demonstrate hand hygiene and use of proper disinfection procedure for collection.
- Dispose of sharp and biohazard materials safely.
- Label specimens clearly with patient name, date, and time of collection.
- Complete relevant laboratory request forms or electronic documentation accurately.
- Describe appropriate transport conditions (Room temperature & prompt delivery).
- Understand the acceptable time frame for transporting specimens to the lab (ideally within 2 hours).
- Explain the impact of delays or incorrect transport on culture results.
- State the maximum holding times and conditions for blood culture bottles (e.g., room temperature vs. refrigeration).
- Recognize how improper storage can affect microbial recovery and lead to false-negative results.
- List of common pre-analytical errors (e.g., contamination, insufficient volume).

Collection of Blood Culture Specimen:

Blood should be collected before antimicrobial treatment has started. When the patient has recurring fever, collect the blood as the temperature begins to rise. For other patients, collect the blood as soon as possible after receiving the request. To increase the chances of isolating a pathogen, it is usually recommended that at least two specimens (collected at different times) should be cultured. A strict aseptic technique must be used to collect the blood

Procedure for collection of Specimen for Blood Culture:

Blood for culture must be collected and dispensed with great care to avoid contaminating the specimen and culture medium.

- Using a pressure cuff, locate a suitable vein in the arm. Deflate the cuff while disinfecting the venipuncture site. Wearing gloves thoroughly disinfect the venipuncture site as follows:
 - Palpate the vein with your index or middle finger
 - Using 70% ethanol, cleanse an area of about 50 mm in diameter.
 - Allow to air-dry.
 - Using 2% tincture of iodine and a circular action, swab the area beginning at the point where the needle will enter the vein.
 - Allow the iodine to dry on the skin for at least 1 minute.
 - Once the area has been disinfected, never touch the venipuncture area.
- Lift back the tape or remove the protective cover from the top of the culture bottle(s). Wipe the top of the bottle using an ethanol swab.
- Using a sterile syringe and needle, withdraw about 5-10 ml of blood from an adult or about 1-3 ml for paediatric patients.
- Insert the needle through the rubber liner of the bottle cap and dispense the blood into the blood culture bottle containing 40-50 ml of the broth.
- Clearly label each bottle with the name and number of the patient, and the date and time of collection.

Transport & Storage of Specimen to Microbiology laboratory:

- Timely and proper transport of specimen to the laboratory is crucial for accurate diagnosis and recovery of any microorganisms present.

- Blood culture bottles should be transported to the microbiology laboratory as soon as possible, ideally within **30 minutes to 2 hours** after collection, if not possible keep the bottles at Room temperature **(20–25°C)**.
- Blood culture bottles “**must not be refrigerated**”. Most organisms of clinical importance may become non-viable or fail to grow if exposed to cold temperatures. Keep at **room temperature (20–25°C)**.
- Transport the bottles in an **upright position** to minimize the risk of leakage or contamination
- Place the blood culture bottles in a designated **biohazard specimen transport bag** with a separate pouch for laboratory request forms. The container should be **leak-proof**.

Precautions:

- Do not shake the blood culture bottles.
- Do not stack or crush bottles during transport.
- Protect them from sunlight and intense heat during transport to the lab.



SECTION B

Case-Based Discussion (CBD) Form for Third-Year MBBS

Section	Field	Options/Notes
Trainee Information	Name	
	Student ID	
	Assessment Date	
	Location of CBD	
Assessor Information	Name	
	Designation	
	Department	
Case Details	Clinical Setting	☐ Inpatient ☐ Outpatient ☐ Emergency ☐ Elective
	Complexity of Case	☐ Basic (third-year level) ☐ Moderate ☐ Complex
	Focus of Encounter	☐ History ☐ Physical Examination ☐ Diagnosis ☐ Initial Management
		☐ Patient Education ☐ Documentation
	Summary of Case	
Assessment Areas	Medical Record Keeping	☐ Outstanding ☐ Satisfactory ☐ Needs Improvement
	Clinical Assessment	☐ Outstanding ☐ Satisfactory ☐ Needs Improvement
	Diagnostic Skills	☐ Outstanding ☐ Satisfactory ☐ Needs Improvement
	Initial Management Plan	☐ Outstanding ☐ Satisfactory ☐ Needs Improvement
	Communication Skills	☐ Outstanding ☐ Satisfactory ☐ Needs Improvement
	Professionalism	☐ Outstanding ☐ Satisfactory ☐ Needs Improvement
Feedback	Strengths	
	Areas for Development	
	Recommended Actions	
Trainee Reflection	Learning from the Experience	

	Strengths
	ImprovementPoints
Signatures	Trainee'sSignature
	Assessor'sSignature

- i. At least 1/3rd of entries per block (DMEto decide the codes of entriesto be entered for each student)
- ii. OneOSCE/CBD/Mini-CEXforeverystudent as **EORAssessment**foreveryblock

PRESCRIPTION INFERENCE CARD

Learning Outcome:

This structured “**Prescription Inference Card**” will guide students to make a foundation in clinical pharmacology, building their understanding of drug’s theoretical and clinical application.

Instructions/Protocols

The students will gather three real time prescriptions during each module in third & fourth year in morning /evening time.

It will be then discussed in coming pharmacology lecture/practical/tutorial time

At the end of each module the cards will be submitted for assessment, grading and awarding marks by Pharmacology department for formative & summative assessment.

Prescription Collection:

Ensure to collect three prescriptions from different patients in each module

Documentation:

Keep a record of all activities for personal learning and to share with mentors or faculty as required for assessment and marks

PRESCRIPTION INFERENCE CARD

Student's Name: _____ MBBS Year: _____ Roll no: - _____ UHS Registration no: _____ Block: _____

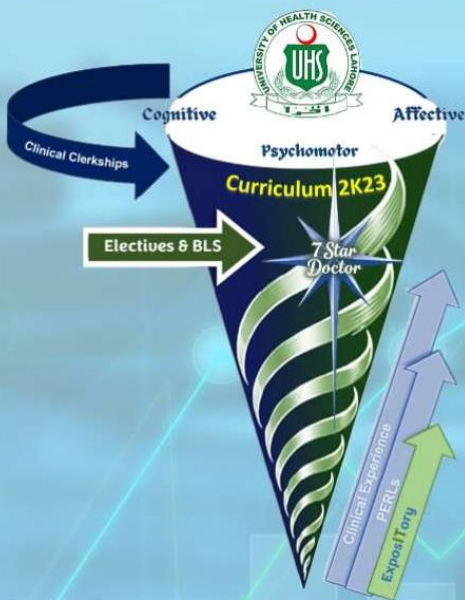
Date			
Drug&Group			
BrandName			
Generic Name			
Purpose of drug (Symptomatic/Specific)			
Dosage&Form			
Route of Administration			
Monitoring Parameters			
ADVERSE EFFECTS			
Observations/TextBook			
DRUG INTERACTIONS			
Observations/TextBook			
CONTRAINDICATIONS			
Observations/TextBook			
PRECAUTIONS			
Specifically Advised			
Comments/Instructions			
HOD Pharmacology Sign & Stamp			



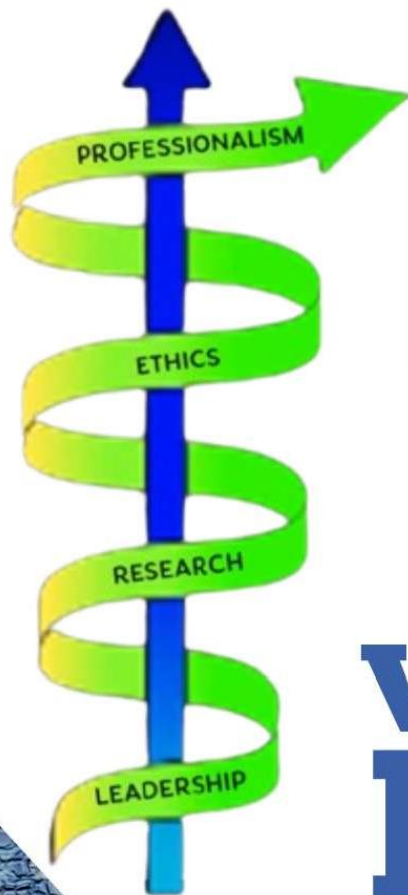
University of Health
Sciences Lahore

Modular Integrated Curriculum 2K23 MBBS Year-03

YEAR-3

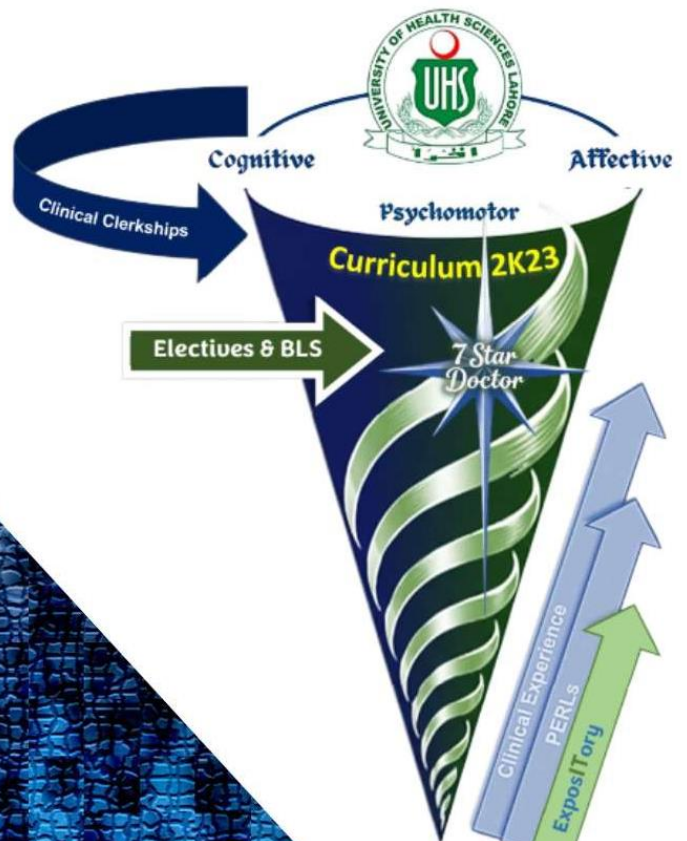


PERLs



Modular Integrated Curriculum 2K23 MBBS Year-3

Volume-3 PERLs-3



IMPLEMENTATION PLAN

This section includes the implementation strategy for the PERL Module. It is advised that the DME and facilitators from respective colleges involved in implementing PERLS should read this section carefully before initiating related instructional activities in respective colleges.

PORTFOLIO TEMPLATE

A portfolio template is hereby given with proposed activities for the colleges to use /modify as per their resources. Please note that Portfolio can be hard-bound or e-portfolio depending on the individual college's decision.



MODULERATIONALE

The UHS PERL module is designed to equip medical students with essential competencies in Professionalism, Ethics, Research, and Leadership, aligning with the PMDC 7-Star Doctor (Professional, Ethical, Scholar, Leader, Communicator, Health Advocate, and Collaborator) framework. This framework emphasizes the multifaceted role of a physician, highlighting the need for a holistic approach to medical education. In an era where healthcare systems are constantly evolving, integrating these core areas is vital for developing well-rounded, responsible, and effective healthcare professionals.

1. **Importance of Professionalism:**

Professionalism is the cornerstone of medical practice, influencing patient trust and the overall quality of care. This module emphasizes the significance of professional behavior, including accountability, integrity, and respect for diversity, ensuring that students cultivate a strong ethical foundation as they progress through their medical education.

2. **Ethical Decision-Making:**

As future healthcare providers, students will face complex ethical dilemmas that require sound judgment and moral reasoning. This module focuses on key ethical principles, such as patient autonomy, equity, and justice in resource allocation, particularly in challenging areas like neoplasia and inflammation. Understanding these principles prepares students to advocate for their patients while navigating the intricate landscape of modern healthcare.

3. **Research Competence:**

Research plays a critical role in advancing medical knowledge and improving patient outcomes. By emphasizing evidence-based practice, this module encourages students to engage with scientific literature, develop robust literature search strategies, conduct research projects and apply research findings to clinical decision-making. This skill set is essential for fostering a culture of inquiry and continuous improvement within the healthcare profession.

4. **Leadership Development:**

Leadership is an integral part of effective healthcare delivery. This module prepares students to take on leadership roles, emphasizing teamwork, conflict resolution, and effective communication. By fostering leadership skills, we aim to empower students to

influence positive changes in their future workplaces and advocate for patient-centered care.

In summary, the UHS PERL module is designed to create a comprehensive learning experience that prepares medical students for the challenges and responsibilities they will face in their careers. By integrating Professionalism, Ethics, Research, and Leadership, we aim to cultivate competent, compassionate, and ethical healthcare professionals who are equipped to make informed decisions and lead with integrity in an ever-changing medical landscape.

MODULE LEARNING OUTCOMES

- Exhibit accountability, integrity, and respect for diversity in all aspects of medical practice, embodying the principles of professionalism in clinical and academic settings.
- Analyze and apply ethical principles related to patient care, including autonomy, beneficence, non-maleficence, and justice, particularly in challenging situations such as end-of-life decisions and resource allocation.
- Develop and implement effective literature search strategies, critically evaluate scientific literature, and synthesize findings to inform clinical decision-making and practice.
- Participate in a comprehensive research project, from formulating a research question to data collection and analysis, culminating in the production of a publishable manuscript that meets academic and ethical standards.
- Demonstrate leadership skills through effective communication, conflict resolution, and teamwork, fostering a collaborative environment that enhances patient care and academic performance.
- Recognize and address the social determinants of health, advocating for equity in healthcare access and outcomes for diverse patient populations.
- Engage in self-assessment and reflective practices to identify strengths and areas for improvement, creating actionable plans for personal and professional growth throughout their medical education.
- Utilize effective verbal and non-verbal communication skills to engage with patients, families, and colleagues, ensuring clear and compassionate exchanges that enhance understanding and trust.

SUBJECTS INTEGRATED IN THE MODULE

1. Professionalism
2. Ethics
3. Research
4. Leadership

LEARNING RESOURCES

1. Professionalism:

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- Online Journals and Reading Material through HECDigital Library Facility

2. Ethics:

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INTRODUCTION

The UHS PERL Module is designed to equip medical students with essential competencies in Professionalism, Ethics, Research, and Leadership. This guide provides facilitators with an overview of the module, instructional strategies, and resources to effectively engage students in their learning journey.

MODULE OVERVIEW

- **Professionalism:** Focus on developing professional behavior and attitudes.
- **Ethics:** Emphasis on understanding and applying ethical principles in healthcare.
- **Research:** Development of research skills and critical appraisal abilities.
- **Leadership:** Enhancement of leadership qualities and communications skills.

MODULE STRUCTURE

1. Professionalism

- a. Focus: Development of professional behavior and attitudes essential for medical practice.
- b. Key Topics:
 - i. Professional identity formation
 - ii. Accountability and integrity
 - iii. Respect for diversity

2. Ethics

- a. Focus: Understanding and applying ethical principles in healthcare.
- b. Key Topics:
 - i. Virtue ethics and moral character
 - ii. Informed consent and patient autonomy
 - iii. Bioethics and clinical ethics

3. Research

- a. Focus: Developing research skills and critical appraisal abilities.
- b. Key Topics:
 - i. Basics of academic writing
 - ii. Literature searches and reviews
 - iii. Evidence-based medicine and research methodologies

4. Leadership

- a. Focus: Enhancing leadership qualities and communications skills.

b.KeyTopics:

- i. Teamdynamicsandconflictresolution
- ii. Patientcounselingandinformedconsent
- iii. Work-lifebalanceandmanagementskills

MODULE IDEOLOGY

The UHS PERLs module is designed to provide a comprehensive and integrated approach to developing essential competencies in Professionalism, Ethics, Research, and Leadership for medical students throughout their undergraduate training.

ProfessionalismModule

The Professionalism module begins with the foundational attributes of a professional student or doctor, focusing on intrapersonal skills in the first year. As students progress to the second and third years, the emphasis shifts toward interpersonal skills relevant to various domains, culminating in the formation of a Professional Identity in the fourth year. This progression ensures that students develop not only self-awareness but also the ability to interact effectively and ethically with patients and colleagues.

EthicsModule

The Ethics module initiates discussions on virtue ethics, emphasizing the virtues and moral character expected of medical students and professionals. In the second year, students delve into bioethics, followed by clinical ethics and research ethics in the third and fourth years. This structure helps students navigate the complexities of ethical dilemmas in medical practice, ensuring they are prepared to make informed, compassionate decisions that respect patient autonomy and promote justice.

ResearchModule

The Research module begins with the basics of academic writing, introducing students to the structure of a manuscript and critical appraisal through Journal Club Meetings and presentations in the first year. In the second year, the focus shifts to literature searches, summarization, and reviews, incorporating the use of artificial intelligence to enhance research capabilities. The third year introduces evidence-based medicine as a treatment guide in disease management, followed by research design, methodology, clinical audits, and patient safety, culminating in the development of a draft ethical approval proposal. This systematic approach equips students with

the skills to conduct meaningful research and contribute to the advancement of medical knowledge.

LeadershipModule

The Leadership module starts with personal qualities and communication skills in the first year, emphasizingtheimportanceofeffectiveinteractioninhealthcaresettings.Inthesecond year, the focus expands to teamwork dynamics, patient counseling, informed consent, conflict resolution, and work-life balance.The third year emphasizes management skills, includingproject management (aligned with research projects), entrepreneurship, and the use of innovation, such as AI in research and team leadership in healthcare setups. Finally, the fourth-year centers on professional identity, self-evaluation, digital transformation in healthcare, public health initiatives, health reforms, and advocacy. Throughout this module, mentoring sessions are integrated to providerolemodelingandsupport,reinforcingthedevelopmentofastrongprofessionalidentity amongundergraduateMBBSstudents.

MODULEDEVELOPMENTANDVALIDATION

The UHS PERL module was developed through a scientific approach, involving the systematic identification of content via extensive literature searches, national and international guidelines,and recommendations from content contributors. This initial framework was presented to a panel of 10 invited experts in a modified e-Delphi round for validation.

During this process, the experts evaluated the module's content and provided constructive feedback, identifying areas for improvement. In the second round, a consensus was reached regarding the relevance of the module content, as well as its depth and scope tailored to the appropriate MBBS year.

Following the module development and validation, two independent reviewers were engaged to assess the sequencing and flowofthetopics.Their reviewfocusedon ensuring logicalcoherence and identifying any additional revisions necessary to enhance the module's clarity and effectiveness. Further, the review was requested from an early career doctor who had recently graduated froman affiliated medicalcollege inorder to involve theirsuggestionsfor improvement. ThisrigorousdevelopmentandvalidationprocessensuresthattheUHSPERL modulemeets the highest educational standards and effectively prepares medical students for their professional journey.

LEARNING OBJECTIVE EXPLANATION

The learning objectives for the UHS PERL module are crafted to enhance students' comprehension and practical application of core competencies in Professionalism, Ethics, Research, and Leadership. Each objective consists of an **Initial Learning Objective** and an **Actionable Learning Objective**, guiding both instructional methods and portfolio assignments.

Example: Work-Life Balance (Leadership)

Learning Objective:

- **Understand the importance of maintaining a healthy work-life balance**, focusing on strategies for managing personal well-being while fulfilling professional commitments to ensure optimal mental and physical health.

Actionable Learning Objective:

- "Students will **create a personal plan** that outlines strategies for achieving work-life balance, including time management, self-care practices, and setting boundaries between personal and professional life."

Instructional Strategies:

- Use **interactive discussions** to explore the concept of work-life balance.
- Facilitate **workshops** where students can share experiences and strategies.
- Implement **guided planning sessions** where students can outline their personal plans with facilitator support.
- Encourage **peer feedback sessions** for students to share and refine their plans collaboratively.

Proposed Portfolio Entry:

- "Submit a reflection on your work-life balance plan. Include specific strategies you intend to implement to manage stress and maintain your well-being while meeting your academic and professional responsibilities."

Portfolio Guidance:

- Ensure students understand the importance of documenting their plans and reflections as a means to monitor their progress and make adjustments as needed.
- Provide a rubric that emphasizes clarity, depth of reflection, and practical application in their submissions.

DIVERSE INSTRUCTIONAL STRATEGIES TO FOSTER STUDENT-CENTERED LEARNING

To enhance student engagement and promote a deeper understanding of the material, the following instructional strategies can (not limited to) be employed:

1. **Active Learning:** Incorporate activities that require students to actively participate, such as problem-solving exercises, team-based learning, group discussions, and hands-on simulations.
2. **Collaborative Learning:** Utilize small group work to encourage peer interaction and knowledge sharing, fostering a sense of community and collaborative problem-solving.
3. **Flipped Classroom:** Assign readings or videos for students to review before class, allowing class time to focus on discussions and practical applications of the material.
4. **Case-Based Learning:** Present real-world scenarios for students to analyze, encouraging critical thinking and the application of theoretical knowledge to practical situations.
5. **Technology Integration:** Leverage digital tools and online platforms to facilitate interactive learning experiences, such as virtual simulations, discussion forums, and collaborative projects.
6. **Mentoring and Peer Support:** Encourage mentorship opportunities where students can receive guidance from peers or professionals, fostering a supportive learning environment.

PORTFOLIO ENTRY WITH PEEL CONCEPT

As part of the UHS PERL module, students will maintain a portfolio that incorporates the PEEL (Point, Evidence, Explanation, Link) concept for reflective entries:

1. **Point:** State the main idea or argument you want to discuss in your reflection or analysis.
2. **Evidence:** Provide supporting evidence or examples from your experiences, coursework, or relevant literature.
3. **Explanation:** Explain how the evidence supports your point, including its significance and implications for your learning.
4. **Link:** Connect your point to broader themes in the module or your overall personal and professional development.

Portfolio Guidance:

- Portfolio can be in hard bound or e-portfolio. A template for portfolio entry has been attached.
- Encourage students to use the PEEL framework to structure their reflections clearly and coherently. This will aid in their understanding of the material and enhance their ability to articulate their thoughts and learning experiences effectively.

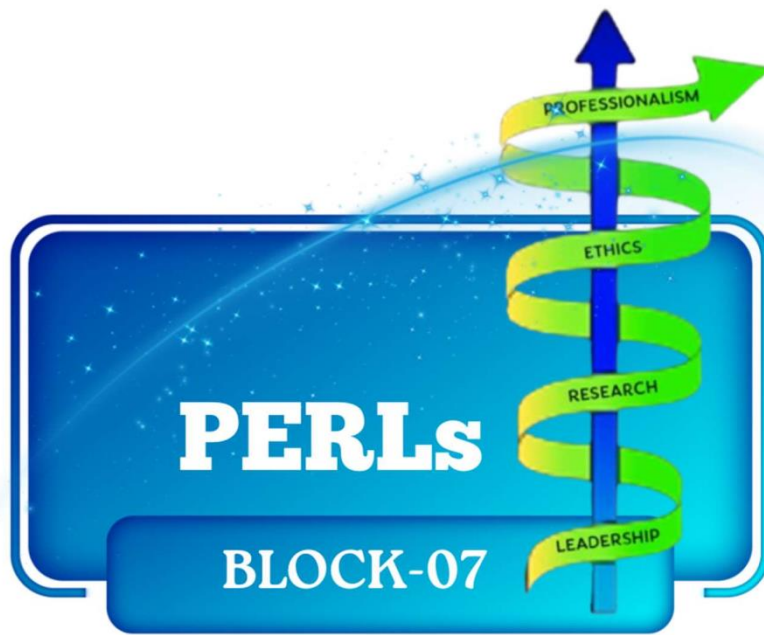
ROLE IN EVALUATION OF THE PERL MODULE

As a facilitator, your role in the evaluation of the UHS PERL module is crucial for ensuring its effectiveness and relevance. Key responsibilities include:

1. **Monitoring Student Progress:** Regularly assess student engagement and understanding through formative assessments, feedback, and participation in discussions and activities.
2. **Collecting Feedback:** Gather feedback from students regarding their learning experiences, instructional strategies, and the relevance of module content. This information is vital for continuous improvement.
3. **Evaluating Learning Outcomes:** Review the alignment of students' performances with the stated learning outcomes. Analyze assessment results to identify trends and areas needing improvement.
4. **Reflecting on Teaching Practices:** Engage in self-reflection and peer evaluation to assess your own teaching methods. Consider what strategies worked well and where adjustments may be needed to enhance student learning.
5. **Implementing Changes:** Based on evaluation findings, propose and implement changes to instructional methods, content delivery, or assessment strategies to better meet the needs of future cohorts.

CONCLUSION

As a facilitator of the UHS PERL module, your role is crucial in guiding students through the complexities of Professionalism, Ethics, Research, and Leadership. By utilizing diverse instructional strategies and fostering an engaging learning environment, you will help students develop the competencies necessary for their future roles as healthcare professionals.



FOUNDATION-II&EBM				
*ProposedSequenceofTopicsMentionedbelow.MedicalCollegesareatlibertytomanage accordingtotheirresources.TopicscanswitchwithineachBlock				TotalHours=7.5
* Research (R) in the PERL curriculum will be delivered by the Department of Community Medicine as a longitudinal component from the first to the fourth year of the MBBS program. At the end of the fourth year, students' research projects will be assessed through a dedicated PERL station.				
Code	Domain	Topic	Specific Learning Objectives	Proposed Portfolio Entry
PERLs-3-001	Professionalism	Professional Responsibility in Clinical Rotations	- Understand the basic professional behaviours expected in clinical rotations, such as punctuality, appropriate communication, and respectful interactions with patients and staff. - Observe a clinical setting and identify key professional behaviours demonstrated by healthcare staff, such as maintaining punctuality and professional communication	A brief reflection on the key professional behaviours observed during the first clinical rotation session, noting how these behaviours contribute to patient care and professional conduct.
PERLs-3-002	Research	Legal and Ethical Frameworks governing medical research	Discuss the legal and ethical frameworks governing medical research, including protection of human subjects, informed consent, privacy, and compliance with national and international regulations.	
PERLs-3-003	Research	Institutional Ethical Review	- Discuss the role of Institutional Review Boards (IRBs) in the research process. - Identify and explain the different components of your institutional ethical review proforma to demonstrate its understanding.	

PERLS-3-004	Ethics	Reporting medical errors	• Discuss the ethical obligations in reporting medical errors and the role of transparency in maintaining patient trust and improving care quality. • Draft an incident report on a simulated medical error, outlining the ethical considerations and steps taken to address the issue	Submit a written incident report on a simulated or real medical error, including the ethical implications and actions taken.
PERLS-3-005	Leadership	RoleModelling/ Mentoring Session V	• Participate in a mentoring session where they will discuss their strengths and weaknesses with their mentor, receive feedback, and collaboratively create an action plan for personal and professional development. Discuss any challenges faced while carrying out any action plan if already created and related solutionstoovercome thosechallenges.	Mentoring Session V Key decisions

GENERAL&CLINICALPHARMACOLOGY				
*ProposedSequenceofTopicsMentionedbelow.MedicalCollegesareatlibertytomanage accordingtotheirresources.TopicscanswitchwithineachBlock				TotalHours=06
* Research (R) in the PERL curriculum will bedelivered by the Department of Community Medicineas a longitudinal component from the first to the fourth year of the MBBS program.At the end of the fourth year, students' research projects will be assessed through a dedicated PERL station.				
Code	Domain	Topic	SpecificLearning Objectives	ProposedPortfolio Entry
PERLs-3-006	Professionalism	Responsible use of social media Platforms	Discuss the principles of responsible use of social media platforms, including safeguarding patient confidentiality, conducting ethical interactions, and practising careful online sharing. Discuss available social media use guidelines in healthcare.	Develop and submit personal social media guidelines that reflect ethical use in professional and medical contexts
PERLs-3-007	Ethics	Conflict of interest, Dealing with Pharmaceuticals	Explain the ethical challenges related to conflicts of interest in healthcare, particularly when dealing with pharmaceutical companies, and understand how to manage these situations to maintain professional integrity. Analyze a case study where a conflict of interest occurred involving pharmaceutical companies, and propose strategies for ethically managing such situations	Submit an analysis of a case involving a conflict of interest in pharmaceutical dealings, including recommendations for handling the situation ethically and how such conflicts can be avoided in future practice.
PERLs-3-008	Research	Gaps in Literature	Discuss the importance of identifying gaps in existing literature for formulating meaningful research problems. Identify at least one significant gap from the literature review of a	

			selected topic that requires further exploration. Formulate a research question or hypothesis to address the identified literature gap. Refine a previously selected research title in light of the identified gap.	
PERLS-3-009	Leader	Artificial Intelligence Research in	• Explore the role of artificial intelligence (AI) in medical research, including its applications, potential benefits, and challenges, while identifying ways AI can innovate and enhance research methodologies. • Discuss the ethical implications of using AI in research, including bias, data privacy, transparency, and accountability concerns. • Demonstrate the use of AI tools as supplementary tools in research.	Develop and submit a code of conduct for the responsible use of AI tools in research, focusing on ethical issues such as bias, data privacy, informed consent, and transparency.

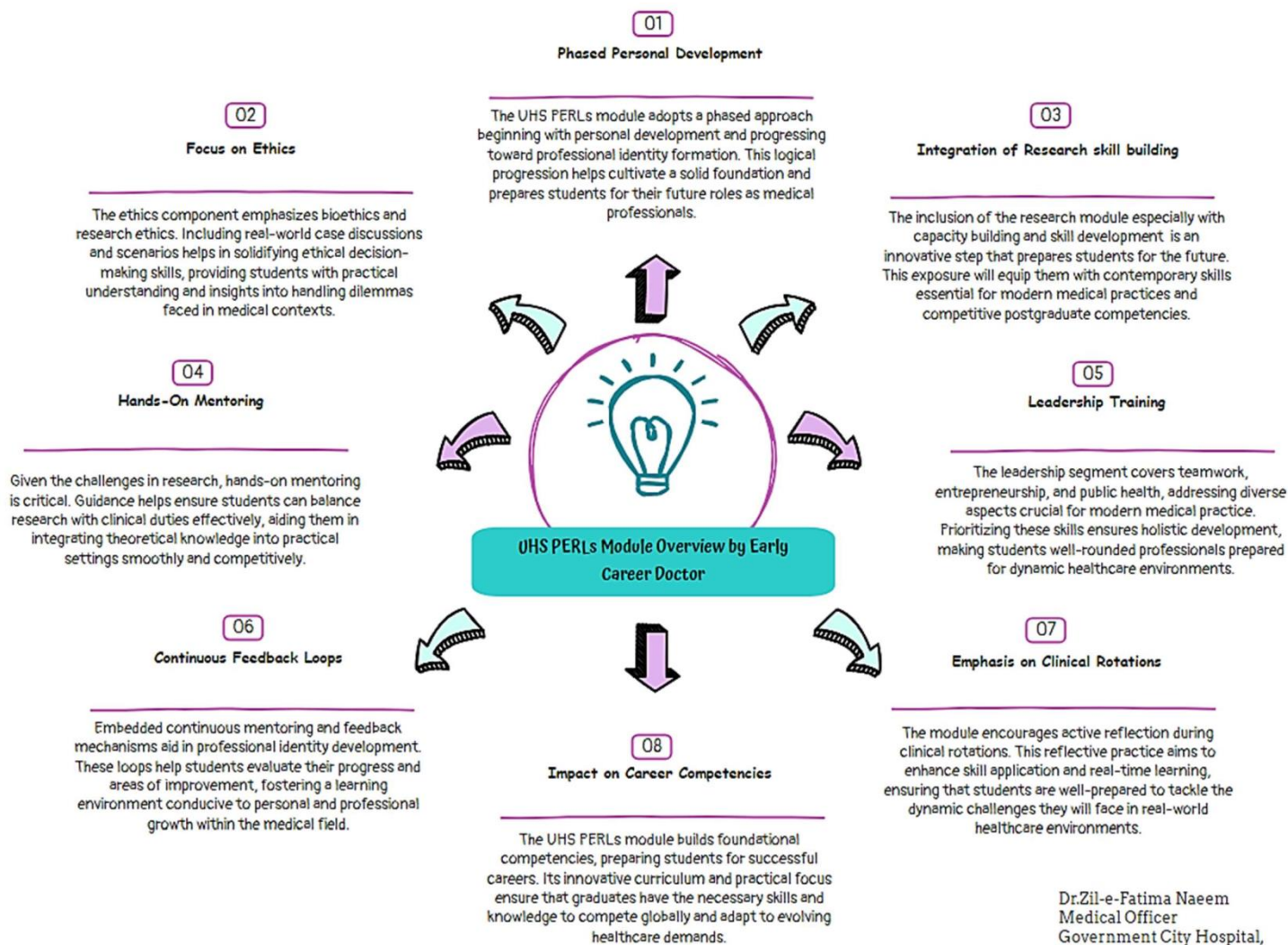
HEMATOPOETIC, IMMUNITY & TRANSPLANT				
*Proposed Sequence of Topics Mentioned below. Medical Colleges are at liberty to manage according to their resources. Topics can switch within each Block				Total Hours = 1.5
* Research (R) in the PERL curriculum will be delivered by the Department of Community Medicine as a longitudinal component from the first to the fourth year of the MBBS program. At the end of the fourth year, students' research projects will be assessed through a dedicated PERL station.				
Code	Domain	Topic	Specific Learning Objectives	Proposed Portfolio Entry
PERLS-3-010	Professionalism	Maintaining Patient Confidentiality	- Discuss the principles for maintaining patient confidentiality. - Appreciate the importance of maintaining patient confidentiality in clinical practice. - Discuss legal and ethical implications of patient confidentiality.	Reflective entry on a clinical case where confidentiality was maintained, detailing the challenges and how they were addressed.
PERLS-3-011	Research	Research References	- Identify different reference styles. - Use reference management software to apply Vancouver style of referencing. - Use reference management software to apply APA style of referencing.	

FORENSIC MEDICINE & TOXICOLOGY				
*Proposed Sequence of Topics Mentioned below. Medical Colleges are at liberty to manage according to their resources. Topics can switch within each Block				Total Hours=4.5
* Research (R) in the PERL curriculum will be delivered by the Department of Community Medicine as a longitudinal component from the first to the fourth year of the MBBS program. At the end of the fourth year, students' research projects will be assessed through a dedicated PERL station.				
Code	Domain	Topic	Specific Learning Objectives	Proposed Portfolio Entry
PERLs-3-012	Ethics	Human Rights & Malpractice	Discuss ethical principles surrounding human rights in healthcare, particularly in malpractice cases, and recognize the professional obligations to uphold patients' rights while preventing and addressing malpractice.	Case analysis of a malpractice incident, discussing the implications of human rights and detailing measures that could have been implemented to avoid the violation of patient rights.
PERLs-3-013	Research	Introduction of Research	- Write and submit the introduction section of a research proposal with proper referencing for teachers' feedback. - Refine the research title and introduction based on feedback received.	
PERLs-3-014	Leadership	Project Management	Introduce the basic concepts of project management in healthcare, including planning, organizing, and executing small projects, such as case studies or group assignments. Participate in a class activity, where they will plan and organize tasks, set timelines, and assign roles to ensure the project is completed efficiently.	Write a Class activity report with assigned roles taken by each group member. Critically evaluate the challenges observed with proposed recommendations.





What your Seniorssay



Dr.Zil-e-Fatima Naeem
Medical Officer
Government City Hospital,
Toba Tek Singh, Punjab

INTRODUCTION

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MODULE STRUCTURE

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- b. Key Topics:
 - i. Professional identity formation
 - ii. Accountability and integrity
 - iii. Respect for diversity

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- a. Focus: Understanding and applying ethical principles in healthcare.
- b. Key Topics:
 - i. Virtue ethics and moral character
 - ii. Informed consent and patient autonomy
 - iii. Bioethics and clinical ethics

7. Research

- a. Focus: Developing research skills and critical appraisal abilities.
- b. Key Topics:
 - i. Basics of academic writing
 - ii. Literature searches and reviews
 - iii. Evidence-based medicine and research methodologies

8. Leadership

- a. Focus: Enhancing leadership qualities and communication skills.
- b. Key Topics:
 - i. Team dynamics and conflict resolution
 - ii. Patient counseling and informed consent
 - iii. Work-life balance and management skills

MODULE IDEOLOGY

The UHS PERLs module is designed to provide a comprehensive and integrated approach to developing essential competencies in Professionalism, Ethics, Research, and Leadership for medical students throughout their undergraduate training.

Professionalism Module

The Professionalism module begins with the foundational attributes of a professional student or doctor, focusing on intrapersonal skills in the first year. As students progress to the second and third years, the emphasis shifts toward interpersonal skills relevant to various domains, culminating in the formation of a Professional Identity in the fourth year. This progression ensures that students develop not only self-awareness but also the ability to interact effectively and ethically with patients and colleagues.

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Leadership Module

The Leadership module starts with personal qualities and communication skills in the first year, emphasizing the importance of effective interaction in healthcare settings. In the second year, the focus expands to teamwork dynamics, patient counseling, informed consent, conflict resolution, and work-life balance. The third year emphasizes management skills, including project management (aligned with research projects), entrepreneurship, and the use of innovation, such as AI in research and team leadership in healthcare setups. Finally, the fourth-year centers on professional identity, self-evaluation, digital transformation in healthcare, public health initiatives, health reforms, and advocacy. Throughout this module, mentoring sessions are integrated to provide role modeling and support, reinforcing the development of a strong professional identity among undergraduate MBBS students.

MODULE DEVELOPMENT AND VALIDATION

The UHS PERL module was developed through a scientific approach, involving the systematic identification of content via extensive literature searches, national and international guidelines, and recommendations from content contributors. This initial framework was presented to a panel of 10 invited experts in a modified e-Delphi round for validation.

During this process, the experts evaluated the module's content and provided constructive feedback, identifying areas for improvement. In the second round, a consensus was reached regarding the relevance of the module content, as well as its depth and scope tailored to the appropriate MBBS year.

Following the module development and validation, two independent reviewers were engaged to assess the sequencing and flow of the topics. Their review focused on ensuring logical coherence and identifying any additional revisions necessary to enhance the module's clarity and effectiveness. Further, the review was requested from an early career doctor who had recently graduated from an affiliated medical college in order to involve their suggestions for improvement. This rigorous development and validation process ensures that the UHS PERL module meets the highest educational standards and effectively prepares medical students for their professional journey.

ASSESSMENT AND EVALUATION

- **Portfolio:** Throughout the module, you will be required to maintain a portfolio that includes reflections, case analyses, and evidence of your learning experiences. This portfolio will serve as a demonstration of your growth and understanding of the module content.
- **Participation:** Engage actively in discussions, groupwork, and role-playing exercises to enhance your learning and application of the concepts.

- **OSCE Exam:** At the end of the module, you will participate in an Objective Structured Clinical Examination (OSCE) as a summative assessment. This exam will evaluate your practical skills, including communication, clinical reasoning, and the application of professionalism and ethical principles in simulated patient scenarios along with leadership and research skills.

EVALUATION: YOUR FEEDBACK

As part of the UHS PERL module, we value your feedback to continually improve the learning experience. Your insights will help us understand the effectiveness of the module and identify areas for enhancement.

FEEDBACK AREAS:

1. **Module Content:**
 - a. Was the content relevant and appropriate for your learning needs?
 - b. Were the topics covered comprehensively?
2. **Teaching Methods:**
 - a. Did the teaching methods (lectures, discussions, practical exercises) support your learning?
 - b. How effective were the mentoring sessions in reinforcing your understanding?
3. **Assessments:**
 - a. Did the assessments (portfolio, OSCE exam) accurately reflect your knowledge and skills?
 - b. Were the expectations for the assessments clear and achievable?
4. **Resources:**
 - a. Were the provided resources (reading materials, online tools) helpful for your learning?
 - b. Is there any additional resource you would suggest?
5. **Overall Experience:**
 - a. What aspects of the module did you find most beneficial?
 - b. What suggestions do you have for improving the module in the future?

FEEDBACK SUBMISSION:

Please provide your feedback using the following format to the Department of Medical Education in your College:

- **Strengths:** What worked well?
- **Areas for Improvement:** What could be improved?
- **Additional Comments:** Any other thoughts or suggestions?

Your feedback is essential for refining the UHSPERL module and ensuring it meets the needs of future students. Thank you for your participation.

PEEL PORTFOLIO TEMPLATE

At the end of this guide, you will find the PEEL (Point, Evidence, Explanation, Link) portfolio template, which will help you structure your reflections and analyses effectively.

1. **Point:** State the main idea or point you want to discuss.
2. **Evidence:** Provide evidence or examples to support your point.
3. **Explanation:** Explain how the evidence relates to your point and its significance.
4. **Link:** Connect your point to broader themes in the module or your personal development.

CONCLUSION

The UHS PERL Module aims to equip you with the essential competencies needed to thrive as a future healthcare professional. Your engagement, critical thinking, and commitment to learning will be key to your success in this module. Embrace the challenges and opportunities for growth and make the most of the available resources and support.



**Modular Integrated
Curriculum 2K23
MBBS Year-03**

A stylized logo consisting of a lowercase 'i' and 'f' in a blue and purple gradient, with a small blue sphere above the 'i'.

EXPOSITORY

Volume: 03

Modular Integrated

Curriculum 2K23



Module Rationale

To integrate Expository Writing with an Introduction to Information Technology (IT) course for undergraduate medical students, we can align the IT skills taught each year with the writing tasks and objectives. The aim is to enhance students' digital literacy and writing skills, which is crucial for modern medical practice.

This integrated spiral of Expository Writing and IT ensures that as students advance in their medical education, they also develop digital literacy skills. These skills complement their writing abilities and prepare them for modern medical practice, where digital communication, research, and data management are essential. By the end of the 4-year program, students will be proficient in writing and using technology to support their work as healthcare professionals.

Year 3: Expository Writing III Research writing, data handling, and presentation skills			
THEORY			
Code	Subject: Expository writing & IT		Total Hours = 10
	Specific Learning Outcome	Integrating Disciplines	Topics
EXP-03	Expository Writing Focus: 1. To use Advanced grammar for, sentence structure, and writing persuasive essays and case reports with medical evidence. 2. To write full-length review articles and case studies. IT Integration: IT Skills: 3. To use Excel & SPSS for Making tables, graphs, pie charts of medical data 4. To use AI Tools for creating professional presentations. Writing Application: 5. Learn to use tools (e.g., Excel) & SPSS for making managing patient data. 6. To create clear, visually appealing presentations for research projects using AI tools.	PERLS, Pharmacology, Community Medicine, Pathology, Forensic Medicine	• Writing essays and case reports with differential diagnosis • Introduction to Excel & SPSS for making tables, graphs, pie charts of medical data • Making Presentations with AI tools.

A graphic for Section 07. It features a blue semi-circle with a dark grey border and a drop shadow, containing the number '07' in a dark grey outline font. Below the semi-circle is a solid grey rectangular box containing the word 'Section' in a white, cursive script font.

07

Section

Volume-03



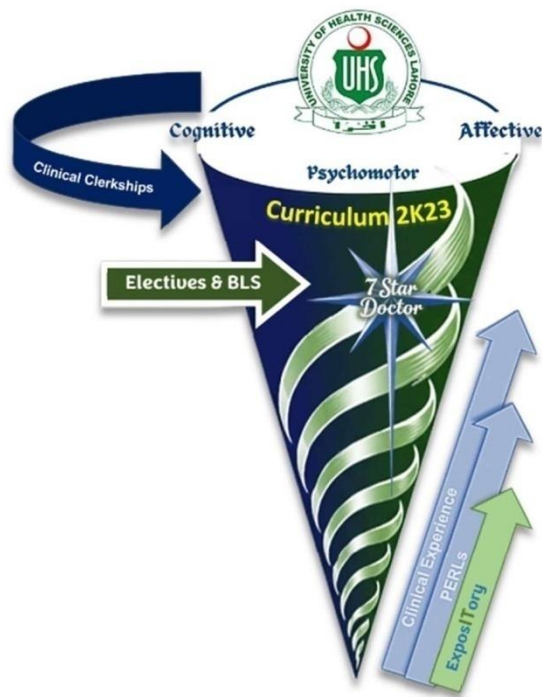
STUDENT PORTFOLIO

YEAR-03





Curriculum2K23(MBBSYear-3)



MODULE:FOUNDATIONII&EBM

DATEFROM: _____

DATETO: _____

CHECKEDBY: _____

RollNo:	
AssignmentTopic:	
Date:	
A brief reflection on the key professional behaviours observed during the first clinical rotation session, noting how these behaviours contribute to patient care and professional conduct.	
FacilitatorRemarks:	

RollNo:	
AssignmentTopic:	
Date:	
Create a casereport detailing the application of EBP to a specific disease management scenario, including references to the literature.	
FacilitatorRemarks:	

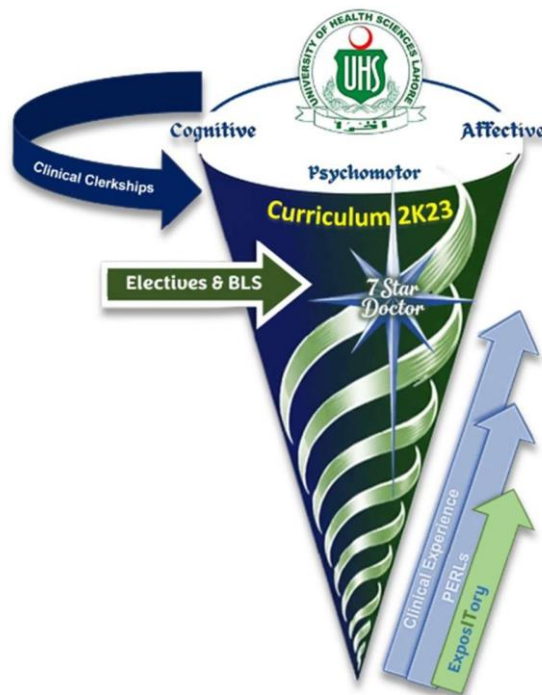
RollNo:	
AssignmentTopic:	
Date:	
PosterSubmissionofamedicalerrorcase,includingbothrootcauseanalysisandaSwiss Cheese Model diagram that illustrates the alignment ofsystem failures – alongwith proposedrecommendations.	
FacilitatorRemarks:	

RollNo:	
AssignmentTopic:	
Date:	
Submitawrittenincidentreportonasimulatedorrealmmedicalerror,includingtheethical implicationsandactionstaken.	
FacilitatorRemarks:	

RollNo:	
AssignmentTopic:	
Date:	
MentoringSessionVKeydecisions	
Facilitator Remarks:	



Curriculum2K23(MBBSYear-3)



MODULE:GENERAL&CLINICALPHARMACOLOGY

DATEFROM: _____

DATETO: _____

CHECKEDBY: _____

RollNo:	
AssignmentTopic:	
Date:	
Develop and submit personal social media guidelines that reflect ethical use in professional and medical contexts.	
FacilitatorRemarks:	

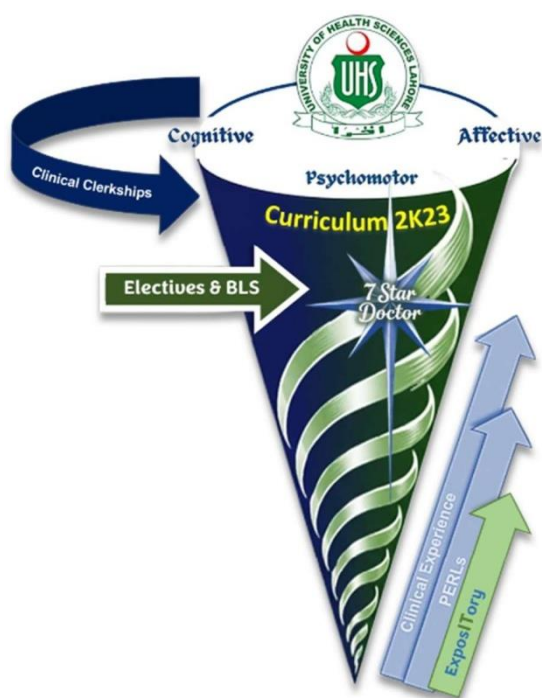
RollNo:	
AssignmentTopic:	
Date:	
Submit an analysis of a case involving a conflict of interest in pharmaceutical dealings, including recommendations for handling the situation ethically and how such conflicts can be avoided in future practice.	
FacilitatorRemarks:	

RollNo:	
AssignmentTopic:	
Date:	
Submitaliteraturereviewsummaryidentifyingkeygapsintheresearch.	
FacilitatorRemarks:	

RollNo:	
AssignmentTopic:	
Date:	
Develop and submit a code of conduct for the responsible use of AI tools in research, focusing on ethical issues such as bias, data privacy, informed consent, and transparency.	
FacilitatorRemarks:	



Curriculum2K23(MBBSYear-3)



MODULE:HEMATOPOETIC,IMMUNITY&TRANSPLANT

DATEFROM: _____

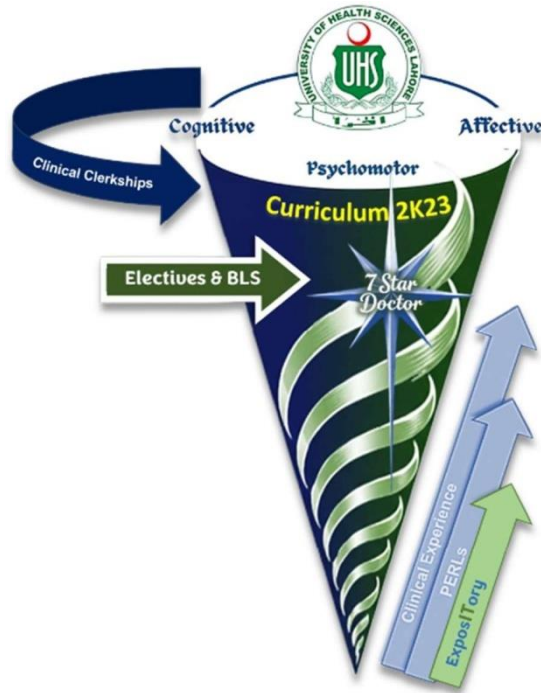
DATETO: _____

CHECKEDBY: _____

RollNo:	
AssignmentTopic:	
Date:	
Reflectiveentryonaclinicalcasewhereconfidentialitywasmaintained,detailingthe challengesandhowtheywereaddressed.	
FacilitatorRemarks:	



Curriculum2K23Version4.0



MODULE:FORENSICMEDICINE&TOXICOLOGY-I

DATEFROM: _____

DATETO: _____

CHECKEDBY: _____

RollNo:	
AssignmentTopic:	
Date:	
Case analysis of a malpractice incident, discussing the implications of human rights and detailing measures that could have been implemented to avoid the violation of patient rights.	
FacilitatorRemarks:	

RollNo:	
AssignmentTopic:	
Date:	
Review and submit the Patient Information Sheet/Informed Consent Sheet of your College IRB and propose any improvement if needed.	
FacilitatorRemarks:	

RollNo:	
AssignmentTopic:	
Date:	
Write a Class activity report with assigned role taken by each group member. Critically evaluate the challenges observed with proposed recommendations.	
FacilitatorRemarks:	

RollNo:	
AssignmentTopic:	
Date:	
ReviewandsubmitthePatientInformationSheet/InformedConsentSheetofyourCollegeIRB andproposeanyimprovementifneeded.	
FacilitatorRemarks:	

RollNo:	
AssignmentTopic:	
Date:	
Write a Class activity report with assigned roles taken by each group member. Critically evaluate the challenges observed with proposed recommendations.	
FacilitatorRemarks:	

Block-7 Coordinators

PHARMACOLOGY

Dr. Azan

Assistant Professor Pharmacology Office: AP Office Pharmacology, Academic block2, First Floor Office Hours: Monday to Friday from 0800 Hours till 1500Hours

PATHALOGY

Dr.Rana Muhammad Asad (Block Lead)

Assistant Professor Pathology Office: Pathology, Academic block2, Ground Floor Office Hours: Monday to Friday from 0800 Hours till 1500Hours **FORENSIC MEDICINE Prof. Alvina Raja** HoD& Professor of Forensic Medicine Office: Forensic Medicine Department Academic block 1, First Floor Office Hours: Monday to Friday from 0800Hours till 1500Hours

ANATOMY

Prof. Noreen Waseem

Professor of Anatomy Office: Anatomy Department Academic block 1, First Floor Office Hours: Monday to Friday from 0800Hours till 1500Hours

PHYSIOLOGY

Dr.Maimoona Shafiq

HOD/Professor of Physiology Office: HOD Office Physiology, Academic block 1, Ground Floor Office Hours: Monday to Friday from 0800 Hours till 1500Hours

BIOCHEMISTRY

Dr.UmberNaeemRathore AssistantProfessor Office: AP Office Biochemistry, Academic block1, First Floor OfficeHours:MondaytoFridayfrom0800Hourstill1500Hours

COMMUNITY MEDICINE

Dr. Arooj Lecturer Community Medicine Office: Community Medicine, Academic block1,First Floor Office Hours: Monday to Friday from 0800 Hours till 1500 Hours

BEHAVIOUR SCIENCES Dr. Rubab Waseem

Senior Lecturer Behavioural Sciences Office Hours: Monday to Friday from 0800 Hours till 1500Hours

MEDICINE Dr.Momin/Dr. Zara

SUGERY Dr. Shafaq

GYNAECOLOGY Dr. Anoos Butt

PAEDIATRICS Dr. Ghanwa

IMPORTANTNOTE

To be able to sit in Annual Exam

**85% attendance and at least 50% in internal assessment
is mandatory**

DISCLAIMER

This module guide may be subject to changes and students should stay updated through official communication change