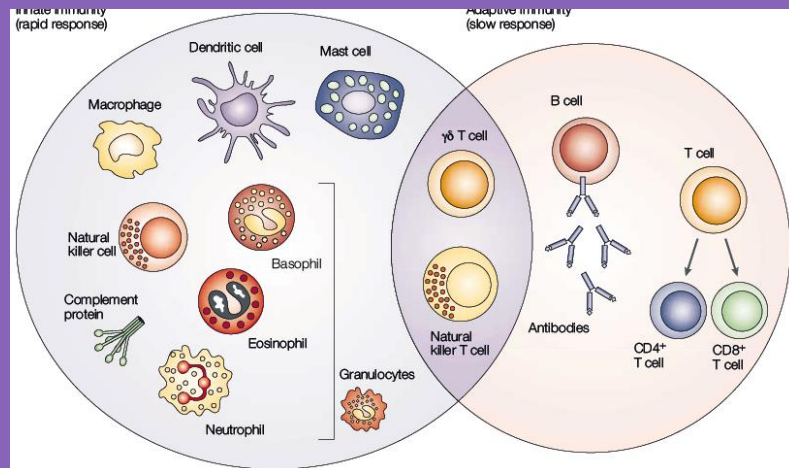


SWAT MEDICAL COLLEGE SWAT

DEPARTMENT OF MEDICAL EDUCATION



BLOOD & IMMUNOLOGY- II



3RD YEAR MBBS

BLOCK: H

CLASS OF 2021-26

TOTAL DURATION: 3 WEEKS

FROM: 3RD TO 28TH JUNE

STUDENT NAME

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1 Academic Calendar

Tentative Annual Calendar MBBS – 2023-24 Swat Medical College, Swat						
Activity/ Events	Week	Date	1 st Year	2 nd Year	3 rd Year	4 th Year
Orientation Week	1	12 th to 16 th Feb	Foundation-I (6 weeks) 22 nd March, Module Exam	Neurosciences-IA (6 weeks) 22 nd March, Module Exam	Foundation II (5 weeks) 22 nd March, Module Exam	Neurosciences – II (6 weeks) 25 th and 26 th March Block J Exam
Regular Classes	2	19 th to 23 rd Feb				
Regular Classes	3	26 th Feb to 1 st March				
Regular Classes	4	4 th to 8 th March				
Regular Classes	5	11 th to 15 th March				
Regular Classes	6	18 th to 22 nd March	Blood & Immunology (5 weeks) 6 th & 7 th May Block A exam	Neurosciences-IB (5 weeks) 13 th & 14 th May Block D	Infection & Inflammation (6 weeks) 6 th May to 7 th May Block G exam	GIT and Hepatobiliary – II (5 weeks) 10 th and 11 th June Block K Exam
Regular Classes	7	25 th to 29 th March				
Regular Classes	8	1 st to 5 th April				
Spring Break/Eid ul Fitr	9	8 th to 12 th April				
Sports Week	10	15 th to 19 th April				
Regular Classes	11	22 nd to 26 th April	MSK-I (8 weeks) 1 st & 2 nd July Block-B Exam	GIT, Hepatobiliary & Metabolism- (8 weeks) 1 st & 2 nd July	Multisystem (5 weeks) Module Exam 31 st May	Renal – II Module (4 weeks) 1 st and 2 nd July Module Exam
Regular Classes	12	29 th to 3 rd May				
Regular Classes	13	6 th to 10 th May				
Regular Classes	14	13 th to 17 th May				
Regular Classes	15	20 th to 24 th May				
Regular Classes	16	27 th May to 31 st May	CVS-I (5 weeks) 23 rd August Module Exam	Renal (3 weeks) 12 th to 13 th August Block E	MSK-II (5 weeks) 2 nd Sep 3 rd Sep Block H exam	Endocrine and Reproduction – II (8 weeks) 16 th and 17 th September Block-L exam
Regular Classes	17	3 rd to 7 th June				
Regular Classes	18	10 th to 14 th June				
Eid-ul-Adha Holidays	19	17 th to 21 st June				
Regular Classes	20	24 th to 28 th June				
Summer Vacations	21-23	3 rd to 21 st July	Respiratory-I (4 weeks) 23 rd -24 th SEP Block-C Exam	Endocrine-I (4 weeks) 6 th Sep	CVS-II (3 weeks) 20 th September Module exam	EYE and ENT (6 weeks) 14 th to 18 th Oct Block M1 & M2 Exam
Regular Classes	24	22 nd to 26 th July				
Regular Classes	25	29 th July to 2 nd Aug				
Regular Classes	26	5 th to 9 th Aug				
Regular Classes	27	12 th to 16 th Aug				
Regular Classes	28	19 th 23 rd Aug	PREPARATORY LEAVES	Reproduction-I (4 weeks) 30 th Sep 1 st Oct	RES-II (4 weeks) 21 st and 22 nd October Block L exam	PREPARATORY LEAVES
Regular Classes	29	26 th to 30 th Aug				
Regular Classes	30	2 nd to 6 th Sep				
Regular Classes	31	9 th to 13 th Sep				
Regular Classes	32	16 th to 20 th Sep				
Regular Classes/ Preparatory Leaves	33	23 rd to 27 th Sep	Annual Exam as per KMU schedule.	PREPARATORY LEAVES	PREPARATORY LEAVES	PREPARATORY LEAVES
Regular Classes/ Preparatory Leaves	34	30 th Sep to 4 th Oct				
Regular Classes/ Preparatory Leaves	35	7 th to 11 th Oct				
Regular Classes/ Preparatory Leaves	36	14 th to 18 th Oct				
Regular Classes/ Preparatory Leaves	37	21 st to 25 th Oct				
Regular Classes/ Preparatory Leaves	38	28 th Oct to 1 st Nov	Winter vacation	Winter vacation	Winter vacation	Annual Exam as per KMU schedule.
Regular Classes/ Preparatory Leaves	39	4 th to 8 th Nov				
Regular Classes/ Preparatory Leaves	40	11 th to 15 th Nov				
Regular Classes/ Preparatory Leaves	41	18 th to 22 nd Nov				
Regular Classes/ Preparatory Leaves	42	25 th to 29 th Nov				
Regular Classes/ Preparatory Leaves	43	2 nd to 6 th Dec	Winter vacation	Winter vacation	Winter vacation	Annual Exam as per KMU schedule.
Regular Classes/ Preparatory Leaves	44	9 th to 13 th Dec				
Regular Classes/ Preparatory Leaves	45	16 th to 20 th Dec				
Regular Classes/ Preparatory Leaves	46-49	November 2024				
Regular Classes/ Preparatory Leaves	50-53	December 2024				
Regular Classes/ Preparatory Leaves	54-57	January 2025				
Start of new academic session 2025-26			February 2025	February 2025	February 2025	February 2025
			February 2025	February 2025	February 2025	March 2025

Note: The given dates are tentative and may be subject to change as needed/demanded. The KMU will share the annual exam schedule at the end of the current session.

Dear Student

The Department of Medical Education (DME) has successfully conducted faculty training for the curation of study guides. In accordance with the guidelines set by Khyber Medical University, Peshawar, this study guide has been meticulously developed by the respective block coordinator. For any queries or concerns, kindly refer to the "Query and Troubleshooting" section for contact information.

Please be advised that the timetables provided in the study guides are tentative, and the final versions will always be accessible on the official website, notice boards, and social media platforms.

It is crucial to acknowledge that this guide is subject to continuous improvement, aligning with updates to module learning objectives and blueprints by KMU Peshawar. It is noteworthy that the learning objectives and blueprints outlined in this guide represent an enhanced and revised version of those originally provided by KMU.

For more information on modules and examination blueprints, please visit

<https://kmu.edu.pk/examination/guidelines>.

Your login link of official website: https://mis.swatmedicalcollege.edu.pk/login/student_login

List Of Abbreviation

<u>KEY:</u>	Abbreviation	<u>KEY:</u>	Abbreviation
Anat-L	Anatomy Lecture	MCQ:	Multiple Choice Questions
Anat-SGD	Small Group Discussion in Anatomy	EMQ:	Extended Matching Question
Bio-L	Biochemistry Lecture	IL:	Interactive Lectures
Bio-P	Biochemistry Practical	CBL:	Case Based Learning
CMed	Community Medicine	SBL:	Scenario Based Learning
DSL	Directed Self Learning	OSPE:	Objective structured Practical Evaluation
FDT	Film/Demonstration/Tutorial	OSCE:	Objective structured Clinical Evaluation
FMed	Forensic Medicine	HEC:	Higher Education Commission
Histo-P	Histology Practical	MIT:	Mode of transfer of informations
IPS	Islamiyat/Pak Studies	QEC:	Quality Enhancement Cell

2 Module Committee:

s.no	Name	Department	Role
•	Prof. Dr. Aziz Ahmad	Dean / principal	
•	Dr. M Junaid Khan	DME	Director
Module Team			
	Prof. Dr. Imran-ud-Din	Pathology	Chairperson
•	Dr. Aurangzeb Khan	Pathology	Block Coordinator
•	Dr. Muneed Khan	Community Medicine	Member
•	Dr. Rehman Shah	Pharmacology	Member
•	Dr. Shabir Ahmed	Pathology	Member
•	Dr. Siyab Ahmed	Pathology	Member
•	Prof. Dr. Mukammil Shah	Pathology	Member



3 Recommended List Of Icons



Introduction To Case



For Objectives



Critical Questions



Assessment



Resource Material

4 Mission/ Vision of the College

4.1 Mission Statement of the Institution:

To impart quality medical education through evidence based teaching incorporating professionalism, patient safety, research, critical thinking, ethics and leadership.

4.2 Vision Statement of the Institution:

To be a center of excellence in medical education, patient care and research globally.

5 Overview of the Module/ Preface

Welcome to the new module of block H, the Blood and Immunology Module-2 for 3rd-year MBBS. It offers a comprehensive exploration of hematological and immunological concepts crucial for understanding human health and disease. Through a series of lectures, practical sessions, and clinical case discussions, students delve into the intricacies of blood disorders, immune system functioning, and their clinical implications. Topics covered include hematopoiesis, blood cell morphology, immunoglobulin structure and function, and the pathophysiology of various hematological and immunological disorders. By immersing themselves in this module, students gain a solid foundation in the principles of hematology and immunology, equipping them with essential knowledge for future clinical practice and medical research.

Students will gain hands-on experience through clinical rotations in diverse settings such as Skill lab, interactive lectures and SGD, providing a well-rounded education. The study guide serves as a crucial reference for assessment and evaluation. It outlines the components that will be assessed, such as knowledge and basic sciences practical implications, and the corresponding assessment tools, which include MCQs, SEQ and OSPE.

6 Introduction/ Organization of Module

6.1 Introduction:

The Blood and Immunology Module-2 of the 3rd year MBBS curriculum serves as a vital component in understanding the intricate mechanisms of hematological and immunological systems. This module provides students with an opportunity to delve deeper into the physiology, pathology, and clinical aspects of blood-related disorders and immunological responses. By exploring topics such as hematopoiesis, immunoglobulin structure, and the pathophysiology of various diseases, students gain a profound understanding of the complexities underlying human health and disease.

6.2 Rational:

The rationale for the Blood and Immunology Module-2 in the MBBS curriculum is multifaceted. Firstly, understanding the intricacies of blood and immunology is fundamental for medical students as it forms the basis of numerous diseases and conditions encountered in clinical practice. By comprehensively studying hematological and immunological principles, students can develop essential diagnostic and management skills crucial for patient care. Furthermore, this module addresses the growing importance of immunological research and therapies in modern medicine, preparing students for advancements in the field. Given the significant impact of blood-related disorders and immunological diseases on public health, a thorough understanding of these topics is indispensable for future physicians. Therefore, this module aims to equip students with the knowledge, skills, and clinical acumen necessary to excel in the diagnosis, management, and treatment of hematological and immunological conditions throughout their medical careers.

6.3 Organization of the Study guide:

Exploring key clinical presentations, the module organizes around themes such as Pallor and Fatigue, Fever, and Bleeding, providing a comprehensive understanding of these common manifestations.

1. **Pallor and Fatigue (1 week):** This theme focuses on the clinical assessment, diagnostic approach, and management of conditions characterized by pallor and fatigue. Students will learn to recognize the signs and symptoms associated with anemia and related disorders, understand the underlying pathophysiology, and explore the various investigative modalities used in diagnosing these conditions.
2. **Fever (1 week):** In this theme, students delve into the multifaceted aspects of fever, including its etiology, pathogenesis, and clinical manifestations. Emphasis is placed on differentiating between infectious and non-infectious causes of fever, understanding the body's immune response to pathogens, and implementing appropriate diagnostic and therapeutic strategies for fever management.
3. **Bleeding (1 week):** This theme explores the spectrum of bleeding disorders, encompassing both primary and secondary hemostatic defects. Students will learn to differentiate between various types of bleeding, such as petechiae, ecchymosis, and hematomas, and understand the underlying mechanisms leading to abnormal bleeding. Additionally, they will gain insight into the diagnostic workup and management approaches for patients presenting with bleeding symptoms.

6.4 Teaching Strategies:

The content of this module will be delivered by a combination of different teaching strategies. These include interactive lectures, small group discussion (SGD), large group discussion (LGF), self-directed learning (SDL), history taking, patient examination, laboratory tests, practicals and clinicopathological conferences.

The following teaching/ learning methods are used to promote better understanding:

A. Large Group Formats:

Interactive Lectures: In large group, the lecturer introduces a topic or common clinical conditions and explains the underlying phenomena through questions, pictures, videos of patients' interviews, exercises, etc. Students are actively involved in the learning process.

Directed Self Learning: Directed self-learning is an active learning approach where the learners are provided with predefined learning objectives and some facilitation through the learning process in the form of guidance and supervision. It helps establish a strong foundation for autonomous and deep learning.

Self-Directed Learning: Students assume responsibilities of their own learning through individual study, sharing and discussing with peers, seeking information from Learning Resource Center, teachers and resource persons within and outside the college. Students can utilize the time within the college scheduled hours of self-study.

B. Small Group Formats:

Small Group Discussions: This format helps students to clarify concepts and acquire skills or attitudes. Sessions are structured with the help of specific exercises such as patient cases, interviews, or discussion topics. Students exchange opinions and apply knowledge gained from lectures, tutorials, and self-study. The facilitator's role is to ask probing questions, summarize, or rephrase to help clarify concepts.

Practical Demonstration: Basic science practical related to anatomy, biochemistry and physiology are scheduled for student learning.

6.5 Assessment strategies

Assessments within the MBBS program at STMC consist of both formative and summative evaluations. These assessments are integral to monitoring student progress and academic performance.

Formative Assessment:

Formative assessments, accounting for 10% of the total marks assigned to each block, serve as ongoing evaluations designed to provide feedback and facilitate learning. The allocation of this 10% can be determined in accordance with the blueprint of KMU and further distributed as per the academic council's recommendations at STMC. Formative assessments are conducted after the completion of each module, ensuring that students receive timely feedback to enhance their understanding and performance.

Summative Assessment:

Summative assessments, which comprise the majority of the assessment weighting (90% of all marks), are conducted and overseen by KMU, as part of the annual examination process. The summative

annual examination is organized and conducted by KMU, which carries out the evaluation and grading. This summative assessment evaluates students' comprehensive understanding of the curriculum and accounts for a significant portion of their final scores.

Assessment Tools:

Various assessment tools are employed to gauge students' knowledge and competencies. These tools include:

Written Examinations: These encompass Multiple Choice Questions (MCQ) and Short Essay Questions (SEQ) that evaluate students' theoretical knowledge.

Performance Assessments: Objective Structured Practical Examinations (OSPE) and Objective Structured Clinical Examinations (OSCE) are used to assess practical skills and clinical competence.

In-Training Assessments: Clinical logbooks provide a comprehensive record of students' practical experiences and serve as a valuable tool for tracking their progress.

Assignments: Presentations, projects, and self-reflection assignments are included in the assessment process to enhance students' critical thinking and research skills

Students will be assessed via MCQs, SEQs, SAQs, OSPE/OSCE, and assignments/Presentations.

6.6 Feedback mechanism and summary

At the end of each module a “Module Evaluation Form” will be provided to the students whether in hard copies or online and the students will give their opinion regarding the “Course Contents”, “Learning Resources”, “Teaching Methods”, “Engagement& Motivation” and “Assessment Methods”. The students' feedback will be taken at the end of each module to further improve the medical education quality and their learning capabilities to continually upgrade the standards of medical education.

In short, the study guides will help the students a lot by facilitating them in studying various subjects being integrated in various modules along with bringing improvement in learning by the students, assessment through various means, and feedback.

7 Hours Allocation

S. No	Subject	Hours needed
1	Pathology	30
2	Pharmacology	7
3	Forensic medicine	9
4	Community medicine	9
5	Medicine	3
6	Physiology	3
7	Pediatrics	1
8	PRIME/Medical Education and Research	2+1
	Total	65



8 Learning Objectives

8.1 General Learning Outcomes

By the end of this module the students would be able to;

1. Describe the pathophysiology and diagnosis of different types of anemia.
2. Explain the pathogenesis of different hematological malignancies.
3. Discuss the diagnostic approach to malignant hematological disorders.
4. Discuss the pathophysiology and diagnosis of bleeding disorders.
5. Explain the immune system of the body and its components.
6. Describe the mechanism of defense from infection.
7. Explain hypersensitivity and allergy.
8. Discuss the rationale for immunomodulation and its impact on improving the therapeutic dynamics of autoimmune disorders and malignancies.
9. Describe the drugs for treating various types of anemia.
10. Write prescription for the prevention and treatment of iron-deficiency anemia.
11. Describe the application of blood groups in Forensic work
12. Describe the examination of blood stains
13. Describe the medico legal importance of blood as trace evidence
14. Describe the EPI schedule of Pakistan and the basic principles of Immunization.
15. Describe the most prevalent anemia's that affect the population of Pakistan and the risk factors for vulnerable populations.
16. Describe the most prevalent blood-borne infections that affect the population of Pakistan, and the appropriate preventive strategies including safe blood practice.

8.2 Specific Learning Outcomes

Learning objectives Theme 1: Pallor and Fatigue			
Subject	Topic	Sr. No	Learning objectives
PHYSIOLOGY	Red blood cells	1	Discuss the steps of Erythropoiesis with correlation to Red cell indices and its clinical implications.
PATHOLOGY	Anemias	2	Discuss Physiologic basis of Anemia.
		3	Classify anemia's according to underlying mechanism
	Blood loss	4	Describe the pathogenesis of blood loss anemia

	Hereditary Spherocytosis	5	Discuss the pathogenesis of Hereditary Spherocytosis
		6	Describe morphological changes in peripheral smear of HS patient
		7	Explain how will you diagnose a case of HS?
	Sickle cell Anemia	8	Discuss the morphology of RBCs in Sickle cell Anemia
		9	Describe the etiology and pathogenesis in SA
		10	Explain how will you diagnose a case of SA?
	Thalassemias	11	Describe Thalassemias
		12	Discuss the conditions contributing to the pathogenesis of Beta- Thalassemias
		13	Explain the genetics of Thalassemias
		14	Describe the morphological changes physically and on peripheral smear
		15	Explain how will you diagnose a case of alpha or beta Thalassemias
	Glucose 6 phosphate dehydrogenase deficiency	16	Classify G6PD
		17	Discuss the pathogenesis of G6PD with reference to oxidative injury of RBCs
		18	Describe the morphology of RBCs in G6PD
		19	Explain how will you diagnose a case of G6PD deficiency
	Paroxysmal Nocturnal Hemoglobinuria	20	Describe the pathophysiology of Paroxysmal Nocturnal Hemoglobinuria
		21	Explain the diagnosis of a case of PNH?
FORENSIC MEDICINE	Immune hemolytic anemia's	22	Classify immune hemolytic anemia's
		23	Discuss the etiological mechanism of warm and cold antibody immune hemolytic anemia
		24	Explain the diagnostic workup of immune hemolytic anemia
	Forensic evidence	49	Describe trace evidence
		50	Classify trace evidence.
		51	Describe Locard's exchange principle.

		52	Describe composition of blood and characteristics of different blood cells.
		53	Describe basic genetic principles related to blood groups and blood groups as hereditary factors.
	Blood group systems	54	Describe different blood groups systems. <ul style="list-style-type: none"> ▪ Grouping based on red cell antigens ▪ Grouping based on blood proteins ▪ Grouping based on enzymes ▪ Grouping based on white cell antigens. ▪ Describe different methods for blood group determination. ▪ Direct agglutination ▪ Ring test ▪ Gel diffusion ▪ Immune-electrophoresis ▪ Indirect agglutination
		55	Describe the application of blood in forensic work. (medico legal importance) <ul style="list-style-type: none"> ▪ Inheritance claims ▪ Rh hazards ▪ Transfusion errors and adverse reactions ▪ DNA profiling ▪ Disputed paternity and maternity
COMMUNITY MEDICINE	Epidemiology Of Diseases Of Blood & Blood Forming Organs	56	Differentiate between diseases of blood, blood forming organs and blood borne infections
		57	Describe the population at risk of nutritional anemia in Pakistan.
		58	Explain effective public health strategies for prevention of different types of anemia's in a community in Pakistan
		59	Describe risk factors for different nutritional anemia's
		60	Describe effective public health strategies for prevention of different types of anemia's in Pakistan
PEADS	Thalassemias	61	Describe Classification, Laboratory Investigation and management of Thalassemia
MEDICINE	Sickle Cell Anemia	62	Discuss the pathophysiology, investigations and management of Sickle Cell Anemia.

Learning objectives Theme 2: Fever

Subject	Topic	Sr. No	Learning objectives
PHYSIOLOGY	White Blood Cells	63	Classify the different types of white blood cells, Polymorph's, Lymphocytes and Plasma cells and their disorders.
PATHOLOGY	Acute Myelogenous Leukemia	64	Classify acute myelogenous leukemias according to FAB.
		65	Discuss the pathophysiology of AML.
		66	Describe the morphological features of AML.
		67	Explain how will you proceed for diagnosis of AML?
	Chronic Myelogenous Leukemia	68	Discuss the pathophysiology of CML.
		69	Describe the peripheral blood findings in CML
		70	Explain how will you proceed for diagnosis of CML?
	Myelodysplastic Syndrome (Mds)	71	Enlist types of MDS.
		72	Discuss causes, pathogenesis and Morphology.
		73	Interpret blood and bone marrow changes in patient with MDS.
		74	Discuss symptoms and diagnostic strategies for patient with MDS.
	Lymphoid Neoplasms	75	Enumerate Lymphoid neoplasm
		76	Classify lymphoid neoplasms according to WHO classification.
	Acute Lymphocytic Leukemia	77	Discuss the pathophysiology of Acute lymphocytic leukemia
		78	Discuss the morphological features of ALL
		79	Explain how will you diagnose a case of ALL?
	Chronic Lymphocytic Leukemia	80	Discuss the pathophysiology of Chronic lymphocytic leukemia
		81	Describe the distinguishing morphological features of CLL
		82	Explain the diagnostic workup for a case of CLL
	Plasma cell disorder	83	Describe the pathogenesis of multiple myeloma
		84	Describe the molecular genetics involved in multiple myeloma
	Hodgkin's lymphoma	85	Discuss the type of multiple myeloma
		86	Enlist the clinical features
		87	Classify Hodgkin's lymphoma

		88	Discuss the etiology and pathogenesis of Hodgkin's lymphoma
		89	Describe the morphological changes and clinical course of the disease in Hodgkin's Lymphoma
	Non-hodgkin's lymphoma	90	Enlist Non-Hodgkin's lymphoma
		91	Describe the basic pathologic classification of NHL (the WHO classification).
		92	Describe the predisposing factors to developing NHL, including infectious agents associated with development of specific lymphomas.
		93	Describe the morphologic features of lymph nodes involved in Non-Hodgkin lymphoma
		94	Enlist the lab investigations required for diagnosis of NHL
	Immunity	95	Describe the functions and types of immunity.
		96	Enlist the three lines of defenses and outline their properties
		97	Describe the characteristics, origin and functions of cells of immune system
		98	Compare innate and acquired immunity
		99	Compare the mechanism of active and passive immunity
	Humeral immunity	100	Describe the role of T and B lymphocytes in immunity
		101	Describe the role of B lymphocytes in humeral immunity
		102	Describe humeral immunity
		103	Explain how helper T cells regulate the immune system
		104	Differentiate between humeral and cell mediated immunity
	Cell mediated immunity	105	Explain the Specificity of immune response
		106	Describe cell mediated components of Cell mediated immunity (CMI),
		107	Explain types of cells in CMI system
		108	Describe T-cell activation and diversity

Learning objectives Theme 3: Bleeding

Subject	Topic	Sr.	Learning objectives
PHYSIOLOGY	Platelets	155	Enumerate the causes of thrombocytopenia.

		156	Explain the intrinsic and extrinsic pathways of Coagulation
PATHOLOGY	Thrombocytopenia & Von Wille Brand disease	157	Enlist causes of Thrombocytopenia
		158	Describe the pathogenesis of immune thrombocytopenic purpura
		159	List thrombotic micro angiopathies.
		160	Explain the diagnostic plan for ITP
		161	Classify VWD
		162	Enlist investigations required for diagnosis of VWD
	Hemophilia	163	Discuss the pathogenesis of hemophilia A and B
		164	Describe the clinical course of the disease.
		165	Enlist the laboratory investigation for diagnosing a case of hemophilia
	Disseminated Intravascular coagulopathies	166	Enlist major disorders associated with DIS
		167	Discuss the pathophysiology of DIC
		168	Explain the morphological changes in DIC
		169	Explain how will you diagnose DIC?
	Transfusion medicine	170	Describe various blood component preparation
		171	Identify indications for different blood components
		172	Describe transfusion reactions associated with blood transfusion
PHARMACOL OGY	Antiplasmin (Antifibrinolytic) drugs	173	Describe mechanism of action of Antiplasmin (antifibrinolytic) drugs
		174	Describe clinical uses and adverse effects of Anti-plasmin (antifibrinolytic) drugs
	Drug treatment of Haemophilia	175	Describe the drug treatment for various types of Haemophilia
		176	Describe the role of Desmopressin in the treatment of haemophilia
FORENSIC MEDICINE	Blood stains	177	Describe examination of blood stains. <ul style="list-style-type: none"> Physical examination Chemical examination Physicochemical examination Micro chemical examination Spectroscopic examination Immunological and enzymological methods for species determination

		178	Describe the medico-legal importance of blood stains.
	Collection and Preservation of Biological Material	179	Describe the collection and preservation of biological material <ul style="list-style-type: none"> • Blood • Swabs and smears • Saliva • Semen
MEDICINE	Platelets (ITP)	180	Describe Clinical features, investigations and management of a patient with Immune Thrombocytopenia (ITP)

Practical Work

Subject	Topic	Sr. No	Learning objectives
PATHOLOGY	Normal Complete blood count	181	Differentiate between a normal blood cells of different lineages
	Abnormal Peripheral Smear in Different Anemias	182	Differentiate between a normal and an abnormal RBC
		183	Identify different shapes of RBCs.
		184	Identify the common types of Anemia on the basis of RBC morphology
PHARMACOL OGY	Iron deficiency anemia	185	Write prescription for a patient at risk of developing iron-deficiency anemia
		186	Write Chart order for treating an in-door patient with iron-deficiency anemia
FIELD VISIT	Visit to blood	187	Explain safe blood transfusion practices
	Bank of a tertiary	188	List the common pathogens that cause blood borne infections which may be acquired from unsafe blood transfusion practices.
	Care hospital	189	List the most common transfusion reactions seen in a blood bank in a local teaching hospital in Pakistan
		190	Communicate with health care staff effectively
		191	Describe the standard operating procedures (SOP's) of blood transfusion

Theme 2

PATHOLOGY	Normal White cell smear	192	Describe causes of leukocytosis
		193	Differentiate different types of white blood cells under microscope

FORENSIC MEDICINE	Microscopic examination of animal and human blood	194	Perform Microscopic examination of animal and human blood.
	Examination of blood stains under ultraviolet light	195	Perform examination of blood stains under ultraviolet light.
	Different pattern of stains	196	Identify different pattern of stains.
FIELD VISIT	Visit to basic health care unit/ EPI center	197	Observe administration of different vaccines as part of Expanded Program of immunization
			(EPI) schedule of Pakistan at the vaccination center.
		198	List and explain the route of administration and mechanism of storage and maintenance of cold chain of each vaccine in the EPI schedule (support with images where possible)
		199	List the different components of each vaccine in the EPI schedule including the adjuvants, preservatives and explain their relevance to the vaccine.
		200	Differentiate between live attenuated vaccines, conjugate vaccines, subunit vaccines, and toxoid vaccines in the EPI schedule and their mode of action
		201	Identify the contraindications for vaccination that may present an additional risk
		202	Describe the organ gram of EPI center
		203	Explain the role of EPI center.
		204	Observe the process of vaccination on a case.

Theme 3

PATHOLOGY	Coagulation tests	205	Interpret Prothrombin time and activated partial thromboplastin time
		206	Interpret bleeding time and clotting time



9 Learning Opportunities and Resources

9.1 Instruction (if any)

Following study material will help a student to grasp full the content of the subjects taught.

Recommended books are to be studied first, followed by reference books if needed..

9.2 Books:

Subjects	Textbooks
Community Medicine	1.Community Medicine by Parikh 2. Community Medicine by M Illyas 3. Basic Statistics for the Health Sciences by Jan W Kuzma
Forensic Medicine	1. Nasib R. Awan. Principles and practice of Forensic Medicine 1st ed. 2002. 2. Parikh, C.K. Parikh's Textbook of Medical Jurisprudence, Forensic Medicine and Toxicology. 7th ed.2005. 3.Knight B. Simpson's Forensic Medicine. 11th ed.1993. 4. Knight and Pekka. Principles of forensic medicine. 3rd ed. 2004 5. Krishan VIJ. Text book of forensic medicine and toxicology (principles and practice). 4th ed. 2007 6. Dikshit P.C. Text book of forensic medicine and toxicology. 1st ed. 2010 7. Polson. Polson's Essential of Forensic Medicine. 4th edition. 2010. 8. Rao. Atlas of Forensic Medicine (latest edition). 9. Rao.Practical Forensic Medicine 3rd ed ,2007. 10. Knight: Jimpson's Forensic Medicine 10th 1991,11th ed.1993 11. Taylor's Principles and Practice of Medical Jurisprudence. 15th ed.1999
Pathology	1. Robbins & Cotran, Pathologic Basis of Disease, 9th edition. 2. Rapid Review Pathology, 4th edition by Edward F. Goljan MD
PHARMACOLOGY	1. Lippincott Illustrated Pharmacology 2. Basic and Clinical Pharmacology by Katzung

9.3 Website:



<https://www.medscape.com>



<https://www.PathologyOutlines.com>



<https://pubmed.ncbi.nlm.nih.gov>



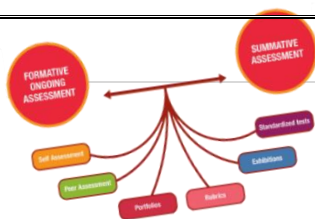
<https://scholar.google.com>



<https://medlineplus.gov>



<https://medicine.nus.edu.sg/pathweb>



11.Examination and Methods of Assessment:

9.4 Introduction:

- 1 The year-3 will be assessed in 3 blocks.
- 2 Block-1 (Foundation 2 and Infection and Inflammation modules) will be assessed in **paper-G**.
- 3 Block-2 (Multisystem, blood and MSK modules) will be assessed in **paper-H**.
- 4 Block-3 (CVS and Respiratory module) will be assessed in **paper-I**.
- 5 Each written paper consists of 120 MCQs.
- 6 Internal assessment will be added to final marks in KMU.
- 7 In OSPE, each station will be allotted 6 marks, and a total of 120 (+10% marks of internal assessment) marks are allocated for each OSPE/OSCE examination.
- 8 Practical assessment will be in the form of OSPE/OSCE which will also include
- 9 embedded viva stations. The details of each section are given in the tables given below.

Total marks distribution- 3rd Year MBBS

Table-1 ASSESSMENT PLAN OF 3 RD YEAR						
THEORY PAPER	MODULES	THEORY MARKS	INTERNAL Assessment theory(10%)	OSPE/ OSCE	Internal assessment OSPE (10%)	Total marks
Paper G	Foundation-II	120	14	120	14	268
	Inf. & inflammation					
Paper H	Multisystem	120	13	120	14	267
	Blood					
	MSK					
Paper I	CVS-II	120	13	120	12	265
	Respiratory-II					
Total Marks		360	40	360	40	800

Paper-H (Multisystem, Blood and MSK)

Table 2: Paper H Blood & Immunology MCQs

Subjects	Total MCQs
MSK	44
Multisystem I	41
Blood and Immunology	35
Total	120

Table 3: Blood & Immunology OSCEs

Subjects	Total OSCEs
MSK	10
Multisystem I	0
Blood and Immunology	10
Total	20

* A minimum of 20 stations will be used in final exams. Total marks will be 120 (6 marks for each station).

12. For inquiry and troubleshooting



Please contact
Dr. Aurangzeb Khan

13. Module Evaluation Form

This is an example of feedback form and real-time feedback will be obtained through an electronic link and/or your LMS

MBBS Year: _____ Block: _____ Module: _____

Date: _____

1. (Unsatisfactory) 2 (Fair) 3 (Satisfactory) 4 (Good) 5 (Excellent)

Category: Course Contents

No.	Question	1	2	3	4	5
1	To what extent did the course contents align with the stated learning objectives of the module?					
2	How clear and comprehensive were the course materials provided in this module?					
3	Were the core topics adequately covered, ensuring a well-rounded understanding of the subject?					
4	How current and up-to-date were the course contents in reflecting recent advancements?					
5	Did the module incorporate real-world applications and case studies effectively?					
Category: Learning Resources						
6	Were the learning resources (e.g., textbooks, online materials, laboratory facilities) readily available and easily accessible?					
7	How helpful were additional learning resources such as supplementary readings or multimedia content?					
8	Did the module offer adequate support for research and independent study?					
9	Were digital resources and online platforms effectively utilized to enhance the learning experience?					
10	Were there sufficient opportunities for hands-on practice and practical application of knowledge?					
Category: Teaching Methods						
11	How well did instructors engage with students and create a supportive learning environment?					
12	Were diverse teaching methods (e.g., lectures, group discussions, simulations) effectively employed?					
13	How responsive were instructors to questions, concerns, and feedback from students?					
14	To what extent did instructors provide timely and constructive feedback on assignments and assessments?					
15	Were opportunities for collaborative learning and peer-to-peer interactions encouraged and facilitated?					
Category: Engagement and Motivation						
16	To what extent did the module use real-world examples and practical applications to engage students?					

17	How well were active learning techniques (e.g., problem-solving, case studies) integrated into the curriculum?					
18	Did the module provide opportunities for students to pursue their individual interests within the subject matter?					
19	Were assessments designed to challenge and motivate students to excel in their studies?					
Category: Inclusivity and Diversity						
20	How well did the module accommodate different learning styles and preferences among students?					
21	Were efforts made to include diverse perspectives, cultures, and backgrounds in the curriculum?					
22	How effectively were accommodations provided for students with varying levels of prior knowledge?					
Category: Overall						
No.	Question	1 (Very Poor)	2 (Poor)	3 (Fair)	4 (Good)	5 (Excellent)
23	How would you rate the overall quality of this module?					

14. Students Diary/Notes

[illegible]

PROGRESS: _____

ACHIEVMENT: _____