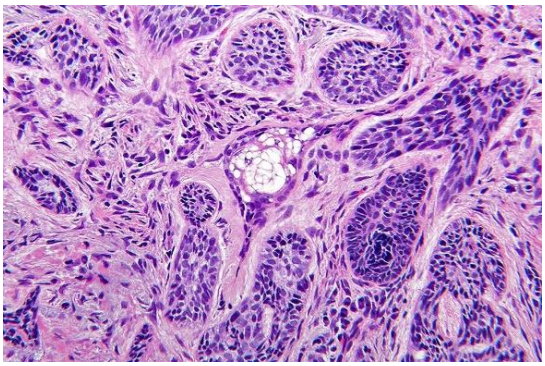
LAHORE
MEDICAL & DENTAL
COLLEGE

STUDY GUIDE 2025

BLOCK-08




LAHORE MEDICAL AND DENTAL COLLEGE, LAHORE

University of Health Sciences
Lahore

Vision Statement

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.

Mission Statement

UHS shall continue to strive for producing a human resource par at excellence to cater for the health needs of the people of Punjab and Pakistan.

Mission of LMDC

"Train future leaders of medicine who set new standards in knowledge, care and compassion".

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Introduction

UHS has introduced modular integrated MBBS curriculum 2023 from the academic session 2024-2025 and version 3.0 is released in 2025, the study guide for Block -08 is developed in order to introduce the 3rd Year MBBS students to various modules and block in the Year 3. The learning Objectives of all the Subjects included in Block -08 are added to help learners focus on key areas.

Time tables for all the modules in Block -08 are added and total contact hours for each subject are given in a tabulated manner. The book and other reading resources are mentioned to facilitate the students. Assessment tools, policy and schedule are also included. Moreover, table of specifications (TOS) for Block-08 examination is added to facilitate the learners.

DEPARTMENTS AND FACULTY INVOVLED IN BLOCK 8 TEACHING

Department Of Pathology

- Prof. Dr. Shazia Nilofar Ibne Rasa (HOD/Professor Histopathology)
- Prof. Dr. Saadia Chaudhary (Professor Microbiology)
- Prof. Dr. Fauzia Sadiq (Professor Chemical Pathology)
- Prof. Dr. Muhammad Shahbaz Amin (Professor Histopathology)
- Dr. Nazia Ahmad (Associate Professor Haematology)
- Dr. Sonia Tahir (Assistant Professor Microbiology)
- Dr. Muhammad Rizwan (Assistant Professor Histopathology)
- Dr. Maimoona Aslam (Assistant Professor Histopathology)
- Dr. Hira Baber (Assistant Professor Haematology)

Department Of Forensic Medicine

- Prof. Dr. Amir Bashir (HOD/Professor)
- Dr. Roman Ashraf (Assistant Professor)

Department Of Pharmacology

- Prof. Dr. Ajaz Fatima (HOD/Professor)
- Prof. Dr. Shazia Asim (Professor)
- Dr. Asia Firdous (Associate Professor)
- Dr. Quratulain Mehdi (Assistant Professor)
- Dr. Ovais Qarni (Senior Lecturer)

Department Of Community Medicine

- Prof. Dr. Seema Daud (HOD/Professor)
- Dr. Humayun Mirza (Associate Professor)
- Dr. Umbreen Navied (Assistant Professor)
- Dr. Saadia Maqbool (Assistant Professor)

Department Of Medicine

- Prof. Dr. Waseem Amir (HOD/Professor)

- Prof. Dr. Asad Ullah Ijaz (Professor OPS)
- Prof. Dr. Sarah Shoaib (Professor OPS)
- Prof. Dr. Ijaz Ahmed (Professor OPS)
- Prof. Dr. Rizwan Akram (Professor OPS)
- Prof. Dr. Atiq-Uz-Zaman (Professor OPS)
- Dr. Abdullah Shah (Associate Professor OPS)

Department Of Surgery

- Prof. Dr. Hasnat Ahmad Butt (HOD/Professor)
- Prof. Dr. Saquib Zahoor (Professor)
- Prof. Wasif Majeed Chaudhry (Professor)
- Dr. Sidra Shoaib (Professor)

Department Of Behavioural Sciences

- Prof. Dr. Maj. R. Maqbool Ahmad (HOD/Professor)

Department Of Radiology

Prof. Dr. Khalid Farooq (HOD/Professor)

Department Of Pediatrics

Prof. Rizwan Waseem (HOD/Professor)

Department of Gynecology

Department of Orthopedics

Department Of Biochemistry

- Prof. Dr. Rubina Bashir (HOD/Professor)
- Prof. Dr. Sobia Imtiaz (Professor)
- Dr. Mahwish Shahzad (Assistant Professor)
- Dr. Khaulah Qureshi (Assistant Professor)

Department Of Medical Education

- Dr. Nighat Nadeem (Associate Professor)

List of Abbreviations

Abbreviations	Subjects
A	Anatomy
ABCDE	Airway, Breathing, Circulation, Disability, Exposure
ABG	Arterial Blood Gas
ACS	Acute Coronary Syndromes
Ag	Aging
AKI	Acute Kidney Injury
ALT	Alanine Transaminase
AMI	Acute Myocardial Infarction
AMP	Adenosine Monophosphate
ANA	Antinuclear Antibody
ANCA	Antineutrophil Cytoplasmic Antibodies
ANS	Autonomic Nervous System
AO	Association of Osteosynthesis
APTT	Activated Partial Thromboplastin Clotting Time
ARDS	Acute Respiratory Distress Syndrome
ARVC	Arrhythmogenic Right Ventricular Cardiomyopathy
ASD	Atrial Septal Defect
AST	Aspartate Aminotransferase
ATLS	Advanced Trauma Life Support
Au	Autopsy
AUC	Area Under The Curve
AV	Atrioventricular
B	Biochemistry
BhS	Behavioral Sciences
BHU	Basic Health Unit
BSL	Biological Safety Level
C	Civics
C-FRC	Clinical-Foundation Rotation Clerkship
C. burnetii	Coxiella burnetiid
C. neoformans	Cryptococcus neoformans
C. pneumoniae	Chlamydia pneumonia
C. psittaci	Chlamydia psittaci

C. trachomatis	Chlamydia trachomatis
CA	Cancer
CABG	Coronary Artery Bypass Grafting
CAD	Coronary Artery Disease
CBC	Complete Blood Count
CCR5	Cysteine-Cysteine Chemokine Receptor 5
CD31	Cluster of Differentiation 31
CD34	Cluster of Differentiation 34
CD4	Clusters of Differentiation 4
CF	Cystic Fibrosis
CK	Creatine Kinase
CK	Creatine Kinase
CLED	Cystine Lactose Electrolyte Deficient
CLL	Chronic Lymphocytic Leukemia
CM	Community Medicine
CML	Chronic Myelogenous Leukemia
CMV	Cytomegalovirus
CNS	Central Nervous System
CO	Carbon Monoxide
CO2	Carbon Dioxide
CODIS	Combined Dna Index System
COPD	Chronic Obstructive Pulmonary Disease
COVID-19	Corona Virus Disease 2019
COX	Cyclooxygenase
CPR	Cardio Pulmonary Resuscitation
CR	Clinical Rotation
CRP	C- Reactive Protein
CSF	Cerebrospinal Fluid
CT	Computed Tomography
CT	Computerized Tomography
CV	Cardiovascular
CVA	Cerebral Vascular Accident
CVDs	Cardiovascular Diseases
CVS	Cardiovascular System
D. medinensis	Dracunculus Medinensis
DALY	Disability-Adjusted Life Year

DCIS	Ductal Carcinoma in situ
DCM	Dilated Cardiomyopathy
DCMLS	Dorsal Column Medial Lemniscus System
DLC	Differential Leukocyte Count
DMARDs	Disease-modifying antirheumatic drugs
DNA	Deoxy Ribonucleic Acid
DOTS	Directly Observed Treatment Short-course
DTP	Diphtheria, Tetanus, Pertussis
DVI	Disaster Victim Identification
DVT	Deep Vein Thrombosis
E. coli	Escherichia coli
ECF	Extra Cellular Fluid
ECG	Electrocardiography
ECG	Electocardiogram
ECP	Emergency contraceptive pills
ED50	Median Effective Dose
EEG	Electroencephalogram
EIA	Enzyme Immunoassay
ELISA	Enzyme Linked Immunosorbent Assay
EnR	Endocrinology & Reproduction
ENT	Ear Nose Throat
EPI	Expanded Programme on Immunization
ER	Emergency Room
F	Foundation
FAST	Focused Assessment with Sonography in Trauma
FEV1	Forced Expiratory Volume 1
FM	Family Medicine
For	Forensics Medicine
FPIA	Fluorescent Polarization Immunoassay
FS	Forensic Serology
FSc	Forensic Science
FVC	Forced Vital Capacity
GCS	Glasgow Coma Scale
GFR	Glomerular Filtration Rate
GIT	Gastrointestinal tract
GL-MS	Gas Liquid Mass Spectrometry

GLC	Gas Liquid Chromatography
GLP	Good Laboratory Practice
GMP	Guanosine Monophosphate
GO	Gynecology and Obstetrics
GP	General Practitioner
GPE	General Physical Examination
GTO	Golgi Tendon Organ
Gynae & Obs	Gynecology and Obstetrics
H & E	Hematoxylin and Eosin
H. influenzae	Haemophilus influenza
H. pylori	Helicobacter pylori
HAI	Healthcare Associated Infections
HbC	Hemoglobin C
HbS	Sickle Hemoglobin
HbSC	Hemoglobin Sickle C Disease
HCL	Hydrochloric Acid
HCM	Hypertrophic Cardiomyopathy
HHV	Human Herpesvirus
HIT	Hematopoietic, Immunity and Transplant
HIV	Human Immunodeficiency Virus
HL	Hematopoietic & Lymphatic
HLA	Human Leukocyte Antigen
HMP	Hexose Monophosphate
HNSS	Head & Neck and Special Senses
HPLC	High Pressure Liquid Chromatography
ICF	Intra Cellular Fluid
ID	Infectious Diseases
IE	Infective Endocarditis
IL	Interleukin
ILD	Interstitial Lung Disease
IN	Inflammation
INR	International Normalized Ratio
INSTIs	Integrase Strand Transfer Inhibitors
IPV	Inactivated Poliovirus Vaccine
IUD	Intrauterine Device
IUGR	Intra Uterine Growth Restriction

JVP	Jugular Venous Pulse
L	Law
LD50	Median Lethal Dose
LDH	Lactate Dehydrogenase
LSD	Lysergic acid diethylamide
M	General Medicine
MALT	Mucosa Associated Lymphoid Tissue
MBBS	Bachelor of Medicine, Bachelor of Surgery
MCH	Mean corpuscular hemoglobin
MCHC	Mean Corpuscular Hemoglobin Concentration
MCV	Mean Corpuscular Volume
MHO 2001	Mental Health Ordinance 2001
MoA	Mechanism of action
MRI	Magnetic resonance imaging
MS	Musculoskeletal
MSD	Musculoskeletal disorders
MSDS	Minimum Service Delivery Standards
MSK	Musculoskeletal
N	Neoplasia
NEAA	Non-Essential Amino Acids
NK cells	Natural Killer Cells
NMJ	Neuro Muscular Junction
NNRTIs	Non-nucleoside Reverse Transcriptase Inhibitors
NRTIs	Nucleoside Reverse Transcriptase Inhibitors
NS	Neurosciences
NSAIDs	Non-steroidal Anti-Inflammatory Drugs
O	Ophthalmology
OA	Osteoarthritis
OPC	Organophosphate
OPV	Oral poliovirus vaccine
Or	Orientation
Orth	Orthopaedic
P	Physiology
P. jiroveci	Pneumocystis jiroveci
Pa	Pathology
PAD	Peripheral Artery Disease

PAF	Platelet Activating Factor
PBL	Problem Based Learning
PCI	Percutaneous Coronary Intervention
PCR	Polymerase Chain Reaction
PDA	Patent Ductus Arteriosus
PDGF	Platelet Derived Growth Factor
Pe	Pediatrics
PEM	Protein Energy Malnutrition
PERLs	Professionalism, Ethics, Research, Leadership
PET	Positron Emission Tomography
Ph	Pharmacology
pH	potential Hydrogen
PI	Personal Identity
PID	Pelvic inflammatory disease
PIs	Protease in hibitors
PMC	Pakistan Medical Commission
PMDC	Pakistan Medical and Dental Council
PMI	Post-Mortem Interval
PNS	Peripheral Nervous System
PPD	Paraphenylenediamine
PPE	Personal Protective Equipment
Psy	Psychiatry
PT	Prothrombin Time
PVC	Premature Ventricular Contraction
PVD	Peripheral Vascular Diseases
QALY	Quality-Adjusted Life Year
QI	Quran and Islamiyat
R	Renal
Ra	Radiology
RA	Rheumatoid Arthritis
RBCs	Red Blood cells
RCM	Restrictive Cardiomyopathy
RDA	Recommended Dietary Allowance
Re	Respiratory
RF	Rheumatoid factor
RFLP	Restriction Fragment Length Polymorphism

Rh	Rheumatology
RHC	Rural Health Center
RIA	Radioimmunoassay
RMP	Resting Membrane Potential
RNA	Ribonucleic Acid
RTA	Road Traffic Accident
S	General Surgery
S. pneumonia	Streptococcus pneumonia
SA	Sinoatrial
SCC	Squamous-cell carcinoma
Se	Sexology
Sec	Section
SIDS	Sudden Infant Death Syndrome
SLE	Systemic Lupus Erythematosus
SOP	Standard Operating Procedure
TB	Tuberculosis
TBI	Traumatic Brain Injury
TCA	Tricarboxylic acid cycle
TCBS	Thiosulphate Citrate Bile salts Sucrose
TD50	Median Toxic Dose
TGA	Transposition of the Great Arteries
Th	Thanatology
TLC	Thin Layer Chromatography
TNF	Tumor Necrotic Factor
TNM	Tumour, Node, Metastasis
TOF	Tetralogy of Fallot
Tox	Toxicology
Tr	Traumatology
TSI	Triple Sugar Iron
USG	Ultrasonography
UTI	Urinary Tract Infections
UV	Ultraviolet
VAP	Ventilator-Associated Pneumonia
Vd	Volume of Distribution
VEGF	Vascular Endothelial Growth Factor
VSD	Ventricular Septal Defect

W. bancroft	Wuchereria Bancroft
WBCs	White Blood Cells
WHO	World Health Organization
ZN Staining	Ziehl-Neelsen Staining

Curriculum Frame Work for 3rd Year

Block	Module
Block-07	• FOUNDATION-2 & EBM • GENERAL & CLINICAL PHARMACOLOGY • HEMATOPOIETIC & IMMUNITY & TRANSPLANT • FORENSIC MEDICINE & TOXICOLOGY -3
Block-08	• Neoplasia • INFECTIOUS DISEASE • MUSCULOSKELETAL & LOCOMOTION -2 • FORENSIC MEDICINE & TOXICOLOGY -3
BLock-09	• CARDIOVASCULAR -2 • RESPIRATORY -2 • COMMUNITY MEDICINE & FAMILY HEALTH -1 • FORENSIC MEDICINE & TOXICOLOGY -3
Spiral	• PERLS-3 • Expository -3 • C-FRC-3 (Clinical- Foundation, Rotation, Clerkships)

Introduction to the Block -08 :-

Course Name: Block -08
Year: Year -03
Level of Students: Third Year MBBS
Duration of Block -08: 16th of June 2025 to 26th of Sept 2025.

- **Breaks**: 4 weeks summer break from 4 July 2025
- **Remedial classes**: In summer break
- **Block exam**: OCTOBER (Tentatively)

	Name of Module	Duration (weeks)
1	Musculoskeletal & Locomotion – 2	4
2	Infectious Disease	3
3	Neoplasia	1
4	Forensic Medicine – 2	1
5	CIA/PERL/Expository	2
	TOTAL	**11**

BLOCK COMMITTEE

The modular committee includes the coordinator, co-coordinator, and departmental representatives from areas such as internal medicine, surgery, pediatrics, and medical education. Together, they work to create an integrated and current curriculum that supports the educational objectives and prepares students for healthcare careers.

BLOCK INCHARGE **PROF. SHAZIA IBNERASA**

BLOCK COORDINATOR /CLASS INCHARGE **DR. SONIA TAHIR**

DEPARTMENTS RESPONSIBLE

MAJOR	ALLIED/MINOR
Pathology	Community Medicine
Pharmacology	Medicine
Forensic medicine	Surgery
	Gynecology
	Psychiatry
	Pediatrics
	Radiology
	Orthopedics

Module Committees Block – 8

Module :- Neoplasia

Committees Members :-

- Coordinator 01: Prof. Dr. Shazia Ibne- Rasa (Pathology Dept.)
- Coordinator 02: Dr. Sonia Tahir (Assistant Prof. Pathology Dept.)

Representative: -

- Prof. Dr. Shazia Ibne- Rasa (Pathology Dept.)
- Prof. Dr. Ajaz Fatima (Pharmacology Dept.)
- Assoc. Prof. Dr. Asia Firdous (Pharmacology Dept.)
- Prof. Dr. Seema Daud (Community Medicine Dept.)
- Assoc. Prof. Dr. Humayun Mirza (Community Medicine Dept.)
- Prof. Dr. Amir Bashir (Forensic Medicine Dept.)
- Prof. Dr. Waseem Amir (Medicine Dept.)
- Dr. Sara (Medicine Dept.)
- Prof. Dr. Hasnat (Surgery Dept.)
- Dr. Sidra Shoaib (Surgery Dept.)
- Prof. Dr. Maqbool (Psychiatry Dept.)
- Miss. Ramla (Behavioral Sciences.)
- Prof. Dr. Rizwan (Peads Dept.)

Module:- INFECTIOUS DISEASE.

Committees Members:-

- Coordinator 01: Prof. Dr. Shazia Ibne- Rasa (Dept.)
- Coordinator 02: Dr. Sonia Tahir (Assistant Prof. Pathology Dept.)

Representative:-

- Prof. Dr. Shazia Ibne- Rasa (Pathology Dept.)
- Prof. Dr. Sonia (Pathology Dept.)
- Prof. Dr. Seema Daud (Community Medicine Dept.)
- Dr. Humayun Mirza (Community Medicine Dept.)
- Prof. Dr. Amir Bashir (Forensic Medicine Dept.)
- Prof. Dr. Waseem Amir (Medicine Dept.)
- Dr. Sara (Medicine Dept.)
- Prof. Dr. Hasnat (Surgery Dept.)
- Dr. Sidra Shoaib (Surgery Dept.)
- Prof. Dr. Maqbool (Psychiatry Dept.)
- Miss Ramla (Behavioral Sciences)

Module:- MUSCULOSKELETAL & LOCOMOTION -2

Committees Members:-

- Coordinator 01: Prof. Dr. Shazia Ibne- Rasa (Pathology Dept.)
- Coordinator 02: Dr. Sonia Tahir (Assistant Prof. Pathology Dept.)

Representative:-

- Prof. Dr. Ajaz Fatima (Pharmacology Dept.)
- Assoc. Prof. Dr. Asia Firdous (Pharmacology Dept.)
- Prof. Dr. Seema Daud (Community Medicine Dept.)
- Dr. Humayun Mirza (Community Medicine Dept.)
- Prof. Dr. Amir Bashir (Forensic Medicine Dept.)
- Prof. Dr. Waseem Amir (Medicine Dept.)
- Dr. Sara (Medicine Dept.)
- Prof. Dr. Hasnat (Surgery Dept.)
- Dr. Sidra Shoaib (Surgery Dept.)
- Prof. Dr. Maqbool (Psychiatry Dept.)
- Miss. Ramla (Behavioral Sciences.)
- Prof. Dr. Rizwan (Peads Dept.)

Module:- Forensic Medicine & Toxicology-1

List of Committees Members:-

- Coordinator 01: Prof. Dr. Amir Bashir (Forensic Medicine Dept.)
- Coordinator 02: Assist. Prof. Dr. Roman Ashraf (Forensic Medicine Dept.)

Representative:-

- Prof. Dr. Shazia Ibne- Rasa (Pathology Dept.)
- Prof. Dr. Sonia (Pathology Dept.)
- Prof. Dr. Ajaz Fatima (Pharmacology Dept.)
- Assoc. Prof. Dr. Asia Firdous (Pharmacology Dept.)
- Prof. Dr. Seema Daud (Community Medicine Dept.)
- Dr. Humayun Mirza (Community Medicine Dept.)
- Prof. Dr. Waseem Amir (Medicine Dept.)
- Dr. Sara (Medicine Dept.)
- Prof. Dr. Hasnat (Surgery Dept.)
- Dr. Sidra Shoaib (Surgery Dept.)
- Prof. Dr. Maqbool (Psychiatry Dept.)
- Miss. Ramla (Behavioral Sciences.)

Duties Of Module Committees

- Module committee is headed by module coordinators
- Module coordinators are nominated from the subject with the maximum content in the respective module
- Module coordinator developed module team for collaboration and consultation with all the relevant subject
- Module committee assisted in implementation of the curricular guidelines provided by UHS
- Module committee coordinated with the assessment cell in medical education
- Module coordinator helped in developing the study guide in collaboration with department medical education.

TEACHING CONTACT HOURS

	Subject	**Teaching Hours**
	Microbiology	53
	Infection Control	8
	Bio-safety	5
	Special pathology	8
	General pathology	15
	Pharmacology	34
	Forensic Medicine	20
	Orthopedics	14
	Surgery & Surgical trauma	15
	Medicine & Rheumatology	34 (14 + 17)
	Gynecology	2
	Pediatrics	4
	Radiology	2
	Community Medicine	9
	Behavioral Sciences (Psychiatry)	3
	Biochemistry	2
	PERL	14

IMPLEMENTATION TORs

1. 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**.
2. 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.
3. 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.
4. However, the level of cognition can be kept at a higher level by the institution.
5. 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.

Teaching & Learning Methodologies

1. Interactive Lectures
2. Small Group Discussions (Tutorials Sessions) & SDL
3. Tests (MCQ's , SEQ's ,OSPE & Viva Voce)
4. Clinico- Pathological Conference
5. Skill Laboratories
6. Laboratory Practical

Reading Materials

1. Text Books
2. Hand Outs
3. E. Books
4. Lecture Notes (Power Point)

ADDITIONAL LEARNING RESOURCES

Museum Models

1. Pathology Museum
2. Forensic medicine Museum
3. Community medicine Museum

11. MODULE AIMS AND OUTCOME OBJECTIVES

MODULE-16

NEOPLASIA

Aim of this module is to provide MBBS students with a comprehensive understanding of neoplasia, preparing them to diagnose, treat, and prevent cancer effectively in their future clinical practice.

Outcome Objectives

1. Understand the basic concept of neoplasia, including benign and malignant tumors.
2. Describe the molecular and cellular mechanisms of carcinogenesis, including the role of genetic mutations, oncogenes, tumor suppressor genes, and environmental factors
3. Understand the classification of tumors based on histology, site of origin, and grading/staging systems (TNM classification).
4. Explain the biological mechanisms of tumor growth, invasion, angiogenesis, and metastasis
5. Explain the role of the immune system in tumor recognition and immune evasion mechanisms by cancer cells.
6. Understand the general principles of cancer treatment, including surgery, chemotherapy, radiotherapy, immunotherapy, and targeted therapy.
7. Understand how to utilize diagnostic tools, such as imaging and pathology (biopsy), to identify and assess neoplasms.
8. Communicate effectively with patients and families about cancer diagnosis, treatment

Subjects Integrated In The Module

1. Pathology
2. Pharmacology
3. Radiology
4. Oncology
5. Community Medicine
6. Behavioral Sciences
7. Biochemistry
8. Surgery

MODULE 17

INFECTIOUS DISEASE

AIM of this module is to equip students with essential knowledge of common infections, including their transmission, clinical presentation, diagnosis, and treatment, while emphasizing the importance of infection control and biosafety. This module provides the foundation for effective cancer diagnosis, management, and prevention, it guarantees that our future doctor is well prepared to address one of the most pressing healthcare challenges of our time.

Outcome Objectives

1. Demonstrate a systematic approach to assessing patients with suspected infections, including pyrexia of unknown origin and sepsis, while adhering to biosafety protocols to minimize the risk of infection transmission during patient evaluation.
2. Diagnose common viral infections such as measles, chickenpox, rubella, mumps, influenza, COVID-19, and dengue based on clinical features and diagnostic tools, applying biosafety measures during sample collection and handling.
3. Outline treatment options, including antiviral therapies, supportive care, and preventive measures (e.g., immunization) for viral infections.
4. Diagnose and manage gram-positive and gram-negative bacterial infections such as pharyngitis, pneumonia, enteric fever, and meningitis.
5. Describe the clinical features, diagnosis, and management of clostridial infections (botulism, gas gangrene) and sexually transmitted infections like syphilis.
6. Recognize the clinical features and management strategies for mycobacterial infections, with a focus on pulmonary and abdominal tuberculosis.
7. Identify and manage common fungal infections, including diagnosis, treatment, and preventive measures.
8. Explain the clinical features, investigations, and treatment of protozoal infections such as amoebiasis and helminthic infections like ascariasis and hookworm.
9. Describe the life cycle of helminths and explain how infections like hookworm contribute to anemia, along with prevention and treatment strategies.
10. Demonstrate a systematic approach to assessing patients with suspected infections, including pyrexia of unknown origin and sepsis, while adhering to biosafety protocols to minimize the risk of infection transmission during patient evaluation.
11. Diagnose common viral infections such as measles, chickenpox, rubella, mumps, influenza, COVID-19, and dengue based on clinical features and diagnostic tools, applying biosafety measures during sample collection and handling.
12. Outline treatment options, including antiviral therapies, supportive care, and preventive measures (e.g., immunization) for viral infections.
13. Diagnose and manage gram-positive and gram-negative bacterial infections such as pharyngitis, pneumonia, enteric fever, and meningitis.

14. Describe the clinical features, diagnosis, and management of clostridial infections (botulism, gas gangrene) and sexually transmitted infections like syphilis.
15. Recognize the clinical features and management strategies for mycobacterial infections, with a focus on pulmonary and abdominal tuberculosis.
16. Identify and manage common fungal infections, including diagnosis, treatment, and preventive measures.
17. Explain the clinical features, investigations, and treatment of protozoal infections such as amoebiasis and helminthic infections like ascariasis and hookworm.
18. Describe the life cycle of helminths and explain how infections like hookworm contribute to anemia, along with prevention and treatment strategies.

Subjects Integrated in the module

1. Microbiology (Pathology)
2. Clinical Pharmacology & Therapeutics
3. Internal Medicine
4. Community Medicine
5. Pead's Medicine.
6. Surgery
7. Gynecology
8. Infection Control
9. Bio-risk management (Biosafety)
10. Clinical Rotation (CR)

MODULE 18

MUSKULOSKELETAL AND LOCOMOTION

Aim of Musculoskeletal & Locomotion II module is designed to deepen medical students' understanding of the musculoskeletal system, integrating knowledge from multiple disciplines to enhance the management of musculoskeletal disorders and injuries. This module emphasizes the interconnectedness of various fields, including orthopedics, surgical traumatology, forensic traumatology, and rheumatology, while also incorporating essential subjects such as pathology, pharmacology, community medicine, behavioral sciences, radiology, and evidence-based medicine.

Outcome Objectives

1. Explain the pathology and underlying mechanisms of common musculoskeletal disorders and injuries, including septic arthritis, osteomyelitis, fractures, and degenerative conditions.
2. Identify key features of various musculoskeletal disorders, including their clinical presentations, epidemiology, and impact on community health.
3. Perform thorough musculoskeletal examinations to assess joint mobility, strength, and functional capabilities.
4. Interpret relevant imaging studies (e.g., X-rays, MRI, CT scans) to aid in the diagnosis and management of musculoskeletal conditions.
5. Apply appropriate first aid measures for common musculoskeletal injuries, including immobilization techniques and pain management strategies.
6. Integrate knowledge from orthopedics, surgical traumatology, forensic traumatology, and rheumatology to develop comprehensive management plans for patients with musculoskeletal conditions.
7. Collaborate effectively with healthcare professionals from diverse specialties, including pathology, pharmacology, community medicine, behavioral sciences, and radiology, to enhance patient care.
8. Critically evaluate and apply current evidence-based guidelines and research findings to inform clinical decision-making in the management of musculoskeletal disorders.
9. Formulate treatment plans that incorporate pharmacological and non-pharmacological interventions based on best practices and individual patient needs.
10. Demonstrate empathy and effective communication skills when interacting with patients suffering from musculoskeletal disorders, ensuring a patient-centered approach to care.
11. Educate patients about their conditions, treatment options, and the importance of adherence to management plans for optimal outcomes.
12. Recognize the ethical considerations and challenges in the management of musculoskeletal disorders, including issues related to informed consent, patient autonomy, and resource allocation.
13. Exhibit professionalism in all interactions with patients, families, and healthcare team members, promoting a culture of respect and trust.

SUBJECTS INTEGRATED IN THE MODULE

1. Orthopedics
2. Rheumatology
3. Surgery/ Traumatology
4. Forensic Traumatology
5. Pathology
6. Pharmacology
7. Community Medicine
8. Behavioral Sciences
9. Radiology
10. Evidence-Based Medicine

MODULE 19

FORENSIC MEDICINE-2

AIM of this module is to trains 3rd year MBBS students to handle social issues like violence, and sexual exploitation, they can identify injuries and give an inference on their cause. It equips them with skills to provide accurate medical evaluation and contribute to justice.

Outcome Objectives

1. Explain the biomechanics of wound production
2. Determine the manner of injury
3. Describe the pathophysiology of injuries and their effects on the body
4. Define & Explain puberty, Impotence in males, frigidity in females, Sterility and medico legal importance.
5. Reproduce different sections of law relevant to sexual offenses.

Subjects Integrated In The Module

1. Pathology
2. Surgery
3. Gynae / Obs.

15.Learning Resources:

Pathology:-

TEXT BOOKS

1. Pathological Basis of Disease by Kumar, Cortan and Robbins, 10th Ed., W.B. Saunders.
2. Basic Pathology by Cotran & Kumar 11th edition (Medium Robbins)
3. Review of Medical Microbiology and Immunology by Lewinson
4. Medical Microbiology and Immunology by Levinson and Jawetz 9th Ed., Mc Graw-Hill.
5. Medical Genetics by Jorde, 3rd Ed., Mosby.

REFERENCE BOOKS

6. Illustrated Pathology
7. Pathology Practical Book by Harsh Mohan
8. Concise Pathology for Exam Preparation by Bhattacharya
9. District Laboratory Practice in Tropical Countries, Part 1 & 2 by Monica
10. Walter and Israel General Pathology

WEBSITES

11. https://www.webpathology.com/
12. http://www.pathguy.com/
13. https://www.osmosis.org/
14. https://ilovepathology.com/

Pharmacology:-

1. Goodman & Gilman's - The Pharmacological Basis of Therapeutics
2. Basic & Clinical Pharmacology by Bertram G, Katzung
3. Clinical Pharmacology by DR Lawrence, PN Bennett & MJ Brown
4. Essentials of Medical Pharmacology by K.D. Tripathi
5. Lippincott Illustrated Review Pharmacology

Forensic medicine

1. G. Principles and Practice of Forensic Medicine by Prof.Nasibh. Awan .
2. Parikh s Text book of Medical Jurisprudence, Forensic Medicine and Toxicology 8th edition; CBS Publisher.
3. Knight B.Simpsons Forensic Medicine.
4. Knights Forensic Pathology by Barnard knight 3rd edition.

Behavioral Sciences:-

1. Handbook of behavioral Sciences by Prof. Mowadat
2. Medical and Psychosocial Aspects of Chronic illness and Disability

Community Medicine:-

1. Parks Test book of Preventive and Social Medicine
2. Public Health and Community Medicine Ilyas

Surgery:-

1. Bailey & Love' short practice of surgery

Medicine:-

1. Davidson's Principles and Practice of Medicine

Anatomy:-

2. Langman's Medical Embryology
3. Snell's Clinical Anatomy
4. Snell's Clinical Neuroanatomy
5. Laiq H.S Medical Histology
6. Laiq H.S General Anatomy

Physiology:-

1. Guyton AC and Hall JE. Textbook of Medical Physiology
2. Essentials of Medical Physiology by Mushtaq Ahmad

Biochemistry:-

1. Harper's Biochemistry
2. Lippincott's illustrated reviews biochemistry
3. ABC of clinical genetics by H.M Kingston

Lahore Medical & Dental College
Canal Bank North, Tulspura, Lahore
Phone No. 0346-4418891-98
No. LMDC/ /2025, Dated:

3rd YEAR M.B.B.S TIMETABLE SESSION 2021-2022 w.e.f. 16-06-2025-26-09-2025 (11 WEEKS)

DAYS & TIME	08:00 a.m. to 08:45 a.m.	08:45 a.m. to 09:00 a.m.	[1] 09:00 a.m. to 10:15 a.m.	[1] 10:15 a.m. to 10:30 a.m.	[2] 10:30 a.m. to 12:00 p.m.		12:00 p.m. to 12:45 p.m.	12:45p.m. to 01:30 p.m.	01:30 p.m. to 02:15 p.m.	02:15 p.m. to 03:00 p.m.
MONDAY	Pathology (Microbiology) Lecture Theatre No. 11	Travel to GTTH	Ward / SDL	Travel to LMDC & Break	Pathology Pract For Med Pract [3] Pharma Pract/CFRC/ Pharma/FM/tutorial [3] Pathology Tutorial	A+B C+D E+F G+H	Pathology (Gen. Path) Lecture Theatre No. 11	Pharmacology Lecture Theatre No. 11	[4] Rheumatology 1-6 Wk Int. Medicine 7-11 Wk Lecture Theatre No. 11	Community Medicine Lecture Theatre No. 11
	Pharmacology Lecture Theatre No. 11				Pathology Pract For Med Pract [3] Pharma Pract/CFRC/ Pharma/FM/tutorial Pathology Tutorial	C+D E+F G+H A+B	Orthopedics Lecture Theatre No. 11	Pathology (Microbiology) Lecture Theatre No. 11	[5] Oncology 1-5 Wk Evidence based Medicine 6-8 Wk Pediatrics 9-11 Wk Lecture Theatre No. 11	Pathology (Gen. Path) Lecture Theatre No. 11
WEDNESDAY	Medicine (Rheumatology) Lecture Theatre No. 11				Pathology Pract For Med Pract [3] Pharma Pract/CFRC/ Pharma/FM/tutorial Pathology Tutorial	E+F G+H A+B C+D	Forensic Medicine Lecture Theatre No. 11	Pharmacology Lecture Theatre No. 11	Pathology (Microbiology) Lecture Theatre No. 11	Pathology (Sp. Pathology) Lecture Theatre No. 11
THURSDAY	Pathology (Microbiology) Lecture Theatre No. 11				Pathology Pract For Med Pract [3] Pharma Pract/CFRC/ Pharma/FM/tutorial Pathology Tutorial	G+H A+B C+D E+F	Forensic Medicine Lecture Theatre No. 11	Surgery Lecture Theatre No. 11	Pathology (Microbiology 1-4 Wk Biosafety 5-11 Wk) Lecture Theatre No. 11	[6] Pharmacology/ PERL/Forensic Medicine Lecture Theatre No. 11
FRIDAY	08:00 a.m. to 08:45 a.m.	08:45 a.m. to 10:15 a.m.			10:15 a.m. to 10:45 a.m.		10:45 a.m. to 11:30 a.m.		11:30 a.m. to 12:15 p.m.	12:15 a.m. to 01:00 p.m.
	Pathology (Microbiology) Lecture Theatre No. 11	GRAND TUTORIAL Pathology (1,5,9 week) Pharmacology (4,8 week) Forensic Med (2,7, 11 week) Combined Test (3,6,10 week) Lecture Theatre No. 11			BREAK		[7] Neurosurgery 1-4 Wk Orthopedics 5-8 Wk Radiology 9-11 Wk Lecture Theatre No. 11		[8] Beh Sci 1-5 Wk Biochem 6-8 Wk Gynecology 9-11 Wk Lecture Theatre No. 11	Pathology (Infection Control) Lecture Theatre N

No. LM&DC/ /2025, Dated:

1. SDL 45 minutes ward time.

12.Learning Objectives:

MODULE NO.16 : Neoplasia

CODE	TOPIC	SPECIFIC LEARNING OUTCOMES
N-Pa-001	Nomenclature. benign and malignant tumors.	Define neoplasia, Nomenclature and difference between benign and malignant tumors based on morphological and functional characteristics and epidemiology of cancer.
N-Pa-002	Difference between carcinoma and sarcoma and pathways of spread of malignant tumors.	Understand the molecular basis of cancer and pathogenesis of neoplasia, including the role of genetic mutations, oncogenes, tumor suppressor genes, mechanisms of cell cycle dysregulation, apoptosis evasion, angiogenesis in tumor progression and metastasis Differentiate Carcinomas, Sarcomas and lymphoreticular neoplasm
N-Pa-003	Carcinogenesis	Carcinogenic agents with their cellular interactions.
N-Pa-004	Tumor markers	Describe the role of diagnostic tools like biopsy, histopathology with IHC (Immuno-histochemistry) and special stains and molecular diagnostics with common tumor markers.
N-Pa-005	Grading and Staging Invasion and metastasis	Grading and staging of tumors and treatment strategies. Understand the concept of invasion and metastasis.
		Basic tumor markers
N-Pa-006	Molecular basis of cancer	Molecular basis of cancer
N-Pa-007	Paraneoplastic syndrome	Define and describe Paraneoplastic syndrome and associate with neoplastic lesions.
BEHAVIOURAL SCIENCES		
N-BhS-001	Psychosocial aspect of oncology / cancer	Discuss improvement in quality of life, holistic care for terminal cancer patient Discuss palliative care (pain management, psychological support).

		Understand the importance of mental health support for cancer patients.
	BIOCHEMISTRY	
N-B-001	Oncology / cancer	Discuss molecular changes in oncogenes, tumor, suppressor genes, and apoapsis mechanism. Explain Role of epigenetics in cancer development.
RADIOLOGY		
N-M-001	Introduction	Introduction to Radiological Modalities in Oncology Understand the different radiological imaging techniques used in cancer management: i. X-rays ii. Ultrasound iii. CT scans (Computed Tomography) iv. MRI (Magnetic Resonance Imaging) v. PET scans (Positron Emission Tomography) vi. Mammography
N-Ra-001	Role of Imaging	Role of Imaging in Cancer Detection and Diagnosis. I. Identify radiological signs of cancer in different imaging modalities. ii. Understand how imaging assists in detecting primary tumors and metastasis. iii. Compare the sensitivity and specificity of different imaging techniques in diagnosing various types of cancer (e.g., CT vs. MRI for brain tumors).
	Imaging	Imaging in Cancer Staging: i. Learn the importance of imaging in staging cancer (TNM system). ii. Understand how radiological imaging helps determine the extent of local, regional, and distant disease spread.

		iii. Role of CT, MRI, and PET scans in staging cancers like lung cancer, breast cancer, and colorectal cancer.
N-Ra-002	Imaging	Imaging-Guided Procedures i. Introduction to imaging-guided diagnostic procedures (e.g., CT or ultrasound-guided biopsy). ii. Learn how interventional radiology aids in both diagnosis and treatment, such as tumor ablation and drainage procedures.
		Imaging in Treatment Planning: i. Role of imaging in planning surgical interventions, radiotherapy, and other treatments. ii. Understand how imaging assists in monitoring tumor size, location, and response to therapy. iii. Discuss the use of PET/CT scans in assessing the metabolic activity of tumors to guide treatment decisions.
N-Ra-003	Follow up & monitoring	Follow-up and Monitoring i. Importance of radiological imaging in follow up after cancer treatment (e.g., detecting recurrence or metastasis). ii. Learn how imaging changes guide alterations in treatment plans. iii. Understand the concept of surveillance imaging for cancer patients in remission
N-Ra-004	Complications	Radiological Signs of Cancer Complications. Recognize radiological findings associated with complications like: i. Tumor obstruction ii. Bone metastasis iii. Brain metastasis iv. Vascular invasion or thrombosis
PHARMACOLOGY		
N-Ph-001	Cell cycle	Patho-physiology cell cycle

		Abnormalities in cell cycle leading to oncogenesis
N-Ph-002	Cell Cycle specific and non-specific anti-tumor agent	Cell Cycle specific and non-specific anti-tumor agent mechanism of action, adverse effect, indication drugs interaction of various class of chemotherapeutic agents.
		Drugs for palliative therapy in various tumors
		Drugs related with rehabilitation
		Drugs used during phases of radiotherapy e.g tumor lysis syndrome
		Drugs used beside surgical resection of various tumor to treat complications.
		Glucocorticoids as part of various anti-cancer cocktails.
Surgery		
N-S-001	Principles of oncologic surgery	Understand the principles of oncologic surgery, including when and how surgery is indicated during the treatment Identify role of surgery, techniques, indicators for curative and palliative surgery.
Community Medicine		
N-CM-001	Screening /prevention	Define cancer screening and its important. Explain methods of screening for common cancers. Major risk factors for cancer. Preventive and control measures.
Medicine & oncology		
N-M-002	Presenting Problems	Presenting Problems of Cancer Patients and clinical examination of patients on Cancer Treatment. Understand the examination (important clinical signs of patients with cancer)
N-M-003	Risk factors	Risk factors for Cancer Development Understand and interpret the environment and genetic factors involved in cancer development
N-M-004	Investigation	Investigations in Cancer patients. Will be able to understand & interpret various

		investigations required for Cancer patients
N-M-005	Paraneoplastic syndrome	Oncological Emergencies & Paraneoplastic syndrome Understand & interpret various ecologic emergencies, metastasis of tumors, and Paraneoplastic
N-M-006	Therapeutics	Therapeutic in Oncology Will be able to understand and Interpret Various Therapeutic options like surgery, radiotherapy, chemotherapy, and palliative.
Pathology		
N-Pa-008	Nomenclature, Difference between benign and malignant tumors	Morphological features of Benign and Malignant tumors (Gross and Microscopic features) .
		Common Benign tumors (Lipoma, Leiomyoma, Fibroadenoma of Breast)
		Carcinoma in situ (DCIS & Bowens disease)
		Common Malignant tumors (Adenocarcinoma, Squamous cell carcinoma.
N-Pa-009	Clinical aspects of Neoplasia	Tumor grade and stage in malignant tumors Adenocarcinoma / Squamous cell carcinoma (including tumor invasion and metastasis)

MODULE 17: Infectious disease

Syllabus:

	MICROBIOLOGY	
D-Pa 001	Bacterial infectious agents	Explain the morphological, pathological and diagnostic aspects of: • Staphylococci. • Streptococci • Clostridia • Bacillus • Corynebacterium • Listeria and Gardnerella

		Explain the morphological, pathological and diagnostic aspects of; • Gonococci and meningococci • E. coli and salmonella, • Shigella, vibrio, proteus, • Pseudomonas, H.pylori , campylobacter • Spirochetes, Mycobacteria • Chlamydia, rickettsia, actinomycetes
ID-Pa 002	Parasitic Infectious agents	Explain the life cycles and diagnostic aspects of; • W. bancrofti, D.medinensis, loa loa • Tenia saginata, tenia solium, echinococcus granolosus, D.latum, H.nana • Giardia, entamoeba and plasmodium • Leishmania, toxoplasma, trypanosomes, naegleria
ID-Pa 003	Fungal infections	Explain the morphological, pathological and diagnostic aspects of: • Dermatophytes, malassezia fur fur, Spoorthi, Histoplasma,
	Fungal infections	Explain the morphological, pathological and diagnostic aspects of; • coccidioiodes, paracoccidioiodes, blastomyces, candida, mucor, aspergillus, Cryptococcus
ID-Pa 004	Viral infectious agents	Explain the morphological, pathological and diagnostic aspects of; • Adeno virus, papilloma virus, polyoma virus, papova virus • Pox virus, herpes, hepadna • Picornavirus, hepevirus, calicivirus, reovirus
		Explain the morphological, pathological and diagnostic aspects of; • Retrovirus, flaviviruses, togaviruses • Coronavirus, delta virus, paramyxovirus, rhabdovirus, orthomyxovirus, filovirus
		Enlist organisms producing CNS infections.

ID-Pa 005	Microorganism s producing CNS infections	Correlate clinically the following bacteria via their virulence factors, transmission, pathogenesis, laboratory diagnosis in CNS infections; • Strept. pneumoniae • Strept. Agalactiae • Nisseria meningitides • Haemophilus influenzae • E. coli • L. monocytogenes • Myocbacterium tuberculosis
		Correlate clinically the following microbes via their virulence factors, transmission, pathogenesis, laboratory diagnosis in CNS infections; • Enteroviruses • Mumps • Herpes simplex Microbiology • Adenovirus • C. neoformans • Rabies • Herpes simplex • Malaria • Toxoplasma • Negleria
		Compare CSF findings of viral and bacterial meningitis.
		Enlist organisms producing diarrhea & food poisoning.
		Correlate clinically the following microbes via their virulence factors, transmission, pathogenesis, laboratory diagnosis in GIT infections; • E. coli • B.cereus • Salmonella • Shigella • Vibrio cholerae & other Vibrio species

		• Helicobacter pylori • Camplylobacter jejuni • Clostridium species • Entamoeba histolytica
ID-Pa 006	Microorganisms producing GIT infections	Correlate clinically the following microbes via their virulence factors, transmission, pathogenesis, laboratory diagnosis in GIT infections • Giardia lamblia • Cryptosporidium parvum • Diphyllobothrium latum • Hymenolepis nana • Ancylostoma duodenale • Necator americanus • Ascaris lumbricoides • Entrobius vermicularis • Trichiuris trichiura
		• Trichinella spiralis • Polio • Hepatitis A, E • Norwalk & Rotavirus
		Correlate clinically the following viruses via their virulence factors, transmission, pathogenesis, laboratory diagnosis in acute & chronic hepatitis; Hepatitis A, B, C, D, E, G
		Correlate clinically the virulence factors, transmission, pathogenesis, laboratory diagnosis of Entamoeba & Echinococcus in liver infections.
ID-Pa 007	Sexually transmitted infections	Correlate clinically the virulence factors, transmission, pathogenesis, laboratory diagnosis of organism causing genital tract infections; • Nisseria gonorrhea • Treponema pallidum • Chlamydia trachomatis • Mycoplasma hominis

		• Candida albicans • Trichomonas vaginalis • Gardnerella vaginalis • Hepatitis B • HIV • Herpes simplex –II
ID-Pa 008	**ZOONOTIC infections**	Discuss important properties of: • Rickettsia, • Leptospira& Brucella, • anthrax, plague. • Francisella, bartonella
PHARMACOLOGY		
ID-Ph-001	Cell Wall Inhibitors	Classify cell wall synthesis inhibitors.
		Discuss the mechanism of action of beta lactam antibiotics (Penicillin G, V, Oxacillin, Nafcillin, Ampicillin, Amoxicillin, Piperacillin).
		Delineate the mechanism of resistance to beta lactam antibiotics.
		Enlist the major adverse effects of penicillin
		Differentiate the clinical uses of beta lactam antibiotics.
		Discuss the mechanism of action and clinical significance of Beta Lactamase Inhibitors (Clavulanic acid, Sulbactam, Tazobactam, Avibactam, Vaborbactam)
		Classify cephalosporin generations
		Describe their antibacterial spectrum and clinical uses.
		Differentiate the clinical uses of cephalosporin generations
		List the major adverse effects of cephalosporins.
		Describe important features of the carbapenems and monobactam.
		Describe the mechanism of action of Membrane active antibiotics (daptomycin, Fosfomycin, bacitracin,

		cycloserine).
		Describe the mechanism of resistance of Membrane active antibiotics.
		Describe the adverse effects and toxicities of Membrane active antibiotics.
ID-Ph-002		Describe antibacterial spectrum, mechanism of action, resistance, clinical uses and toxicity of vancomycin.
		Discuss clinical features of Redman Syndrome.
		Describe antibacterial spectrum, mechanism of action of Teicoplanin, Telavancin, Delbavancin, Oritavancin.
	Protein Synthesis inhibitors	Explain briefly the major steps of protein synthesis.
		Classify protein synthesis inhibitors.
		Demonstrate the tetracyclines and discuss mechanism of action, resistance, antibacterial spectrum, clinical uses, adverse effects of tetracyclines.
		Outline features of Milk Alkali Syndrome
		List pharmacological indication and adverse effects of Glycylcycline.
		Classify Macrolide/ Ketolide.
		Describe the mechanism of action and pharmacokinetics, antimicrobial spectrum, clinical uses, adverse effects of Erythromycin, Clarithromycin, Azithromycin, Fidaxomycin.
		Enlist mechanism of resistance & drug interactions of Macrolides.
		Describe the antibacterial spectra, therapeutic uses and side effects of Ketolides (Telithromycin, solithromycin)
		Discuss the main characteristics of Clindamycin including mechanism of action, pharmacokinetics, clinical uses and adverse effects.
		Explain Chloramphenicol with respect to its: mechanism of action, resistance, antibacterial spectrum, pharmacokinetics, clinical uses and adverse effects.
		Describe Gray Baby Syndrome.
		Enlist major pharmacokinetic characteristics of

		Streptogramins (Quinupristin / dalfopristin).
		Classify Antifolate drugs.
		Define Sulfonamides.
		Discuss the classification of Sulfonamides.
		Describe the mechanism of action of Sulfonamides.
		Discuss the clinical uses of Sulfonamides.
		Describe the adverse effects and toxicities of Sulfonamides.
		Outline clinical features of Steven Johnsons Syndrome.
		Explain Trimethoprim & Trimethoprim Sulfamethoxazol with respect to their mechanism of actions, resistance, antibacterial spectrum, pharmacokinetics, clinical uses and adverse effects
		Define Aminoglycosides.
		Classify Aminoglycosides.
		Describe the mechanism of action of Aminoglycosides (amikacin, gentamycin, streptomycin, tobramycin, neomycin, kanamycin).
		Describe the mechanism of resistance of Aminoglycosides.
		Discuss the clinical uses of Aminoglycosides.
		Describe the adverse effects and toxicities of Aminoglycosides.
		Discuss ototoxicity and nephrotoxicity of Aminoglycosides
		Define DNA Gyrase Inhibitors.
		Discuss the classification of DNA Gyrase Inhibitors.
		Describe the mechanism of action of DNA Gyrase Inhibitors (Ciprofloxacin, Levofloxacin, Ofloxacin, Getifloxacin and others)
		Describe the mechanism of resistance of DNA Gyrase Inhibitors.
		Discuss the clinical uses of DNA Gyrase Inhibitors.
		Describe the adverse effects and toxicities of DNA Gyrase Inhibitors.
		Briefly describe the signs, symptoms, diagnosis of tuberculosis.
		Classify antituberculosis drugs into 1st line and 2nd line agents with examples.

ID-Ph 003	Antituberculosis Therapy (ATT)	Describe standard protocols (WHO recommendation) for management of newly diagnosed pulmonary tuberculosis, multidrug-resistant tuberculosis, latent tuberculosis.
		Delineate the characteristic pharmacodynamics and pharmacokinetic properties of Rifampin, Isoniazid, Ethambutol and Pyrazinamide.
		Discuss the adverse effects of 1st line antituberculosis drugs.
		Describe how to monitor patients during antituberculosis drug therapy.
		Discuss 2nd line drugs used in treatment of Multidrug resistant tuberculosis with their therapeutic and adverse effects.
ID-Ph 004	Drug used in Leprosy	Explain standard protocols (WHO recommendation) for management of leprosy.
		Describe the characteristic properties of dapsone and clofazimine with their adverse effects.
ID-Ph-005	Antiprotozoal Drugs	Classify Antiprotozoal drugs
		Discussion classification of Antimalarial agents
		Discussion of mechanism of action of Antimalarial agents
		Describe the mechanism of resistance of Antimalarial agents.
		Discuss the clinical uses of Antimalarial agents.
		Describe the adverse effects and toxicities of Antimalarial agents.
		Discuss the main characteristics of antiprotozoal drugs used in amoebiasis & giardiasis including mechanism of action, pharmacokinetics, clinical uses and adverse effects.
		Discuss the main characteristics of antiprotozoal drugs used in treatment of Leishmaniasis.
		Discuss the main characteristics of antiprotozoal drugs used in treatment of Trypanosomiasis.
		Classify anti-helmintic drugs.
		Discuss drugs used for the treatment of Nematodes.
		Explain mechanisms of action, clinical uses, adverse effects of Mebendazole, Pyrantel pamoate,

ID-Ph 006	Anti-Helminth Drugs	Piperazine, Diethylcarbamazine & Ivermectin.
		Discuss drugs used for the treatment for Tape worm (cestodes) infection. Explain mechanisms of action, clinical uses, and adverse effects of drugs used in cestodes infections.
		Distinguish the drugs used for the treatment of Cestodes infection based on their characteristics and therapeutic uses.
		Discuss drugs used in treatment of Neurocysticercosis.
ID-Ph 007	Antifungal Drugs Classification	Classify antifungal drugs.
		Discuss drugs used for systemic mycotic infections.
		Discuss mechanisms of action & resistance, pharmacokinetics, clinical uses, adverse effects of Amphotericin B.
		Explain the mechanism of action, uses and adverse effects of flucytosine.
		Classify Azole antifungal drugs.
		Discuss mechanism of action, resistance, antifungal spectrum, pharmacokinetics, clinical uses, adverse effects and drug interactions of Azole antifungal drugs
		Describe important pharmacologic properties of echinocandins.
		DIscuss the drugs used for mucocutaneous mycotic infections.
		Discuss mechanism of action, resistance, antifungal spectrum, pharmacokinetics, clinical uses, adverse effects and drug interactions of Griseofulvin. and Terbinafine.
		Discuss the drugs used for cutaneous mycotic infections / Topical agents.
		Discuss mechanism of action, resistance, antifungal spectrum, pharmacokinetics, clinical uses, adverse effects of drugs used in cutaneous mycotic infections.
		Discuss mechanism of action, resistance, antifungal spectrum, pharmacokinetics, clinical uses, adverse effects of Nystatin.
iD-Ph 008		Discuss the main steps of viral replication that are targets for antiviral drugs.
		Describe drugs used in treatment of herpes simplex and varicella zoster virus infection with their properties.
		Explain the mechanism of action, pharmacodynamics and adverse effects of acyclovir, valacyclovir and famciclovir.
		Explain the mechanism of action, pharmacodynamics

		and adverse effects of agents used in cytomegalovirus infection.
		Classify antiretroviral agents.
		Discuss mechanism of action, resistance, pharmacokinetics, clinical uses, adverse effects of NRTIs, NNRTIs, PIs, INSTIs, Fusion inhibitors, CCR5 coreceptor antagonist, CD4 post-attachment inhibitors.
		Demonstrate the standard protocol for treatment of hepatitis B and C.
		Describe the mechanism of action of drugs used in treatment of COVID-19 and influenza along with their adverse effects.
		Briefly discuss antiretroviral drug used in treatment of HIV AIDS.
		Describe the significant characteristics of the five groups of drugs used in HIV AIDs.
	COMMUNITY MEDICINE	
ID-CM 001	Tuberculosis	Analyze the local & global burden of Tuberculosis . Identify the risk factors of TB
		Identify prevention and control measures for Pulmonary TB in line with WHO strategies for control of TB
		Appreciate significance of TB DOTS therapy for TB control
ID-CM-002	Hepatitis	Discuss the global burden of hepatitis
		Discuss the importance of awareness & screening of hepatitis.
		Analyze effective prevention methods for each type of hepatitis.
		Discuss role of vaccination
		Explain public health initiatives for prevention and control of hepatitis
		Describe the measures for prevention of vertical transmission of Hep B virus from mother to child transmission
ID-CM-003	Polio	Evaluate the Global Polio Eradication Initiative
		Analyze the historical and current global impact of poliomyelitis vaccination efforts
		Evaluate the effectiveness of different poliovirus vaccines (OPV and IPV) and vaccination schedules.
		Discuss community health strategies for poliovirus surveillance, outbreak response & vaccination campaigns
		Describe End game strategy by WHO for Polio

		eradication
ID-CM 004	Measles, mumps, Rubella	Discuss the global distribution of measles, mumps, Rubella and their occurrence in different population groups
		Describe the mode of transmission (airborne droplets) and the highly contagious nature of measles, mumps, Rubella
		Recognize the role of vaccination coverage and herd immunity in controlling outbreaks of measles, mumps, Rubella
		Discuss public health strategies for prevention and control of measles, mumps, Rubella including vaccination campaigns, surveillance, and outbreak response
ID-CM 005	EPI	Describe the goals and objectives of the Expanded Program of Immunization in Pakistan. Identify the key vaccines included in the EPI schedule.
		Analyze the strategies employed to implement the EPI in various communities.
		Evaluate the role of healthcare workers, community leaders, and families in promoting immunization
		Identify the common barriers to immunization coverage in Pakistan
		Discuss enhance vaccination uptake.
		Discuss recent developments in the EPI, Pakistan
		Analyze the potential impact of global health initiatives on the EPI's progress.
ID-CM 006	Diphtheria	Describe the role of vaccination in preventing diphtheria, including the DTP (Diphtheria, Tetanus, Pertussis)
		Identify the recommended vaccine schedule for children and adults.
		Analyze public awareness programs & school health initiatives to control its transmission.
		Analyze community-based vaccination campaigns
ID-CM 007	Tetanus	Identify the global distribution of tetanus, including endemic areas & populations at higher risk
		Describe the role of tetanus vaccination (Td or Tdap) in children
		Describe the role of tetanus vaccination in adults
		Discuss the significance of booster doses
		Discuss the importance of timely immunization after potential exposure to contaminated wounds

		Discuss the importance of educating the community about wound care
		Discuss the significance of seeking medical attention for injuries
INTERNAL MEDICINE		
ID-Pa 009	Pyrexia of unknown origin	Define pyrexia of unknown origin
		Describe the investigations of a patient with pyrexia of unknown origin.
		Summarize the treatment plan of a patient with pyrexia of unknown origin
ID-Pa-013	CNS	Discuss the signs, symptoms, diagnosis and treatment of septic and aseptic meningitis.
		Discuss the signs, symptoms, diagnosis and treatment of septic and aseptic encephalitis
ID-Ph 010	GIT infections	Discuss the signs symptoms diagnosis and treatment of diarrhea and dysentery.
ID-Ph-011	Respiratory tract infections	Discuss the clinical diagnosis and treatment of typical and atypical pneumonia
		Discuss the clinical diagnosis and treatment of TB
GYNAECOLOGY		
ID-GO 001	Sexually transmitted infections	Discuss clinical presentation & treatment of pelvic inflammatory diseases (PID)
ID-GO 002	Genital Tract	Discuss the differential diagnosis of bacterial, parasitic and fungal vaginosis/vaginitis and their treatment
PEDIATRICS MEDICINE		
ID-Pe-001	CNS	Discuss the signs symptom diagnosis and treatment of neonatal meningitis
ID-Pe-002	GIT	Discuss sign symptom diagnosis and treatment of diarrhea in infants.
ID-Pe-003	RTI	Discuss clinical diagnosis and treatment of childhood respiratory tract infections.
SURGERY		
ID-S-001	Skin infections	Discuss treatment of carbuncle, necrotizing fasciitis and gas gangrene
ID-S-002	GIT	Discuss sign & symptom diagnosis & surgical treatment of hydatid cyst and its differential diagnosis with ameobic liver abscess
INFECTION CONTROL		

ID-Pa-009	INFECTION prevention & control	Define hospital acquired infections (HAI)
		Discuss various types of HAI
		Enlist bacteria and fungi associated with HAI
		Describe the main routes of transmission of HAI in detail
		Discuss the etiology and prevention of VAP (ventilator associated pneumonia)
		Discuss the etiology and prevention of hospital acquired UTI
		Discuss the etiology and prevention of nosocomial diarrhea
		Discuss the etiology and prevention of central line associated infections
		Discuss various methods of hospital sanitation
		Define antimicrobial surfaces and enlist the microorganisms that are frequently present on touch surfaces
		Describe the various preventive techniques to reduce the HAI
BIOSAFETY		

ID-Pa-010	Bio-risk management(BRM)	Define biosafety and biosafety levels according to WHO? Enlist the bio risk organisms in each of biosafety levels? What are 4 levels of biosafety? Discuss the safety protocols of BSL 1? Discuss the safety protocols of BSL 2? Discuss the safety protocols of BSL 3? Discuss the safety protocols of BSL 4? Define biological waste? categorize the biological wastes (HAZARDOUS, NON HAZARDOUS, SHARPS)? Describe procedures for segregation, storage, treatment and disposal of biological waste? Define spill management and discuss the steps for the management of a laboratory spill? Define PPE and discuss the situations under which PPE should be used by the health care professionals. Discuss the SOP of transportation of biological samples? Define and briefly discuss bio risk management?

MICROBIOLOGY

ID-Pa 011	Staining	Identify the stained slides* of gram positive and gram negative bacteria (staphylococci, streptococci, Neisseria, Strept. pneumoniae, E. coli, proteus and acid fast bacilli). (*if slides will not be available, photographic slides should be used
. ID-Pa 012	Laboratory reporting	Interpret the culture sensitivity reports and antibiogram of gram positive and gram-negative bacteria.

ID-Pa 013	Culture sensitivity	Identify and describe the organisms that grow on the Blood agar, Chocolate agar, nutrient agar, TCBS, MacConkey media, LJ media. CLED, TSI, UREASE, CITRATE. blood culture bottle and anaerobic jar
ID-Pa 014	Stool examination	Identify the ova, cysts and trophozoites of protozoans, helminths, cestodes and schistosomes
ID-Pa 015	Laboratory tests	Perform and interpret the catalase test, coagulase test and oxidase test
INTERNAL MEDICINE		
ID-M 001	History taking	Demonstrate an accurate and comprehensive history from patient with fever
ID-M 002	Physical Examination	Perform a thorough general physical examination of a patient with fever
ID-M 003	Investigations	Order laboratory and radiological investigations for a patient with fever
ID-M 004	Results	Interpret the results of investigations of a patient with fever
ID-M 005	Differential diagnosis	Use information from history, physical examination, and laboratory investigations to identify and formulate a differential diagnosis of the underlying causes of fever
ID-M 006	Therapeutic plan	Formulate a therapeutic plan by integrating information from history, physical examination, and laboratory data for the management of a patient with fever
ID-M 007	Management plan	Record and present the complete history, physical examination findings, laboratory data, differential diagnosis, and therapeutic plan in a systematic, concise, and coherent manner, both in writing and orally

MODULE-18
Musculoskeletal & Locomotion-II

RHEUMATOLOGY

MS2-Rh- 001	Introduction to Rheumatology	Understand the scope and importance of rheumatology.
		Recognize common musculoskeletal disorders managed in rheumatology.

MS2-Rh- 002	Rheumatoid Arthritis (RA)	Describe the pathophysiology of Rheumatoid Arthritis (RA).
		Identify clinical features of Rheumatoid Arthritis (RA).
		Explain diagnostic criteria for Rheumatoid Arthritis (RA).
		Differentiate Rheumatoid Arthritis (RA) from other inflammatory joint disease
MS2-Rh-003	Osteoarthritis (OA)	Identify clinical manifestations of Osteoarthritis (OA).
		Discuss diagnostic methods for Osteoarthritis (OA).
		Explain the community burden of Osteoarthritis (OA)
		Identify risk factors for Osteoarthritis (OA).
		Explain the pathogenesis of Osteoarthritis (OA).
MS2-Rh- 004	Crystal Arthritis (Gout/ Pseudogout)	Define Crystal Arthritis, including Gout and Pseudogout.
		Describe the pathophysiology of Gout.
		Describe the pathophysiology of Pseudogout
		Identify clinical features of Gout.
		Identify clinical features of pseudogout
		Discuss diagnostic tests for Crystal Arthritis.
		Differentiate between Gout and Pseudogout based on clinical and diagnostic findings.
		Outline management strategies for Gout
		Outline management strategies for Pseudogout.
		Define Systemic Inflammatory Vasculitis.
		Describe the pathophysiology of Systemic Inflammatory Vasculitis.
		Identify types of Systemic Inflammatory Vasculitis.

MS2-Rh- 005	Systemic Inflammatory Vasculitis	Discuss the community burden of Systemic Inflammatory Vasculitis.
		Explain risk factors for Systemic Inflammatory Vasculitis.
		Describe clinical features of Systemic Inflammatory Vasculitis.
		Identify diagnostic tests for Systemic Inflammatory Vasculitis.
		Justify the use of diagnostic investigations in Systemic Inflammatory Vasculitis.
		Discuss management strategies for Systemic Inflammatory Vasculitis.
MS2-Rh-006	Autoimmune Rheumatic Diseases	Define Autoimmune Rheumatic Diseases (e.g., SLE, Sjogren's, Systemic Sclerosis).
		Describe the pathophysiology of Systemic Lupus Erythematosus (SLE).
		Identify clinical manifestations of Sjogren's Syndrome.
		Explain the pathophysiology of Systemic Sclerosis
		Discuss treatment options for Polymyositis and Dermatomyositis.
		Define Spondylarthritis and its clinical features.
		Describe clinical features of Spondylarthritis
		Explain diagnostic criteria for Autoimmune Rheumatic Diseases.
		Differentiate Autoimmune Rheumatic Diseases from each other.
MS2-Rh-007	Integrated EBM	Understand the role of evidence-based medicine in rheumatology management
		Apply evidence-based guidelines to rheumatology case studies
		Critically evaluate current research in rheumatology.

		Critically evaluate current research in rheumatology.
		Integrate evidence-based practices into rheumatology treatment plans.
		Demonstrate the ability to appraise rheumatology research studies.
		Apply evidence-based findings to clinical decision making in rheumatology.
		Summarize key research advancements in rheumatology.
		Implement evidence-based guidelines in rheumatology practice
		ORTHOPEDICS
MS2-Orth-001	Introduction to Orthopedics	Define the field of orthopedics and its significance. Orthopedics
		Identify common orthopedic conditions and their impact.
MS2-Orth-002	Fracture Classification and Healing	Explain the classification of fractures using the AO system.
		Describe principles of fracture healing.
		Differentiate between complete and incomplete fractures.
MS2-Orth-003	Pediatric Fractures	Discuss pediatric fractures and their management.
		Explain Salter-Harris classification for growth plate Injuries
MS2-Orth-004	Osteoporotic Fractures	Define osteoporotic fractures and their clinical features.
		Identify common sites of osteoporotic fractures
		Discuss risk factors for osteoporosis
MS2-Orth-005	Pathological	Define pathological fractures and differentiate from traumatic.

	Fractures	Identify causes of pathological fractures.
		Describe diagnostic approaches for pathological fractures.
		Explain management options for pathological fractures.
MS2-Orth-006	Sports Injuries	Classify sports injuries and their management.
		Describe common sports injuries in upper and lower limbs.
		Discuss pathophysiology of muscle strains and ligament sprains.
		Explain biomechanics of gait and malalignment injuries
		Outline injury prevention strategies in sports.
		Analyze rehabilitation processes for sports injuries.
		Discuss use of assistive devices in rehabilitation. Orthopedics.
		Describe nutritional roles in recovery from sports.
		Understand surgical intervention in severe sports
		Promote multidisciplinary approach in managing sports injuries.
MS2-Orth-007	Genetic Conditions in Orthopedics	Define genetic conditions: Achondroplasia and Marfan's Syndrome.
		Describe clinical features of Achondroplasia.
		Explain management of Marfan's Syndrome.
MS2-Orth-	Bone and joint	Define scoliosis and its types.
		Identify clinical features and screening methods for scoliosis.
		Discuss treatment options for scoliosis.
		Recognize multidisciplinary approach in managing Rehabilitation Scoliosis

008	Disorders	Define Osteogenesis Imperfecta and its genetic basis.
		Identify clinical features and types of Osteogeneses Imperfecta.
		Discuss management strategies for Osteogenesis Imperfecta.
		Educate patients on Osteogenesis Imperfecta
		Define Marfan's Syndrome and its genetic basis
		Identify clinical manifestations of Marfan's Syndrome.
		Discuss management strategies for Marfan's Syndrome.
		Promote patient education and support for Marfan's Syndrome.
SURGICAL TRAUMATOLOGY		
MS2-Orth-009	Introduction to Surgical Traumatology	Define ATLS and describe its relevance in trauma management.
MS2-Orth-010	Introduction to Trauma Management & ATLS	Explain principles of trauma management and primary survey.
		Describe types of injuries managed in traumatology.
		Discuss multidisciplinary approach in trauma care.
		Identify key specialties in managing traumatic injuries.
MS2-Orth-011	Primary Survey and ATLS	Understand ATLS guidelines in primary survey (ABCDE).
		Recognize common causes of severe trauma.
		Apply ATLS principles in conducting primary survey.
		Identify indications for rapid imaging in trauma assessment.
MS2-Orth-	Shock Recognition	Describe shock recognition and resuscitation measures

012	and Management	
MS2-Orth-013	Traumatic Brain Injury (TBI)	Define Traumatic Brain Injury (TBI) and classify its severity.
		Describe pathophysiology of primary and secondary brain injury.
		Identify common causes of TBI.
		Describe clinical features of TBI.
		Explain importance of early imaging for TBI
		Discuss ATLS role in TBI management
		Outline complications of TBI
MS2-Orth-014	Neck and Spine Trauma	Define Neck and Spine Trauma and classify it.
		Recognize mechanisms of neck and spine trauma.
		Describe anatomy of spine and spinal cord in trauma context.
		Identify clinical features of neck and spine trauma.
		Understand importance of immobilization in spinal trauma.
		Discuss role of imaging in spinal trauma diagnosis.
		Recognize role of ATLS in spinal trauma management.
		Outline complications of spine trauma.
MS2-Orth-015	Maxillofacial Trauma	Define Maxillofacial Trauma and its classification.
		Identify causes of Maxillofacial Trauma
		Explain anatomy relevant to Maxillofacial Trauma.
		Recognize clinical features of facial trauma.
		Identify importance of airway management in facial trauma.
		Describe radiological investigations for facial fractures.

		Discuss complications of maxillofacial trauma.
		Outline ATLS principles in maxillofacial trauma Discuss surgical interventions for maxillofacial trauma.
MS2-Orth-016	Extremity Trauma	Define Extremity Trauma and its types.
		Explain mechanisms of extremity trauma.
		Recognize clinical signs of extremity injuries
		Identify life-threatening complications of extremity trauma.
		Understand role of imaging in extremity trauma diagnosis
		Describe principles of ATLS in extremity trauma Management
		Discuss management techniques for extremity Trauma
		Explain indications for surgical intervention in extremity trauma
PATHOLOGY, PHARMACOLOGY, COMMUNITY MEDICINE and BEHAVIORAL SCIENCES & EBM		
MS2-Pa-001	MSK Diseases & Tumors	Discuss the etiology, pathophysiology, morphology, clinical manifestations and diagnostic criteria of Rheumatoid Arthritis (RA)
		Discuss the etiology, pathophysiology, morphology, clinical manifestations and diagnostic criteria of Osteoarthritis (OA)
		Discuss the etiology, pathophysiology, morphology, clinical manifestations and diagnostic criteria of Crystal Arthritis (Gout/Pseudogout)
		Discuss the etiology, pathophysiology, morphology, clinical manifestations and diagnostic criteria of Autoimmune Rheumatic Diseases .
		Identify bone tumors, cartilaginous and soft tumors and their clinical features
		Discuss the etiology, pathophysiology, morphology, clinical manifestations and diagnostic criteria of Bone tumours, cartilaginous and soft tumors
MS2-Ph-001	MSK Drugs & Interventions	Describe pharmacologic interventions for MSK disorders.
		Explain mechanisms of NSAIDs in MSK disorders.
		Describe DMARDs and their use in MSK disorders
		Discuss corticosteroids in MSK management.

		Explain bisphosphonates and opioids in MSK Disorders
MS2-CM-001	Epidemiology & Prevention	Understand epidemiology of MSK diseases.
		Discuss public health burden of MSK diseases.
		Explain preventive measures for MSK diseases.
	Pharmacologic Management in Rheumatology	Discuss pharmacologic management in rheumatology.
		Understand the use of NSAIDs in rheumatic diseases.
		Describe DMARDs and their role in managing RA
		Explain corticosteroids in rheumatic disease management.
		Discuss biologics in rheumatology management.
		Describe opioids for pain management in rheumatology.
MS2-CM-001	Epidemiology & Prevention	Understand the epidemiology of rheumatic diseases.
		Discuss the public health burden of rheumatic diseases.
		Explain preventive measures for rheumatic diseases.
MS2-BhS-001	Psychosocial Impact & Patient Counseling	Analyze psychosocial impact of chronic MSK conditions.
		Describe patient counseling techniques for MSk.
		Promote adherence to MSK treatment plans.
		Educate patients on importance of adherence to MSK management
		Discuss impact of disability on MSK patients
MS2-Orth-017	Integrated EBM	Understand role of evidence-based medicine in MSK management.
		Apply evidence-based guidelines to rheumatology case studies.
		Critically evaluate current research in Rheumatology
		Integrate evidence-based practices into rheumatology treatment plans.

		Demonstrate the ability to appraise rheumatology research studies.
		Apply evidence-based findings to clinical decision making in rheumatology.
		Summarize key research advancements in rheumatology.
		Implement evidence-based guidelines in rheumatology practice.
PRACTICAL /LAB WORK		
MS2-Pa-002	Test Interpretation	Interpret various investigations related to joint diseases including: i. Complete Blood Count (CBC) ii. Erythrocyte Sedimentation rate (ESR) iii. C-reactive protein (CRP) iv. Creatine Kinase (CK) v. Rheumatoid factor (RF) vi. Antinuclear antibody (ANA) vii. Anti-Neutrophil Cytoplasmic Antibodies (ANCA) viii. Serum uric acid level
MS2-Pa-003		Interpret related cultures for diagnosis for infections
MS2-Ra-001		Interpret imaging tests to evaluate various musculoskeletal disorders including: i. X-rays ii. Computed tomography (CT) Scans iii. Ultrasound Scans iv. Bone Scans
MS2-Ph-002	MSK & locomotion	Analysis and interpretation of Drugs (atracurium or skeletal muscle relaxant) on animal through online videos / simulations / graphs / practical performance.
		Analysis and interpretation of different concentrations of Drugs (atracurium or skeletal muscle relaxant) on Frog's rectus muscle through online videos / simulations / graphs / practical performance.
GENERAL MEDICINE/GENERAL SURGERY		
MS2-M-001	History taking in pain	Elicit symptom of "pain" in history in terms of location, intensity, duration, character, aggravating and relieving factors.

MS2-S-001	History taking in swelling	Elicit symptom of “swelling” in history in terms of location, intensity, duration, character, aggravating and relieving factors.
MS2-M-002	History taking in swelling in drug history	Elicit symptom of “swelling” in history in terms of location, duration, pattern and any family or drug history.
MS2-Rh-011	History taking in joint mobility	Elicit symptom of ‘joint mobility” in history in terms of location, intensity, duration, character, aggravating and relieving factors.
MS2-Orth-017	History taking in joint mobility	Elicit symptom of “joint mobility” in history in terms of its location, duration, pattern, mechanism of injury with associated symptoms.
		Elicit the signs and symptoms of patient with joint dislocation in history.
		Elicit signs and symptoms of patient with fracture in history
MS2-Rh-012	History taking in osteoporosis	Elicit the signs and symptoms of patient with Osteoporosis.
		Elicit a patient history to make a provisional diagnosis.
RHEUMATOLOGY		
MS2-Rh-013	Physical Examination	Palpate joints or areas for tenderness, warmth, swelling, and other inflammatory markers (e.g., effusion).
		Assess range of motion (ROM) in joints, both actively (patient’s effort) and passively (examiner's effort).
		Test for specific joint tenderness and swelling in conditions like gout, rheumatoid arthritis, and osteoarthritis.
		Assess for joint deformities (e.g., rheumatoid nodules, Heberden’s nodes).
		Perform a thorough hand and wrist examination for signs of arthritis (e.g., Boutonnière deformity, swan neck deformity).
		Examine for abnormal postural patterns such as scoliosis, kyphosis, or lordosis.
		Perform a spine examination, assessing for alignment, tenderness, and range of motion.
		Perform pulse examination in Systemic Inflammatory Vasculitis.

AFFECTIVE DOMAIN		
MS2-PS-001	Affective Domain	Show empathy toward patients with chronic pain.
		Communicate the importance of early intervention.
		Encourage adherence to long-term treatment plans.
		Promote timely referrals to specialists when necessary.
		Promote dietary interventions to improve overall health.
		Discuss the prognosis of diseases based on findings and individual circumstances.
ORTHOPEDICS		
MS2-Orth--018	Physical Examination	Inspect normal gait and assess deviations such as limping, stiffness, or imbalance.
		Assess muscle strength surrounding normally functioning limbs using standard grading techniques (e.g., Oxford scale).
		Assess joint stability through special tests (e.g., Lachman test for ACL integrity, McMurray test for meniscus tears).
		Perform a compartment syndrome assessment (checking for swelling, pain, and vascular compromise).
		Assess vascular status (pulses, capillary refill) in cases of trauma or orthopedic injury.
		Conduct a neurological examination of the upper and lower limbs to assess motor and sensory function.
MS2-Orth-019	Soft tissue,Neurological and Bony Extremity injuries	Demonstrate skills in performing a thorough assessment of extremity injuries, including physical examination techniques
		Provide first aid to a person with bone injury like common sprains, fractures and dislocations (immobilization of body part) resuscitation of injured patients.
MS2-Orth-020		Demonstrate skills in assessing fractures through physical examination and appropriate imaging modalities, including X-rays and CT scans.
		Perform a fracture assessment and evaluate signs of potential fractures or dislocations (e.g., deformity, abnormal movement).
		Demonstrate skills in developing individualized treatment plans based on fracture type, patient

	Fractures	factors, and healing principles.
		Demonstrate clinical skills in assessing and managing fractures in various locations, including the use of appropriate imaging studies.
		Observe application of dressings, splints, plasters and other immobilization techniques in fracture patients in emergency.
		Observation of fracture reduction and fixation .
		Observation of internal and external fixation
MS2-Orth-021	Principles of Triage Surgery and Damage Control	Assess and prioritize patients based on the severity of injuries.
		Implement damage control surgery techniques for orthopedic trauma.
		Identify candidates for damage control surgery.
		Stabilize fractures and manage soft tissue injuries in a timely manner
		Minimize the risk of complications and improve patient outcomes through damage control strategies.
AFFECTIVE DOMAIN		
MS2-Orth-022	Fractures	Recognize the indications for surgical intervention in the management of fractures, including fixation techniques and considerations for rehabilitation.
MS2-Orth-023	Fracture Healing and Principles of Treatment	Educate patients on the principles of fracture healing and the importance of adherence to treatment protocols for optimal recovery.
MS2-Orth-024	Treatment by fracture location and region	Educate patients on the importance of follow-up and rehabilitation based on fracture location to optimize healing and functional recovery. Collaborate with multidisciplinary teams to address unique challenges presented by fractures in specific regions (e.g., elderly patients with hip fractures).
MS2-Orth-025	Principles of Triage Surgery and Damage Control	Coordinate with other specialties for comprehensive trauma care. Educate patients and families about the triage

		process and damage control strategies.
SURGICAL TRAUMATOLOGY **General Principles of ATLS-ABCDE**		
MS2-S001	General Principles of ATLS - ABCDE	Assess airway patency and clear airway obstructions. Apply cervical spine immobilization if necessary.
		Inspect for chest movement, auscultate breath sounds, palpate for deformities.
		Assess pulse, control external bleeding, and assess perfusion. Initiate shock management if required.
		Assess level of consciousness using the Glasgow Coma Scale (GCS) and check pupil reaction.
		Expose the patient to assess for hidden injuries and prevent hypothermia.
		Conduct secondary survey - a head-to-toe examination, including history and detailed physical exam.
SPECIAL EXAMINATIONS ACCORDING TO TYPE OF TRAUMA		
MS2-M- 001	Traumatic Brain Injury (TBI)	Use the Glasgow Coma Scale to assess Consciouness in patients with head injuries.
MS2-Orth-026	Neck and Spine Trauma	Assess for tenderness and deformity along the cervical spine in trauma patients.
MS2-M-002	Thoracic Trauma	Identify abnormal breath sounds during auscultation to detect potential injuries.
MS2-S-002	Abdominal Trauma	Perform abnormal palpatation to identify tenderness or rigidity indicating injury.
MS2-S- 003	Maxillofacial Trauma	Recognize signs of facial fractures or deformities during the examination.
MS2-S- 004	Extremity Trauma	Conduct a quick neurovascular examination of the limbs to evaluate pulse and sensation.
AFFECTIVE		

MS2-S-009	Early Assessment and Management of Severe Trauma	Recognize when to initiate life-saving interventions such as airway management, chest decompression, and external hemorrhage control.
		Initiate consultation/ referral to a trauma center for further management, ensuring early communication with the trauma team.
		Recognize when to initiate life-saving interventions such as airway management, chest decompression, and external hemorrhage control.

TRAUMATOLOGY

For2-Tr 001	General concept	Define injury, wound and hurt.
		Classify injuries on the basis of causative weapons
		Classify injuries as per Qisas and Diyyat Act.
For2-Tr 002	Wound production	Explain mechanism of wound production with reference to subject, object and contact.
For2-Tr 003	Abrasion	Define abrasions. Classify abrasion. Describe mechanism of production of abrasions. Differentiate between different types of abrasions. Explain medicolegal importance of abrasions.
For2-Tr 004	Bruise	Define bruises. Describe mechanism of production of bruises. Classify bruises. Explain pathophysiology of color changes in the bruise Assess the age of wound from color changes of wound. Distinguish between bruise, artificial bruise and hypostasis. Explain medico legal importance of bruises.
For2-Tr 005	Laceration	Define lacerated wound. Outline mechanism of production of a lacerated wound. Classify lacerated wounds. Differentiate between a lacerated wound and incised wound on gross examination. Explain medico legal importance.
For2-Tr 006	Fractures	Explain mechanism of fracture of bones/tooth. Discuss the mechanism of fractures/tooth. Describe different types of fractures of bones.

		Interpret the age of fractures from radiological findings. Illustrate stages of healing of fractures of bones/teeth. Apply the nature of the fracture in the injury certificate as per Qisas and Diyat act. Explain medico-legal importance of fracture of bone/tooth.
For2-Tr 007	Incised/stab wounds	Define incised/stab wounds. Discuss mechanism of production of an incised wound. Explain medico-legal significance of incised/stab wounds.
SPECIAL TRAUMATOLOGY		
For2-Tr 008	Pathophysiology of injuries	Describe the pathophysiology of injuries. Explain effects of injuries on the body.
For2-Tr 009	Timing of injury / ante mortem, post mortem nature of wound	Elaborate different methods (naked eye examination, microscopic examination, histochemical and biochemical methods) for determination of age of wound. Describe different methods (naked eye examination, microscopic examination, histochemical and biochemical methods of determination of ante mortem/ post mortem nature (vital reaction) of a wound. Pathology, surgery, medicine & Forensic medicine.
For2-Tr 010	Ewing's postulate	Link Sequelae of trauma to its original cause and search for the relationship of sequelae to pre-existing disease.
For2-Tr 011	Battered baby syndrome	Give a detailed account of battered baby or Caffey syndrome from a medicolegal point of view. Diagnose a case of a battered baby on the basis of different injuries sustained by a battered baby.
For2-Tr 012	Torture	Define torture. Explain reasons, types and complications of torture. Describe medicolegal aspects of torture.
For2-Tr 013	Medicolegal Certification of injury	Examine and prepare Medico-legal report of an injured person with different etiologies in a simulated/supervised environment.
For2-Tr-14	Internal ballistics	Define fire arms and ballistics. Classify fire arm. Explain different parts of fire arm weapons. Describe ammunition used in firearms. Explain chain of events of firing Internal ballistics
For2-Tr 015	External Ballistics	To explain the factors affecting the trajectory of bullet after its exit from the muzzle end.
For2-Tr 016	Terminal Ballistics	Interpret wound complex produced by a rifled and non rifled weapons at different ranges. Calculate the distance of fire from the wound examination. Differentiate between entry and exit wounds of fire arms. Explain medicolegal importance of fire arm injuries.
For2-Tr 017	Gun powders	Identify gun powders and ammunition used through different methods.
For2-Tr 018	Blast injuries	Describe mechanics of blast injuries. Explain effects of blast injuries on human body. Describe medicolegal aspects of blast injuries

For2-Tr 019	Regional Injuries	Explain mechanism of injuries to soft and bony tissues of head, neck, chest, abdomen and limbs. Describe effects of injuries to head, neck, chest, abdomen and limbs. Describe medicolegal aspects of regional injuries
For2-Tr 020	Transportation Injuries	Classify transport accidents. Describe different factors involved in the causation of RTA. Classify and describe different patterns of injuries sustained by pedestrians and occupants of the vehicles Explain medicolegal significance and prevention of RTA.
For2-Tr 021	Therrmal Injuries / Burn	Define thermal injuries. Classify thermal injuries-flame burns and scalds. Describe degree of burns according to different classifications. Calculate percentage of burnt surface area and their effects on the body. Describe management of the burnt patient clinically. Appraise causes of death due to burn. Determine age of burn and ante-mortem/post mortem nature of burn. Describe autopsy findings and medico legal importance of burns. l
For2-Tr 022	Electrocution Lightening	Classify electrical injuries injuries-low voltage and high voltage Explain factors affecting electrocution. Describe mechanism and causes of death in electrocution. Interpret different patterns of electrical injuries due to low and high voltage current and lightening Describe autopsy findings and medico legal importance of electrocution
For2-Tr 023	Hyper / Hypothermia/ Starvation	Explain deaths from exposure to high environmental temperature like heat stroke, heat cramps and heat exhaustion. Explain deaths from exposure to low environmental temperature like Frost bite, Trench foot, Immersion foot. Describe their mechanism of development, autopsy findings and medicolegal importance. Interpret Starvation, causes, clinical findings, autopsy findings and medicolegal importanc
For2-Tr 02	Chemical Burns	Describe chemical burns Explain mechanism of development of chemical burns Describe autopsy findings Summarize the chemical buns as per qisas and diyat act. Describe medicolegal importance of chemical burns
For2-Tr 025	Drowning	Define and classify drowning. Explain mechanism of death in wet and dry drowning. Describe external and internal autopsy findings in wet and dry drowning. Interpret biochemical and diatom tests. Emphasize medicolegal importance of drowning .
MEDICOLEGAL ASPECTS OF SEXUAL OFFENCES		
For2 Se-001	Impotency frigidity and sterility	Comprehend the terms-impotency, frigidity in females and sterility Explain their causes. Narrate their medico legal importance
For2 Se-002	Virginity and defloration	Explain signs of virginity and defloration. Interpret medico legal importance

For2 Se-003	Pregnancy	Describe presumptive, probable and sure signs of pregnancy in living and dead.
For2 Se-004	Delivery	Explain recent and old signs of delivery in living and dead
For2 Se-005	Abortion/Miscarriage	Define and classify abortions. Explain motives for criminal abortions. Reproduce different methods of inducing criminal abortion. Outline complications and causes of death due to abortion. Describe findings in living and dead after abortion. Examine the aborted material to assess the age and viability. Apply sections of Qisas and Diyat act relevant to abortion.
For2-Se-006	Sexual Offences	Classify sexual offenses (natural, un-natural and perversions) and explain their medico legal importance. Describe sexual perversions and identify the traits. Reproduce different sections of law relevant to sexual offenses. Explain Medico-legal examination of a victim of sexual assault and issue report. Describe Medico-legal examination of the alleged accused of rape and issue report. Know the Medico-legal examination in unnatural sexual offence. Outline collection, preservation and dispatch of specimens in cases of sexual assaults to chemical examiner. Interpret Psycho-pathology of assailant. Interpret Psycho-pathology of victim.' Undertake initial management & referral of victim.
For2 Se-007	Infanticide	Define infanticide. State status of infants-still born/dead born/live born. Describe autopsy findings to determine whether live born or not, cause of death, age of new born and others
TRAUMATOLOGY		
For2-Tr 026	Mechanical injuries	Recognize and identify common conventional blunt objects, sharp objects, firearms, electrical instruments and chemicals and their medico-legal aspects. (lathi, knife, axe, gandasa, sickle, dagger, razor & stick, fire arms.
For2-Tr 027	Abrasion	Differentiate between different types of abrasions
For2-Tr 028	Bruise	Assess the age of a bruise on the basis of color changes. Differentiate between a bruise and post mortem staining.
For2-Tr 029	Wound	Differentiate between a lacerated and incised wound on naked eye examination wound .
For2-Tr 030	Age of fracture	Assess the age of fracture by recognition of healing stages on x rays Apply different sections of Qisas and Diyat Act from examination of fractures on x rays.

For2-Tr 031	Hurt / Qisas N Diyat	Identify hurt and apply relevant section of Qisas and Diyat Act for: i. Itlaf-udw ii. Itlaf -slahiat-udw iii. Shajja iv. Jurh Act
For2-Tr 032	Certification of injury	Demonstrate appropriate examination of an injured person and issue the report in a simulated/supervised environment correctly
For2-Tr 033	Firearm	Identify different types of fire arm weapons. Identify different parts of fire arm weapons. Identify different parts of ammunition. Determine the type of fire arm weapon from the examination of fire arm wound complex. Calculate the firing range of the weapon from appearance of wound. Identify characteristics of entry and exit fire arm wounds.
For2-Tr 034	Burn	Differentiate between dry burn and wet burn. Calculate burnt surface area. Determine age and nature of burn on naked eye examination Recognize autopsy findings
For2-Tr 035	Electrocuted injury	Recognize between entry and exit wounds of electric currents on body. Describe different pathways of electric currents through human body. Recognize different patterns of electrical injuries.
For2-Tr 036	Hypo / Hypothermia / starvation	Recognize different patterns of effects of high/low environmental temperature on the body. Appreciate clinical and autopsy findings of death due to starvation
For2-Tr 037	Chemical Burns	Recognize different patterns of Chemical burns over body. Apply relevant sections of Qisas And Diyat Act.
For2-Tr 038	Hanging	Identify different kinds of ligature materials used for hanging. Recognize different types of hanging. Appreciate nonspecific and specific autopsy findings of hanging. Know how to remove and preserve the ligature material used.
For2-Tr 039	Strangulation / Hanging	Differentiate between ligature marks due to hanging and strangulation. Appreciate nonspecific and specific autopsy findings of hanging. Know how to remove and preserve the ligature material used.
For2-Tr 040	Throttling	Appreciate external and internal autopsy findings of death due to throttling. Determine the position of assailant and victim from external marks on neck
For2-Tr 041	Smothering / Gagging	Appreciate external and internal autopsy findings of death due to smothering, choking, gagging and traumatic asphyxia
For2-Tr 042	Drowning	Appreciate external and internal autopsy findings of death due to drowning. CODE SPECIFIC LEARNING OUTCOMES TOTAL HOURS = 06 INTEGRATING DISCIPLINE TOPIC
SEXOLOGY		
For2 Se-008	Sexual Assaults	Replicate Medico-legal examination of a victim of sexual assault and issue report. Demonstrate Medico-legal examination of the alleged accused of rape and issue report. Copy the Medico-legal examination in unnatural sexual offence. Perform collection, preservation and dispatch of specimens in cases of sexual assaults to chemical examiner**.**

PRACTICAL/LAB WORK

- Class will be divided into 8 batches (A – H). These batches will be used for clinical rotation and Practical work.
- Practicals will be conducted from Monday to Thursday
- For practicals, batches will be distributed as follows

  Pathology lab

  Pharma lab

  Forensic lab

  Pathology Tutorial

PATHOLOGY PRACTICALS

	Code	Practical Topic
	MS2-Pa 002	Interpret various investigations related to joint diseases including: i. Complete Blood Count (CBC) ii. Erythrocyte Sedimentation rate (ESR) iii. C-reactive protein (CRP) iv. Creatine Kinase (CK) v. Rheumatoid factor (RF) v. Antinuclear antibody (ANA) vi. Anti-Neutrophil Cytoplasmic Antibodies (ANCA) vii. Serum uric acid level Pathology
	MS2-Pa 003	Interpret related cultures for diagnosis for infections Microbiology, Pathology
	ID-Pa 011	Identify the stained slides* of gram positive and gram negative bacteria (staphylococci, streptococci, Neisseria, Strept. pneumoniae, E. coli, proteus and acid fast bacilli). (*if slides will not be available, photographic slides should be used
	ID-Pa 012	Interpret the culture sensitivity reports and antibiogram of gram positive and gram-negative bacteria.
		ID-Pa 013 Identify and describe the organisms that grow on the Blood agar, Chocolate agar, nutrient agar, TCBS, MacConkey media, LJ media. CLED, TSI, UREASE, CITRATE. blood culture bottle and anaerobic jar
	ID-Pa 014	Identify the ova, cysts and trophozoites of protozoans, helminths, cestodes and schistosomes.
	ID-Pa 015	Perform and interpret the catalase test, coagulase test and oxidase test.
	N-Pa-008	Morphological features of Benign and Malignant tumours (Gross and Microscopic features) Pathology Nomenclature, Difference between benign and malignant tumours Common Benign tumours (Lipoma, Leiomyoma, Fibroadenoma of Breast) Carcinoma in situ

		(DCIS & Bowens disease) Common Malignant tumours (Adenocarcinoma, Squamous cell carcinoma)
	N-Pa-009	Tumour grade and stage in malignant tumours Adenocarcinoma / Squamous cell carcinoma (including tumour invasion and metastasis)

FORENSIC PRACTICALS

	Code	**Practical Topic**
	For2-Tr 026	Recognize and identify common conventional blunt objects, sharp objects, firearms, electrical instruments and chemicals and their medico- legal aspects. (lathi, knife, axe, gandasa, sickle, dagger, razor
	For2-Tr 026	Recognize and identify common conventional blunt objects, sharp objects, firearms, electrical instruments and chemicals and their medico- legal aspects. (lathi, knife, axe, gandasa, sickle, dagger, razor Forensic medicine Mechanical injuries 192 & stick, fire arms
	For2-Tr 027 **For2-Tr 028** **For2-Tr 029**	Differentiate between different types of abrasions Assess the age of a bruise on the basis of color changes. Differentiate between a bruise and post mortem staining Differentiate between a lacerated and incised wound on naked eye examination
	For2-Tr 030	Assess the age of fracture by recognition of healing stages on x rays Apply different sections of Qisas and Diyat Act from examination of fractures on x rays
	For2-Tr 031 **For2-Tr 032**	Identify hurt and apply relevant section of Qisas and Diyat Act for: i. Itlaf-udw ii. Itlaf -slahiat-udw iii. Shajja iv. Jurh Hurt / Qisas N Diyat Act Demonstrate appropriate examination of an injured person and issue the report in a simulated/supervised environment correctly
	For2-Tr 033	Identify different types of fire arm weapons Identify different parts of fire arm Identify different parts of ammunition. Determine the type of fire arm weapon from the examination of fire arm wound complex. Calculate the firing range of the weapon from appearance of wound. Identify characteristics of entry and exit fire arm wounds.
	For2-Tr 034 **For2-Tr 037**	Differentiate between dry burn and wet burn. Calculate burnt surface area Determine age and nature of burn on naked eye examination Recognize different patterns of Chemical burns over body. Apply relevant sections of Qisas And Diyat Act.

	For2-Tr 035 **For2-Tr 036** **For2-Tr 036**	Recognize between entry and exit wounds of electric currents on body. Describe different pathways of electric currents through human body. Recognize different patterns of electrical injuries. Recognize different patterns of effects of high/low environmental temperature on the body. Appreciate clinical and autopsy findings of death due to starvation
	For2-Tr 038 **For2-Tr 039**	Identify different kinds of ligature materials used for hanging Recognize different types of hanging Appreciate nonspecific and specific autopsy findings of hanging. Know how to remove and preserve the ligature material used. Differentiate between ligature marks due to hanging and strangulation. Appreciate nonspecific and specific autopsy findings of hanging. Know how to remove and preserve the ligature material used.
	For2-Tr 026	Recognize and identify common conventional blunt objects, sharp objects, firearms, electrical instruments and chemicals and their medico- legal aspects. (lathi, knife, axe, gandasa, sickle, dagger, razor Forensic medicine Mechanical injuries 192 & stick, fire arms
	For2-Tr 027 **For2-Tr 028** **For2-Tr 029**	Differentiate between different types of abrasions Abrasion Assess the age of a bruise on the basis of color changes. Differentiate between a bruise and post mortem staining Bruise Differentiate between a lacerated and incised wound on naked eye examination
	For2-Tr 030	Assess the age of fracture by recognition of healing stages on x rays Apply different sections of Qisas and Diyat Act from examination of fractures on x rays
	For2-Tr 031 **For2-Tr 032**	Identify hurt and apply relevant section of Qisas and Diyat Act for: i. Itlaf-udw ii. Itlaf -slahiat-udw iii. Shajja iv. Jurh Hurt / Qisas N Diyat Act Demonstrate appropriate examination of an injured person and issue the report in a simulated/supervised environment correctly
	For2-Tr 033	Identify different types of fire arm weapons Identify different parts of fire arm weapons Identify different parts of ammunition. Firearm Determine the type of fire arm weapon from the examination of fire arm wound complex. Calculate the firing range of the weapon from appearance of wound. Identify characteristics of entry and exit fire arm wounds.
	For2-Tr 034 **For2-Tr 037**	Differentiate between dry burn and wet burn. Calculate burnt surface area Determine age and nature of burn on naked eye examination Recognize different patterns of Chemical burns over body. Apply

		relevant sections of Qisas And Diyat Act.
	For2-Tr 035 **For2-Tr 036**	Recognize between entry and exit wounds of electric currents on body. Describe different pathways of electric currents through human body. Recognize different patterns of electrical injuries. Recognize different patterns of effects of high/low environmental temperature on the body. Appreciate clinical and autopsy findings of death due to starvation
	For2-Tr 040 **For2-Tr 041**	Appreciate external and internal autopsy findings of death due to throttling. Determine the position of assailant and victim from external marks on neck Appreciate external and internal autopsy findings of death due to smothering, choking, gagging and traumatic asphyxia
	For2-Tr 042	Appreciate external and internal autopsy findings of death due to drowning.
	For2 Se-008	Replicate Medico-legal examination of a victim of sexual assault and issue report. Demonstrate Medico-legal examination of the alleged accused of rape and issue report. Copy the Medico-legal examination in unnatural sexual offence. Perform collection, preservation and dispatch of specimens in cases of sexual assaults to chemical examiner.

PHARMACOLOGY PRACTICALS

1	**MS2-Ph 002**	Analysis and interpretation of Drugs (atracurium or skeletal muscle relaxant) on animal through online videos / simulations / graphs / practical performance.
2		Analysis and interpretation of different Concentrations of Drugs (atracurium or skeletal muscle relaxant) on Frog's rectus muscle through online videos / simulations / graphs / practical performance.

RADIOLOGY PRACTICAL

	MS2-Ra 001	Interpret imaging tests to evaluate various musculoskeletal disorders including: i. X-rays ii. Computed tomography (CT) Scans iii. Ultrasound Scans iv. Bone Scans

ASSESSMENT METHODS.

Tools & Policy

Tools for Formative and Summative Assessment:-

Formative assessment:

CLASS TESTS (After every 2 weeks))

1. Friday during Grand Tutorial
2. On all topics covered during the past 2 weeks.
3. Weightage and Grading will be as follows

	Pathology	Pharmacology	Forensic Medicine	Allied subjects	Total	Marks
MCQs	15	5	7	3	30	30
SEQs	2	1	1	-	4	20
TOTAL						**50**

4. Combined Test Dates

Friday 8:45 – 10:15 am
Venue: Pathology Department Labs

1st TEST 4-7-25

2ND TEST 22-8-25

3RD TEST 19-9-25

- **Summative Block examination:-**
  - MCQ's
  - SEQ's
  - OSPE
  - Viva Voce
  - Assignments

Block – 8 TOS

MBBS 3rd Professional							
Block-8							
Subject	**Written Exam**			**Oral/Practical/Clinical Exam**			
	MCQ (1 mark)	**SEQ (5 mark each)**	**Marks**	**OSPE /OSCE (8 marks each observed)**	**OSCE (10 marks each observed)**	**OSVE (14 marks each observed)**	**Marks**
Pharmacology	12	02	22	03	-	01	38
Pathology	30	05	55	04	-	02	60
Family Medicine	-	-	-	-	-	-	-
Community Medicine	04	-	04	-	-	-	-
Surgery	15	01	20	01	-	-	08
Medicine	15	01	20	01	-	-	08
Forensic	10	01	15	01	-	-	08
Behavioral	02	-	02	-	-	-	-
Patient Safety	02	-	02	-	-	-	-
CFRC	-	-	-	01	-	-	08
PERLs + ExposITory	-	-	-	-	01	-	10
Total	**90**	**10x5=50**	**140**	**11 stations x 08 = 88**	**01 stations x 10 = 10**	**03 stations x 14=42**	**140**

UHS Assessment Policy:-

1. Professional examination shall be open to any student who: -
    a. has been enrolled/registered and completed one academic year preceding the concerned professional examination in a constituent/affiliated college of the University.
    b. has his/her name submitted to the Controller of Examinations, for the purpose of examination, by the Principal of the college in which he / she is enrolled & is eligible as per all prerequisites of the examination.
    c. has his/her marks of internal assessment in all the Blocks sent to the Controller of Examinations by the Principal of the college along with the admission form.
    d. produces the following certificates duly verified by the principal of his / her college:
        (i) of good character;
        (ii) of having attended not less than cumulative 85% of the full course of lectures delivered and practical conducted in the particular academic session, while maintaining 75 % attendance in each block,
        (iii) Certificate of having appeared at the Block Examinations conducted by the college of enrolment with at least 55 % cumulative percentage in aggregate of blocks 7,8, and 9 for the third year;
        (iv) Candidates falling short of block/s attendance shall not be admitted to the annual examination unless they take remedial classes to complete the requirement.

2. The minimum number of marks required to pass the professional examination for each paper shall be fifty-five percent (55%) in Written and fifty-five percent (55%) in the 'Oral/Practical/Clinical' examinations and fifty-five percent (55%) in aggregate, independently and concomitantly, at one and the same time.

3. Candidates who secure eighty five percent (85%) or above marks in any of the papers shall be declared to have passed "with distinction" in that Block, subject to having at least 80 % marks in the Written component of that paper, concomitantly. However, no candidate shall be declared to have passed "with distinction" in any paper, who does not pass in all the papers of the Professional Examination as a whole at one and the same time,

4. A candidate failing in one or more paper of the annual examination shall be provisionally allowed to join the next professional class till the commencement of supplementary examinations. Under no circumstances, a candidate shall be promoted to the next professional class till he / she has passed all the papers in the preceding professional examination.

5. If a student appears in the supplementary examination for the first time as he/she did

notappear in the annual examination because of any reason and fails in any paper in the Supplementary Examination, he/she will be detained in the same class and will not be promoted to next class.

6. The colleges may arrange remedial classes and one re-sit for each block examination after approval from the Competent Authority.

7. The remedial classes and re-sit examination can be conducted during summer vacation/weekends, before or during preparatory leave, for the concerned professional examination, subject to the following conditions:
    a. At the completion of each block, the principals of the colleges shall submit a detailed report to the university, including cases of students with short attendance, poor performance/absence in the block examination along with the reasons and evidence for the same, proposed schedule for remedial classes and re-sit examination.
    b. Competent Authority UHS will have the cause and the submitted evidence evaluated and documented, before permitting the colleges to arrange remedial classes and re-sit examination at the concerned block. No college is allowed to conduct remedial classes or re-sit examination without prior approval of the competent authority.
    c. The students can appear in remedial classes / re-sit of a block examination, However, conduct of remedial classes shall be permitted only in the cases of students, who shall have attended at least 50 % of total attendance of the concerned block in the first instance.
        a. However, in special circumstances a student can be allowed to attend the 'remedial classes' for a certain block, with the permission of the Competent Authority, to complete his/her requirement of attendance, even if the block attendance is less than 50%. In such cases, the evidence of reason will be provided by the college after the Principal has endorsed the case.
        b. The students who have attained a cumulative attendance of 85% directly or with remedial classes, can appear in the 'annual' professional examination.
        c. The valid reasons for short attendance in a block or absence from a block examination may include major illness/accident/surgery of the student or sickness / death of an immediate relative/being afflicted by a natural/man-made calamity or disaster or detained students (missed the first block of the year) or UHS permitted late admission students

8. The application for admission of each candidate for examination shall be submitted to the Controller of Examination, through the Principal of the College, in a prescribed format, as per notified schedule, accompanied by the prescribed fee.

9. The marks of internal assessment through block/s examination and attendance shall be submitted to Controller of Examinations three times, within two weeks of completion of each block examination.

10. At the end of each block, the colleges are required to submit question papers and keys for the block examination, internal assessment marks and attendance record to

the Department of Examinations UHS. Further, parent-teacher meetings shall be arranged by the colleges after every block examination to share feedback on the progress of students with their parents. Minutes of parent teacher meetings shall be submitted to the Department of Medical Education UHS.

11. It is emphasized that fresh internal assessment or a revision of assessment for supplementary examination shall not be permissible. However, a revised internal assessment for the detained students can be submitted. The internal assessment award in a particular year will not be decreased subsequently detrimental to the detainee candidate. A proper record of the continuous internal assessment shall be maintained by the concerned department/s in the colleges.

12. The candidates shall pay their fee through the Principal of their respective Colleges who shall forward a bank draft / pay order / crossed cheque in favor of Treasurer, University of Health Sciences Lahore, along with their Admission Forms.

13. Only one annual and one supplementary of First, Second & Third Professional MBBS Examinations shall be allowed in a particular academic session. In exceptional situations, i.e., national calamities, war or loss of solved answer books in case of accident, special examination may be arranged after having observed due process of law. This will require permission of relevant authorities, i.e., Syndicate and Board of Governors.

Eligibility Criteria for Appearing in UHS Annual Examination.

a. Minimum 85% attendance (in each Block and in aggregate)
b. Minimum 55% aggregate Marks all Test

2. **Retake of institutional block examination/ s will be allowed only under Special Circumstances**
3. Candidates falling short of attendance requirement shall not be admitted to the annual examination but may be permitted to appear at the supplementary examination if they make up the deficiency up to the commencement of next examination by remaining on rolls of a college as regular student, subject to fulfillment of all other mandatory requirements to appear at the examination
4. College may arrange remedial classes and one re-sit for each block examination, either with the subsequent block examination or before completion of the subsequent block, and before or during preparatory leave in case of terminal block of the professional year, before issuance of date sheet for the concerned professional examination.
5. The students can appear in Re-sit of a block examination, along with the subsequent block, and before or during preparatory leave for the terminal block of the professional year, once the requirement of attendance is met with. However, conduct of remedial classes shall be permitted only in the cases of students, who shall have attended at least 50% of the total attendance of the concerned block in the first instance.
6. The valid reason for short attendance in block or absence from a block examination may include major illness/ accident/ surgery of the student or death of an immediate relative, being afflicted by nature calamity or disaster.

B. Block 8 (Musculoskeletal & Locomotion--II + Infectious Diseases + Neoplasia + Forensic Medicine – II))

The examination in Block 8 shall be as follows: -

I. One written paper of 140 marks having two parts:

iii. Part I shall have ninety Multiple Choice Questions (MCQs) of total 90

marks (01 mark for each MCQ) and the time allotted shall be 90 minutes.

There will be no negative marking.

iv. Part II shall have ten Structured Essay Questions (SEQs) of total 50 marks

- marks (05 marks for each SEQ) and the time allotted shall be 110 minutes.
  I. "Oral/Practical/Clinical" examination shall have 140 marks in total.
  II. The continuous internal assessment through 'Block Examination' and other parameters specified, conducted by the college of enrollment shall

carry 70 marks, i.e., 20% of the total allocated marks (350) for the block. The score will be equally distributed to the Written and 'Oral/Practical/Clinical' Examinations.

3RD YR MBBS

Block 8 (16-6-25 to 26-9-25)

GRAND TUTORIAL AND Class test DATES

GRAND TUTORIAL FRIDAY 8:45 – 10:15

Week	Date	Department
1	20-6-25	Pathology
2	27-6-25	Forensic Medicine
3	4-7-25	COMBINED TEST – 1
4	8-8-25	Pharmacology
5	15-8-25	Pathology
6	22-8-25	COMBINED TEST – 2
7	29-8-25	Forensic Medicine
8	5-9-25	Pharmacology
9	12-9-25	Pathology
10	19-9-25	COMBINED TEST – 3
11	26-9-25	Forensic Medicine

1st COMBINED TEST 4-7-25 Friday Venue: Pathology Labs

2ND COMBINED TEST 22-8-25 Friday Venue: Pathology Labs

3RD COMBINED TEST 19-9-25 Friday Venue: Pathology Labs

Timetable CFRC (Ward/Skills lab)
3rd yr MBBS 2024 (BLOCK – 8)

Monday – Thursday
Ward Time: 8:45 – 10:30 am Skills lab Time: 10:45 – 12:00

BATCHES
Monday – G+H, Tuesday – E+F,
Wednesday – C+D, Thursday – A+B

	Week	Dates	Name Of Skill	Venue	Department Involved
	SUMMER BREAK 7-7-25 TO 3-8-25				
4	4-8-25 to 7-8-25	**CFRC3-018** fracture history **CFRC3-019** Inspection of joints and fractures **CFRC3-022** Basic fracture management (splinting, casting)		Skills lab	Orthopedics
5	11-8-25 to 14-8-25	**CFRC3-023** Wound management and suturing		Skills lab	Surgery
6	18-8-25 to 21-8-25	**MS2-S 001** ATLS		Skills lab	Surgery
7	25-8-25 to 28-8-25	**MS2-M 001** Use the Glasgow Coma Scale to assess consciousness in patients with head injuries.		Skills lab	Medicine

Director, Clinical Skills Lab, UMDC

CLINICAL ROTATIONS LEARNING OBJECTIVES

CFRC code	Name of Skill	
CFRC3-017	Joint injury history	**Ward**
CFRC3-018	Fracture history	**Skills lab Orthopedics**
CFRC3-019	Inspection of joints and fractures	
CFRC3-020	Palpation for tenderness and deformities	
CFRC3-021	Range of motion examination	
CFRC3-022	Basic fracture management (splinting, casting)	
CFRC3-023	Wound management and suturing	**Skills lab Surgery**
CFRC3-024	History of infections related to surgical wounds	**Ward**
CFRC3-026	Inspecting and diagnosing surgical wound infections	**Ward**
CFRC3-027	Antimicrobial prophylaxis and post-surgical infection	**Ward**

CLINICAL WARD ROTATION LEARNING OBJECTIVES

Medicine	Learning Objectives
MS2-M 001	Elicit symptom of "pain" in history in terms of location, intensity, duration, character, aggravating and relieving factors.
MS2-M 002	Elicit symptom of "swelling" in history in terms of location, duration, pattern and any family or drug history.
MS2-Rh 011	Elicit symptom of 'joint mobility" in history in terms of location, intensity, duration, character, aggravating and relieving factors.
MS2-Rh 012	Elicit the signs and symptoms of patient with osteoporosis Elicit a patient history to make a provisional diagnosis
	Test for specific joint tenderness and swelling in conditions like gout, rheumatoid arthritis, and osteoarthritis.
	Palpate joints or areas for tenderness, warmth, swelling, and other inflammatory markers (e.g., effusion).
	Perform pulse examination in Systemic Inflammatory Vasculitis.
ID-M001 ID-M002 ID-M003	Demonstrate an accurate and comprehensive history from patient with fever Perform a thorough general physical examination of a patient with fever Order laboratory and radiological investigations for a patient with fever
ID-M004 ID-M005	Interpret the results of investigations of a patient with fever Use information from history, physical examination, and laboratory investigations
ID-M 006 ID-M 007	to identify and formulate a differential diagnosis of the underlying causes of fever Formulate a therapeutic plan by integrating information from history, physical examination, and laboratory data for the management of a patient with fever Record and present the complete history, physical examination findings, laboratory data, differential diagnosis, and therapeutic plan in a systematic, concise, and coherent manner, both in writing and orally
MS2-M 008	Use the Glasgow Coma Scale to assess consciousness in patients with head injuries.
SURGERY	
MS2-S 006	Elicit symptom of "swelling" in history in terms of location, intensity, duration, character, aggravating and relieving factors.
MS2-S 008	Assess airway patency and clear airway obstructions. Apply cervical spine immobilization if necessary. **General Principles of ATLS – ABCDE** Inspect for chest movement, auscultate breath sounds, palpate for deformities. Assess pulse, control external bleeding, and assess perfusion. Initiate shock management if required. Assess level of consciousness using the Glasgow Coma Scale (GCS) and check pupil reaction. Expose the patient to assess for hidden injuries and prevent hypothermia. Conduct secondary survey – a head-to-toe examination, including history and detailed physical exam.
MS2-S 009	Recognize when to initiate life-saving interventions such as airway management, chest decompression, and external hemorrhage control. **Early Assessment and Management of Severe Trauma** Initiate consultation/ referral to a trauma center for further management, ensuring early communication with the trauma team. Recognize when to initiate life-saving interventions such as airway management, chest decompression, and external hemorrhage control.
ORTHOPEDICS	
MS2-Orth 017	Elicit symptom of "joint mobility" in history in terms of its location, duration, pattern, mechanism of injury with associated symptoms. Elicit the signs and symptoms of patient with joint dislocation in history Elicit signs and symptoms of patient with fracture in history
	Assess range of motion (ROM) in joints, both actively (patient's effort) and passively (examiner's effort).
	Assess for joint deformities (e.g., rheumatoid nodules, Heberden's nodes). Rheumatology. Perform a thorough hand and wrist examination for signs of arthritis (e.g., Boutonnière deformity, swan neck deformity). Examine for abnormal postural patterns such as scoliosis, kyphosis, or lordosis. Perform a spine examination, assessing for alignment, tenderness, and range of motion.
MS2-Orth 019	Inspect normal gait and assess deviations such as limping, stiffness, or imbalance. Assess muscle strength surrounding normally functioning limbs using standard grading techniques (e.g., Oxford scale). Assess joint stability through special tests (e.g., Lachman test for ACL integrity,

	McMurray test for meniscus tears). Perform a compartment syndrome assessment (checking for swelling, pain, and vascular compromise). Assess vascular status (pulses, capillary refill) in cases of trauma or orthopedic injury. Conduct a neurological examination of the upper and lower limbs to assess motor and sensory function. Demonstrate skills in performing a thorough assessment of extremity injuries, including physical examination techniques. Provide first aid to a person with bone injury like common sprains, fractures and dislocations (immobilization of body part) resuscitation of injured patient.
MS2-Orth 021	Demonstrate skills in assessing fractures through physical examination and appropriate imaging modalities, including X-rays and CT scans. Perform a fracture assessment and evaluate signs of potential fractures or dislocations (e.g., deformity, abnormal movement). Demonstrate skills in developing individualized treatment plans based on fracture type, patient factors, and healing principles. Demonstrate clinical skills in assessing and managing fractures in various locations, including the use of appropriate imaging studies. Observe application of dressings, splints, plasters and other immobilization techniques in fracture patients in emergency Observation of fracture reduction and fixation Observation of internal and external fixation Assess and prioritize patients based on the severity of injuries. Implement damage control surgery techniques for orthopedic trauma. Identify candidates for damage control surgery. Stabilize fractures and manage soft tissue injuries in a timely manner. Minimize the risk of complications and improve patient outcome
MS2-Orth 022 179 MS2-Orth 023 MS2-Orth 024 MS2-Orth 025	Recognize the indications for surgical intervention in the management of fractures, including fixation techniques and considerations for rehabilitation. Educate patients on the principles of fracture healing and the importance of adherence to treatment protocols for optimal recovery. Educate patients on the importance of follow-up and rehabilitation based on fracture location to optimize healing and functional recovery. Collaborate with multidisciplinary teams to address unique challenges presented by fractures in specific regions (e.g., elderly patients with hip fractures). Coordinate with other specialties for comprehensive trauma care. Educate patients and families about the triage process and damage control strategies.
MS2-Orth 026	Identify abnormal breath sounds during auscultation to detect potential injuries.
MS2-S 002 MS2-M 002 MS2-S 008 MS2-S 004 MS2-S 005	Assess for tenderness and deformity along the cervical spine in trauma patients. Perform abdominal palpation to identify tenderness or rigidity indicating injury. Recognize signs of facial fractures or deformities during the examination. Conduct a quick neurovascular examination of the limbs to evaluate pulse and sensation. Conduct a triage to prioritize patients in mass casualty situations.

PSYCHIATRY	
MS2-PS001	Show empathy toward patients with chronic pain. Communicate the importance of early intervention. Encourage adherence to long-term treatment plans. Promote timely referrals to specialists when necessary.
	Promote dietary interventions to improve overall health. Nutrition, Patient Education Discuss the prognosis of diseases based on findings and individual circumstances.

3rd YEAR MBBS 2025
BLOCK – 8 (11 Weeks)
16-6-25 to 26-9-25
LECTURE SCHEDULE DETAIL

PATHOLOGY			
	Monday	8:00 – 8:45 am	Microbiology
		12:00 – 12:45 pm	Neoplasia
	Tuesday	12:45 – 1:30 pm	Microbiology
		2:15 – 3:00 pm	Neoplasia
	Wednesday	1:30 – 2:15 pm	Microbiology
		2:15 – 3:00 pm	Sp. Pathology
	Thursday	8:00 – 8:45 am	Microbiology
		1:30 – 2:15 pm	Biosafety
	Friday	8:00 – 8:45 am	Microbiology
		12:15 – 1:00 pm	Infection Control
PHARMACOLOGY			
	Monday	12:45 – 1:30 pm	
	Tuesday	8:00 – 8:45 am	
	Wednesday	12:45 – 1:30 pm	
	Thursday	2:15 – 3:00 pm	(1st – 2nd – 3rd Week)
FORENSIC MEDICINE			
	Wednesday	12:00 – 12:45 pm	
	Thursday	12:00 – 12:45 pm	
	Thursday	2:15 – 1:00 pm	(9th – 10th – 11th Week)
ORTHOPEDICS			
	Tuesday	12:00 – 12:45 pm	
	Friday	10:45 – 11:30 am	(5th – 6th – 7th – 8th week)
SURGERY/Neurosurgery			
	Thursday	12:45 – 1:30 pm	
	Friday	10:45 – 11:30 am	(1st –2nd – 3rd – 4th week)
RADIOLOGY			
	Friday	10:45 – 11:30 am	(9th – 10th – 11th Week)

COMMUNITY MEDICINE
Monday 2:15 – 3:00 pm

INTERNAL MEDICINE
Monday 1:30 – 2;15 pm (7th – 8th – 9th – 10th – 11th Week)

MEDICINE/Rheumatology
Monday 1:30 – 2;15 pm (1st – 6 Weeks)
Wednesday 8:00 – 8:45 am

MEDICINE/Oncology
Tuesday 1:30 – 2:15 pm (1st – 5 Weeks)

MEDICINE/EVIDENCE BASED MEDICINE
Tuesday 1:30 – 2:15 pm (6th – 7th – 8th Week)

PEDIATRICS
Tuesday 1:30 – 2:15 pm (9th – 10th – 11th Week)

BEHAVIOUR SCIENCE
Friday 11:30 – 12:15 am (1st – 5 Weeks)

BIOCHEMISTRY
Friday 11:30 – 12:15 am (6th – 7th – 8th Week)

GYNECOLOGY
Friday 11:30 – 12:15 am (9th – 10th – 11th Week)

PERL
Thursday 2:15 – 3:00 pm 4th – 5th – 6th – 7th – 8th Week

PRACTICAL / TUTORIAL SCHEDULE
(Time: 10:30 – 12:00 pm)

PATHOLOGY
Monday – Thursday Pathology Practical
Monday – Thursday Pathology Tutorial

PHARMACOLOGY
Monday – Thursday Pharmacology practical **1st and 2nd Week only**
Monday – Thursday Pharmacology Tutorial **9th and 11th Week only**

FORENSIC MEDICINE
Monday – Thursday Forensic Medicine practical
Monday - Thursday Forensic medicine Tutorial **(8th and 10th week only)**

RADIOLOGY PRACTICAL
Monday – Thursday 3rd Week only

CFRC SCHEDULE DETAIL

Week	Dates	Name Of Skill	Venue	Department Involved
	SUMMER BREAK 7-7-25 TO 3-8-25			
4	4-8-25 to 7-8-25	**CFRC3-018** Fracture history **CFRC3-019** Inspection of joints and fractures **CFRC3-022** Basic fracture management (splinting, casting)	Skills lab	Orthopedics
5	11-8-25 to 14-8-25	**CFRC3-023** Wound management and suturing	Skills lab	Surgery
6	18-8-25 to 21-8-25	**MS2-S 001** ATLS	Skills lab	Surgery
7	25-8-25 to 28-8-25	**MS2-M 001** Use the Glasgow Coma Scale to assess consciousness in patients with head injuries.	Skills lab	Medicine

PERL

DOMAIN	TOPIC
Research	Identification of Research problem
	Developing Research Hypotheses and Questions
	Introducing clinical audit
Ethics	Autonomy in rehabilitation, Informed consent
	End of life decisions, ventilator use
	Cultural/religious views on Do Not resuscitate
Professionalism	Professional Responsibiilty in Public Health
	Adapting to the Physician Role
Leader ship	Enterpreneurship in Health care