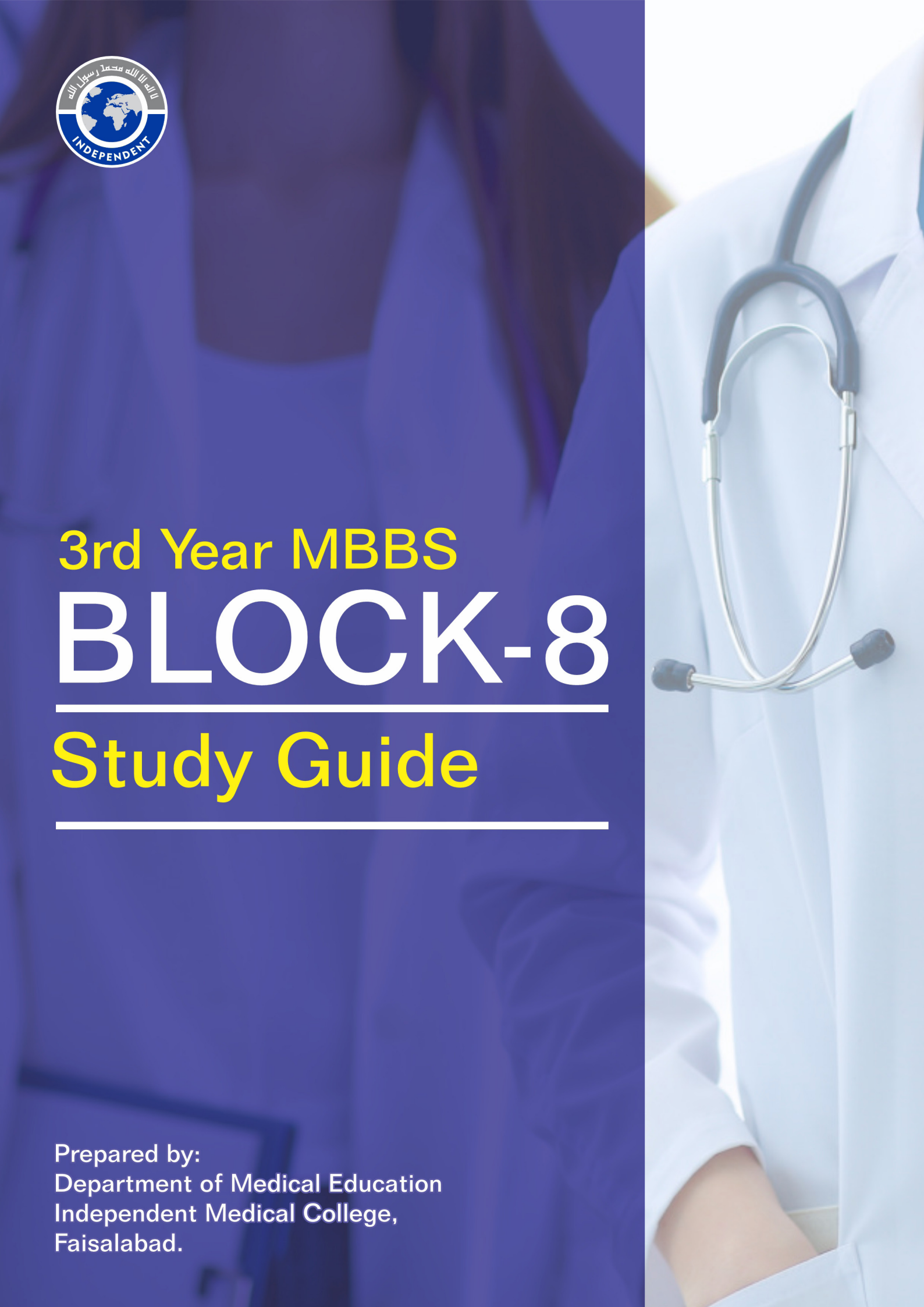


3rd Year MBBS

BLOCK-8

Study Guide

Prepared by:
Department of Medical Education
Independent Medical College,
Faisalabad.

BLOCK 8
3rd Year MBBS

Table of Content

Curricular Framework

The modular integrated curriculum aligns the MBBS program outcomes with the nationally defined competencies of seven-star doctors. The program outcomes are at par with the outcomes that the national regulatory authorities have processed till date for the MBBS graduates. Curriculum outcomes translate the seven-star competencies to the objectives specific learning outcomes for the sessions. The outcomes are fragmented to objectives representing the three domains of learning and then graduated in spirals and horizontally integrated so as to acquire a professional approach, develop a broad-based practical knowledge, to nurture the learner's epistemic curiosity and to promote higher order thinking.

The horizontal integration is evident in the modular configuration where different basic disciplines approach the themes simultaneously. Module has been structured where all the basic disciplines are represented based on their respective weightage of content. Assessment framework ensures that the applied/clinical aspect also is inculcated in the concept development of the learner keeping the clinical relevance and context at the core.

Clinical Skills follow a spiral which is entirely skills dominant. This spiral is the core of psychomotor training. The clinical orientation along with the applied/clinical component of the knowledge base will channelize the learner for the practical and professional aspect of learning.

All module objectives are preceded by the recommended themes and clinical relevance. These are grounded in the rationale of the module so that pattern of learning could be steered for a practical professional approach. However institutional discretion does not prohibit adopting any other thematic approach provided that the program outcomes are adequately achieved.

BLOCK VII	BLOCK VIII	BLOCK IX
FOUNDATION-2 & EBM	NEOPLASIA	CARDIOVASCULAR - 2
GENERAL & CLINICAL PHARMACOLOGY	INFECTIOUS DISEASES	RESPIRATORY – 2
HEMATOPOIETIC & IMMUNITY & TRANSPLANT	MUSCULOSKELETAL & LOCOMOTION – 2	COMMUNITY MEDICINE & FAMILY HEALTH – 1
FORENSIC MEDICINE & TOXICOLOGY – 3	FORENSIC MEDICINE & TOXICOLOGY – 3	FORENSIC MEDICINE & TOXICOLOGY – 3
PERLS-3	EXPOSITORY - 3	
C-FRC 3 (CLINICAL – FOUNDATION, ROTATION CLERKSHIPS.		

INTRODUCTION TO STUDY GUIDE

WHAT IS A STUDY GUIDE?

It is an aid to: Inform students how student learning program of the subject has been Organized
Help students organize and manage their studies throughout the module/block
Guide students on assessment methods, rules and regulations

THE STUDY GUIDE:

- Communicates information on organization and management of the module.
- This will help the student to contact the right person in case of any difficulty.
- Defines the objectives which are expected to be achieved at the end of the program.
- Identifies the learning strategies such as lectures, small group teachings, clinical skills,
- Demonstration, tutorial and case based learning that will be implemented to achieve the Learning objectives.
- Provides a list of learning resources such as books, computer assisted learning program, web-links, and journals, for students to consult in order to maximize their learning.
- Highlights information on the contribution of continuous and semester examinations on the Student's overall performance.
- Includes information on the assessment methods that will be held to determine every student's
- Achievement of objectives.
- Focuses on information pertaining to examination policy, rules and regulations

TIMELINE FOR BLOCK 8

BLOCK 8

Block 8			
1	08-06-26 to 13-06-26	Module 16: Neoplasia	Module 16 test: 20-06-26
2	15-06-26 to 20-06-26		
3	22-06-26 to 27-06-26	Module 17: Infectious Diseases	Module 17 test: 18-07-26
4	29-06-26 to 04-07-26		
5	06-07-26 to 11-07-26		
6	13-07-26 to 18-07-26		
7	20-07-26 to 25-07-26	Module 18: locomotion and musculoskeletal	Module 18 test: 12-09-26
8	27-07-26 to 01-08-26		
9	31-08-26 to 05-09-26		
10	07-09-26 to 12-09-26		
11	14-09-26 to 19-09-26	Module 19: Forensic Medicine & Toxicology	Module test 19: 19-09-26
12	21-09-26 to 26-09-26	Block 8 exam	
Parent teacher meeting		10-10-26	

Clinical rotation:

	SURGERY AND ALLIED				MEDICINE AND ALLIED			
	S-1	S-2	Ortho	O&G	M-1	M-2	Rheum	Peads
08-06-26 to 13-06-26	A1	A2	B1	B2	C1	C2	D1	D2
15-06-26 to 20-06-26	A2	A1	B2	B1	C2	C1	D2	D1
22-06-26 to 27-06-26	B1	B2	A1	A2	D1	D2	C1	C2
29-06-26 to 04-07-26	B2	B1	A2	A1	D2	C1	C2	C1
06-07-26 to 11-07-26	C1	C2	D1	D2	A1	A2	B1	B2
13-07-26 to 18-07-26	C2	C1	D2	D1	A2	A1	B2	B1
20-07-26 to 25-07-26	D1	D2	C1	C2	B1	B2	A1	A2
27-07-26 to 01-08-26	D2	C1	C2	C1	B2	B1	A2	A1

ASSESSMENT

BLOCK EXAM

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

Internal Assessment (Theory)			
No.	Scoring Parameter	Marks out of 20%	Marks distribution
1	Attendance in Lectures	85-90%=1%, > 90%=2%	85-90%= 01 mark > 90%=02 marks
		Remedial classes – re-sit examination allowed only after case endorsed and submitted by the college Principal and approval given by the Competent Authority. However, no marks given	
		Remedial classes – re-sit exam allowed only in genuine cases after approval from Competent Authority. However, no marks given	
2	Block Examination	15%	27
3	Continuous Internal Assessment/ Class Quiz/Class participation/ Professional Behaviour/ Ethical practices/ Leadership traits/ Module Exam Discipline/ Punctuality	3%	06

Internal Assessment (Theory)			
No.	Scoring Parameter	Marks out of 20%	Marks distribution
1	Attendance in Lectures	85-90%=1%, > 90%=2%	85-90%= 01 mark > 90%=02 marks
		Remedial classes – re-sit examination allowed only after case endorsed and submitted by the college Principal and approval given by the Competent Authority. However, no marks given	
		Remedial classes – re-sit exam allowed only in genuine cases after approval from Competent Authority. However, no marks given	
2	Block Examination (OSPE/OSCE/OSVE)	13%	23
3	CFRC Log Book / PERLs Portfolio	02%	06
4	Ward / Clinical / Bedside assessment based on the clinical rotation / DOPS	02%	04

EDUCATIONAL RESOURCES

Anatomy

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

Biochemistry

- Harpers illustrated Biochemistry (latest edition). Rodwell.V.W MCGrawHill publishers.
- Lippincott illustrated Review (latest edition). Kluwer.W.
- Essentials of Medical Biochemistry vol 1&2 by Mushtaq Ahmed.

Pathology

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

General Medicine

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

Pharmacology And Therapeutics

- Katzung and Trevor's Pharmacology: Examination and Board Review- 15th Edition
- Basic and Clinical Pharmacology by Bertram G Katzung (case scenarios only) - 16th Edition-
- Current Medical Diagnosis and Treatment- reference book –Edition-2024
- Basic and Clinical Pharmacology by Bertram G Katzung (case scenarios only) - 15th Edition
- Basic and Clinical Pharmacology by Katzung, McGraw-Hill. 16th Edition. 305
- Pharmacology by Champe and Harvey, Lippincott Williams & Wilkins 8th Edition.
- Katzung Basic and Clinical pharmacology, Lippincot Illustated reviews.
- Clinical Pathology Interpretations by A. H. Nagi

Behavioural Sciences

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

Community Medicine

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

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

Patient Safety
- Patient Safety Curriculum Guide: Multi Professional Guide

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

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

Gynecology
- Gynecology by Ten Teachers

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

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

Family Medicine
- Oxford Handbook of General Practice, 5th Edition

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

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

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

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

Forensic Pathology
- Forensic pathology 2nd edition by V.J.Deimaio CRC press Boca Raton London New York Washington DC

Toxicology
- Principles of clinical toxicology 3rd edition Thomas. Gossel CRC press Taylor and Francis group

Forensic Sciences

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

Biomedical ethics

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

Evidence Based Medicine

- Databases for the latest articles/manuscripts
- Clinical Practice Guidelines- local and international - (within last 3 years)
- Books (Latest edition-within last 5 years)

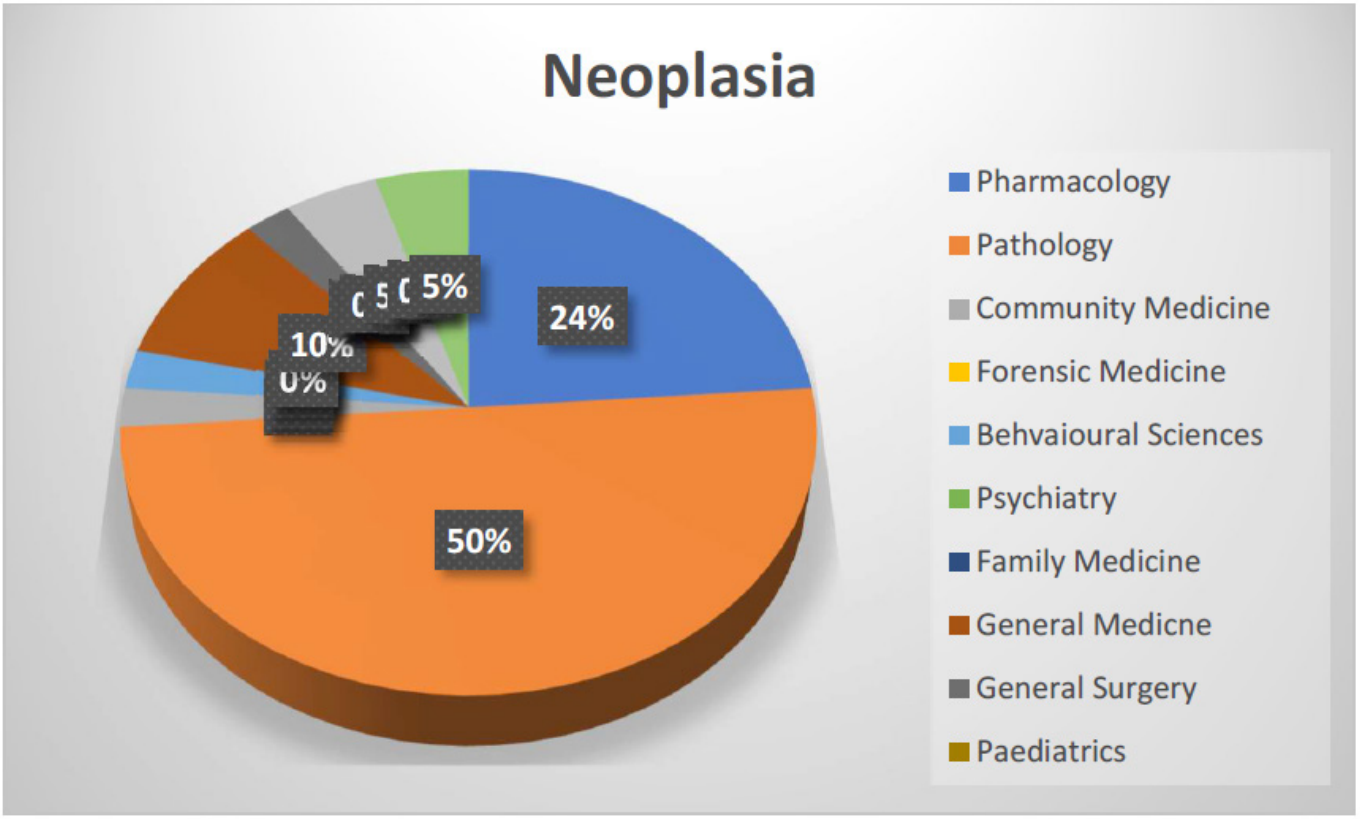
Pediatrics

- Nelson's Book of Pediatric 22 edition Illustrated book of Pediatrics, Pervaiz Akbar textbook peads medicine

Islamiyat

- Standard Islamiyat (compulsory) for B.A, BSc, MA, MSc, MBBS by Prof M Sharif Islahi.
- Ilmi Islamiyat(compulsory) for BA, BSc & equivalent.

MODULE - 16
NEOPLASIA



Module weeks	Recommended Minimum Hours
1.2	42

End of module assessment
Written paper
25 MCQ, s 5 SEQ, s

	Subject	MCQ, s	SEQ	
1	Pathology & Microbiology	15	3	
2	Surgery & Radiology	5	1	
3	Pharmacology	5	1	

Module committee

Co Ordinator		
Co-coordinator		
Member	Pathology	
Member	Pharmacology	
Member	Community medicine	
Member	Forensic medicine	
Member	Patient safety	
Member	Surgery	
Member	Medicine	
Member	psychiatry	

MODULE 16: NEOPLASIA

Neoplasia module is essential to provide MBBS students with the knowledge and skills abilities necessary to comprehend the biological, clinical, and public health aspects of cancer. 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.

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

Module outcomes

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

Subjects integrated in module

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

WEEK 1: Time Table Third year MBBS block 8, Module16, Dated: 30-06-25 to 05-07-25							
	Lecture 08:00 to 08:45	**Lecture 08:45 to 09:30**	**Ward 09:30 to 11:00**	**Practical/tutorial 11:00 to 12:15**	**Lecture 12:15 to 01:00**	**BREAK**	**Tutorial 01:15 to 02:00**
Mon 30-06	INTRODUCTION	Pharmacology N-PH-001	Clinical rotation	A-pathology practical (N-PA-008) B-pharmacology practical (Inference Card) C-forensic practical (FORTR-27) D-CFRC skills LAB (IDM-001-007)	Pathology N-PA-001		PERL
Tue 01-07	Pathology N-PA-002	Pharmacology N-PH-001	Clinical rotation	B-pathology practical (N-PA-008) C-pharmacology practical (Inference Card) D-Forensic Practical (FORTR-27) A-CFRC skills LAB (IDM-001-007)	Community medicine N-CM-001		Medicine N-M-002
Wed 02-07	Forensic Medicine FOR2-TR-01	Pharmacology N-PH-002	Clinical rotation	C-pathology practical (N-PA-008) D-pharmacology practical (Inference Card) A-Forensic Practical (FORTR-27) B-CFRC skills LAB (IDM-001-007)	Pathology N-PA-002		Biochemistry N-13-001
Thur 03-07	Pathology N-PA-003	Pharmacology N-PH-002	Clinical rotation	D-pathology practical (N-PA-008) A-pharmacology practical (Inference Card) B-Forensic Practical (FORTR-27) C-CFRC skills LAB (IDM-001-007)	Forensic Medicine F-OR-2-TR002		
Fri 04-07	Surgery N-S-001	Radiology N-RA-001	Clinical rotation	A & B pathology tutorial C & D pharmacology tutorial			
Sat 05-07	Radiology N-RA-002	Forensic Medicine F-OR-2-TR003	Clinical rotation	C & D pathology tutorial A & B pharmacology tutorial	Pathology N-PA-004		

WEEK 2: Time Table Third year MBBS block 8, Module 16, Dated: 07-07-25 to 12-07-25							
	Lecture 08:00 to 08:45	**Lecture 08:45 to 09:30**	**Ward 09:30 to 11:00**	**Practical/tutorial 11:00 to 12:15**	**Lecture 12:15 to 01:00**		**Tutorial 01:15 to 02:00**
Mon 07-07	Behavioral Sciences N-BHS-001	Radiology NA-RA-003	Clinical rotation	A-pathology practical (N-PA-009) B-pharmacology practical (Prescription Inference card) C-forensic practical (FOR-2-TR-28-29) D-CFRC skills LAB (MS-2-M-001-002)	Pathology N-PA-005	BREAK	PERL
Tue 08-07	Pathology N-PA-005	Radiology NA-RA-004	Clinical rotation	B-pathology practical (N-PA-009) C-pharmacology practical (Prescription Inference card) D-rorensic Practical (FOR-2-TR-28-29) A-CFRC skills LAB (MS-2-M-001-002)	Community medicine N-CM-001		Medicine N-M-003
Wed 09-07	Forensic Medicine FOR-2-TR-004	Medicine N-M-004	Clinical rotation	C-pathology practical (N-PA-009) D-pharmacology practical (Prescription Inference card) A-Forensic Practical (FOR-2-TR-28-29) B-CFRC skills LAB (MS-2-M-001-002)	Pathology N-PA-006		Surgery Types of Wounds
Thur 10-07	Pathology N-PA-007	Medicine N-M-005	Clinical rotation	D-pathology practical (N-PA-009) A-pharmacology practical (Prescription Inference card) B-Forensic Practical (FOR-2-TR-28-29) C-CFRC skills LAB (MS-2-M-001-002)	Forensic Medicine FOR-2-TR-005		
Fri 11-07	Surgery N-M-006	Medicine N-M-006	Clinical rotation	A & B pathology tutorial C & D pharmacology tutorial			
Sat 12-07	Medicine N-M-005	Forensic Medicine FOR-2-TR-006	Clinical rotation	C & D pathology tutorial A & B pharmacology tutorial	Test Module - 16		

Module 16: Neoplasia

Pathology 15 hours		
N-Pa-001		Define neoplasia, Nomenclature and difference between benign and malignant tumors based on morphological and functional characteristics and epidemiology of cancer.
N-Pa-002		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		Carcinogenic agents with their cellular interactions.
N-Pa-004		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 of tumors and treatment strategies. Understand the concept of invasion and metastasis Basic tumor markers
N-Pa-006		Molecular basis of cancer
N-Pa-007		Define and describe Paraneoplastic syndrome and associate with neoplastic lesions.
Pathology Practical 6 hours		
N-Pa-008		Morphological features of Benign and Malignant tumours (Gross and Microscopic features) 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)

PHARMACOLOGY 10 hours		
N-Ph-001		Patho physiology cell cycle Abnormalities in cell cycle leading to oncogenesis
N-Ph-002		Cell Cycle specific and non-specific anti-tumour agent mechanism of action, adverse effect, indication drugs interaction of various class of chemotherapeutic agents. Drugs for palliative therapy in various tumours Drugs related with rehabilitation. Glucocorticoids as part of various anti-cancer cocktails.
Pharmacology practical 3 hours		
		Drugs used during phases of radiotherapy e.g tumour lysis syndrome

Radiology 2 hours		
N-Ra-001		Introduction to Radiological Modalities in Oncology Understand the different radiological imaging techniques used in cancer management: X-rays Ultrasound CT scans (Computed Tomography) MRI (Magnetic Resonance Imaging) PET scans (Positron Emission Tomography) Mammography
N-Ra-002		**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 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. **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 and Monitoring Importance of radiological imaging in follow- up after cancer treatment (e.g., detecting recurrence or metastasis). Learn how imaging changes guide alterations in treatment plans. Understand the concept of surveillance imaging for cancer patients in remission.
N-Ra-004		Radiological Signs of Cancer Complications. Recognize radiological findings associated with complications like: Tumor obstruction Bone metastasis Brain metastasis Vascular invasion or thrombosis

Surgery 1 hour		
N-S-001		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.

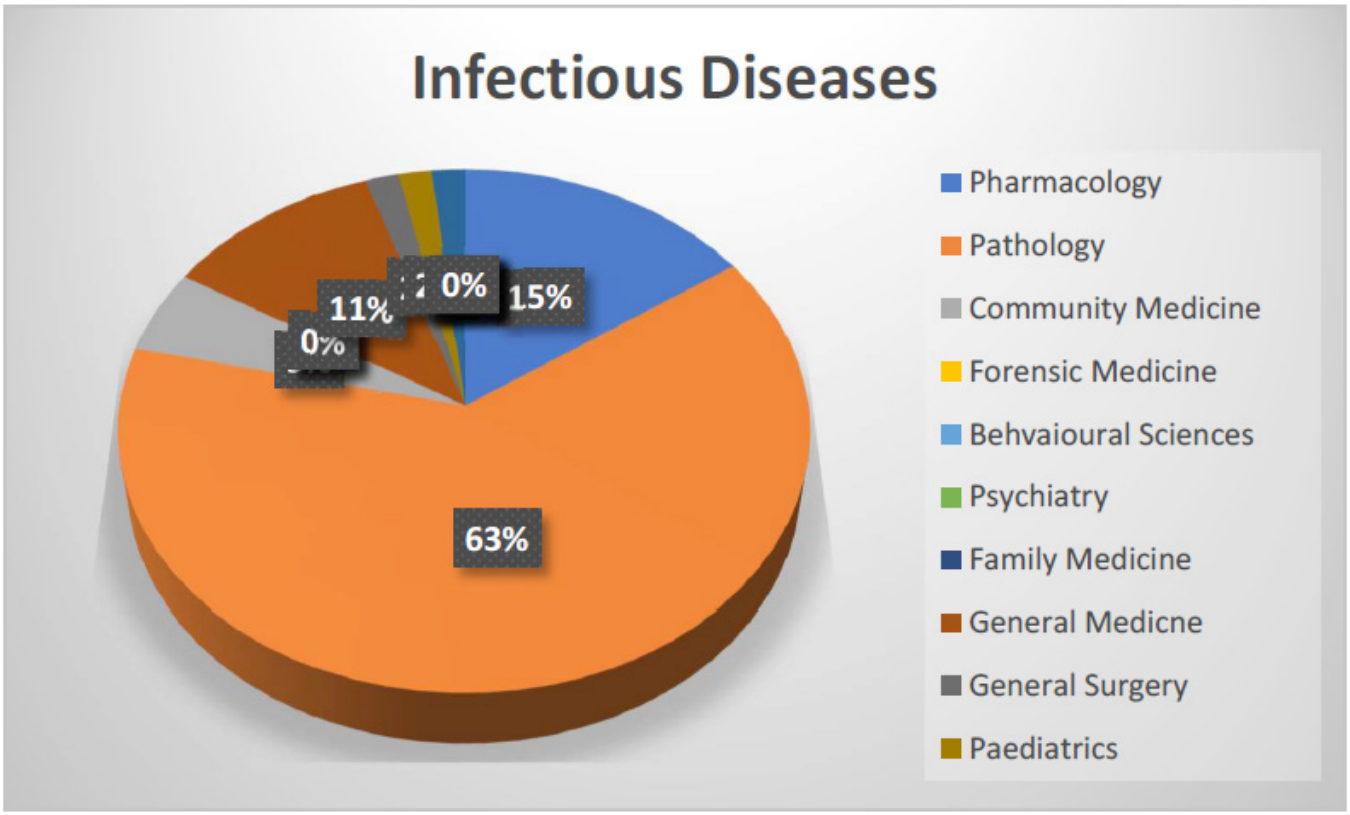
Medicine 4 hour		
N-M-001		Presenting Problems of Cancer Patients and clinical examination of patients on Cancer Treatment Understand the examination (important clinical signs of patients with cancer)
N-M-002		Risk factors for Cancer Development Understand and interpret the environment and genetic factors involved in Cancer development
N-M-003		Investigations in Cancer patients Will be able to understand & interpret various investigations required for Cancer patients
N-M-004		Oncological Emergencies & Paraneoplastic syndrome Understand & interpret various ecologic emergencies, metastasis of tumours, and Paraneoplastic
N-M-005		Therapeutic in Oncology Will be able to understand and Interpret Various Therapeutic options like surgery, radiotherapy, chemotherapy, and palliative.

BEHAVIORAL SCIENCE THEORY 2HOURS		
N-CM-001	Screening /prevention	Define health behavior and discuss the importance of behavioral sciences in medical practice. Identify biological, psychological, and social factors that influence health behaviors and decision making. Discuss key behavioral change models (e.g., Health Belief Model, Theory of Planned Behavior) and their application in patient care.

Community medicine 1 hour		
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.

Clinical skills 4 hours		
F2-S-004	Surgery	Enlist Suture types & techniques
F2-S-005	Surgery	Classify Wound Dressings & its protocols
F2-M-003	Medicine	History taking skills
F2-M-004	Medicine	Approach to patient

MODULE - 17
INFECTIOUS DISEASE



Module weeks	Recommended Minimum Hours
3.3	117

End of module assessment
Written paper
50 MCQ, s 5 SEQ, s

	Subject	MCQ, s	SEQ	
1	Microbiology	30	3	
2	Pharmacology	15	2	
3	Community Medicine	5		

Module committee

Co Ordinator		
Co-coordinator		
Member	Physiology	
Member	Pharmacology	
Member	Biochemistry	
Member	Behavioral sciences	
Member		
Member		
Member		

MODULE 17: Infectious Diseases

Module rationale

Infectious diseases pose a universal threat to human health, ranging from mild to life-threatening conditions. This module aims 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. Students will learn the pathophysiology of conditions such as sepsis, septic shock, and pyrexia of unknown origin, as well as viral, bacterial, fungal, protozoal, and helminthic infections. Integrating infection control and biosafety into the curriculum, the module covers core safety principles like proper handling of biological materials, risk mitigation strategies, and the use of personal protective equipment (PPE), ensuring that students develop the skills to manage infections effectively while safeguarding public and healthcare worker safety through preventive measures such as immunization and sterilization. This comprehensive approach fosters a deeper understanding of clinical decision-making, laboratory investigations, and public health initiatives in infectious disease management

Module Outcomes

- 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.
- 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.
- Outline treatment options, including antiviral therapies, supportive care, and preventive measures (e.g., immunization) for viral infections.
- Diagnose and manage gram-positive and gram-negative bacterial infections such as pharyngitis, pneumonia, enteric fever, and meningitis.
- Describe the clinical features, diagnosis, and management of clostridial infections (botulism, gas gangrene) and sexually transmitted infections like syphilis.
- Recognize the clinical features and management strategies for mycobacterial infections, with a focus on pulmonary and abdominal tuberculosis.
- Identify and manage common fungal infections, including diagnosis, treatment, and preventive measures.
- Explain the clinical features, investigations, and treatment of protozoal infections such as amoebiasis and helminthic infections like ascariasis and hookworm.
- Describe the life cycle of helminths and explain how infections like hookworm contribute to anemia, along with prevention and treatment strategies.
- Diagnose and manage acute and chronic diarrhea based on etiologies such as bacterial, viral, and protozoal infections.
- Discuss strategies for immunization and prevention of vaccine-preventable diseases, including measles, mumps, rubella, and poliomyelitis.
- Apply empirical and definitive treatment protocols for various infectious diseases, including antibiotic stewardship and antiviral therapies.
- Analyze the epidemiology of diseases like dengue, rabies, and COVID-19, and propose public health interventions for their control and prevention.
- Describe the role of surgical interventions in infections like hydatid cysts, alongside medical management approaches.
- Recognize different types of Healthcare-Associated Infections (HAI), associated pathogens, transmission routes, and prevention strategies.

- Implement effective prevention and control measures for HAI in clinical settings to ensure patient safety.
- Identify and apply biosafety measures in laboratory and clinical settings to ensure safe handling of biological materials and minimize bio risk during infectious disease management.
- Evaluate the importance of bio risk management protocols in infection prevention strategies, focusing on the safe collection, storage, and disposal of biological samples to protect both healthcare workers and patients.

WEEK 3: Time Table Third year MBBS block 8, Module 17, Dated: 14-07-25 to 19-07-25							
	Lecture 08:00 to 08:45	**Lecture 08:45 to 09:30**	**Ward 09:30 to 11:00**	**Practical/tutorial 11:00 to 12:15**	**Lecture 12:15 to 01:00**	**BREAK**	**Tutorial 01:15 to 02:00**
Mon 14-07	Pathology Microbiology ID-PA-001	Pharmacology ID-PH-001	Clinical rotation	A-pathology practical (ID-PA-011) B-pharmacology practical (Prescription) C-forensic practical (FOR-2-TR-30-31-32) D-CFRC skills LAB (MS-RS-011-12)	Pathology Microbiology ID-PA-001		PERL
Tue 15-07	Pathology Microbiology ID-PA-002	Pharmacology ID-PH-001	Clinical rotation	B-pathology practical (ID-PA-011) C-pharmacology practical (Prescription) D-Forensic Practical (FOR-2-TR-30/31-32) A-CFRC skills LAB (MS-RS-011-12)	Community medicine ID-Ph-003		Medicine ID-PA-009
Wed 16-07	Forensic Medicine FOR-2-TR-007	Pharmacology ID-PH-001	Clinical rotation	C-pathology practical (ID-PA-011) D-pharmacology practical (Prescription) A-Forensic Practical (FOR-2-TR-30-31-32) B-CFRC skills LAB (MS-RS-011-12)	Pathology Microbiology ID-PA-002		Community Medicine ID-CM-001
Thur 17-07	Pathology Microbiology ID-PA-002	Pharmacology ID-PH-001	Clinical rotation	D-pathology practical (ID-PA-011) A-pharmacology practical (Prescription) B-Forensic Practical (FOR-2-TR-30-31-32) C-CFRC skills LAB (MS-RS-011-12)	Forensic Medicine FOR-2-TR-008		Medicine ID-M-001 to 005
Fri 18-07	Surgery ID-S-001	Pharmacology ID-PH-001	Clinical rotation	A & B pathology tutorial C & D pharmacology tutorial			
Sat 19-07	Pharmacology ID-PH-001	Forensic Medicine FOR-2-TR-009	Clinical rotation	C & D pathology tutorial A & B pharmacology tutorial	Pathology Microbiology ID-PA-002		

WEEK 4: Time Table Third year MBBS block 8, Module 17, Dated: 21-07-25 to 26-07-25							
	Lecture 08:00 to 08:45	**Lecture 08:45 to 09:30**	**Ward 09:30 to 11:00**	**Practical/tutorial 11:00 to 12:15**	**Lecture 12:15 to 01:00**	**BREAK**	**Tutorial 01:15 to 02:00**
Mon 21-07	Pathology Microbiology ID-PA-003	Pharmacology ID-PH-002	Clinical rotation	A-pathology practical (ID-PA-12) B-pharmacology practical C-forensic practical (FOR-2-TR-33) D-CFRC skills LAB (MS-2-ORTH-017)	Pathology Microbiology ID-PA-003		PERL
Tue 22-07	Pathology Microbiology ID-PA-004	Pharmacology ID-PH-002	Clinical rotation	B-pathology practical (ID-PA-12) C-pharmacology practical D-Forensic Practical (FOR-2-TR-33) A-CFRC skills LAB (MS-2-ORTH-017)	Community medicine ID-PH-004		Medicine ID-PA-0013
Wed 23-07	Forensic Medicine FOR-2-TR-010	Pharmacology ID-PH-003	Clinical rotation	C-pathology practical (ID-PA-12) D-pharmacology practical A-Forensic Practical (FOR-2-TR-33) B-CFRC skills LAB (MS-2-ORTH-017)	Pathology Microbiology ID-PA-004		Community Medicine ID-CM-02
Thur 24-07	Pathology Microbiology ID-PA-005	Pharmacology ID-PH-003	Clinical rotation	D-pathology practical (ID-PA-12) A-pharmacology practical B-Forensic Practical (FOR-2-TR-33) C-CFRC skills LAB (MS-2-ORTH-017)	Forensic Medicine FOR-2-TR-001		Peadiatrics ID-PE-001
Fri 25-07	Surgery ID-S-001	Medicine ID-PH-003	Clinical rotation	A & B pathology tutorial C & D pharmacology tutorial			
Sat 26-07	Pharmacology ID-PH-003	Forensic Medicine FOR-2-TR-012	Clinical rotation	C & D pathology tutorial A & B pharmacology tutorial	Pathology Microbiology ID-PA-005		

WEEK 5: Time Table Third year MBBS block 8, Module 17, Dated: 28-07-25 to 02-08-25							
	Lecture 08:00 to 08:45	**Lecture 08:45 to 09:30**	**Ward 09:30 to 11:00**	**Practical/tutorial 11:00 to 12:15**	**Lecture 12:15 to 01:00**	**BREAK**	**Tutorial 01:15 to 02:00**
Mon 28-07	Pathology Microbiology ID-PA-006	Pharmacology ID-PH-005	Clinical rotation	A-pathology practical (ID-PA-13) B-pharmacology practical C-forensic practical (FOR-2-TR-034 to 37) D-CFRC skills LAB (NSRH-013)	Medicine ID-PH-006		PERL
Tue 29-07	Pathology Microbiology ID-PA-006	Pharmacology ID-PH-005	Clinical rotation	B-pathology practical (ID-PA-13) C-pharmacology practical D-Forensic Practical (FOR-2-TR-034 to 37) A-CFRC skills LAB (NSRH-013)	Community medicine ID-CM-003		Medicine ID-PA-010
Wed 30-07	Forensic Medicine FOR-2-TR-013	Pharmacology ID-PH-006	Clinical rotation	C-pathology practical (ID-PA-13) D-pharmacology practical A-Forensic Practical (FOR-2-TR-034 to 37) B-CFRC skills LAB (NSRH-013)	Pathology Microbiology ID-PA-006		Community Medicine ID-CM-004
Thur 31-07	Pathology Microbiology ID-PA-006	Pharmacology ID-PH-006	Clinical rotation	D-pathology practical (ID-PA-13) A-pharmacology practical B-Forensic Practical (FOR-2-TR-034 to 37) C-CFRC skills LAB (NSRH-013)	Forensic Medicine FOR-2-TR-014		Peadiatrics ID-PE-002
Fri 01-08	Obs & Gynae ID-GO-001	Peadiatrics ID-PH-006	Clinical rotation	A & B pathology tutorial C & D pharmacology tutorial			
Sat 02-08	Pharmacology ID-PH-006	Forensic Medicine FOR-2-TR-5	Clinical rotation	C & D pathology tutorial A & B pharmacology tutorial	Pathology Microbiology ID-PA-007		

WEEK 6: Time Table Third year MBBS block 8, Module 17, Dated: 04-08-25 to 09-08-25							
	Lecture 08:00 to 08:45	**Lecture 08:45 to 09:30**	**Ward 09:30 to 11:00**	**Practical/tutorial 11:00 to 12:15**	**Lecture 12:15 to 01:00**	**BREAK**	**Tutorial 01:15 to 02:00**
Mon 04-08	Pathology Microbiology ID-PA-008	Pharmacology ID-PH-007	Clinical rotation	A-pathology practical (ID-PA-014 to 015) B-pharmacology practical C-forensic practical (FOR-2-TR-38 to 39) D-CFRC skills LAB (CFRC-019 to 020)	Pathology Microbiology ID-PA-008		PERL
Tue 05-08	Pathology Microbiology ID-PA-009	Pharmacology ID-PH-007	Clinical rotation	B-pathology practical (ID-PA-014 to 015) C-pharmacology practical D-Forensic Practical (FOR-2-TR-38 to 39) A-CFRC skills LAB (CFRC-019 to 020)	Community medicine ID-CM-005		Medicine ID-PH-011
Wed 06-08	Forensic Medicine FOR-2-TR-016	Pharmacology ID-PH-007	Clinical rotation	C-pathology practical (ID-PA-014 to 015) D-pharmacology practical A-Forensic Practical (FOR-2-TR-38 to 39) B-CFRC skills LAB (CFRC-019 to 020)	Pathology Microbiology ID-PA-009		Community Medicine ID-CM-006 to 7
Thur 07-08	Pathology Microbiology ID-PA-010	Pharmacology ID-PH-007	Clinical rotation	D-pathology practical (ID-PA-014 to 015) A-pharmacology practical B-Forensic Practical (FOR-2-TR-38 to 39) C-CFRC skills LAB (CFRC-019 to 020)	Forensic Medicine FOR-2-TR-017		Peadiatrics ID-PE-003
Fri 08-08	Obs & Gynae ID-GO-002	Medicine ID-PH-008	Clinical rotation	A & B pathology tutorial C & D pharmacology tutorial			
Sat 09-08	Pharmacology ID-PH-008	Forensic Medicine FOR-2-TR-018	Clinical rotation	C & D pathology tutorial A & B pharmacology tutorial	Test Module - 17		

Module 17: Infectious Diseases

Pathology (microbiology) 53 hours		
ID-Pa- 001		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		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		Explain the morphological, pathological and diagnostic aspects of ; Dermatophytes, malassezia fur fur, Spoorthi, Histoplasma, Explain the morphological, pathological and diagnostic aspects of ; coccidioiodes, paracoccidioiodes, blastomyces, candida, mucor, aspergillus, cryptococcus
ID-Pa- 004		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
ID-Pa- 005		Enlist organisms producing CNS infections. Correlate clinically the following bacteria via their virulence factors, transmission, pathogenesis, laboratory diagnosis in CNS infections; • Strept. Pneumoniae, • Strept. agalactiae • Nisseria meningitidis, • 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 • Adenovirus, • C. neoformans, • Rabies, • Herpes simplex • Malaria, • Toxoplasma, • Negleria Compare CSF findings of viral and bacterial meningitis. Enlist organisms producing diarrhea & food poisoning.

Pathology (microbiology) 53 hours		
ID-Pa- 006		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 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		Correlate clinically the virulence factors, transmission, pathogenesis, laboratory diagnosis of organism causing genital tract infections; • Nisseria gonorrhoea,, • Treponema pallidum • Chlamydia trachomatis • Mycoplasma hominis, Candida albicans,• Trichomonas vaginalis • Gardnerella vaginalis,• Hepatitis B,• HIV, • Herpes simplex –II
ID-Pa- 008		Discuss important properties of: • Rickettsia, • Leptospira& Brucella, • anthrax, plague. • Francisella, bartonella

PRACTICALS / LAB WORK			
MICROBIOLOGY			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 08	
		INTEGRATING DISCIPLINE	TOPIC
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	Microbiology	Staining
ID-Pa- 012	Interpret the culture sensitivity reports and antibiogram of gram positive and gram-negative bacteria.		Laboratory reporting
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		Culture sensitivity
ID-Pa- 014	Identify the ova, cysts and trophozoites of protozoans, helminths, cestodes and schistosomes.		Stool examination
ID-Pa- 015	Perform and interpret the catalase test, coagulase test and oxidase test.		Laboratory tests

PHARMACOLOGY 18 hours		
ID-Ph- 001	Antibiotics Penicilins Cephala-sporims Beta lactams	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 o resistance of Membrane active antibiotics. Describe the adverse effects and toxicities of Membrane active antibiotics. 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.
ID-Ph- 002	Tetracyclines Aminoglyco-sides quinolones	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. Discuss ototoxicity Aminoglycosides and nephrotoxicity of 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.

PHARMACOLOGY 18 hours		
ID-Ph- 003	Anti-tubercu-losis	Briefly describe the signs, symptoms, diagnosis of tuberculosis. Classify antituberculosis drugs into 1st line and 2nd line agents with examples. 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	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 Anti malarial	Classify Antiprotozoal Drugs. Discuss the classification of Antimalarial agents. Describe the 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.
ID-Ph- 006	Anti helmintic	Classify anti-helmintic drugs. Discuss drugs used for the treatment of Nematodes. Explain mechanisms of action, clinical uses, adverse effects of Mebendazole, Pyrantel pamoate, 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	Anti fungal	Classify antifungal drugs. Discuss drugs used for systemic mycotic infections. Discuss mechanisms of action &resistance pharmacokinetics, clinical uses, adverse effects of Amphotericin B. Expalin 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 echinocandins. Pharmacologic properties of 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.

PHARMACOLOGY 18 hours		
ID-Ph- 008	Anti viral	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 pharmacodynamics and adverse effects of interferon, entacavir, tenofovir, ribavirin and others. 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			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 06	
		INTEGRATING DISCIPLINE	TOPIC
ID-CM- 001	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	Integrate with Microbiology	Tuberculosis
ID-CM- 002	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. Evaluate the Global Polio Eradication Initiative		Hepatitis Polio
ID-CM- 003	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	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		Measles, Mumps, Rubella

INTERNAL MEDICINE			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 05	
		INTEGRATING DISCIPLINE	TOPIC
ID-Pa- 009	Define pyrexia of unknown origin.	Integrate with Microbiology/ Pathology	Pyrexia of unknown origin
	Describe the investigations of a patient with pyrexia of unknown origin.		
ID-Ph- 009	Summarize the treatment plan of a patient with pyrexia of unknownorigin.	Integrate with Pharmacology	
ID-Pa-013	Discuss the signs, symptoms, diagnosis and treatment of septic and aseptic meningitis.	Integrate with Microbiology	CNS
	Discuss the signs, symptoms, diagnosis and treatment of septic and aseptic encephalitis.		
ID-Ph- 010	Discuss the signs symptoms diagnosis and treatment of diarrhea and dysentery.	Integrate with Pharmacology	GIT infections
ID-Ph- 011	Discuss the clinical diagnosis and treatment of typical and atypical pneumonia.		Respiratory tract infections
	Discuss the clinical diagnosis and treatment of TB		

GYNAECOLOGY			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 02	
		INTEGRATING DISCIPLINE	TOPIC
ID-GO- 001	Discuss clinical presentation & treatment of pelvic inflammatory diseases (PID)	Integrate with Pharmacology	Sexually transmitted infections
ID-GO- 002	Discuss the differential diagnosis of bacterial, parasitic and fungal vaginosis/vaginitis and their treatment	Integrate with Microbiology	Genital tract

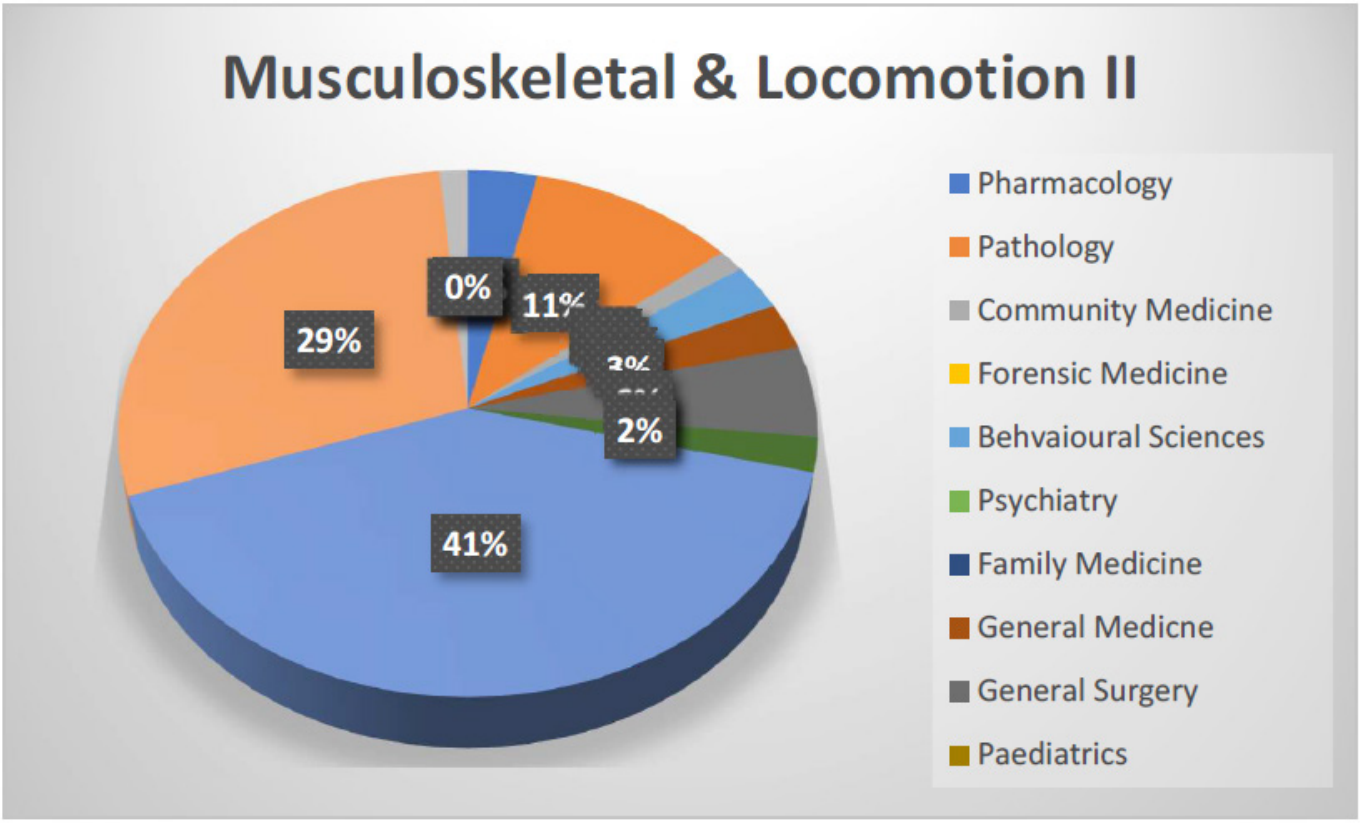
PEDIATRICS MEDICINE			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 02	
		INTEGRATING DISCIPLINE	TOPIC
ID-Pe- 001	Discuss the signs symptoms diagnosis and treatment of neonatal meningitis.	Integrate with Microbiology	CNS
ID-Pe- 002	Discuss the signs symptoms diagnosis and treatment of diarrhea in infants.		GIT
ID-Pe- 003	Discuss the clinical diagnosis and treatment of childhood respiratory tract infections.		RTI

SURGERY			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 02	
		INTEGRATING DISCIPLINE	TOPIC
ID-S- 001	Discuss the treatment of carbuncle, necrotizing fasciitis and gas gangrene	Integrate with Microbiology	Skin infections
ID-S- 002	Discuss the signs symptoms diagnosis and surgical treatment of hydatid cyst and its differential diagnosis with amoebic liver abscess	Integrate with Medicine	GIT

MICROBIOLOGY (INFECTION CONTROL)			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 08	
		INTEGRATING DISCIPLINE	TOPIC
ID-Pa- 009	Define hospital acquired infections (HAI)	Microbiology	Infection prevention & control
	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		

MICROBIOLOGY			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 05	
		INTEGRATING DISCIPLINE	TOPIC
ID-Pa- 010	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	Bio-risk management (BRM)

MODULE - 18
MUSCULOSKELETAL & LOCOMOTION II



Module weeks	Recommended Minimum Hours
04	142

End of module assessment
Written paper
25 MCQ, s 5 SEQ, s

	Subject	MCQ, s	SEQ	
1	Rheumatology (Medicine)	13	4	
2	Traumatology	5	1	
3	Pharmacology	7		

Module committee

Co Ordinator		
Co-coordinator		
Member	Physiology	
Member	Pharmacology	
Member	Biochemistry	
Member	Behavioral sciences	
Member		
Member		
Member		

Module Rationale

The 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.

Integrated Learning: This module promotes an integrated approach to understanding the musculoskeletal system. By combining orthopedics, surgical traumatology, forensic traumatology, and rheumatology, students will gain a holistic perspective on diagnosis and treatment, preparing them for the complexities of clinical practice.

Pathology and Pharmacology: Understanding the underlying pathology of musculoskeletal disorders is essential for effective management. This module emphasizes the importance of pathology and pharmacology, equipping students with the knowledge to identify disease mechanisms and select appropriate pharmacological interventions for pain management and inflammation control.

Community Medicine and Behavioral Sciences: Musculoskeletal disorders significantly impact community health and patient well-being. The module includes community medicine to address the epidemiology, prevention, and health promotion aspects of musculoskeletal conditions. Additionally, behavioral sciences will be integrated to enhance understanding of patient behavior, adherence to treatment, and the psychosocial factors affecting recovery.

Radiology and Evidence-Based Medicine: Proficiency in interpreting radiological findings is crucial for diagnosing musculoskeletal conditions. The module will cover radiological techniques relevant to orthopedics and traumatology, allowing students to correlate imaging results with clinical findings. Furthermore, an emphasis on evidence-based medicine will teach students how to critically appraise research and apply findings to clinical decision-making, ensuring the delivery of high-quality patient care.

Real-World Applications: By focusing on both common and complex musculoskeletal disorders, including those requiring surgical intervention, students will develop the skills necessary to assess and manage a wide range of conditions. This prepares them for future roles in various healthcare settings, from primary c Multidisciplinary Collaboration: The management of musculoskeletal disorders often requires a team approach, involving collaboration with specialists in orthopedics, rheumatology, radiology, and rehabilitation. This module fosters an appreciation for interdisciplinary teamwork and the importance of effective communication in providing optimal patient care.are to specialized practices

Module outcomes

- Explain the pathology and underlying mechanisms of common musculoskeletal disorders and injuries, including septic arthritis, osteomyelitis, fractures, and degenerative conditions.
- Identify key features of various musculoskeletal disorders, including their clinical presentations, epidemiology, and impact on community health.
- Perform thorough musculoskeletal examinations to assess joint mobility, strength, and functional capabilities.
- Interpret relevant imaging studies (e.g., X-rays, MRI, CT scans) to aid in the diagnosis and management of musculoskeletal conditions.

- Apply appropriate first aid measures for common musculoskeletal injuries, including immobilization techniques and pain management strategies.
- Integrate knowledge from orthopedics, surgical traumatology, forensic traumatology, and rheumatology to develop comprehensive management plans for patients with musculoskeletal conditions.
- Collaborate effectively with healthcare professionals from diverse specialties, including pathology, pharmacology, community medicine, behavioral sciences, and radiology, to enhance patient care.
- Critically evaluate and apply current evidence-based guidelines and research findings to inform clinical decision-making in the management of musculoskeletal disorders.
- Formulate treatment plans that incorporate pharmacological and non-pharmacological interventions based on best practices and individual patient needs.
- Demonstrate empathy and effective communication skills when interacting with patients suffering from musculoskeletal disorders, ensuring a patient-centered approach to care.
- Educate patients about their conditions, treatment options, and the importance of adherence to management plans for optimal outcomes.
- Recognize the ethical considerations and challenges in the management of musculoskeletal disorders, including issues related to informed consent, patient autonomy, and resource allocation.
- 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. Behavioural Sciences
9. Radiology
10. Evidence-Based Medicine

WEEK 7: Time Table Third year MBBS block 8, Module 18, Dated: 11-08-25 to 16-08-25							
	Lecture 08:00 to 08:45	**Lecture 08:45 to 09:30**	**Ward 09:30 to 11:00**	**Practical/tutorial 11:00 to 12:15**	**Lecture 12:15 to 01:00**	**BREAK**	**Tutorial 01:15 to 02:00**
Mon 11-08	Behavioral Sciences MS-BHS-001	Orthopediacs MS2-Ortho-001/2	Clinical rotation	A-pathology practical (MS2-PA-002) B-pharmacology practical (MS2-PH-002) C-forensic practical (FOR-2-TR-040 to 042) D-CFRC skills LAB (CFRC-22)	Pathology MS2-PA-001		PERL
Tue 12-08	Pathology MS2-PA-001	Pharmacology MS2-CM-001	Clinical rotation	B-pathology practical (MS2-PA-002) C-pharmacology practical (MS2-PH-002) D-Forensic Practical (FOR-2-TR-040 to 042) A-CFRC skills LAB (CFRC-22)	Community medicine MS2-CM-001		Medicine Rheumatology MS2-RH-001
Wed 13-08	Forensic Medicine FOR-2-TR-019	Pharmacology MS2-CM-001	Clinical rotation	C-pathology practical (MS2-PA-002) D-pharmacology practical (MS2-PH-002) A-Forensic Practical (FOR-2-TR-040 to 042) B-CFRC skills LAB (CFRC-22)	Pathology MS2-PA-001		Surgery MS2-Ortho-009
Thur 14-08	Pathology MS2-PA-001	Pharmacology MS2-CM-001	Clinical rotation	D-pathology practical (MS2-PA-002) A-pharmacology practical (MS2-PH-002) B-Forensic Practical (FOR-2-TR-040 to 042) C-CFRC skills LAB (CFRC-22)	Forensic Medicine FOR-2-TR-020		
Fri 15-08	Surgery MS2-Ortho-010	Medicine Rheumatology MS2-RH-002	Clinical rotation	A & B pathology tutorial C & D pharmacology tutorial			
Sat 16-08	Pharmacology MS2-CM-001	Forensic Medicine FOR-2-TR-021	Clinical rotation	C & D pathology tutorial A & B pharmacology tutorial	Orthopediacs MS2-Ortho-002		

WEEK 8: Time Table Third year MBBS block 8, Module 18, Dated: 18-08-25 to 23-08-25							
	Lecture 08:00 to 08:45	**Lecture 08:45 to 09:30**	**Ward 09:30 to 11:00**	**Practical/tutorial 11:00 to 12:15**	**Lecture 12:15 to 01:00**	**BREAK**	**Tutorial 01:15 to 02:00**
Mon 18-08	Behavioral Sciences MS2-BS-001	Orthopediacs MS2-Ortho-003 to 005	Clinical rotation	A-pathology practical (MS2-PA-002) B-pharmacology practical (MS2-PH-002) C-forensic practical (FOR-2-TR-42) D-CFRC skills LAB (CFRC-23 to 27)	Pathology MS2-PA-001		PERL
Tue 19-08	Pathology MS2-PA-001	Pharmacology MS-PH-001	Clinical rotation	B-pathology practical (MS2-PA-002) C-pharmacology practical (MS2-PH-002) D-Forensic Practical (FOR-2-TR-42) A-CFRC skills LAB (CFRC-23 to 27)	Community medicine MS2-CM-001		Medicine MS2-RH-004
Wed 20-08	Forensic Medicine FOR-2-TR-022	Pharmacology MS-PH-001	Clinical rotation	C-pathology practical (MS2-PA-002) D-pharmacology practical (MS2-PH-002) A-Forensic Practical (FOR-2-TR-42) B-CFRC skills LAB (CFRC-23 to 27)	Pathology MS2-PA-001		Orthopediacs MS-Ortho-004
Thur 21-08	Pathology MS2-PA-001	Pharmacology MS-PH-001	Clinical rotation	D-pathology practical (MS2-PA-002) A-pharmacology practical (MS2-PH-002) B-Forensic Practical (FOR-2-TR-42) C-CFRC skills LAB (CFRC-23 to 27)	Forensic Medicine FOR-2-TR-023		
Fri 22-08	Surgery MS-Ortho-012	Medicine Rheumatology MS2-RH-003	Clinical rotation	A & B pathology tutorial C & D pharmacology tutorial			
Sat 23-08	Pharmacology MS-PH-001	Forensic Medicine FOR-2-TR-24/25	Clinical rotation	C & D pathology tutorial A & B pharmacology tutorial	Orthopediscs MS2-PA-004		

WEEK 9: Time Table Third year MBBS block 8, Module 18, Dated: 25-08-25 to 30-08-25							
	Lecture 08:00 to 08:45	**Lecture 08:45 to 09:30**	**Ward 09:30 to 11:00**	**Practical/tutorial 11:00 to 12:15**	**Lecture 12:15 to 01:00**	**BREAK**	**Tutorial 01:15 to 02:00**
Mon 25-08	Behavioral Sciences MS2-PH-001	Orthopediacs MS2-Ortho-006	Clinical rotation	A-pathology practical (MS2-PA-003) B-pharmacology practical C-forensic practical D-CFRC skills LAB (Primary Survey)	Pathology MS2-PA-001		PERL
Tue 26-08	Pathology MS2-PA-001	Pharmacology MS2-PH-001	Clinical rotation	B-pathology practical (MS2-PA-003) C-pharmacology practical D-Forensic Practical A-CFRC skills LAB (Primary Survey)	Community medicine MS2-CM-001		Medicine Rheumatology MS2-RH-005
Wed 27-08	Forensic Medicine FOR-2-SO-001 to 004	Pharmacology MS2-PH-001	Clinical rotation	C-pathology practical (MS2-PA-003) D-pharmacology practical A-Forensic Practical B-CFRC skills LAB (Primary Survey)	Pathology MS2-PA-001		Surgery MS2-Ortho-018
Thur 28-08	Pathology MS2-PA-001	Pharmacology MS2-PH-001	Clinical rotation	D-pathology practical (MS2-PA-003) A-pharmacology practical B-Forensic Practical C-CFRC skills LAB (Primary Survey)	OBS & Gynae FOR-2-SO-005		
Fri 29-08	Surgery MS-Ortho-014	Medicine Rheumatology MS2-RH-006	Clinical rotation	A & B pathology tutorial C & D pharmacology tutorial			
Sat 30-08	Pharmacology MS2-PH-001	Forensic Medicine FOR-2-SO-005	Clinical rotation	C & D pathology tutorial A & B pharmacology tutorial	Orthopediacs MS2-Ortho-006		

WEEK 10: Time Table Third year MBBS block 8, Module 18, Dated: 01-09-25 to 06-09-25							
	Lecture 08:00 to 08:45	**Lecture 08:45 to 09:30**	**Ward 09:30 to 11:00**	**Practical/tutorial 11:00 to 12:15**	**Lecture 12:15 to 01:00**	**BREAK**	**Tutorial 01:15 to 02:00**
Mon 01-09	Behavioral Sciences MS2-BS-001	Orthopediacs MS2-Ortho-007 to 008	Clinical rotation	A-pathology practical (MS2-PA-003) B-pharmacology practical (MS2-PH-002) C-forensic practical (FOR-2-SO-008) D-CFRC skills LAB (IV Line)	Pathology MS2-PA-001		PERL
Tue 02-09	Pathology MS2-PA-001	Pharmacology MS2-PH-001	Clinical rotation	B-pathology practical (MS2-PA-003) C-pharmacology practical (MS2-PH-002) D-Forensic Practical (FOR-2-SO-008) A-CFRC skills LAB (IV Line)	Community medicine MS2-CM-001		Medicine Rheumatology MS2-RH-007
Wed 03-09	Forensic Medicine FOR-2-SO-006	Pharmacology MS2-PH-001	Clinical rotation	C-pathology practical (MS2-PA-003) D-pharmacology practical (MS2-PH-002) A-Forensic Practical (FOR-2-SO-008) B-CFRC skills LAB (IV Line)	Pathology MS2-PA-001		ENT MS2-Ortho-015
Thur 04-09	Pathology MS2-PA-001	Pharmacology MS2-PH-001	Clinical rotation	D-pathology practical (MS2-PA-003) A-pharmacology practical (MS2-PH-002) B-Forensic Practical (FOR-2-SO-008) C-CFRC skills LAB (IV Line)	Forensic Medicine FOR-2-SO-007		
Fri 05-09	Surgery MS2-Ortho-016	Medicine Rheumatology MS2-RH-007	Clinical rotation	A & B pathology tutorial C & D pharmacology tutorial			
Sat 06-09	Pharmacology MS2-PH-001	Forensic Medicine FOR-2-SO-007	Clinical rotation	C & D pathology tutorial A & B pharmacology tutorial	Orthopedics MS2-Ortho-008		

THEORY			
RHEUMATOLOGY			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 17	
		INTEGRATING DISCIPLINE	TOPIC
MS2-Rh- 001	Understand the scope and importance of rheumatology.	Rheumatology	Introduction to Rheumatology
	Recognize common musculoskeletal disorders managed in rheumatology.		
MS2-Rh- 002	Describe the pathophysiology of Rheumatoid Arthritis (RA).	Rheumatology, Medicine	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 diseases.		
MS2-Rh- 003	Explain the pathogenesis of Osteoarthritis (OA).	Rheumatology, Medicine	Osteoarthritis (OA)
	Identify clinical manifestations of Osteoarthritis (OA).		
	Discuss diagnostic methods for Osteoarthritis (OA).		
	Explain the community burden of Osteoarthritis (OA).	Rheumatology, Community Med	
	Identify risk factors for Osteoarthritis (OA).		
MS2-Rh- 004	Define Crystal Arthritis, including Gout and Pseudogout.	Rheumatology, Medicine	Crystal Arthritis (Gout/Pseudo gout)
	Describe the pathophysiology of Gout.		
	Describe the pathophysiology of Pseudogout.		
	Identify clinical features of Gout.		
	Identify clinical features of Pseudogout.	Rheumatology, Community Med	
	Discuss diagnostic tests for Crystal Arthritis.	Rheumatology, Medicine	
	Differentiate between Gout and Pseudogout based on clinical and diagnostic findings.		
	Outline management strategies for Gout.		
	Outline management strategies for Pseudogout.		
MS2-Rh- 005	Define Systemic Inflammatory Vasculitis.	Pathology	Systemic Inflammatory Vasculitis
	Describe the pathophysiology of Systemic Inflammatory Vasculitis.		
	Identify types of Systemic Inflammatory Vasculitis.		
	Discuss the community burden of Systemic Inflammatory Vasculitis.	Rheumatology, Medicine	
	Explain risk factors for Systemic Inflammatory Vasculitis.	Pathology	
	Describe clinical features of Systemic Inflammatory Vasculitis.		
	Identify diagnostic tests for Systemic Inflammatory Vasculitis.		
	Justify the use of diagnostic investigations in Systemic Inflammatory Vasculitis.	Rheumatology, Medicine	
	Discuss management strategies for Systemic Inflammatory Vasculitis.	Medicine	

MS2-Rh- 006	Define Autoimmune Rheumatic Diseases (e.g., SLE, Sjogren's, Systemic Sclerosis).	Pathology	Autoimmune Rheumatic Diseases
	Describe the pathophysiology of Systemic Lupus Erythematosus (SLE).		
	Identify clinical manifestations of Sjogren's Syndrome.	Pathology	
	Explain the pathophysiology of Systemic Sclerosis.		
	Discuss treatment options for Polymyositis and Dermatomyositis.	Rheumatology, Medicine	
	Define Spondylarthritis and its clinical features.		
	Describe clinical features of Spondylarthritis.		
	Explain diagnostic criteria for Autoimmune Rheumatic Diseases.	Pathology	
	Differentiate Autoimmune Rheumatic Diseases from each other.		
MS2-Rh- 007	Understand the role of evidence-based medicine in rheumatology management.	Rheumatology, Evidence-Based Medicine	Integrated EBM
	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.		

ORTHOPEDICS			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 14	
		INTEGRATING DISCIPLINE	TOPIC
MS2-Orth-001	Define the field of orthopedics and its significance.	Orthopedics	Introduction to Orthopedics
	Identify common orthopedic conditions and their impact.	Community Medicine	
MS2-Orth-002	Explain the classification of fractures using the AO system.	Orthopedics, Radiology	Fracture Classification and Healing
	Describe principles of fracture healing.		
	Differentiate between complete and incomplete fractures.		
MS2-Orth-003	Discuss pediatric fractures and their management.	Orthopedics, Pediatrics, Rehabilitation	Pediatric Fractures
	Explain Salter-Harris classification for growth plate injuries.		
MS2-Orth-004	Define osteoporotic fractures and their clinical features.	Orthopedics, Geriatrics, Endocrinology	Osteoporotic Fractures
	Identify common sites of osteoporotic fractures.		
	Discuss risk factors for osteoporosis.		
MS2-Orth-005	Define pathological fractures and differentiate from traumatic.	Orthopedics, Oncology, Radiology	Pathological Fractures
	Identify causes of pathological fractures.		
	Describe diagnostic approaches for pathological fractures.		
	Explain management options for pathological fractures.		
MS2-Orth-006	Classify sports injuries and their management.	Orthopedics, Sports Medicine, Physical Therapy	Sports Injuries
	Describe common sports injuries in upper and lower limbs.		
	Discuss pathophysiology of muscle strains and ligament sprains.	Pathology, Sports Medicine	
	Explain biomechanics of gait and malalignment injuries.	Biomechanics, Orthopedics, Sports Medicine	
	Outline injury prevention strategies in sports.	Physiology, Sports Medicine	
	Analyze rehabilitation processes for sports injuries.		
	Discuss use of assistive devices in rehabilitation.	Orthopedics, Physical Therapy	
	Explain psychological impact of sports injuries.	Psychology, Sports Medicine	
	Describe nutritional roles in recovery from sports injuries.	Nutrition, Sports Medicine	
	Understand surgical intervention in severe sports injuries.	Surgery, Orthopedics, Physical Therapy	
	Promote multidisciplinary approach in managing sports injuries.	Sports Medicine, Team Management	

MS2-Orth-007	Define genetic conditions:Achondroplasia and Marfan's Syndrome.	Orthopedics, Genetics, Surgery	Genetic Conditions in Orthopedics
	Describe clinical features of Achondroplasia.		
	Explain management of Marfan's Syndrome.		
MS2-Orth-008	Define scoliosis and its types.	Orthopedics, Rehabilitation	Bone and Joint Disorders
	Identify clinical features and screening methods for scoliosis.	Orthopedics, Pediatrics	
	Discuss treatment options for scoliosis.	Orthopedics, Rehabilitation	
	Recognize multidisciplinary approach in managing scoliosis.		
	Define Osteogenesis Imperfecta and its genetic basis.	Orthopedics, Genetics, Rehabilitation	
	Identify clinical features and types of Osteogeneses Imperfecta.	Orthopedics, Pediatrics	
	Discuss management strategies for Osteogenesis Imperfecta.	Orthopedics, Rehabilitation	
	Educate patients on Osteogenesis Imperfecta.	Orthopedics, Rehabilitation	
	Define Marfan's Syndrome and its genetic basis.	Orthopedics, Genetics, Surgery	
	Identify clinical manifestations of Marfan's Syndrome.	Orthopedics, Cardiology	
	Discuss management strategies for Marfan's Syndrome.	Orthopedics, Surgery	
	Promote patient education and support for Marfan's Syndrome.	Orthopedics, Rehabilitation	

SURGICAL TRAUMATOLOGY			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 12	
		INTEGRATING DISCIPLINE	TOPIC
MS2-Orth-009	Define ATLS and describe its relevance in trauma management.	Trauma Surgery, Surgery, Orthopedics	Introduction to Surgical Traumatology
MS2-Orth-010	Explain principles of trauma management and primary survey.	Trauma Surgery, Emergency Medicine	Introduction to Trauma Management & ATLS
	Describe types of injuries managed in traumatology.	General Surgery	
	Discuss multidisciplinary approach in trauma care.	Trauma Surgery, Surgery, Orthopedics	
	Identify key specialties in managing traumatic injuries.		
MS2-Orth-011	Understand ATLS guidelines in primary survey (ABCDE).	Emergency Medicine, Trauma Surgery	Primary Survey and ATLS
	Recognize common causes of severe trauma.	Emergency Medicine, Trauma Surgery	
	Apply ATLS principles in conducting primary survey.	Emergency Medicine,	
		Trauma Surgery	
	Identify indications for rapid imaging in trauma assessment.	Radiology, Emergency Medicine	
MS2-Orth-012	Describe shock recognition and resuscitation measures.	Trauma Surgery, Critical Care	Shock Recognition and Management
MS2-Orth-013	Define Traumatic Brain Injury (TBI) and classify its severity.	Neurology, Neurosurgery	Traumatic Brain Injury (TBI)
	Describe pathophysiology of primary and secondary brain injury.	Neurosurgery, Pathology	
	Identify common causes of TBI.	Epidemiology, Emergency Medicine	
	Describe clinical features of TBI.	Neurology, Emergency Medicine	
	Explain importance of early imaging for TBI diagnosis.	Radiology, Neurology	
	Discuss ATLS role in TBI management.	Emergency Medicine, Trauma Surgery	

	Outline complications of TBI.	Neurology, Neurosurgery, Critical Care	
MS2-Orth-014	Define Neck and Spine Trauma and classify it.	Orthopedics, Neurosurgery, Trauma Surgery	Neck and Spine Trauma
	Recognize mechanisms of neck and spine trauma.	Epidemiology, Emergency Medicine	
	Describe anatomy of spine and spinal cord in trauma context.	Anatomy, Orthopedics, Neurosurgery	
	Identify clinical features of neck and spine trauma.	Neurology, Emergency Medicine, Neurosurgery	
	Understand importance of immobilization in spinal trauma.	Emergency Medicine, Orthopedics	
	Discuss role of imaging in spinal trauma diagnosis.	Radiology, Orthopedics, Neurosurgery	
	Recognize role of ATLS in spinal trauma management.	Emergency Medicine, Trauma Surgery	
	Outline complications of spine trauma.	Critical Care, Neurology, Rehabilitation	
MS2-Orth-015	Define Maxillofacial Trauma and its classification.	Oral & Maxillofacial Surgery, Plastic Surgery	Maxillofacial Trauma
	Identify causes of Maxillofacial Trauma.	Epidemiology, Emergency Medicine	
	Explain anatomy relevant to Maxillofacial Trauma.	Plastic Surgery, ENT	
	Recognize clinical features of facial trauma.	Surgery, Maxillofacial Surgery, ENT	
	Identify importance of airway management in facial trauma.	Emergency Medicine	
	Describe radiological investigations for facial fractures.	Radiology, Oral & Maxillofacial Surgery	
	Discuss complications of maxillofacial trauma.	Emergency Medicine, Plastic Surgery, ENT	

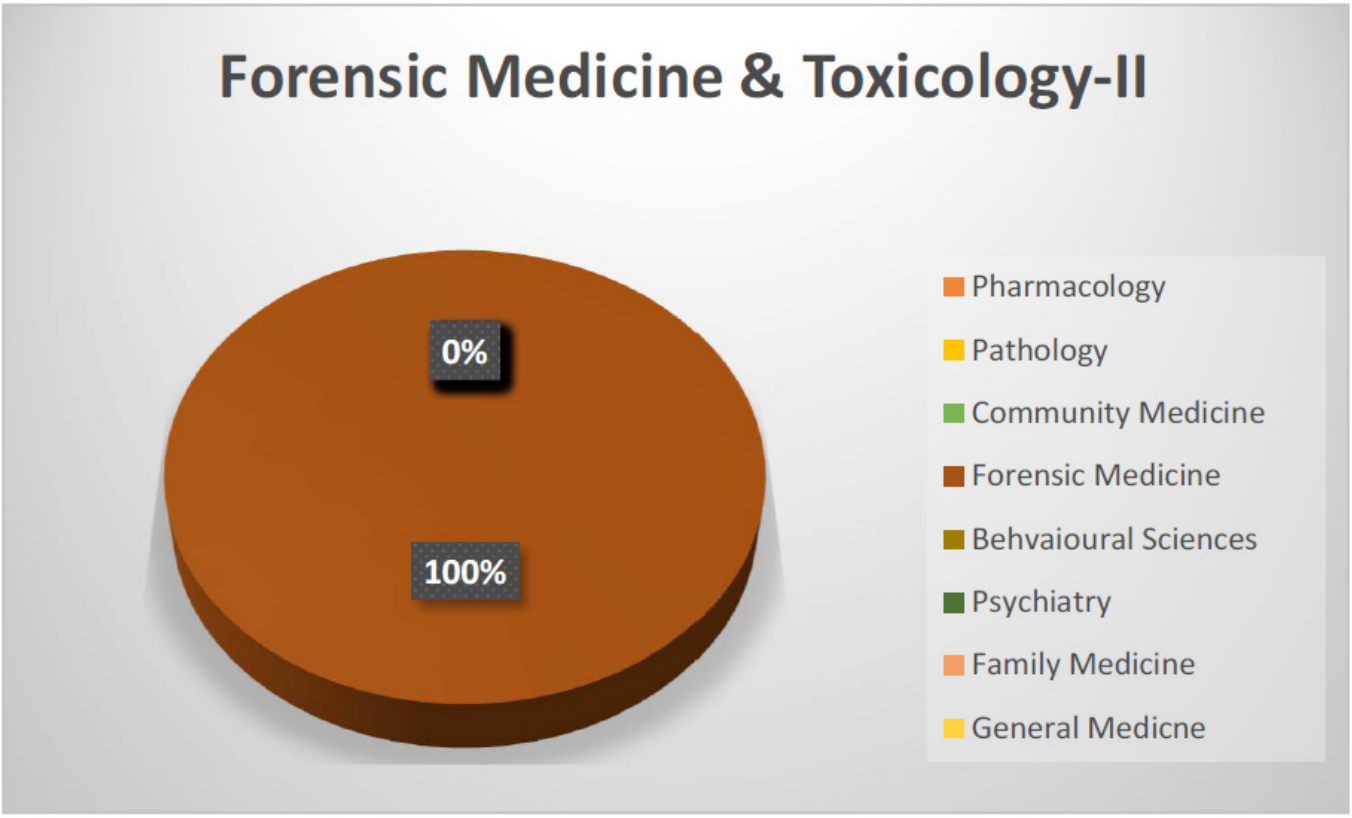
	Outline ATLS principles in maxillofacial trauma management.	Emergency Medicine, Trauma Surgery	
	Discuss surgical interventions for maxillofacial trauma.	Oral & Maxillofacial Surgery, Plastic Surgery	
MS2-Orth-016	Define Extremity Trauma and its types.	Orthopedics, Emergency Medicine	Extremity Trauma
	Explain mechanisms of extremity trauma.	Epidemiology, Trauma Surgery	
	Recognize clinical signs of extremity injuries.	Orthopedics, Emergency Medicine	
	Identify life-threatening complications of extremity trauma.	Orthopedics, Emergency Medicine	
	Understand role of imaging in extremity trauma diagnosis.	Radiology, Orthopedics	
	Describe principles of ATLS in extremity trauma management.	Emergency Medicine	
	Discuss management techniques for extremity trauma.	Orthopedics, Physical Therapy	
	Explain indications for surgical intervention in extremity trauma.	Orthopedics, Trauma Surgery	

PATHOLOGY, PHARMACOLOGY, COMMUNITY MEDICINE and BEHAVIORAL SCIENCES & EBM			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 20	
		INTEGRATING DISCIPLINE	TOPIC
MS2-Pa- 001	Discuss the etiology, pathophysiology, morphology, clinical manifestations and diagnostic criteria of Rheumatoid Arthritis (RA)	Pathology	MSK Diseases & Tumors
	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	Describe pharmacologic interventions for MSK disorders.	Pharmacology	MSK Drugs & Interventions
	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	Understand epidemiology of MSK diseases.	Community Medicine	Epidemiology & Prevention
	Discuss public health burden of MSK diseases.		
	Explain preventive measures for MSK diseases.		
	Discuss pharmacologic management in rheumatology.	Pharmacology, Rheumatology	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.		
	Understand the epidemiology of rheumatic diseases.	Community Medicine	Epidemiology & Prevention
	Discuss the public health burden of rheumatic diseases.		
	Explain preventive measures diseases.		
MS2-BhS-001	Analyze psychosocial impact of chronic MSK conditions.	Behavioral Sciences	Psychosocial Impact & Patient Counseling
	Describe patient counseling techniques for MSK conditions.		
	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	Understand role of evidence-based medicine in MSK management.	Rheumatology, Pharmacology	Integrated EBM
	Apply evidence-based guidelines to rheumatology case studies.	Rheumatology, Evidence-Based Medicine	

	Critically evaluate current research in rheumatology.	Rheumatology, Evidence-Based Medicine	
	Integrate evidence-based practices into rheumatology treatment plans.	Rheumatology, Evidence-Based Medicine	
	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			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 09	
		INTEGRATING DISCIPLINE	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) vi. Antinuclear antibody (ANA) vii. Anti-Neutrophil Cytoplasmic Antibodies (ANCA) viii. Serum uric acid level	Pathology	Test Interpretation
MS2-Pa- 003	Interpret related cultures for diagnosis for infections	Microbiology, Pathology	
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	Radiology Rheumatology Orthopedics Surgical Traumatology	
MS2-Ph- 002	Analysis and interpretation of Drugs (atracurium or skeletal muscle relaxant) on animal through online videos / simulations / graphs / practical performance.	Pharmacology	MSK & locomotion
	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.		

MODULE - 19
FORENSIC MEDICINE AND TOXICOLOGY II



Module weeks	Recommended Minimum Hours
01	35

End of module assessment
Written paper
25 MCQ, s 5 SEQ, s

	Subject	MCQ, s	SEQ	
1	Forensic Medicine	25	5	

Module committee

Co Ordinator		
Co-coordinator		
Member	Physiology	
Member	Pharmacology	
Member	Biochemistry	
Member	Behavioral sciences	
Member		
Member		
Member		

MODULE RATIONALE

This module trains the 3rd year MBBS student 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.

MODULE OUTCOMES

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

SUBJECTS INTEGRATED IN THE MODULE

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

WEEK 11: Time Table Third year MBBS block 8, Module 19, Dated: 08-09-25 to 13-09-25							
	Lecture 08:00 to 08:45	**Lecture 08:45 to 09:30**	**Ward 09:30 to 11:00**	**Practical/tutorial 11:00 to 12:15**	**Lecture 12:15 to 01:00**	**BREAK**	**Tutorial 01:15 to 02:00**
Mon 08-09	Forensic Medicine Revision	Pharmacology	Clinical rotation	A-pathology practical B-pharmacology practical C-forensic practical D-CFRC skills LAB	Pathology		PERL
Tue 09-09	Pathology	Pharmacology	Clinical rotation	B-pathology practical C-pharmacology practical D-Forensic Practical A-CFRC skills LAB	Community medicine		Medicine
Wed 10-09	Forensic Medicine	Pharmacology	Clinical rotation	C-pathology practical D-pharmacology practical A-Forensic Practical B-CFRC skills LAB	Pathology		Patient Safety
Thur 11-09	Pathology	Pharmacology	Clinical rotation	D-pathology practical A-pharmacology practical B-Forensic Practical C-CFRC skills LAB	Forensic Medicine		
Fri 12-09	Surgery	Pharmacology	Clinical rotation	A & B pathology tutorial C & D pharmacology tutorial			
Sat 13-09	Pharmacology	Forensic Medicine	Clinical rotation	C & D pathology tutorial A & B pharmacology tutorial	Pathology		

THEORY			
TRAUMATOLOGY			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 03	
		INTEGRATING DISCIPLINE	TOPIC
For2-Tr- 001	Define injury, wound and hurt.	Forensic Medicine	General concept
	Classify injuries on the basis of causative weapons		
	Classify injuries as per Qisas and Diyyat Act.		
For2-Tr- 002	Explain mechanism of wound production with reference to subject, object and contact.		Wound production
For2-Tr- 003	Define abrasions. Classify abrasion. Describe mechanism of production of abrasions. Differentiate between different types of abrasions. Explain medicolegal importance of abrasions.		Abrasion
For2-Tr- 004	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.		Bruise
For2-Tr- 005	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.		Laceration
For2-Tr- 006	Explain mechanism of fracture of bones/tooth. Discuss the mechanism of fractures/tooth. Describe different types of fractures of bones.	Surgery/Orthopedics	Fractures
	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	Define incised/stab wounds. Discuss mechanism of production of an incised wound. Explain medico-legal significance of incised/stab wounds.		Incised/stab wounds

SPECIAL TRAUMATOLOGY			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 12.5	
		INTEGRATING DISCIPLINE	TOPIC
For2-Tr- 008	Describe the pathophysiology of injuries. Explain effects of injuries on the body.	Pathology	Pathophysio-log y of injuries
For2-Tr- 009	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	Timing of injury / ante mortem, post mortem nature of wound
For2-Tr- 010	Link Sequelae of trauma to its original cause and search for the relationship of sequelae to pre-existing disease.		Ewing's postulates
For2-Tr- 011	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.		Battered baby syndrome
For2-Tr- 012	Define torture. Explain reasons, types and complications of torture. Describe medicolegal aspects of torture.		Torture
For2-Tr- 013	Examine and prepare Medico-legal report of an injured person with different etiologies in a simulated/supervised environment.		Medicolegal Certification of injury
For2-Tr- 014	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	To explain the factors affecting the trajectory of bullet after its exit from the muzzle end.		External Ballistics
For2-Tr- 016	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.		Terminal Ballistics
For2-Tr- 017	Identify gun powders and ammunition used through different methods.		Gun powders
For2-Tr- 018	Describe mechanics of blast injuries. Explain effects of blast injuries on human body. Describe medicolegal aspects of blast injuries.		Blast injuries
For2-Tr- 019	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.		Regional Injuries
For2-Tr- 020	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.		Transportation Injuries

For2-Tr- 021	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 andmedicolegal importance of burns.	Surgery	Thermal Injuries / Burn
For2-Tr- 022	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.		Electrocution Lightening
For2-Tr- 023	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 importance.		Hyper / Hypothermia/ Starvation
For2-Tr- 024	Describe chemical burns Explain mechanism of development of chemical burns Describe autopsy findings.		Chemical Burns
	Summarize the chemical buns as per qisas and diyat act. Describe medicolegal importance of chemical burns.		
For2-Tr- 025	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.		Drowning

MEDICOLEGAL ASPECTS OF SEXUAL OFFENCES			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 4.5	
		INTEGRATING DISCIPLINE	TOPIC
For2- Se-001	Comprehend the terms-impotency, frigidity in females and sterility. Explain their causes. Narrate their medico legal importance	Forensic Medicine & Gyne/obs	Impotency frigidity and sterility
For2- Se-002	Explain signs of virginity and defloration. Interpret medico legal importance.		Virginity and defloration
For2- Se-003	Describe presumptive, probable and sure signs of pregnancy in living and dead.		Pregnancy
For2- Se-004	Explain recent and old signs of delivery in living and dead.		Delivery
For2- Se-005	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.		Abortion / Miscar riage
For2- Se-006	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.		Sexual Offences
For2- Se-007	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.	Forensic Medicine	Infanticide

PRACTICAL / LAB WORK			
TRAUMATOLOGY			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 09	
		INTEGRATING DISCIPLINE	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, & stick, fire arms	Forensic medicine	Mechanical injuries
For2-Tr- 027	Differentiate between different types of abrasions		Abrasion
For2-Tr- 028	Assess the age of a bruise on the basis of color changes. Differentiate between a bruise and post mortem staining.		Bruise
For2-Tr- 029	Differentiate between a lacerated and incised wound on naked eye examination.		wound
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.		Age of fracture
For2-Tr- 031	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
For2-Tr- 032	Demonstrate appropriate examination of an injured person and issue the report in a simulated/supervised environment correctly.		Certification of injury
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	Differentiate between dry burn and wet burn. Calculate burnt surface area. Determine age and nature of burn on naked eye examination.		Burn
	Recognize autopsy findings.		
For2-Tr- 035	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.		Electrocuted injury
For2-Tr- 036	Recognize different patterns of effects of high/low environmental temperature on the body. Appreciate clinical and autopsy findings of death due to starvation.		Hypo / Hypothermia / starvation
For2-Tr- 037	Recognize different patterns of Chemical burns over body. Apply relevant sections of Qisas And Diyat Act.		Chemical Burns
For2-Tr- 038	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.		Hanging

For2-Tr- 039	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.		Strangulation / Hanging
For2-Tr- 040	Appreciate external and internal autopsy findings of death due to throttling. Determine the position of assailant and victim from external marks on neck.		Throttling
For2-Tr- 041	Appreciate external and internal autopsy findings of death due to smothering, choking, gagging and traumatic asphyxia.		Smothering / Gagging
For2-Tr- 042	Appreciate external and internal autopsy findings of death due to drowning.		Drowning

SEXOLOGY			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 06	
		INTEGRATING DISCIPLINE	TOPIC
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.	Forensic medicine	Sexual assault

BLOCK - 8

(CFRC)
CLERKSHIPS ROTATION FOUNDATION CLINICAL SKILLS

CLINICAL ROTATIONS / COMMUNITY HEALTHCARE			
GENERAL MEDICINE/GENERAL SURGERY			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 12	
		INTEGRATING DISCIPLINE	TOPIC
MS2-M- 001	Elicit symptom of "pain" in history in terms of location, intensity, duration, character, aggravating and relieving factors.	General Medicine	History taking in pain
MS2-S- 001	Elicit symptom of "swelling" in history in terms of location, intensity, duration, character, aggravating and relieving factors.	General Surgery	History taking in swelling
MS2-M- 002	Elicit symptom of "swelling" in history in terms of location, duration, pattern and any family or drug history.	General Medicine	History taking in swelling in drug history
MS2-Rh- 011	Elicit symptom of 'joint mobility" in history in terms of location, intensity, duration, character, aggravating and relieving factors.	Rheumatology	History taking in joint mobility
MS2-Orth-017	Elicit symptom of "joint mobility" in history in terms of its location, duration, pattern, mechanism of injury with associated symptoms.	Orthopedics	History taking in joint mobility
	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	Elicit the signs and symptoms of patient with osteoporosis.	Rheumatology	History taking in osteoporosis
	Elicit a patient history to make a provisional diagnosis.		

RHEUMATOLOGY			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 24	
		INTEGRATING DISCIPLINE	TOPIC
MS2-Rh- 013	Palpate joints or areas for tenderness, warmth, swelling, and other inflammatory markers (e.g., effusion).	Rheumatology, Medicine	Physical Examination
	Assess range of motion (ROM) in joints, both actively (patient's effort) and passively (examiner's effort).	Rheumatology, Orthopedics	
	Test for specific joint tenderness and swelling in conditions like gout, rheumatoid arthritis, and osteoarthritis.	Rheumatology, Medicine	
	Assess for joint deformities (e.g., rheumatoid nodules, Heberden's nodes).	Rheumatology, Orthopedics	
	Perform a thorough hand and wrist examination for signs of arthritis (e.g., Boutonnière deformity, swan neck deformity).	Rheumatology, Orthopedics	
	Examine for abnormal postural patterns such as scoliosis, kyphosis, or lordosis.	Rheumatology, Orthopedics	
	Perform a spine examination, assessing for alignment, tenderness, and range of motion.	Rheumatology, Orthopedics	
	Perform pulse examination in Systemic Inflammatory Vasculitis.	Rheumatology	
AFFECTIVE DOMAIN			
MS2-PS- 001	Show empathy toward patients with chronic pain.	Patient Communication, Ethics	Affective Domain
	Communicate the importance of early intervention.		
	Encourage adherence to long-term treatment plans.	Patient Education, Chronic Care	
	Promote timely referrals to specialists when necessary.	Patient Education, Chronic Care	
	Promote dietary interventions to improve overall health.	Nutrition, Patient Education	
	Discuss the prognosis of diseases based on findings and individual circumstances.	Clinical Decision Making, Pediatrics	

ORTHOPEDICS			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 22	
		INTEGRATING DISCIPLINE	TOPIC
MS2-Orth-018	Inspect normal gait and assess deviations such as limping, stiffness, or imbalance.	Orthopedics, Medicine	Physical Examination
	Assess muscle strength surrounding normally functioning limbs using standard grading techniques (e.g., Oxford scale).	Orthopedics, Physical Therapy	
	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).	Orthopedics, Traumatology	
	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.	Orthopedics, Neurology	
MS2-Orth-019	Demonstrate skills in performing a thorough assessment of extremity injuries, including physical examination techniques.	Clinical Skills, Orthopedics	Soft Tissue, Neurological, and Bony Extremity Injuries
	Provide first aid to a person with bone injury like common sprains, fractures and dislocations (immobilization of body part) resuscitation of injured patient.	Orthopedics, Emergency Medicine	
MS2-Orth-020	Demonstrate skills in assessing fractures through physical examination and appropriate imaging modalities, including X-rays and CT scans.	Clinical Skills, Radiology	Fractures
	Perform a fracture assessment and evaluate signs of potential fractures or dislocations (e.g., deformity, abnormal movement).	Orthopedics, Traumatology	
	Demonstrate skills in developing individualized treatment plans based on fracture type, patient factors, and healing principles.	Orthopedics, Patient Care	
	Demonstrate clinical skills in assessing and managing fractures in various locations, including the use of appropriate imaging studies.	Orthopedics, Radiology	
	Observe application of dressings, splints, plasters and other immobilization techniques in fracture patients in emergency	Orthopedics, Radiology	
	Observation of fracture reduction and fixation	Orthopedics, Radiology	
	Observation of internal and exrernal fixation	Orthopedics, Radiology	
MS2-Orth-021	Assess and prioritize patients based on the severity of injuries.	Orthopedics, Emergency Medicine	Principles of Triage Surgery and Damage Control
	Implement damage control surgery techniques for orthopedic trauma.	Orthopedics, Trauma Surgery	
	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	Recognize the indications for surgical intervention in the management of fractures, including fixation techniques and considerations for rehabilitation.	Orthopedics, Rehabilitation	Fractures
MS2-Orth-023	Educate patients on the principles of fracture healing and the importance of adherence to treatment protocols for optimal recovery.	Orthopedics, Patient Education	Fracture Healing and Principles of Treatment
MS2-Orth-024	Educate patients on the importance of follow-up and rehabilitation based on fracture location to optimize healing and functional recovery.	Orthopedics, Patient Education	Treatment by fracture location and region
	Collaborate with multidisciplinary teams to address unique challenges presented by fractures in specific regions (e.g., elderly patients with hip fractures).	Orthopedics, Geriatrics, Rehabilitation	
MS2-Orth-025	Coordinate with other specialties for comprehensive trauma care.	Orthopedics, Emergency Medicine, Anesthesiology	Principles of Triage Surgery and Damage Control
	Educate patients and families about the triage process and damage control strategies.	Orthopedics, Rehabilitation	

SURGICAL TRAUMATOLOGY			
General Principles of ATLS - ABCDE			
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 12	
		INTEGRATING DISCIPLINE	TOPIC
MS2-S- 001	Assess airway patency and clear airway obstructions. Apply cervical spine immobilization if necessary.	Surgery, Anesthesiology	General Principles of ATLS - ABCDE
	Inspect for chest movement, auscultate breath sounds, palpate for deformities.	Surgery	
	Assess pulse, control external bleeding, and assess perfusion. Initiate shock management if required.	Surgery, Cardiology	
	Assess level of consciousness using the Glasgow Coma Scale (GCS) and check pupil reaction.	Surgery, Neurology	
	Expose the patient to assess for hidden injuries and prevent hypothermia.	Surgery, Emergency Medicine	
	Conduct secondary survey - a head-to-toe examination, including history and detailed physical exam.	Surgery, Emergency Medicine	
SPECIAL EXAMINATIONS ACCORDING TO TYPE OF TRAUMA			
MS2-M- 001	Use the Glasgow Coma Scale to assess consciousness in patients with head injuries.	Neurology	Traumatic Brain Injury (TBI)
MS2-Orth-026	Assess for tenderness and deformity along the cervical spine in trauma patients.	Orthopedics	Neck and Spine Trauma
MS2-M- 002	Identify abnormal breath sounds during auscultation to detect potential injuries.	Pulmonology	Thoracic Trauma
MS2-S- 002	Perform abdominal palpation to identify tenderness or rigidity indicating injury.	Surgery	Abdominal Trauma
MS2-S- 003	Recognize signs of facial fractures or deformities during the examination.	Surgery	Maxillofacial Trauma
MS2-S- 004	Conduct a quick neurovascular examination of the limbs to evaluate pulse and sensation.	Orthopedics	Extremity Trauma
MS2-S- 005	Conduct a triage to prioritize patients in mass casualty situations.	General Surgery	Disaster Surgery
AFFECTIVE			
MS2-S- 009	Recognize when to initiate life-saving interventions such as airway management, chest decompression, and external hemorrhage control.	Trauma Surgery, Emergency Medicine	Early Assessment and Management of Severe Traum
	Initiate consultation/ referral to a trauma center for further management, ensuring early communication with the trauma team.	Emergency Medicine, Trauma Surgery	
	Recognize when to initiate life-saving interventions such as airway management, chest decompression, and external hemorrhage control.	Trauma Surgery, Emergency Medicine	

BLOCK - 8

PERL
PROFESSIONALISM ETHICS,
RESEARCH LEADERSHIP SKILLS

MUSCULOSKELETAL AND LOCOMOTION-II				
*Proposed Sequence of Topics Mentioned below. Medical Colleges are at liberty to manage according to their resources. Topics can switch within each Block				**Total Hours = 06**
Code	**Domain**	**Topic**	**Specific Learning Objectives**	**Proposed Portfolio Entry**
	Research	Identification of Research Problem	ix. Describe the process of identifying a viable research problem based on gaps in existing literature. x. Draft a research problem statement in a relevant medical field and formulate a research question based on the current literature. xi. Submit a well-defined research problem statement that highlights a gap in the literature and explains the importance of investigating this issue further.	Evidence of submitted Research Problem to assigned Research Mentor.
	Professionalism	Adapting to the Physician's Role	v. Appreciate the skills to adapt to the physician's role, including managing stress, handling uncertainty, and making clinical decisions, while demonstrating professionalism in diverse clinical settings.(skills include emotional resilience, critical thinking, communication, and time management)	Submit a reflective essay on a clinical experience where you applied these skills to manage stress, handle uncertainty, and make clinical decisions, proposing strategies to develop your adaptability further.
	Ethics	Autonomy in rehabilitation, Informed consent	• Discuss the process of obtaining informed consent, ensuring patients are fully aware of their treatment options, risks, and potential outcomes. • Ensure the patient's autonomy is respected throughout the decision-making process.	Develop an Informed consent Sheet for patients undergoing rehabilitation after trauma.
	Leadership	Entrepreneurship in Healthcare	• Discuss the basic principles of entrepreneurship in healthcare, including identifying gaps in healthcare services, understanding innovation, and exploring how entrepreneurial thinking can improve patient care and healthcare delivery. • Identify a gap or unmet need in the healthcare system (e.g., a service or technology that could improve patient outcomes) and suggest an innovative solution or approach.	Propose an innovative solution that could address the gap or improve patient care, with a focus on how entrepreneurial thinking can be applied.

INFECTIOUS DISEASES				
*Proposed Sequence of Topics Mentioned below. Medical Colleges are at liberty to manage according to their resources. Topics can switch within each Block				**Total Hours = 06**
Code	**Domain**	**Topic**	**Specific Learning Objectives**	**Proposed Portfolio Entry**
	Professionalism	Professional Responsibility in Public Health	• Recognize the professional duty of healthcare workers to protect vulnerable patients, colleagues, and the community by adhering to infection control protocols and promoting public health measures. Effectively communicate the risks and management strategies related to contagious diseases to patients and their families (i.e Tuberculosis) balancing public health concerns with individual patient rights and privacy.	Make a public awareness poster on infection control.
	Ethics	End-of-life decisions, ventilator use	• Explore the ethical considerations involved in end-of-life decisions, including using ventilators, balancing patient autonomy, family wishes, and medical judgment in making these decisions.	Write a case analysis on end-of-life decisions, particularly regarding ventilator use, and propose an ethically sound approach to decision-making.
	Research	Developing Research Hypotheses and Questions	• Understand the process of formulating research hypotheses and developing research questions, with a focus on creating clear, testable, and relevant questions using PICO • Formulate a research question and corresponding hypothesis based on a gap identified in the existing literature related to the research problem identified previously. • Submit a research proposal with a problem statement supported by a brief literature review, a well-defined research question and a hypothesis.	Evidenc of submitted research hypothesis/ question to assigned Research Mentor.
	Research	Introducing Clinical Audit	• Understand the basic concept of a clinical audit and how it can help improve healthcare practices, particularly in infection control, by comparing current practices to standards.	Submit a brief reflection on an infection control practice you observed during your clinical rotation. Suggest one area that could be audited to improve the quality of care and explain why this area was chosen.

NEOPLASIA				
*Proposed Sequence of Topics Mentioned below. Medical Colleges are at liberty to manage according to their resources. Topics can switch within each Block				**Total Hours = 1.5**
Code	**Domain**	**Topic**	**Specific Learning Objectives**	**Proposed Portfolio Entry**
	Ethics	Cultural/religious views on Do Not Resuscitate	Explore the diverse cultural and religious perspectives on Do Not Resuscitate (DNR) orders and understand how these views influence end-of-life decisions in the context of neoplasia care.	Submit your hospital Protocol for Do-Not-Resuscitate.

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