MUHAMMAD MEDICAL COLLEGE

STUDY GUIDE THIRD PROFESSIONAL MBBS

BATCH 2024-25

ACADEMIC SESSION 2024-25

ABBREVIATIONS	
Foundation	FND
Hematology	HEM
Respiratory	RESP
Cardiovascular	CVS
Musculoskeletal	MSK
Pathology	PATH
Pharmacology	PHARM
Medicine	MED
Surgery	SURG
Pediatrics	PAEDS
Community Medicine	CM
Gynecology & Obstetrics	GYNAE & OBS
Cardiology	CARDIO
Spiral	S
Best Choice Questions	BCQS
Bedside Teaching	BST
Case-Based Learning	CBL
Curriculum Committee	CC
Clinical Rotation	CR
Clinical Skills Foundation Rotations	C-FRC
Clinical Pathological Conference	CPC
Class Quiz	CQ
Class Representation	CR
Continuous Medical Education	CME
Directed Self-Learning	DSE
House Officers	HO
Head Of Department	HOD
Higher Education Commission	HEC
Large Group Integrated Teaching	LGIT
Liaquat University of Medical & Health Sciences	LUMHS
Modes of Information Transfer	MIT
Objective Structured Practical Examination	OSPE
Objective Structured Clinical Examination	OSCE

Objective Structured Viva Examination	OSVE
Problem-Based Learning	PBL
Professionalism, Ethics, Research, Leadership Skills	PERLS
Patient Management Problem	PMP
Problem Solving Integrated Learning	PSIL
Pakistan Medical & Dental Council	PM&DC
Practical Work	PW/LAB
Quality Enhancement Cell	QEC
Self-Study	SS
Skills Lab	SL
Small Group Discussion	SGD
Simulation	SIM
Short Essay Questions	SEQS
Team Based Learning	TBL
Ward Based Teaching	WBT
Work Placed Based Assessment	WPBA

ACADEMIC CALENDAR Academic Session 2024-2025		
Activity	**Class Year**	**Dates**
Classes starts	First Prof MBBS	February 18, 2025
Eid-ul-Fitr	Holiday	March 31 to April 06, 2025
Classes Resumes	All Batches of MBBS	April 07, 2025
Summer Vacation	1st to 4th Year MBBS	June 07 to July 06, 2025
Classes Resumes	All Batches of MBBS	July 07, 2025
Classes Ends	First Year MBBS	November 14, 2025
Exam Preparation	First Year MBBS	November 15 to December 07, 2026
Annual Examination	First Year MBBS	December 08 to January 04, 2026

CONTRIBUTIONS

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MISSION STATEMENT OF MMC & VISION OF ISU/MMC & LUMHS

MISSION STATEMENT OF MUHAMMAD MEDICAL COLLEGE

Nurturing students' potential by providing them the highest quality education, thereby producing individuals with strong values, compassion, inclusiveness, leadership, and professionalism, emphasizing community engagement, particularly with marginalized segments of the rural population, encouraging students to become empathetic and socially responsible professionals by training them in the best evidence-based practice, capable of contributing to advancements through research and innovation.

VISION OF ISU

To be an internationally recognized institution, famous for its ethical work, emphasizing the importance of integrity, honesty, and moral principles, highlighting the University's commitment to serving the community and producing unbiased and empathetic educated people, who are inclusive and have leadership skills, encouraging them to engage in research, critical thinking, innovation, and evidence-based best practices.

VISION OF LIAQUAT UNIVERSITY OF MEDICAL AND HEALTH SCIENCES (LUMHS)

Liaquat University of Medical and Health Sciences (LUMHS) seeks to be a top-tier healthcare Institution, producing ingenious academic leaders, medical researchers, and healthcare advocates to serve global community.

MBBS PROGRAM OUTCOME

By the end of the five years of the MBBS program at MUHAMMAD MEDICAL COLLEGE, aims to produce Medical graduates who are able to:

1. Utilizing knowledge of basic and clinical sciences for patient care.
2. Acquiring an integrated knowledge of organ, structure, function and its regulatory mechanism through the end of integrated teaching.
3. Achieving competence in practice of holistic medicine, encompassing promotive, preventive, curative and rehabilitative aspects of common diseases.
4. Exhibit ethical patient-centered care based on Integrity, humility, social accountability and high ethical values of this sacred profession
5. Becoming exemplary citizen by observing medical ethics and fulfilling social and professional obligations, responding to national aspirations.
6. Taking focused history, performing physical examination, formulating diagnosis and management plan for common health problems.
7. Demonstrating professional behaviors that embody lifelong learning, altruism, empathy and cultural sensitivity in the provision of healthcare services.
8. Engage in research activity aimed at improvement of the quality of health care, including behavior modification of individuals and communities for quality of life.
9. Identifying problems, critically reviewing literature, and disseminating knowledge.
10. Developing a scientific temper by acquiring continuous educational experience for proficiency in the profession and promoting healthy living of the individual and population at large by critically analyzing the situation.
11. Committing to lifelong learning to keep up to date with developments in clinical practice and trends in disease at the population level by strong leadership and management skills.
12. Applying evidence-based practices for protecting, maintaining, and promoting the health of individuals, families and community.

TEACHING FACULTY	
DEPARTMENT OF FORENSIC MEDICINE	
PROFESSORS	
01	Prof. Dr. Ghulam Mustafa Yousfani {**CHAIRPERSON**}
02	Prof Dr Riaz Qadeer
ASSOCIATE PROFESSORS	
03	Dr. Mir Muhammad Saheeto
04	Dr. Syeda Momina Muhammad
LECTURERS/ DEMONSTRATORS	
05	Dr. Saleem Shah
06	Dr. Anand Kumar
DEPARTMENT OF MEDICINE	
PROFESSORS	
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03	Prof. Dr. Mohammad Qasim
04	Prof. Dr. Khalid Shah
05	Prof. Dr. Fayyaz Ahmed
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07	Dr Muneef Ahmed Channa
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08	Dr. Ghordan Sothar
09	Dr Shabnum Rani
10	Dr Mahesh
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12	Dr. Muneeba Asif
13	Dr. Saba Khan
14	Dr. Sultan Ahmed
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15	Dr. Umme Habiba
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03	Prof. Dr. Noor Muhammad Khaskheli
04	Prof. Dr. Syed Muhammad Tahir
05	Prof. Dr. Abdul Mannan Khan
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08	Dr. Ghasia Khan
09	Dr. Altaf Hussain

SENIOR REGISTRAR	
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11	Dr. Anum Asif
REGISTRAR	
12	Dr. Shoaib Hussain
13	Dr. Harlal
14	Dr. Muntazir Mahdi
15	Dr. Almas

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04	Prof. Dr. Darya Khan
05	Prof. Dr. Riaz Ahmad Qazi
06	Prof. Dr. Bhawani Shankar
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09	Dr. Aneela Faisal Memon
10	Dr. Ali Abuzar Raza
11	Dr. Sumair Akbar Ali
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12	Dr. Faria Sana
13	Dr. Sana Lund Baloch
14	Dr. Ubaid Rabani
15	Dr. Haider Ali
16	Dr. Humair Javaid
17	Dr. Tehreem Fatima
18	Dr. Syed Raza Muhammad
19	Dr. Syeda Masooma Zehra

DEPARTMENT OF OBS GYNEA	
PROFESSORS	
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08	Dr. Shafia Khan
09	Dr. Firdous Khatoon
SENIOR REGISTRAR	
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13	Dr. Shazia Shaikh
14	Dr. Bushra
REGISTRAR	
16	Dr. Afsheen Shoukat
	Dr. Huda Afzal
17	Dr. Ayesha Mahar
18	Dr. Nazima
19	Dr. Bakhtawar Mahar

DEPARTMENT OF OPTHALMOLOGY	
PROFESSORS	
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04	Dr. Ashfaq Ahmed Abbassi
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05	Dr. Shakeel Hyder
06	Dr. Nigar Ahmed
07	Dr. Abdul Hameed Soomro
08	Dr. Faran Ahmed
09	Dr. Nadeem
10	Dr. Sania

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ASSOCIATE PROFESSOR	
02	Dr. Allah Bux Mushtaq
ASSISTANT PROFESSORS	
03	Dr. Muhammad Wasiullah Khan
04	Dr. Muhammad Younus Varachura
REGISTRAR	

05	Dr. Saleem Raza Memon
06	Dr. Farhan Ashraf
07	Dr. Abdul Qadir Shah
09	Dr. Fiza

DEPARTMENT OF PHARMACOLOGY	
PROFESSORS	
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05	Dr. Asma Batool Abbas
06	Dr. Muhammad Saeed
07	Dr. Manisha
08	Dr. Priya
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DEPARTMENT OF COMMUNITY MEDICINE	
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ASSISTANT PROFESSORS	
04	Dr. Partab Puri
05	Dr. Shaikh Muhammad Akram
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07	Dr. Zain ul Hassan
08	Dr. Wisham Das
09	Dr. Khadim Lakhair
10	Dr. Aftab Memon
11	Dr. Palweesha
12	Dr. Danish Puri

VISION, MISSION, OUTCOMES, AND SRMLG SYSTEM

The Medical Education department of ISUM & MMC has worked hard to achieve the following goals:

A. To develop a curriculum that fulfils the directions of PM&DC as well as LUMHS & ISU vision and mission simultaneously.

B. To develop a plan and system to execute and monitor the curriculum that achieves the core competencies described by the WHO & PM&DC and yet take into account local dynamics, resources, limitations, strengths, and weaknesses.

A. DEVELOPING A PLAN AND SYSTEM TO EXECUTE AND MONITOR THE CURRICULUM

Ibn e Sina University, Mirpurkhas (ISUM) is a newly formed University, which is the first university of Mirpurkhas Division. It follows a vertically integrated modular system. There are 37 modules divided in 5 years of MBBS Curriculum and 16 modules in four years of BDS program. Each year has an average of 40 weeks of studies. Weekly plan is organized as "theme".

Regular classes, practical, clinics and hospital duties are amply supported by 5 pillars that contribute to the high standards of this first-ever university of Mirpurkhas division. These pillars include:

1. "Survive" a three-pronged system of weekly tests, assignments and post-test discussions.
2. "RLSE" or "Running Lives by Sharing Experiences", a weekly mentoring program.
3. "MCS" or daily "Mobile Clinics by Students".
4. "LBAS", or "Learner Based Annual Symposia".
5. "GSAT" Annual "Gastroenterology session with Students as Teachers". Conducted by Prof. Dr. Syed Zafar Abbas.

B. IMPLEMENTATION OF CURRICULUM THROUGH SRMLG			
S. N	**FIVE PILLARS**	**PMDC Core Competencies**	**MBBS-Class**
1	**Survive**	**Lifelong Learner**	**First Year, Second Year, Third Year, Fourth Year, Final Year**
2	**Weekly mentoring program**	**Care Provider, Communicator**	**First Year, Second Year, Third Year, Fourth Year, Final Year**
3	**Daily Mobile Clinics by Students**	**Care Provider Decision Maker Community Leader Communicator**	**Fourth Year, Final Year**
4	**LBAS, or "Learner Based Annual Symposia**	**Decision Maker Community Leader Communicator Researcher Manager**	**First Year, Second Year, Third Year, Fourth Year, Final Year**
5	**GSAT" Annual "Gastroenterology session with Students as Teachers. Conducted by Prof. Dr. Syed Zafar Abbas.**	**Communicator, Researcher, Care Provider Manager,**	**Fourth Year, Final Year**

IBN-E-SINA UNIVERSITY, Mirpurkhas - 2024

Online Moodle Test Schedule for 2024

S. No	Days	Time	Year/Class
1	Monday	01:00pm to 02:00pm	Third Year BDS
2		02:30pm to 03:30pm	Final Year MBBS
3	Tuesday	10:00am to 11:00am	Third Year DPT
4		01:00am to 02:00PM	Fourth Year MBBS
5		02:30pm to 03:30pm	Final Year BDS
6	Wednesday	02:30pm to 03:30pm	Third Year MBBS
7	Thursday	10:00am to 11:00am	Second Year BDS
8		11:00am to 12:00pm	CHPE Morning Program
9		12:00am to 01:00am	Second Year DPT
10		02:30pm to 03:30pm	Second Year MBBS
11	Friday	11:30am to 12:30pm	First Year DPT
12		12:30pm to 01:30pm	First Year BDS
13		02:30pm to 03:30pm	First Year MBBS

IT DEPARTMENT

SECOND PROFESSIONAL MENTORING GROUPS CLASS COORDINATOR: PROF DR RAMESH KUMAR											
Group	**Mentor**	**Meeting venue (Mentor should fill)**	**Mentee1 (G.L)**	**Mentee2**	**Mentee3**	**Mentee4**	**Mentee5**	**Mentee6**	**Mentee7**	**Mentee8**	**Mentee9**
A1	Dr. Jaweria Farooq		Maryam Ariz (2)	Abeera (1)	Misbah Agha (33)	Aiman (03)	Aisha (04)	Aisha Farooqu (05)	Ajwa (06)	Aleesha (07)	
A2	Dr. Ayesha Meher		Fahmida (14)	Ayman Asghar (09)	Dua Zamir (10)	Esha (11)	Eman (12)	Esha Asghar (13)	Muqadas Shakoor 35	Fatima (15)	
A3	Dr. Rukhma		Muqadas (34)	Geeta (17)	Hafsa Noor (18)	Hamida Saleh (19)	Hoorain Talpur (20)	Iqra (21)	Kainat (22)	Kalpana Devi (23)	Ujala Zareef (56)
B1	Dr. Pirya Heer		Naila (36)	Lata (25)	Maira (26)	Maira (27)	Maira Khan (28)	Malaika (29)	Marukh (30)	Maryam Batool (31)	Marzia Shah (32)
B2	Dr. Farzana Chang		Noor Fatima (37)	Noor ul Huda (38)	Perah Shah (40)	Parisa Sajjad (39)	Raheen Manzoor (42)	Preet (41)	Rameel Kumari (43)	Ramsha (44)	Rekha Kumari (45)
C2	Dr Abid Laghari		Nikel Raj (57)	Abdul Kareem (62)	Abdul Khalique (63)	Musharaf Ali (65)	Abdul Rehman (64)	Ali Murtaza (66)	Awais Ahmed (67)	Danish Ali (68)	
C3	Dr. Hyder Pehelwani		Mansoor Ahmed (73)	Mubashir Ali (75)	Moiz Hassan (74)	Mudasar (76)	M. Abdullah (77)	M. Abubakar (78)	M. Afaque (79)	M. Ameen (80)	Junaid Ahmed (71)
D1	Dr. Nadeem Akram		Sadhoo Mal (89)	M. Haris Iqbal (82)	M. Hassan (83)	M. Rafay (85)	M. Owais Atiq (84)	M. Shahzad (86)	M. Zahid Alid (87	Pawan Kumar (88)	
D2	Dr. Riaz Qadeer		Saim Hasnain (91)	Sajid Ali (92)	Taha Shabeer (95)	Sameer Ahmed (93)	Shaharyar Hussain (94)	Tameer Ahmed (96)	Ubais Rasheed (97)	Hasnain Ali (70)	

PURPOSE OF STUDY GUIDE

A study guide is a strategic and effective approach to

- ❖ Provide students a detailed framework of the modules' organization
- ❖ Support students in organizing and managing their studies throughout the academic year.
- ❖ Provide students with information on assessment methods and the rules and regulations that apply.
    - It outlines the outcomes which are expected to be achieved at the end of each module.
    - Ascertains the education strategies such as lectures, small group teachings, demonstrations, tutorial and case-based learning that will be implemented to achieve the module objectives.
    - Provides a list of learning resources for students to increase their learning.
    - Emphasizes information on the contribution of attendance, end-of-module tests, block examinations and annual 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.

SCHEDULE OF HOSPITAL POSTING						
Group	**20-01-2025 To 28-02-2025**	**03-03-2025 To 11-04-2025**	**14-04-2025 To 23-05-2025**	**26-05-2025 To 06-06-2025 & 07-07-2025 To 08-08-2025**	**11-08-2025 To 19-09-2025**	**22-09-2025 To 31-10-2025**
A	ENT	Gynae/Obs	Pediatrics	Eye	Surgery	Medicine
B	Gynae/Obs	Pediatrics	Eye	Surgery	Medicine	ENT
C	Pediatrics	Eye	Surgery	Medicine	ENT	Gynae/Obs
D	Eye	Surgery	Medicine	ENT	Gynae/Obs	Pediatrics
E	Surgey	Medicine	ENT	Gynae/Obs	Pediatrics	Eye
F	Medicine	ENT	Gynae/Obs	Pediatrics	Eye	Surgery

The above-mentioned clinical rotation schedule is to be followed by every student throughout the year. Groups of students are decided by the Hospital Administration.

ATTENDANCE POLICY FOR STUDENTS

As per PMDC rules for eligibility in annual examinations.

- ➢ Minimum attendance requirement is 75% in each subject: attendance is for lectures, demos, practical's, clinics, PBLs, SURVIVE, CPC, presentations, etc, indoor and outdoor.
- ➢ The attendance is not simply for lectures.

Attendance is maintained by the Department of Student Affairs at MMC-ISUM.

DISTRIBUTION OF MODULES, THEMES, CONTACT HOURS, CREDIT HOURS THIRD YEAR OF MBBS PROGRAM-2025					
Total 11 Modules	**Total Themes=50**		40 weeks	**1300**	**81.25**
Module-I Foundation & Genetics-2	1	Cell Pathology and Genetics	1 week	32.5	2.03
	2	Hemodynamics	1 week	32.5	2.03
Total Contact Hours for 02-Weeks			**02-Weeks**	**65 Hours**	**4.06 Credit Hours**
Module-2 Infectious Diseases	1	Immune-Pathogenesis	1 week	32.5	2.03
	2	Diagnostic Approach to Infection	1 week	32.5	2.03
	3	Pyogenic Bacteria-I	1 week	32.5	2.03
	4	Pyogenic Bacteria-II	1 week	32.5	2.03
	5	Pyrexia of Unknown Origin	1 week	32.5	2.03
	6	Parasitic Infections	1 week	32.5	2.03
		Assessment	1 week	32.5	2.03
Total Contact Hours for 07-Weeks			**07-Weeks**	**227.5 Hours**	**14.21 Credit Hours**
Module-3 Hematology-2	1	Oncology	1 week	32.5	2.03
	2	Pallor Ness Anemia	1 week	32.5	2.03
	3	Hemostatic Abnormalities And Blood Transfusion	1 week	32.5	2.03
	4	Lymphadenopathy	1 week	32.5	2.03
	5	Hematological Malignancies	1 week	32.5	2.03
	6	Immunological Disorders & Transplantation	1 week	32.5	2.03
		Assessment	1 week	32.5	2.03
Total Contact Hours for 07-Weeks			**07-Weeks**	**227.5 Hours**	**14.21 Credit Hours**
Module-4 Respiratory-II	1	Lung Injury, Edema, Collapse & Obstructive Pulmonary Diseases	1 week	32.5	2.03
	2	Chronic diffuse Interstitial/ Restrictive Lung diseases	1 week	32.5	2.03
	3	Infectious & pleural diseases			
	4	Lung Tumors	1 week	32.5	2.03
Total Contact Hours for 03-Weeks			**03-Weeks**	**97.5 Hours**	**6.09 Credit Hours**
Module-5 CVS-II	1	Hypertension	1 week	32.5	2.03
	2	Atherosclerosis			
	3	Myocardial diseases	1 week	32.5	2.03
	4	Diseases of vessels			
	5	Pericardial and endocardial diseases, and cardiac tumors	1 week	32.5	2.03
		Assessment	1 week	32.5	2.03
Total Contact Hours for 04-Weeks			**04-Weeks**	**130 Hours**	**8.12 Credit Hours**
	1	Disease of oral cavity and esophagus	1 week	32.5	2.03

Module-6 GIT & Liver-II	2	Disease of stomach			
	3	Diarrheal diseases and malabsorption syndromes	1 week	32.5	2.03
	4	Intestinal disorders			
	5	Jaundice & cholestasis	1 week	32.5	2.03
	6	Metabolic & drug/toxin related liver diseases			
	7	Cirrhosis	1 week	32.5	2.03
	8	Tumors of liver and gall bladder			
Total Contact Hours for 04-Weeks			**04-Weeks**	**130 Hours**	**8.12 Credit Hours**
Module-7 Endocrinology-II	**1**	Non- Neoplastic and Neoplastic Disease of Pituitary Gland	1 week	32.5	2.03
	2	Non-Neoplastic and Neoplastic Disease of Thyroid and Parathyroid			
	3	Non-Neoplastic & Neoplastic Disease of Pancreas			
	4	Non-Neoplastic and Neoplastic Disease of Adrenal Gland	1 week	32.5	2.03
	5	Multiple Endocrine Neoplasia Syndromes			
		Assessment	1 week	32.5	2.03
Total Contact Hours for 03-Weeks			**03-Weeks**	**97.5 Hours**	**6.09 Credit Hours**
Module-8 renal/Excretory System-II	**1**	Glomerular conditions including glomerular syndromes, conditions associated with systemic disorders and Isolated glomerular abnormalities	1 week	32.5	2.03
	2	Kidney/ Excretory Infections and Renal Vascular Disorders			
	3	Obstructive uropathy (Urolithiasis, Hydronephrosis)	1 week	32.5	2.03
	4	Tumors of Renal/ excretory System			
Total Contact Hours for 02-Weeks			**02-Weeks**	**65 Hours**	**4.06 Credit Hours**
Module-9 Reproductory System- II	**1**	Lesions of Female Genital Tract	1 week	32.5	2.03
	2	Lesions of Breast	1 week	32.5	2.03
	3	Lesions of Male Genital Tract	1 week	32.5	2.03
		Assessment	1 week	32.5	2.03
Total Contact Hours for 04-Weeks			**04-Weeks**	**130 Hours**	**8.12 Credit Hours**
Module-10 MSK-II	**1**	Developmental Disorders of Bone & Cartilage, Basic Structure & Function of Bone.	1 week	32.5	2.03
	2	Fractures, Osteomyelitis and Arthritis.			
	3	Benign Bone and Cartilage Forming Tumors, Malignant Bone and Cartilage Forming Tumors and Tumors of Unknown Origin	1 week	32.5	2.03
	4	Soft Tissue Tumors			
Total Contact Hours for 02-Weeks			**02-Weeks**	**65 Hours**	**4.06 Credit Hours**

Module-11 Neuroscience-II	**1**	Meningitis Including Bacterial, Viral, Fungal and T.B Meningitis	1 week	32.5	2.03
	2	Tumors of the Central Nervous System	1 week	32.5	2.03
	3	Autonomic Nervous System			
Total Contact Hours for 02-Weeks			**02-Weeks**	**65 Hours**	**4.06 Credit Hours**

THIRD YEAR MBBS

LIST OF WORKSHOPS AND COMPETENCIES ACCORDING TO MODULES

Module Name	Psychomotor Domains	Learning Objectives	Name Of Workshop	Venue
MOD-I Foundation & Genetics-2	**Attribute/Professionalism**	• Demonstrate professionalism and ethical reasoning while dealing with genetic information and patient confidentiality	**Patient Confidentiality**	Skills Lab/Hospital Rotation
MOD-2 Infectious Diseases	Culture Media-I & Culture Media-II	• Demonstrate preparation and sterilization of basic culture media. • Demonstrate safe laboratory practices while handling infectious material in culture procedures. • Apply understanding of culture media in clinical microbiology for diagnosis, research, and public health.	Culture Media-I & Culture Media-II	Pathology Lab
	Tropical and emerging infections	• Apply knowledge of tropical and emerging infections (malaria, dengue, tuberculosis, HIV/AIDS, COVID-19, etc.) in clinical scenarios.	**Tropical and emerging infections**	Pathology Lab
MOD-3 Blood-2	**Interpretation of Lab Profile**	Specimen Collection & Handling Blood, urine, sputum, CSF, biopsy	**Interpretation of Lab Profile**	Pathology Lab
		Laboratory diagnosis of Anemia Laboratory diagnosis of Acute &Chronic leukemia		Pathology Lab
		Non. Neoplastic WBC Disorders		Pathology Lab
		Isolation of microorganism/Lab diagnosis of infectious disease		Pathology Lab
		Acid-fast staining Culture Media Diagnostic approach of Neoplasia		Pathology Lab
		Acid fast staining Diagnostic approach of Neoplasia		Pathology Lab
MOD-4	Auscultation of Lungs	Perform Chest examination	Auscultation of Lungs	Skills Lab

Respiratory-2	Tumors of lung	Morphological features & immunohistochemistry Tumors of lung	Tumors of lung	Histology Lab
MOD-5 CVS-2	Auscultation of Heart	Interpret the following on a given biochemical report: Lipid Profile Cardiac Enzymes Pericardial Effusion		Skills Lab
	Histopathological Interpretation	Interpret the gross and microscopic features of the following on a given histopathology report: • Hemangiomas Cardiac • Myxoma	Histopathological Interpretation	Histology Lab
MOD-6 GIT & Liver-II(including Nutritional Disorders)	Abdominal examination History Taking	Demonstrate abdominal examination	Abdominal examination History Taking	Skills lab/Hospital Rotation
	Gastric Lavage	Demonstrate gastric lavage	Gastric Lavage	Skills Lab
MOD-7 Renal & Excretory System-II	Male & Female Urethral catheterization	Demonstrate Male & Female Urethral catheterization	Male & Female Urethral catheterization	Skills Lab
MOD-8 Endocrinology -II	Arterial Puncture	**Interpret arterial blood gas (ABG) results** in relation to acid-base balance, oxygenation, and ventilation.	Arterial Puncture	Skills Lab
MOD-9 Reproduction	Pap smear	Demonstrate Pap smear Explain the sample collection, gross, microscopic and chemical examination of semen Semen D/R	Pap smear	Skills Lab Pathology Lab
MOD-10 Forensic Medicine & Toxicology	Examination of physical, sexual and mental trauma	Perform physical examination and make accurate observations regarding physical, sexual and mental trauma caused by various causative agents/ actions.	Examination of physical, sexual, and mental trauma	Skills Lab
	Steps to Recover and preserve biological and non-biological material from living and dead.	Recover and preserve biological and non- biological material from human body both in living and dead.	Steps to Recover and preserve biological and non- biological material from living and dead.	Skills Lab
	Trace evidence recognition, collection & preservation	Recognize, collect and preserve trace evidence providing clues regarding personal identification, crime detection from the locus of incident, living and dead body.	Trace evidence recognition, collection & preservation	Skills Lab
	Maintenance of Chain of Custody	Dispatch with justification, the biological and non-biological material to appropriate laboratory/agency, maintaining the chain of custody.	Chain of Custody	Skills Lab
	Autopsy on dead and exhumed bodies.	Conduct autopsy on dead and exhumed bodies.	Autopsy on dead and exhumed bodies.	Skills Lab

	Identification and detect death cause	Examine the skeletonized material and fragmentary remains for identification and detect cause, manner and time of death by using scientific knowledge and procedures.	Identification and detect death cause	Skills Lab
	Manage Poisoning	Diagnose, resuscitate and manage a case of poisoning.	Manage Poisoning	Skills Lab
	Preparation of a comprehensive report	Prepare medical documents depicting a comprehensive report of his/her observations and scientific opinion regarding the examination of living and dead for production before the investigators, attorneys, and courts.	Preparation of a comprehensive report	Skills Lab
	Medico legal documentation	FIR (copy), Warrant, Summon	Medico legal documentation	Skills Lab
	Radiological Examination	X-rays, Fracture, Foreign body Pallet, Bullet	Radiological Examination	Skills Lab/Radiology

FOUNDATION MODULE II

Introduction

Welcome to the Foundation II module. This exciting module will serve as building block and is very essential to your future work as doctors. This module is designed to make your learning both interesting and productive by including several interactive activities.

This module marks the beginning of the transition to more focus on clinical learning. This module will introduce students to key concepts essential for understanding diseases process, their prevention and treatment. Students will be able to apply these key concepts in future, system-based modules to understand the diseases processes and their management. This module will deal with cell pathology, Genetics and Hemodynamics. The course covers the molecular level of cell biology, including genetics and its role in pathology.

Rationale

This module will enable the students of the third year to recognize the basics of general pathology. The student will develop an understanding of the cell pathology, genetic diseases and their diagnosis and diseases due to disturbance of hemodynamics. Concepts dealt with in this module will be revisited in other modules in the future

- **Duration 02 weeks Learning Outcomes**
  - At the end of this module students should be able to:
  - Define Pathology and Pathogenesis and discuss cellular Responses to the injury and stages of the cellular Response to stress and injurious stimuli.
  - Discuss morphological alterations in cell injury including both reversible and irreversible injury Discuss causes, morphological and biochemical changes, clinic-pathologic correlations in Apoptosis and Necrosis
  - Define edema, effusion, exudate, transudate, hyperemia and congestion. Describe the clinical manifestations & consequences of pulmonary & systemic thromboembolism
  - Describe the mechanism of three major types of shock
  - Describe the three stages of shock

- Discuss the transmission pattern of a single-gene disorder
- Discuss chromosomal abnormalities and define normal karyotypes and common
- Cytogenetic terminology
- Comprehend the basic concepts and definition of Demography
- Describe the concept of population or demographic transition.
- Interpret the population pyramid

Themes

Theme 1: Cell Pathology and Genetics
Theme 2: Hemodynamics

Theme 1: Cell Pathology and Genetics				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
Pathology				
1	• Enumerate causes of Cell Injury • Discuss types of cell injury • Describes sequential Morphological changes in Cell Injury	**Fnd-S2-Path-1** Cell injury	Interactive Lecture	SBQs & OSVE
2	• Define Necrosis and its type • Describe the nuclear and cytoplasmic features of necrosis.	**Fnd-S2-Path-2** Necrosis		
3	• Define Apoptosis • Enumerate pathological and Physiological causes of Apoptosis • Describe Biochemical Features • and Mechanism of Apoptosis	**Fnd-S2- Path-3** Apoptosis		
4	• Describe pathological calcification. • Discuss Dystrophic and metastatic calcification	**Fnd-S2- Path-4** Calcification and Pigmentation		
5	• Define Mutation and its types. • Describe the effects of different types of mutations	**Fnd-S2-Path-5** Mutations		
6	• Define Mendelian Disorder • Explain the pattern of inheritance in Mendelian Disorders • List the examples of autosomal, Recessive and sex-linked disorders.	**Fnd-S2-Path-6** Mendelian Disorders		
7	• Describe normal Karyotype • Discuss various numerical and Structural abnormalities of chromosomes.	**Fnd-S2-Path- 7** Chromosomal aberration.		
8	• Discuss various techniques in the diagnosis of genetic diseases.	**Fnd-S1- Path-8** Diagnosis of Genetic Diseases		

9	• Define Hypertrophy, Hyperplasia, Atrophy, and Metaplasia. • Demonstrate gross and microscopic features of cellular adaptations	**Fnd-S2-Path-9** Cellular adaptation	Practical	OSPE & OSVE
Pharmacology				
10	• Drug absorption • Bioavailability and half-life • Drug distribution • Drug metabolism		Interactive Lecture	SBQs & OSVE
Community Medicine				
11	• Define population and population studies • Comprehend the basic concepts and definition of Demography • Discuss the population doubling time • Describe the concept of population or demographic transition. • Describe and interpret the population pyramid • Compare the population pyramid of developing and developed countries	**Fnd-S2-CM-1** Introduction to Demography	Interactive Lecture	MCQs & OSPE
12	• Discuss the epidemiological study design. • Differentiate between observational and experimental studies. • Identify the key concept of descriptive epidemiology. • Differentiate between Descriptive and analytical studies. • Determine how and when to select the appropriate study design	**Fnd-S2-CM-2** Introduction to epidemiologic A study design	Interactive Lecture	MCQs & OSPE
13	• Define the measure of occurrences and effects of diseases. • Describe Proportions, Risk, Rate, Ratio and Odds • Understand the concept of prevalence and incidence. • Describe the concept of Crude, specific and standardized rates	**Fnd-S2-CM-3** Measures of occurrence of diseases	Interactive Lecture	MCQs & OSPE
14	• Define sampling • Describe the purpose and importance of sampling. • Describe different methods of sampling. • Differentiate between probability and non-probability sampling	**Fnd-S2-CM-4** Sampling	Interactive Lecture	MCQs & OSPE
Forensic Medicine				

15	• Define Forensic Medicine and Toxicology and its various branches. • Discuss the importance and utility of Forensic Medicine and Toxicology Its various branches, its role in crime detection and other medical, legal and ethical issues in civilized society	**Fnd-S2-FM-1** Introduction Forensic Medicine	Interactive Lecture	MCQs & OSPE
16	• Describe Hippocratic Oath and • principles of Bioethics • Discuss the duties of a doctor as advised by international code of Medical Ethics	**Fnd-S2-FM-2** Medical Ethics	Interactive Lecture	MCQs & OSPE
17	• Describe the composition and functions of the Pakistan Medical & Dental Council at present and its role in medical education	**Fnd-S2-FM-3** PM & DC	Interactive Lecture	MCQs & OSPE
15	• Define consent, types of consent & roles of consent in Medical Examination • Discuss Criteria for giving valid consent • Define the Doctrine of Informed Consent • Determine Certain legal deviations/exemptions of consent	**Fnd-S2-FM-4** Consent	Interactive Lecture	SBQs & OSVE

Theme 2: Hemodynamics				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
Pathology				
10	• Define edema • Describe the pathophysiology of edema	**Fnd-S2-Path-10** Edema	Interactive Lecture	SBQs & OSVE
11	• Define Hemorrhage, Hyperemia, and Congestion • Describe their causes and pathophysiology	**Fnd-S2-Path-11** Hyperemia, Congestion		
12	• Define Shock • Describe the pathophysiology ofdifferent type of Shock.	**Fnd-S2-Path-12** Shock		
13	• Define Infarction • Discuss the etiology of infarction • Discuss the morphological classification of infarcts • Describe the morphological features of infarctions.	**Fnd-S2-Path-13** Infarction		
14	• List and define causes of intracellular accumulation • Discuss the role of Intracellular Accumulations in metabolic derangements of the cell.	**Fnd-S2-Path-14** Intracellular Accumulations	Practical	OSPE & OSVE
Pharmacology				

	• Review of pharmacokinetics • Pharmacodynamics -1 • Pharmacodynamics -11 • Adverse drug reaction • Teratogenicity		Interactive Lecture	SBQs & OSVE
Forensic Medicine				
15	• Introduction to Personal Identity. ○ Describe the parameters of identification. ○ Discuss methods of identification • Describe Complete and partial • identification. • Describe Identification in living and dead. • Discuss Locard's principle of exchange & its medico legal importanc	**Fnd-S2-FM-5** Personal Identification	Interactive Lecture	SBQs & OSVE
	• Intro of Qisas & Diyat Ordinance. • Define & classify Qisas & Diyat • Discuss the law regarding wounding of a person	**Fnd-S2-FM-6** Qisas & Diyat Ordinance-1	Interactive Lecture	SBQs & OSVE
	• Discuss Shajjah & Jurh • Discuss the interpretation of injuries accordingly.	**Fnd-S2-FM-7** Qisas & Diyat Ordinance-2	Interactive Lecture	SBQs & OSVE
	• Discuss Toxicology, Forensic Toxicology (Intro) • Define poison & Its Classification • Explain routes of administration and elimination of poisons from the body. • Describe the factors modifying action of poisons. • Discuss the diagnosis of poisoning in living & dead.	**Fnd-S2-FM-8** General Toxicology-1	Interactive Lecture	SBQs & OSVE
	• Enlist the common household poisons • Discuss the duties of doctor in a case of poisoning. • Discuss Law to be related toxicology. • Discuss the forensic aspects of • poisons	**Fnd-S2-FM-9** General Toxicology-2	Interactive Lecture	SBQs & OSVE

INFECTIOUS DISEASES MODULE II

Introduction: Infectious diseases remain a serious public health problem in the 21st century. WHO has classified Infectious diseases as the second leading cause of death, with approximately 15 million deaths worldwide every year. HIV/AIDS, tuberculosis, and malaria have been nicknamed the 'big three' because of their important impact on global human health.

At home, the story is no different. Pakistan is one of several countries, which together bear 95% of the burden of infectious diseases. Pakistan is ranked fifth out of twenty-two on the list of high-burden tuberculosis countries. An alarming average of about one million lives are also claimed yearly by

malaria.1 Worst of all, Pakistan is one of the two remaining countries where polio is still endemic. Hence, it is important to spread knowledge and information on the importance of immunization to the general public. Other factors, such as overcrowding, poor hand washing practices, and lack of effective prescriptions, contribute to further worsening the situation. An estimated 32% of general practitioners in Pakistan fail to administer the proper medication thus increasing the disease burden. It is therefore important as 3rd year medical students to enhance your existing knowledge of prevalent infectious diseases and build a greater understanding and ability to recognize signs and symptoms, relate to appropriate investigations, and therapeutics.

Rationale

Infectious diseases are the most common problem of our community. In the underdeveloped countries, like Pakistan, infectious diseases, along with malnutrition, are the commonest causes of mortality. Most of the diseases are identifiable and curable if recognized early. Medical graduates need to have asound understanding of the microbiology of the organisms and the diseases that they cause. Students should also understand the rationale of the investigations to diagnose these diseases. They should also know the pharmacology of the various drugs used to treat infectious diseases and the rationale to treat the common diseases.

Duration: 06 weeks

Learning Outcomes After completion of this module, students should be able to:

- Describe pathogenesis & clinical presentations of common bacterial, viral, fungal & microbial infections.
- Recognize the clinical presentation of common infectious diseases in the community.
- Take history & formulate an appropriate plan of investigations for attaining differential diagnosis Analyze findings of history, examinations & investigations for diagnosis.
- Practice basic principles of management of infectious diseases. Recognize preventive measures & prognosis for counseling the patients.
- Be Aware of the prognosis and be able to counsel their patients accordingly.
- Understand the basics of communicable diseases and its epidemiology
- Discuss the emerging and re-emerging diseases and provide examples.
- Explain the differences among outbreak, epidemics, endemics and pandemics with examples.
- know the different infectious disease control programs in Pakistan
- Understand the chain of transmission of infection and its role in infectious disease control.
- Understand the different infectious agent and their mode of transmission and the disease
- that they cause.
- Differentiate winged and winless insects
- Apply the control and prevention measures of specific infections

Themes

Theme 1: Immuno-pathogenesis
Theme 2: Diagnostic Approach to Infection
Theme 3: Pyogenic Bacteria
Theme 4: Pyogenic Bacteria
Theme 5: Pyrexia of Unknown Origin

TOPICS WITH SPECIFIC LEARNING OBJECTIVES AND TEACHING STRATEGIES				
S. #	**LEANING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
Pathology				
1	Enlist essential and non-essential components of a typical bacterial cell withtheir function	**ID-S2-Path-1** Bacterial Structure		

2	• Classify bacteria on the basis of Gramstaining. • Differentiate characteristics of gram-positive and gram- negative bacteria • Define normal flora. • Describe colonization of normal flora. • Name the members of normal flora with their appropriate anatomical locations	**ID-S2-Path-2** Classification of bacteria & normalflora (human microbiota)	Interactive Lecture	SBQs & OSVE
3	• Define acute inflammation • Describe the sequence of vascular changes • Define exudates and transudate andtheir mechanism of formation	**ID-S2-Path-3** General features of inflammation & vascular changes		
4	• Describe the acute inflammatory cellsand their functions. • Name the various types of chemical mediators & their role • Describe the local and general clinicalfeatures of acute inflammation	**ID-S2-Path-4** Cellular events ofChemotaxis, phagocytosis		
5	• Define chronic Inflammation • Describe the characteristic features andtypes of chronic Inflammation • Define granuloma, mention an etiological classification of granuloma with examples	**ID-S2-Path-5** Chronic inflammation		
Microbiology				
6	• Outline various methods for transfer ofgenetic information in bacteria. • Describe the phases of bacterial growth.	**ID-S2-Micb-1** Bacterial genetics& bacterial growth	Interactive Lecture	SBQs & OSVE
7	• State the criteria are used in viral classification • Describe the characteristics of DNA andRNA viruses • Describe the structure of the virus	**ID-S2-Micb-2** Classification &structure of viruses		

8	• To demonstrate the principle & procedure of Gram's staining	**ID-S2-Micb-3** Gram's staining	Practical	OSPE & OSVE
Pharmacology				
9	• Pharmacology of common infectious diseases • Drugs used for relevant infectious diseases	**ID-S2-Pharm-1** Introduction to antibiotics	Interactive Lecture	SBQs & OSVE
10	• Describe the classification, mechanism of action & side effects of penicillin's	**ID-S2-Pharm-2** penicillin's		

11	• Describe the classification, mechanism of action & side effects of cephalosporin's & other cell wall synthesis inhibitors	**ID-S2-Pharm-3** cephalosporin's		
Community Medicine				
1	• To define communicable disease and other basic definitions Regarding the infectious disease • To differentiate between infection, contamination, pollution, infestation • To classify the communicable disease • To discuss the infectious disease control programs in Pakistan	**ID-S2-CM-1** Introduction to communicable disease and basic concept and infectious disease control program in Pakistan	Interactive Lecture	MCQs & OSPE
	• To understand the chain of infection • To describe the various route of transmission of infectious diseases • To describe the preventive and control measures of infectious diseases	**ID-S2-CM-2** Chain of transmission & Its role in infectious disease control	Interactive Lecture	MCQs & OSPE
	• To discuss the steps of investigation of epidemics (Epidemic endemic, pandemic and steps of investigation of epidemics, explain with examples)	**ID-S2-CM-3** Steps of investigation of epidemics	Interactive Lecture	MCQs & OSPE
	• To discuss the problem statement of malaria • To define the malaria and vectors of malaria • The describe the epidemiology of Malaria • To discuss the preventive and control measures of malaria	**ID-S2-CM-4** Epidemiology & control measure of Malaria	Interactive Lecture	MCQs & OSPE
Forensic Medicine				
1	• Define important legal terms such as Summons, warrant, perjury, deposition, exhibit, offence, cognizable offence, noncognizable offence, oath, conduct money, summons case, warrant case, bail &FIR. • Differentiate between dying declaration and dying deposition	**ID-S2-FM-1** Legal Terminology	Interactive Lecture	MCQs & OSPE
	• Define the types of witnesses, types of examination in the court • Describe the recording of evidence and procedure of court attendance with special emphasis on the guidelines for doctor in the witness box • Explain Professional secrecy and Privileged communication • Describe Medical evidence, types of evidence (oral, documentary, hearsay, circumstantial)	**ID-S2-FM-2** Court Evidence	Interactive Lecture	MCQs & OSPE

Theme 1: Immuno-Pathogenesis				
S. #	**LEANING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
Microbiology				

12	• Differentiate b/w true pathogens, opportunists andcommensals • List the routes of transmission of infection • Describe colonization, pathogenesis, spread and excretion of infectious agents.	**ID-S2-Micb-4** Bacterial pathogenesis-I	Interactive Lecture	SBQs & OSVE
13	• Differentiate b/w true pathogens, opportunists, and commensals • List the routes of transmission of infection • Describe colonization, pathogenesis, spread, and excretion of infectious agents.	**ID-S2-Micb-5** Bacterial pathogenesis-II		
14	• Define viral pathogenesis. • Describe the effect of virus infection on host cell. • Explain specific and non-specific defense mechanisms against viral infection.	**ID-S2-Micb-6** Viral pathogenesis		
15	• Describe the host defense mechanism against bacteria. • Distinguish between passive& active adaptive immunity. • To discuss the failure of host defense against infections.	**ID-S2-Micb-7** Host defense against bacterial infection		

16	• Distinguish between innate and acquired immunity • Describe the role of interferons, natural killer cells, and cytotoxic T cell in viral diseases • Explain how interferons limit cell-to-cell spread of viruses.	**ID-S2-Micb-8** Host defense against viral infection		
17	• Describe the steps of viral replication • Explain the mode of replication of various RNA and DNA viruses.	**ID-S2-Micb-9** Viral Replication		
18	• Define sterilization and disinfection • Enlist various methods used for sterilization and disinfection	**ID-S2-Micb-10** Sterilization and disinfection		
19	• To demonstrate the principle & Procedure of Acid-fast staining.	**ID-S2-Micb-11** Acid-fast staining	Practical	OSPE & OSVE
Community Medicine				
	• To define Leishmaniasis and its types • To understand the epidemiology of Leishmaniasis • To discuss the preventive and control measures of Leishmaniasis	**ID-S2-CM-5** Epidemiology & control measure of Leishmaniasis	Interactive Lecture	MCQs & OSPE
Forensic Medicine				
1	• Describe the Documents prepared by a medical man • Discuss Medico Legal Reports • Discuss Post-Mortem Reports	**ID-S2-FM-3** Medicolegal Documents	Interactive Lecture	MCQs & OSPE

	• Define Autopsy, • Discuss Aims, objects & Autopsy protocol • Classify Types of Autopsies • Discuss the establishment of the autopsy suit	**ID-S2-FM-4** Autopsy-1	Interactive Lecture	MCQs & OSPE

Theme 2: Diagnostic Approach to Infection				
S. #	**LEANING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
Microbiology				
20	• Compare and contrast the various methods used to diagnose bacterial diseases • Describe various microscopic and culture techniques used for diagnosis • Discuss molecular techniques in the diagnosis of infectious diseases.	**ID-S2-Micb-12** Laboratory diagnosis of bacterial diseases	Interactive Lecture	SBQs & OSVE
21	• Compare and contrast the various methods used to diagnose viral diseases • Describe various microscopic and culture techniques used for diagnosis • Discuss molecular techniques in the diagnosis of infectious diseases.	**ID-S2-Micb-13** Laboratory diagnosis of viral diseases		
22	• Distinguish between fungal & bacterial cell • Contrast sexual & asexual reproduction of fungi. • Define dimorphism • Describe pathogenesis, fungal toxins, and lab diagnosis of fungi	**ID-S2-Micb-14** Basic Mycology		
23	• Classify and explain important properties, transmission, pathogenesis, clinical findings, and lab. diagnosis of cutaneous, systemic, and opportunistic fungi.	**ID-S2-Micb-15** Cutaneous, systemic, and opportunistic mycosis		
24	• Classify culture media • Enlist various ingredients used for making culture media • Demonstrate selective and biochemical test media	**ID-S2-Micb-16** Culture Media	Practical	OSPE & OSVE
Pathology				
25	• Define healing, repair, and regeneration • Describe the mechanisms of primary and secondary wound heal • Distinguish the differences between healing by first and secondary • intention • List the local and general factors influencing healing • List the complications of wound healing	**ID-S2-Path-06** Healing & Repair	Interactive Lecture	SBQs & OSVE
Community Medicine				

	• To discuss the problem statement of influenza • To understand the epidemiology of influenza • To define and describe the mode of transmission of influenza • To discuss the preventive and control measures of influenza	**ID-S2-CM-6** Epidemiology & control measure of Influenza	Interactive Lecture	MCQs & OSPE
	• To define the yellow fever • To understand the epidemiology of yellow fever • To discuss the importance of yellow fever to Pakistan • To discuss the preventive and control measures of yellow fever	**ID-S2-CM-7** Epidemiology & control measure of yellow fever	Interactive Lecture	MCQs & OSPE
Forensic Medicine				
	• Discuss the autopsy protocol • Describe Types of Incisions • Describe the techniques of autopsy • Discuss the Negative and Obscure Autopsy	**ID-S2-FM-5** Autopsy-2	Interactive Lecture	MCQs & OSPE
	• Describe the Documents prepared by a medical man (Certificates such as birth certificates, death certificates, • prescription writing, sickness certificates, consent form, certificates of Physical fitness to drive a vehicle & Medical certificate for estimation of age)	**ID-S2-FM-6** Medical Certificates	Interactive Lecture	MCQs & OSPE

Theme 3: Pyogenic Bacteria				
S. #	**LEANING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
Microbiology				
26	• Enlist the species of Staphylococci • Enlist the virulence factors & toxins. • Describe pyogenic and toxin-mediated diseases caused by Staphylococcus aureus. • Discuss the lab diagnosis of staphylococci	**ID-S2-Micb-17** Staphylococci	Interactive Lecture	SBQs & OSVE
27	• Classify medically important streptococci • Describe toxins, enzymes & hemolysins produced by streptococci. Discuss their pyogenic, toxigenic, & post streptococcal diseases. • Describe the lab diagnosis of streptococci.	**ID-S2-Micb-18** Streptococci		
28	• Describe morphology, pathogenesis, clinical features, and lab diagnosis of Pneumococcus.	**ID-S2-Micb-19** Pneumococci		
29	• Enlist species of Neisseria. Describe their morphology, pathogenesis and laboratory diagnosis.	**ID-S2-Micb-20** Neisseria		
30	• Define Diphtheria & Listeriosis. • Describe important properties, transmission, pathogenesis ofdiphtheria & Listeria. • Discuss the laboratory diagnosis of Corynebacterium diphtheriae & Listeria monocytogenes.	**ID-S2-Micb-21** Corynebacterium diphtheria & Listeria monocytogenes		
31	• Describe various microscopic and culture techniques used for diagnosis	**ID-S2-Micb-22** Lab diagnosis of gram-positive & negative cocci.	Practical	OSPE & OSVE

Pharmacology				
32	• Describe classification, the mechanism of action & side effects of Aminoglycosides	**ID-S2-Pharm-5** Aminoglycosides	Interactive Lecture	SBQs & OSVE
33	• Describe classification, mechanism of action & side effects of tetracyclines	**ID-S2-Pharm-6** Tetracyclines		
34	• Describe the classification, mechanism of action & side effects of macrolides	**ID-S2-Pharm-7** Macrolides		
35	• Describe classification, mechanism of action & side effects of chloromphenicol	**ID-S2-Pharm-8** Chloromphenicol		
36	• Describe classification, mechanism of action & side effects of sulfonamides	**ID-S2-Pharm-9** Sulfonamides		
37	• Describe classification, mechanism of action & side effects flouroquinolones	**ID-S2-Pharm-10** Flouroquinolones		
Forensic Medicine				
	• Describe the Criminal Justice system in Pakistan, • Describe the Pakistan Penal Code, Criminal Procedure Code, and its execution and delivery • List the general presumptions and exemptions of law	**ID-S2-FM-7** Criminal Justice System	Interactive Lecture	MCQs & OSPE
	• Define death • Explain Scientific concepts regarding death • Discuss WHO criteria of death • Explain the medico-legal aspects of brain death, sudden & unexpected deaths	**ID-S2-FM-8** Death	Interactive Lecture	MCQs & OSPE

Theme 4: Pyogenic Bacteria

S. #	LEANING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
Microbiology				
38	• Outline the morphology, pathogenesis, clinical features, and lab diagnosis of Bacillus	**ID-S2-Micb-23** Bacillus	Interactive Lecture	SBQs & OSVE
39	• Classify clostridia • Describe morphology, pathogenesis, clinical features and lab diagnosis of Clostridia	**ID-S2-Micb-24** Clostridia		
40	• Enlist pathogenic strains of E. coli • Describe morphology, virulence factors, cultural characteristics and Lab diagnosis of E.coli and Klebsiella	**ID-S2-Micb-25** E.coli & Klebsiella		
41	• Classify different strains of Salmonella & Shigella • Describe antigenic structure and virulence factor of Salmonella & Shigella • Discuss lab diagnosis of Salmonella & shigella	**ID-S2-Micb-26** Salmonella &Shigella		
42	• Enlist various species of proteus and pseudomonas • Describe pathogenesis and lab diagnosis	**ID-S2-Micb-27** Proteus & Pseudomonas		

43	Describe various microscopic and cultural characteristics used for diagnosis	**ID-S2-Micb-28** Lab diagnosis of gram positivebacilli (rods)	Practical	OSPE & OSVE
Pharmacology				
44	• To treat the infection in the intestines to stop the passing of cysts from the intestine	**ID-S2-Phar-11** Treatment of amoebiasis		
45	• Classify anti-helminth drugs with their mechanism and side effects	**ID-S2-Phar-12** Anti-parasitic drugs/ anti helminths drugs	Interactive Lecture	SBQs & OSVE
46	• To treat fungal infections that affect the skin, hair and nails • Treating yeast infections	**ID-S2-Phar-13** Anti-Fungal Drugs		
Forensic Medicine				
	• Discuss Cause, manner, mode, and mechanism of death	**ID-S2-FM-9** Cause, Manner, Mode & Mechanism of Death	Interactive Lecture	MCQs & OSPE
	• Describe the immediate signs of death • with special stress on Somatic or clinical death • Define suspended animation • Discuss Early changes after death, such as Changes in the eye, Algor Mortis, Rigor Mortis & Livor Mortis.	**ID-S2-FM-10** Immediate & Early Signs of Death	Interactive Lecture	MCQs & OSPE

Theme 5: Pyrexia of Unknown Origin

S. #	LEANING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
Microbiology				
47	• Classify the etiologically important Spirochetes. • Describe the important properties, transmission & clinical findings. • Discuss the lab diagnosis of Syphilis	**ID-S2-Micb-29** Spirochetes (Treponema, Borrelia, Leptospira)	Interactive Lecture	SBQs & OSVE
48	• Define Dengue fever • Describe the vector, life cycle, and clinical manifestation of thedengue virus • Discuss the mode of transmission, pathogenesis, and clinical features polio virus	**ID-S2-Micb-30** Dengue & polio virus		
49	• Describe the structure of HIV • Discuss clinical stages of Infection • Outline opportunistic infection in late stage of AIDS	**ID-S2-Micb-31** HIV		

50	• Classify medically important Trematodes • Describe the life cycle clinical feature andlab. diagnosis	**ID-S2-Micb-32** Trematodes (Flukes)		
51	• Classify medically important Tissue Nematodes • Describe their important properties, clinical findings and lab. diagnosis	**ID-S2-Micb-33** Tissue Nematodes (Wuchereria, Onchocerca, Loa, Dracunculus)		
52	• Describe various microscopic and culture techniques used for diagnosis	**ID-S2-Micb-34** Lab diagnosis of Gram-negative bacilli (rods)	Practical	OSPE & OSVE
Pharmacology				
53	• Describe the different drug options for the treatment of dengue fever	**ID-S2-Pharm-14** Anti-viral drugs for dengue fever		
54	Describe the antiviral drugs used for the treatment of HIV with their mechanisms and side effects.	**ID-S2-Pharm-15** Antiretroviral drugs	Interactive Lecture	SBQs & OSVE
55		**ID-S2-Pharm-16** Immune stimulants		
56		**ID-S2-Pharm-17** Immune suppressant		
Clinical Lectures				
57	Discuss clinical presentations and Management of Syphilis	**ID-S2-Med- 1** Syphilis	Interactive Lecture	SBQs & OSVE
58	Discuss clinical presentations & management of Dengue fever	**ID-S2-Med-2** Dengue Fever		
59	Discuss clinical presentations and management of AIDS	**ID-S2-Med- 3** AIDS		

Community Medicine				
	• To discuss the problem statement of chicken pox • To define chickenpox and describe the mode of transmission of chickenpox • To understand the epidemiology of chickenpox • To discuss the preventive and control measures of chickenpox	**ID-S2-CM-8** Epidemiology & control measure of Chickenpox	Interactive Lecture	MCQs & OSPE
	• To discuss the problem statement of Measles, Mumps, Rubella • To understand the epidemiology of Measles, Mumps, Rubella • To define and describe the modes of transmission of Measles, Mumps, Rubella • To describe the diagnosis of mumps. • To discuss the preventive and • control measures of Measles, Mumps, Rubella	**ID-S2-CM-9** Epidemiology & control measure of Measles, Mumps, Rubella	Interactive Lecture	MCQs & OSPE

	• To discuss the problem statement of dengue fever • To discuss the type of dengue fever • To understand the epidemiology of dengue fever • To discuss the preventive and control measures of dengue fever	**ID-S2-CM-10** Epidemiology & control measure of Dengue Fever	Interactive Lecture	MCQs & OSPE

HEAMATOLOGY MODULE II

Introduction: Welcome to the Hematology module-II. This module aims to provide the basic understanding of Cancer, chemo therapeutic agents and preventive measures. The module is also designed to provide basic knowledge of hematological diseases to the students in order to deal with various Hematological and Immuno- Hematological disorders of adults and children. In this regard, students will also learn to take history, examine patients and relevant Laboratory tests, their interpretations, differential diagnosis, treatment regimens and prognostic values of various disorders.

Rationale The module will give the 3rd year medical students, an opportunity to know the clinical findings and management of common hematological, immunological and neoplastic disorders. Students will be expected to critically think about the clinical scenarios and participate in case-based learning sessions for clearing your concepts and better learning. It will also help you focus your attention on what you need to achieve from the lectures, practical and clinical rotation that have been scheduled in this module.

Duration: **05 weeks**

Learning Outcomes **The outcomes of the Hematology Module are as follows:**

- Knowledgeable
- Skillful
- Community Heath Promoter
- Problem-solver
- Professional
- Researcher
- Leader and Role Model

Cognitive Domain

- To Describe Neoplasia, its etiology, pathophysiology, molecular basis, diagnosis of cancer and its therapy.
- Explain the pathophysiology, clinical features and diagnostic approach of various Red cellsdisorders.
- Explain the pathophysiology, clinical features and diagnostic approach of bleeding disorders
- To describe the hemolytic disease of newborn (RH, ABO, Minor group incompatibility). To describe the etiology & pathophysiology of lymphadenopathy and hepatosplenomegaly
- To describe the difference Hematological malignancies. To describe the transplantation and graft rejection.
- To describe the blood parasites.
- Identify the role of pharmacology (drugs) in anemia and bleeding disorders.
- To describe the Immuno suppressants, immune modulators related to transplantation Role of balanced diet in the prevention of blood disorders in community.
- Recognize the common causes of anemia prevalent in our community

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Psychomotor Domain

- Description of the psychomotor skills to be developed and the level of performance required: carry out practical work as instructed in an organized and safe manner.
- Make and record observations accurately.
  General physical examination of the patient.
  Interpretation of diagnostic cancer tests.
- Interpretation of laboratory tests for the diagnosis of Anemia.
  Interpretation of laboratory tests for the diagnosis of Anemia.
- Perform Manual blood grouping by tube method & compatibility testing.
- Interpretation of morphological features and immunohistochemical results of Hodgkin
- and non-Hodgkin lymphoma.
- Interpretation of laboratory tests for the diagnosis of Acute & Chronic Leukemia.
- To give and receive feedback, Respect for self and peers. To give sympathy and care to patients.

- Counseling patients and family members for inherited anemias. Counseling of families for prenatal diagnosis of Thalassemia.
- Counseling patients and family members for Hematological malignancies. Develop communication skills with sense of Responsibility towards patients. Demonstrate good laboratory practices

Themes

Theme 1: Oncology
Theme 2: Pallorness (Anaemia)
Theme 3: Hemostatic abnormalities
Theme 4: Lymphadenopathy
Theme 5: Hematological Malignancies
Theme 6: Immunological disorders & Transplantation

TOPICS WITH SPECIFIC LEARNING OBJECTIVES AND TEACHINGSTRATEGIES
THEME 1: ONCOLOGY

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
		Pathology		
1	• Describe the definition of neoplasia. • Describe the nomenclature of neoplasia.	**Hem-S2-Path-1** Neoplasia	Interactive Lecture	SBQs & OSVE
2	• To describe the Characteristic of benign & Malignant tumor • To know Pathways of spread, seeding, lymphatic and Hematogenous spread	**Hem-S2-Path-2** Characteristic Features of Tumor		
3	• Normal cell cycles and fundamental principal of cancer regarding cycle • Essential alterations in malignanttransformation • Steps of cell proliferation Proto-oncogenes and growth factors and their receptors	**Hem-S2-Path-3** Molecular Basis of Cancer –I		
4	• Two-hit hypothesis of Knudsen • Tumor suppressor genes • Cellular changes in tumor cells • DNA repair defects • Homing of tumor cells • Development of sustained angiogenesis	**Hem-S2-Path-4** Molecular Basis of Cancer -II		
5	• To discuss the epidemiology of cancers • To discuss different types of carcinogens • To discuss the Mechanism of action of radiation carcinogen	**Hem-S2-Path-5** Carcinogenic Agents (Radiation Carcinogenesis)		
6	• To discuss the Mechanism of action of chemical & viral carcinogen.	**Hem-S2-Path-6** Carcinogenic Agents (Chemical & Viral Carcinogenesis)		
7	• To discuss Clinical features of cancer. • To discuss Grading and Staging of cancer. • To discuss diagnostic methods used for Cancer.	**Hem-S2-Path-7** Diagnostic approach of Neoplasia	Practical	OSPE & OSVE
		Microbiology		

8	• Classify the tumor Viruses • Describe the role of tumor viruses in malignant transformation. • Discuss the mechanism involved in carcinogenesis.	**Hem-S2-Micb-1** Tumor Viruses	Interactive Lecture	SBQs & OSVE
Pharmacology				
9	•	**Hem2-S2-Phar-1** Introduction to Anti-Cancer Drugs	Interactive Lecture	SBQs & OSVE
10	• Classify the Anticancer Drugs. • Describe the mechanism of • action, indication, adverse effects, drug-drug interactions.	**Hem2-S2-Phar-2** Anti-cancer Drugs- I		
11	• Describe the mechanism of resistance of Anticancer Drugs. • Describe the general principles of combination chemotherapy in treatment of cancer	**Hem2-S2-Phar-3** Anti-cancer Drugs-II		

Community Medicine				
12	• Define the measures of central tendency. • Define and compute Mean, Mode, and Median • Construct data tables that facilitate the calculation of mean, mode, and median. • Apply the concept of central tendency measures in raw data	**Hem2-S2-CM-1** Measures of Central Tendency	Interactive Lecture	MCQs & OSPE

THEME 2: PALLORNESS (ANAEMIA)

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
Pathology				
12	• To enlist the causes, clinical features and laboratory diagnosis of iron deficiency & Megaloblastic anemias.	**Hem-S2-Path-8** Nutritional Anemias	Interactive Lecture	SBQs & OSVE
13	• To Enlist the causes, pathogenesis, clinical features and laboratory diagnosis of Aplastic anemia.	**Hem-S2-Path-9** Aplastic anemia		
14	• To discuss the pathogenesis, clinical features and laboratory diagnos of Hereditary spherocytosis & G6PD deficiency	**Hem-S2-Path-10** Hemolytic Anemia		
15	• To explain pathogenesis of Hemoglobinopathies. • To identify morphological featureson peripheral blood smear.	**Hem-S2-Path-11** Hemoglobinopathies		

16	• Define Malaria and classify malarial parasites. • Describe life cycle of malarialparasites. • Differentiate between Benign and Malignant Tertian malaria. • Discuss complications Of Plasmodium Falciparum.	**Hem-S2-Micb-2** Plasmodium		
17	• Interpretation of CBC. • To discuss the Peripheral film findings of different types of anemia. • To discuss the different tests used for the diagnosis of Anemia.	**Hem-S2-Path-12** Laboratory diagnosisof Anemia	Practical	OSPE & OSVE
18	• Classify anti-malarial drugs withtheir mechanism and side effects	**Hem-S2-Pharm-4** Anti-malarial drugs		
Clinical lecture				
19	• Assess, classify and manage achild withanemia	**Hem-S2-Paeds-1** Anemia in children	Interactive Lecture	SBQs & OSVE
Community Medicine				
20	• Define the statistical tests • Describe the different statistical • tests. • Distinguish between categorical and continuous measures. • Describe the interpretation of data • analyzed through t-test and Chisquare test	**Hem2-S2-CM-2** Statistical tests interpretations	Interactive Lecture	MCQs & OSPE
Forensic Medicine				
	• Describe general principles & basic methodology • Define the procedure of enhanced elimination of poisoning regarding arsenic, lead, mercury & copper. • Discuss treatment of poisoning • Enumerate supportive & antidote therapy • Enlist of Medicolegal aspects of Metallic poisoning • Discuss post mortem finding	**Hem2-S2-FM-1** Metallic Poisoning (Lead, Arsenic, Mercury & Copper poisoning)	Interactive Lecture	MCQs & OSPE
	• Discuss the mechanism of medicinal poisoning • Discuss symptoms, signs & management of poisoning. • Discuss postmortem appearance and Medicolegal aspects of medicinal poisoning.	**Hem2-S2-FM-2** Medicinal Poisoning (Paracetamol & Salicylic Acid)	Interactive Lecture	MCQs & OSPE

Theme 3: Hemostatic Abnormalities				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
Pathology				

20	• Overview of normal Hemostatsis • Discuss Quantitative & Qualitative platelet disorders. • To discuss ITP and diagnosis.	**Hem-S2-Path-13** Platelets disorders	Interactive Lecture	SBQs & OSVE
21	• Define & enlist the causes of microangiopathic hemolytic anemias • Define & explain Thrombotic Thrombocytopenic Purpura (TTP) and Hemolytic Uremic Syndrome(HUS) • Define Disseminated Intravascular Coagulopathy (DIC)	**Hem-S2-Path-14** MAHA (Micro angiopathic hemolytic anemia)		
22	• Overview of inherited & acquired coagulation disorders • Discuss the pathogenesis and pathophysiology of hemophilia A &B, VWD. • Diagnose hemophilia based on clinical features and laboratory findings	**Hem-S2-Path-15** Coagulation disorders (Hemophilia, vWD)		
23	• To discuss the thrombosis, pathogenesis, types and fate of thrombosis. • To Define Embolism, its types and morphological features of Embolism.	**Hem-S2-Path-16** Thromboembolism		
24	• Discuss and perform different laboratory tests for the diagnosis of bleeding disorders	**Hem-S2-Path-17** Laboratory diagnosis of Bleeding disorders	Practical	OSPE & OSVE
25	• Classify the coagulant drugs. • Describe the mechanism of action, clinical uses, adverse effects, drug interactions and contraindications of the coagulant drugs.	**Hem-S2-Pharm-5** The Coagulants	Interactive Lecture	SBQs & OSVE
26	• Classify the Anticoagulant drugs. • Describe the mechanism of action, clinical uses, adverse effects, drug interactions and contraindications of the Anticoagulant drugs.	**Hem-S2-Pharm-6** Oral Anti-Coagulants **Hem-S2-Pharm-7** Parenteral Anti-Coagulants		
27	• Classify the thrombolytic drugs. • Describe the mechanism of action, clinical uses, adverse effects, drug interactions and contraindications ofthe Thrombolytic drugs.	**Hem-S2-Pharm-8** Fibrinolytic and Anti-fibrinolytic Drugs		
Clinical Lectures				
28	• Discuss approach to a patient withThrombotic disorders	**Hem-S2-Med-1** Approach to a patient with Thrombotic disorders	Interactive Lecture	SBQs & OSVE
29	• Discuss approach to a patient with inherited bleeding disorders	**Hem-S2-Paeds-2** Bleeding disorders		
30	• Discuss approach to a patient with deep vein thrombosis	**Hem-S2-Surg-1** Deep Venous Thrombosis		

Community Medicine			
• To know how to organize a Health Education Program • To understand the Terms of IEC, KAP and BCC, through an example • To know the Steps of: Planning, Organizing and Evaluating the health education program	**Hem2-S2-CM-3** Organizing and evaluating a Health Education Program	Interactive Lecture	MCQs & OSPE
• **Forensic Medicine**			
• Discuss application of Blood groups in forensic work & DNA profiling • Discuss disputed paternity & maternity. • Discuss Laboratory tests for • examination of a blood staining.	**Hem2-S2-FM-** Forensic Serology-1	Interactive Lecture	MCQs & OSPE
• Appraise the forensic importance of biological specimens (Semen, Saliva, Vomitus, Urine & Hair) • Discuss trace evidence	**Hem2-S2-FM-** Forensic Serology-2 and trace evidence	Interactive Lecture	MCQs & OSPE

Theme 4: Lymphadenopathy

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
Pathology				
31	• Describe lymphoma, its etiology &classification. • Discuss the pathogenesis, types & morphological features of Hodgkin'slymphoma	**Hem-S2-Path-18** Hodgkin Lymphoma	Interactive Lecture	SBQs & OSVE
32	• Describe Non-Hodgkin's lymphoma • The classification and staging of non Hodgkin's lymphomas. • Discuss the pathogenesis, clinical features and diagnosis of Chronic lymphocytic leukemia	**Hem-S2-Path-19** Non-Hodgkin Lymphoma-I		
33	• Brief Discussion of Burkitt, follicular and DLBCL lymphoma.	**Hem-S2-Path-20** Non-Hodgkin Lymphoma-II		
34	• Discuss the pathogenesis, clinical features and laboratory diagnosis of Multiple Myeloma	**Hem-S2-Path-21** Multiple Myeloma		
35	• To see the Morphological features and Immuno-histochemical findings ofLymphoma	**Hem-S2-Path-22** Practical Approach towards lymphoma	Practical	OSPE & OSVE
Clinical lectures				

36	Discuss approach to a patient with lymphadenopathy with or without Splenomegaly	**Hem-S2-Med-2** Approach to patient with lymphadenopathy with or without splenomegaly	Interactive Lecture	SBQs & OSVE
37	Discuss approach to Lymphedema	**Hem-S2-Med-3** Lymphedema		
38	Discuss approach to Disorders of Spleen & Splenectomy	**Hem-S2-Surg-2** Disorders of Spleen & Splenectomy		
Community Medicine				
• To define Family • To discuss various types of Families • To discuss the social evils and its consequences on Health		**Hem2-S2-CM-4** Types of Families, Social evils including Juvenile delinquency	Interactive Lecture	MCQs & OSPE
Forensic Medicine				
• Discuss Mode of Poisoning, Sign & Symptoms, Fatal Dose & fatal period, Management, Postmortem Appearances & Medicolegal importance of Aluminum Phosphide		**Hem2-S2-FM-3** Aluminium Phosphide	Interactive Lecture	MCQs & OSPE
• Discuss Introduction, source, mode of action, S/S, fatal dose, fatal period and management of Amphetamine, • Discuss Postmortem appearance		**Hem2-S2-FM-4** Amphetamine	Interactive Lecture	MCQs & OSPE
• Enlist the other names of Naphthalene • Discuss routes of transmission of • Naphthalene in body • Describe the clinical features, fatal dose and fatal period & management of Naphthalene toxicity. • Enlist the uses of Naphthalene. • Describe Principles and basic methodologies in treatment of poisoning: decontamination, supportive therapy, antidote therapy, procedures of enhanced elimination with regard to cyanides. • Discuss medicolegal importance		**Hem2-S2-FM-5** Naphthalene & Cyanides	Interactive Lecture	MCQs & OSPE
• Define Paraphenylenediamine poisoning • Explain clinical features, laboratory findings and outcomes of PPD poisoning. • Discuss post mortem findings & Medicolegal importance of Kala pathar.		**Hem2-S2-FM-6** Paraphenylenediam Ine (Kala Pather)	Interactive Lecture	MCQs & OSPE

Theme 5: Hematological Malignancies

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	Assessment
Pathology				

39	• Overview & classification ofacute leukemias • Describe the pathogenesis, clinical features and laboratory diagnosis of Acute Myeloid leukemia.	**Hem-S2-Path-23** Acute Myeloid leukemia	Interactive Lecture	SBQs & OSVE
40	• Describe the pathogenesis, clinical features and laboratory diagnosis ofAcute Lymphoblastic leukemia.	**Hem-S2-Path-24** Acute Lymphoblastic Leukemia		
41	• The classification ofMyeloproliferative disorders • Discuss the pathogenesis, clinical features and laboratory diagnosis ofChronic myeloid Leukemia.	**Hem-S2-Path-25** Myeloproliferative disorders		
42	• Morphological features of acute &chronic leukemia.	**Hem-S2-Path-26** Laboratory diagnosis of Acute & Chronic leukemia	Practical	OSPE & OSVE
Medicine				
43	Describe the clinical features, laboratory investigations of acute & chronic leukemia.	**Hem-S2-Med-4** Approach to patient with Acute& Chronic leukemia	Interactive Lecture	SBQs & OSVE

Community Medicine			
• Types of snakes according • to toxin production: hemolytic toxins, musculotoxins and neuro-toxin • Differentiate between • signs and symptoms of different snake-bites • Discuss preventive measures against snake bites.	**Hem2-S2-CM-5** Snake bite	Interactive Lecture	MCQs & OSPE

Forensic Medicine			
• Discuss Diagnosis, Clinical features & Management of a snake bite • Discuss PM appearance and ML importance	**Hem2-S2-FM-3** Animal Poison(s) (Snake Bites)	Interactive Lecture	MCQs & OSPE
• Describe Physio-chemical changes in various body tissues and organs under various environmental conditions, such as changes in muscular system after death. • Describe Changes in the blood, CSF, Vitreous humor & Bone marrow	**Hem2-S2-FM-4** Changes of Death Death Changes in Blood, CSF, Vitreous Humour & Bone Marrow	Interactive Lecture	MCQs & OSPE

Theme 6: Immunological Disorders

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
Pathology				

44	• Define hypersensitivity reaction • Describe Pathogenesis of four types of hypersensitivity reactions with examples.	**Hem-S2-Path-27** Hypersensitivity Reactions	Interactive e Lecture	SBQs & OSVE
45	• Discuss immunodeficiency and its causes and clinical features.	**Hem-S2-Path-28** Immunodeficienc y disorders		
46	• Discuss tolerance. • Define Autoimmune disorders • Describe etiology, Pathogenesis and clinical features of autoimmune disorders.	**Hem-S2-Path-29** Autoimmune Disorders		
47	• Definition of Transplantation • Types of transplantation • Sources of bone marrow transplantation • Define Rejection & mechanism Of different types of rejections.	**Hem-S2-Path-30** Transplantation & Rejection		
48	• Define hemo flagellates. • Enumerate the medically important species of Leishmania & Trypanosoma. • Describe vector, life cycle, pathogenesis clinical manifestation and lab diagnosis • Of Leishmaniasis & Trypanosomiasis.	**Hem-S2-Micb-3** Trypanosoma & Leishmania		
49	• Discuss the immunoassay techniques	**Hem-S2-Path-31** Immunoassay technique	Practical	OSPE & OSVE
Pharmacology				
50	• Classify Antihistamine agents. • Describe the Mechanism of Action, Indications, Adverse Effects And Drug Interactions of Antihistamines	**Hem-S2-Pharm-9** Anti-Histamine	Interactiv e Lecture	SBQs & OSVE
Clinical Lecture				
51	• Describe the clinical features, laboratory investigations of autoimmune disorders	**Hem-S2-Med-5** Approach to patient with Autoimmune disorders	Interactiv e Lecture	SBQs & OSVE
Community Medicine				
	•To define radiation and its hazards •To describe the relative hazards to humans when exposed to alpha, beta and gamma rays •To discuss the preventive measures of radiation hazard	**Hem2-S2-CM-6** Radiation Hazards	Interactive Lecture	MCQs & OSPE
• **Forensic Medicine**				

	•Discuss Internal examination of Cranial, thoracic and abdominal cavities & •Dissection of viscera'	**Hem2-S2-FM-** Internal Examinations of Dead body	Interactive Lecture	MCQs & OSPE
	•Explain the exhumation procedure •Explain the preservation of viscera for Chemical and Histo pathological examination •Explain Preservatives used in mortuary	**Hem2-S2-FM-** Exhumation	Interactive Lecture	MCQs & OSPE

RESPIRATORY MODULE II

Introduction

This sensational module will be very necessary to your future work as doctors. This module is designed to make your learning both interesting and productive by including interactive activities. This module provides basic understanding by integrating the teaching of the basic pharmacology, pathology related to the disorders of the Respiratory system and their relevant clinical applications (Horizontal Integration). And Forensic Medicine, Community medicine (Vertical Integration). By adopting this approach, we are preparing you better for your future work as doctor, where patients will come to you with problems that are not categorized by discipline name. In order to help you learn in an integrated manner, we have updated the learning of basic sciences around a few key health- related situations (real life situations), which you are likely to encounter as third year medical students. You will be expected to think about the scenarios and participate in
case based learning sessions for clearing your concepts and better learning. It will also help you focus your attention on what you need to achieve from the lectures, practical and tutorials that have been scheduled during this module.

Rationale Diseases of the Respiratory system are common all over the world. Timely diagnosis and management of acute Respiratory problems like Asthma, COPD prevents morbidity and mortality. Early diagnosis and prompt treatment of Asthma and COPD disease is important to reduce the occurrence of disability burden on community. Understanding the structure and function of Respiratory system and its relationship with pathophysiology of diseases is essential for diagnosis and management.

Duration: 03 weeks Learning

Outcomes

Knowledge: At the end of this module, the students will be able to:

- Explain obstructive and restrictive pathologies involving respiratory system Describe the management of the respiratory diseases
- Perform the respiratory system examination
- Take the history of the patients and co-relate the respiratory sign & symptoms to reach the
- differential diagnosis
- To counsel the people in community regarding the risk factors of the respiratory diseases.

Skills

- Microscopic identification of the different diseases of the respiratory system.
- Perform the cardiopulmonary resuscitation (CPR)
- Interpretation of ABGs, PFT
- Perform clinical examination of the respiratory system

Attitude

- Follow the basic laboratory protocols
- Participate in class and practical work professionally
- Communicate effectively in a team with peers, staff, and teachers
- Demonstrate professionalism and ethical values in dealing with patients, peers, staff and teachers.
- Communicate effectively in a team with peers and teachers.
- Demonstrate the ability to reflect on the performance.

Themes

Theme 1: Lung Injury, Edema, Collapse & Obstructive Pulmonary Diseases
Theme 2: Chronic diffuse Interstitial/ Restrictive Lung diseases
Theme 3: Infectious & pleural diseases
Theme 4: Lung Tumors

TOPICS WITH SPECIFIC LEARNING OBJECTIVES AND TEACHINGSTRATEGIES **Theme 1: Lung Injury, Edema, Collapse & Obstructive Pulmonary Diseases**				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
	Pathology			
1	• Types & causes of Atelectasis • Types & causes of pulmonary edema • Define acute lung injury • Describe the causes of ARDS • Discuss the characteristic features, morphology and pathogenesis of ARDS • Describe its consequences and clinical course	**RESP-S2-Path-1** Pulmonary Edema, ARDS & Atelectasis	Interactive Lecture	SBQs & OSVE
2	• Define Obstructive lung disease (OPD) • Classify types of OPD • Describe etiologypathogenesis & clinical features of chronic bronchitis + emphysema	**RESP-S2-Path-2** Obstructive lung diseases-I		
3	• Describe categories of Asthma • Explain pathogenesis • Discuss the immunological mechanisms of bronchial asthma and its triggering factors -Gross features & morphological Features • Define BRONCHIECTASIS • Describe its causes, Pathogenesis and Gross & morphological features	**RESP-S2-Path-3** Obstructive lung diseases- II		
4	• Describe major categories • Explain the pathogenesis, morphology and clinical course of its important types • Idiopathic pulmonary fibrosis • Non-specific Interstitial • Pneumonia • Cryptogenic organizing • Pneumonia	**RESP-S2-Path-4** Restrictive lung diseases Chronic diffuseinterstitial lung diseases		
5	• Describe the microscopic features	**RESP-S2-Path-5** Pleural fluid for DR	Practical	OSPE & OSVE

Pharmacology				
06	• Classify the drugs used in Asthma and COPD. • Describe the mechanism of action, side effects of beta-2 • receptor Agonists, Phosphodiesterase inhibitors Leukotrienes Pathway Inhibitors and • Discuss the role of corticosteroids in asthma.	**RESP-S2-Pharm-1** Drugs used in Asthma and COPD	Interactive Lecture	SBQs & OSVE
Community Medicine				
07	• To define occupational health. • To discuss the occupational health hazard • To discuss the occupational health services in Pakistan • To describe the legislation of occupational health in Pakistan.	**RESP-S2-CM-1** Introduction to occupational health and safety	Interactive Lecture	MCQs & OSPE
Forensic Medicine				
•	• Discuss etiology, pathophysiology of asphyxia & stages of asphyxia. • Describe Hanging, types of hanging • Describe postmortem findings of hanging & Throttling	**RESP-S2-FM-1** Asphyxia-1 (Intro, Hanging & Throttling)	Interactive Lecture	SBQs & OSVE
•	• Describe death from asphyxia and • postmortem appearance of Suffocation, Smothering, choking & Strangulation	**RESP-S2-FM-2** (Suffocation, Smothering, Chocking & Strangulation)	Interactive Lecture	SBQs & OSVE
•	• Define Drowning, its types • Discuss Mechanism of drowning • Describe Causes of death in drowning • Discuss Postmortem finding of drowning • Define Diatoms and their medico legal significance	**RESP-S2-FM-3** Drowning	Interactive Lecture	SBQs & OSVE

Theme 2: Chronic Diffuse Interstitial/ Restrictive Lung Diseases				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
Pathology				

7	• Describe major categories • Explain the etiology, • pathogenesis, gross, histological features of its important types like Coal worker, Pneumoconiosis Silicosis. Asbestos-related diseases	**RESP-S2-Path-6** Chronic diffuse interstitial lung diseases II- Pneumoconiosis	Interactive Lecture	SBQs & OSVE
8	• Explain the etiology, • pathogenesis, gross, histological features of • Sarcoidosis • Hypersensitivity Pneumonitis Pulmonary Eosinophilia	**RESP-S2-Path-7** Chronic diffuse interstitial lung diseases III: Granulomatous Diseases		
9	• Smoking-related • Desquamative Interstitial Pneumonia • PAP (Pulmonary Alveolar Proteinosis) • Respiratory bronchiolitis-associated ILD	**RESP-S2-Path-8** Chronic diffuse interstitial lung diseases IV & smoking-related		
10	• Explain the etiology, Pathogenesis & histological features of - Pulmonary Thromboembolism, HTN Good pasture syndrome	**RESP-S2-Path-9** Pulmonary Thromboembolism, HTN & important Hemorrhagic Syndromes		
11	• Explain the etiology, Pathogenesis and Clinical features of Pleural effusion Pneumothorax • Explain the etiology, Pathogenesis and microscopic features of • Benign Tumors Solitary fibrous tumor • Malignant Tumors • Mesothelioma	**RESP-S2-Path-10** Pleural diseases		
12	• Describe histopathologicalfeatures	**RESP-S2-Path-11** Inflammatory diseases of lung	Practical	OSPE & OSVE
Pharmacology				
13	To get rid of the infection and prevent complications	**RESP-S2-Pharm-2** Drugs used in the treatment of Pneumonia	Interactive Lecture	SBQs & OSVE
Community Medicine				
14	• To discuss the agriculture health hazards • To define pneumoconiosis • To differentiate the types of pneumoconiosis on basis of dust • To discuss the preventative and control measures of pneumoconiosis.	**RESP-S2-CM-2** Occupational health hazards in agricultural workers	Interactive Lecture	MCQs & OSPE

Theme 3: Vascular, Infectious & Pleural Diseases

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
		Pathology		
14	• Explain the pathogenesis of granuloma formation • Describe the five different clinical patterns of tuberculosis • Define primary and secondary tuberculosis • Describe lab diagnosis and complications	**RESP-S2-Path-12** Tuberculosis	Interactive Lecture	SBQs & OSVE
15	• Explain the etiology, Pathogenesis and Clinical features of • Pleural effusion • Pneumothorax • Explain the etiology, • Pathogenesis and Microscopic • features of • Benign Tumors □ Solitary fibrous tumor • Malignant Tumors • □ Mesothelioma	**RESP-S2-Path-13** Pleural diseases		
		Microbiology		
16	• Classify the medically important mycobacteria. • Describe the important properties, virulence factors pathogenesis, clinical findings and lab diagnosis	**RESP-S2-Micb-1** Mycobacterium tuberculosis & laprae (Microbiology)	Interactive Lecture	SBQs & OSVE
17	• Classify the gram-negative rods related to the Respiratory tract. • Describe the important properties, pathogenesis, clinical findings and lab diagnosis of Hemophilus influenzae & Bordetella pertussis	**RESP-S2-Micb-2** Hemophilus influenzae & Bordetella pertussis (Microbiology)		
18	• Describe the clinical & microscopic features.	**RESP-S2-Path-14** Obstructive diseases of the lung	Practical	OSPE & OSVE
		Pharmacology		
19		**RESP-S2-Pharm-2** Drugs used in the treatment of Tuberculosis	Interactive Lecture	SBQs & OSVE
		Community Medicine		
20	• To discuss the industrial health hazards. • To define lead poisoning • To discuss the preventive and control measures of lead poisoning	**RESP-S2-CM-3** Occupational health hazards in industrial workers. Lead poisoning	Interactive Lecture	MCQs & OSPE

	• To discuss the problem statement of Whooping Cough • To understand the epidemiology of Whooping Cough • To define Whooping Cough and describe the mode of transmission of Whooping Cough • To discuss the preventive and control measures of Whooping Cough	**RESP-S2-CM-4** Epidemiology & control measure of Whooping Cough	Interactive Lecture	MCQs & OSPE
	• **Forensic Medicine**			
20	• Discuss the mode of action. • Describe common uses of organophosphorus. • Discuss the clinical feature & evaluation of a patient with suspected organophosphorus toxicity. • Explain management of organophosphorus poisoning & medicolegal importance of it. • Discuss postmortem appearance and medicolegal importance.	**RESP-S2-FM-3** Organophosphorus Poisoning	Interactive Lecture	MCQs & OSPE

Theme 4: Lung Tumors

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
	Pathology			
20	• Explain histological features of - Squamous dysplasia & Carcinoma in situ • Atypical adenomatoushyperplasia • Adenocarcinoma in situ • Diffuse idiopathic pulmonary neuroendocrine cell hyperplasia (DIPNECH)	**RESP-S2-Path-15** Tumours of Lung-I	Interactive Lecture	SBQs & OSVE
21	• Explain the etiology, pathogenesis, gross, histological features of Squamous cell carcinoma, Adenocarcinoma, Neuroendocrine carcinomas	**RESP-S2-Path-16** Tumours of Lung-II		
22	• Morphological features & immunohistochemistry	**RESP-S2-Path-17** Tumours of the lung	Practical	OSPE & OSVE
	Community Medicine			
23	• To discuss the medical methods of prevention of occupational hazards. • To discuss the engineering methods of prevention of occupational hazards	**RESP-S2-CM-5** Preventive measures of occupational health hazards	Interactive Lecture	MCQs & OSPE
	Forensic Medicine			
24	• Define Properties, Common sources, common features for absorption, Clinical • Features, methods for the detection of Carbon Monoxide & its management. • Discuss Postmortem changes & Medicolegal aspects of Carbon Monoxide Poisoning	**RESP-S2-FM-** Carbon Monoxide	Interactive Lecture	MCQs & OSPE

	• Define fumigants • Enlist most common fumigants. • Discuss procedure of fumigation. • Describe types of fumigation methods. • Discuss factors affecting fumigation efficacy. • Discuss the advantages and disadvantages of fumigation	**RESP-S2-FM-** Fumigants	Interactive Lecture	MCQs & OSPE

CARDIOVASCULAR MODULE II

Introduction Cardiovascular diseases are commonest causes of morbidity and mortality all over the world, such as hypertension, ischemic heart disease, cardiac failure, and valvular disorders. Hence a medical graduate is expected to manage these problems in the community at large. This module is designed to learn pathology and pharmacology related to the cardiovascular system applying the background knowledge of anatomy, physiology, and biochemistry. An emphasis is put on clinical correlation and problem-solving so that the student will be able to build on the knowledge of clinical presentation, diagnostic investigations, and management of cardiovascular disorders.

Apart from that, the parallel-running yet related courses in Forensic Medicine and Toxicology, Community Medicine, and Behavioral Sciences are also part of this exciting new module.

Rationale The orientation of various medical subjects is the fundamental requirement of every medical student. Therefore, this module is designed to provide the integration of core concepts that underlie the foundation of basic sciences and their correlation and application in the clinical context. Students also learn clinical skills such as how to communicate effectively with patients and their relatives with compassion and understanding of their issues/problems and how to resolve them in coming years. Working in groups will enhance students'team working skills and capacity and management skills. Along with Lectures, practical's and demonstrations;through supplemented case-based learning they develop problem-solving skills to apply their basic medical knowledge and skills to practical situations.

Duration: 03 weeks

Learning Outcomes

Knowledge: At the end of this module, the students will be able to:

- Enlist pathologies involving cardiovascular system.
- Describe the management of cardiovascular diseases.
- Perform the cardiovascular system examination.
- Take the history of the patients and co-relate the cardiovascular sign & symptoms to reach thedifferential diagnosis
- To counsel the people in community regarding the risk factors of the cardiac diseases.

Clinical/ Practical skills

Placing electrodes and obtaining an electrocardiogram and interpretation of the basic ECG findings.Perform clinical examination of the cardiovascular system.

Attitude:

Follow the basic laboratory protocols.

Participate in class and practical work professionally. Communicate effectively in a team with pears, staff and teachers.

Demonstrate professionalism and ethical values in dealing with patients, peers, staff and teachers.

Demonstrate the ability to reflect on the performance.

Themes

Theme 1: Hypertension
Theme 2: Atherosclerosis
Theme 3: Myocardial diseases
Theme 4: Diseases of vessels
Theme 5: Pericardial and endocardial diseases, and cardiac tumors

TOPICS WITH SPECIFIC LEARNING OBJECTIVES AND TEACHINGSTRATEGIES THEME 1: HYPERTENSION				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
Pathology				

1	• Define hypertension and classify itscauses. • Discuss the pathogenesis ofHypertension • Vascular Pathology inHypertension.	**CVS-S2-Path-1** Hypertensive Vascular Disease	Interactive Lecture	SBQs & OSVE
2	• Define Hypertensive heart disease. • Differentiate between systemic (Left-Sided) HHD and Pulmonary (Right-Sided) HHD (CorPulmonale). • Describe the diagnostic features and morphology of Systemic and Pulmonary HHD. • Describe various disorders predisposing to HHD.	**CVS-S2-Path-2** Hypertensive heartdisease (HHD)		
Pharmacology				
3	• Classify the antihypertensive agents based on mechanism of action. • Describe the hemodynamic Responses, adverse effects, and drug interactions of antihypertensive agents.	**CVS-S2-Pharm-1** Antihypertensive Drugs	Interactive Lecture	SBQs & OSVE
4	• Identify the following in a given prescription:	**CVS-S2-Pharm-2** Drug-Drug interactions Flaws	Practical	OSPE & OSVE

Theme 2: Atherosclerosis

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
Pathology				
5	• Describe the pathogenesis of Atherosclerosis. • Discuss the morphological features of Atherosclerosis. • Discuss the complications of Atherosclerosis.	**CVS-S2-Path-3** Atherosclerosis	Interactive Lecture	SBQs & OSVE
6	• Define Ischemic Heart Disease with its types. • Define Angina Pectoris with its pathogenesis, patterns, morphological changes, clinical features, and complications. • Define Myocardial Infarction with its pathogenesis, patterns, morphological changes, clinical features, and complications	**CVS-S2-Path-4** Ischemic HeartDisease		
7	• Interpret the following on a givenbiochemical report:	**CVS-S2-Path-5** Lipid Profile Cardiac Enzymes Pericardial Effusion	Practical	OSPE & OSVE
Pharmacology				
8	• Classify the Hypolipidemic drugs according to their mode of action. • Describe the clinical uses, drug	**CVS-S2-Pharm-3** Drugs to treat		

	interactions, and adverse effects of hypolipidemic drugs.	Hyperlipidemia (Lipid Lowering Drugs)	Interactive Lecture	SBQs & OSVE
9	• Classify anti-anginal drugs basedon the mechanism of action. • Describe adverse effects and druginteraction of antianginal drugs.	**CVS-S2-Pharm-4** Drugs used to treat Ischemic Heart Disease (anti-anginal drugs)		
10	• Write down a prescription based on a given scenario.	**CVS-S2-Pharm-5** Dyslipidemia Hypertension	Practical	OSPE & OSVE

Theme 3: Myocardial Diseases

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
		Pathology		
11	• Define Cardiomyopathy and classify it. • Describe the pathogenesis, patterns, morphological changes, clinical features, and complications of various cardiomyopathies.	**CVS-S2-Path-6** Cardiomyopathies	Interactive Lecture	SBQs & OSVE
12	• Define valvular stenosis and insufficiency. • Describe the causes of the major valvular lesions. • Describe the natural history of Rheumatic Fever. • Describe Calcific Valvular Degeneration and characterize it. • Discuss the morphology andclinical features.	**CVS-S2-Path-7** Valvular Heart Disease and Rheumatic HeartDisease		
		Pharmacology		
13	• List the major classes of anti- arrhythmic drugs based on their mechanism of action. • Describe the clinical use, drug interactions, and adverse effects of anti-arrhythmic drugs.	**CVS-S2-Pharm-6** Drugs used to treat Cardiac Arrhythmias (anti-arrhythmic drugs)	Interactive Lecture	SBQs & OSVE
14	• Classify the major classes of drugs used to treat congestive cardiac failure based on their mechanism of action. • Describe the pharmacokinetics, mechanism of action, indications, and adverse effects of drugs used in acute and chronic heart failure. • Describe the clinical use, drug interactions, and adverse effects of drugs used in CCF.	**CVS-S2-Pharm-7** Drugs used to treat Congestive Cardiac Failure (CCF)		
		Clinical Lecture		
15	• Describe the sign and symptoms ofRF and RHD • Describe the drugs used to treatRHD and there adverse effects	**CVS-S2-Cardio-1** Rheumatic Fever and Rheumatic Heart Disease (RHD)		

16	• Describe the sign and symptoms of pericarditis, myocarditis, and infective endocarditis. • Describe the treatment of pericarditis, myocarditis, and infective endocarditis.	**CVS-S2-Cardio-2** Cardiac inflammation	Interactive Lecture	SBQs & OSVE

Theme 4: Diseases of Vessels				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
Pathology				
17	• Define vasculitis and classify primary forms. • Describe causes and mechanisms. • Describe the typically involved vascular sites. • Describe the following and characterize them: Giant Cell (Temporal) Arteritis, Thromboangiitis Obliterans (Buerger Disease)	**CVS-S2-Path-8** Vasculitis	Interactive Lecture	SBQs & OSVE
18	• Describe varicose veins and their clinical features.	**CVS-S2-Path-9** Diseases of Veins and Lymphatics		
19	• Differentiate between Thrombophlebitis and Phlebothrombosis based on pathogenesis and clinical features. • Describe Lymphangitis and Lymphedema.			
Forensic medicine				
	• Define Ballistics, types of ballistics • Discuss Parts of a firearm weapon • Describe Cartridges of different firearms and types of projectiles i.e., pellets, bullets	**CVS-S2-FM-1** Firearm/Ballistics-1	Interactive Lecture	SBQs & OSVE
	• Define Types of gun powder • Discuss Mechanism of fire in firearm weapons	**CVS-S2-FM-2** Firearm/Ballistics-2	Interactive Lecture	SBQs & OSVE

Theme 5: Pericardial and Endocardial Diseases, and Cardiac Tumors				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
Pathology				
20	• Classify vascular tumors and tumor-like conditions. • Describe the pathogenesis, morphology, and clinical characteristics of the following: • Hemangiomas • Lymphangiomas • Intermediate-Grade (Borderline) Tumors Malignant Tumors	**CVS-S2-Path-10** Vascular Tumors	Interactive Lecture	SBQs & OSVE

21	• Describe the pathogenesis, morphology, and clinical characteristics of IE, Pericarditis, and cardiac tumors.	**CVS-S2-Path-11** Infective Endocarditis (IE), Pericarditis, and Tumors of the Heart	Interactive Lecture	SBQs & OSVE
22	• Interpret the gross and microscopic features of the following on given histopathology report:	**CVS-S2-Path-12** Hemangiomas Cardiac Myxoma	Practical	OSPE & OSVE
Forensic Medicine				
	○ Describe chest injuries, including traumatic asphyxia, injuries to ribs, lungs, heart, with special emphasis on penetrating injuries and Commotio Cordis. ○ Describe Abdominal injuries with medico-legal aspects of rupture of liver, spleen, Injuries of Chest & Abdomen, injuries to the abdominal aorta and intestines ○ Define Pelvic injuries & its medico legal significance.	**CVS-S2-FM-3** Injuries Chest & Abdomen	Interactive Lecture	SBQs & OSVE
	• Discuss Characteristic features of wound of entry and exit of firearm • Describe the estimation of the distance of the fire	**CVS-S2-FM-4** Firearm Injuries-1	Interactive Lecture	SBQs & OSVE
	• Discuss Fabricated firearm injuries • Discuss Postmortem findings in cases of firearm injuries	**CVS-S2-FM-5** Firearm Injuries-2	Interactive Lecture	SBQs & OSVE

GASTROINTESTINAL TRACT MODULE II

Introduction

Welcome to the GIT and Liver module. This exciting module will serve as a building block and is very essential to your future work as doctors. This module is designed to make your learning both interesting and productiveby including several inter active activities.

This module covers the topics which are Inflammatory and Neoplastic Diseases of Salivary Gland, Non- neoplastic and Tumor of Esophagus, Gastritis and Peptic Ulcer, Malignancies of the Stomach, Diarrheal Diseases, Malabsorption Syndromes and Inflammatory Bowel Diseases, Benign and Malignant Lesions of Small and Large Intestine. Pathological conditions of Liver like Jaundice and cholestasis, Autoimmune liver diseases & Cholangiopathies, Metabolic Liver Diseases-1, Drug and Toxin Induced Liver Injury & Fatty LiverDisease, Cirrhosis of liver, Tumors of the liver, Inflammatory Diseases and Tumors of Gall Bladder. All these diseases are very common in clinical practice and will help understand the GIT and Liver pathology. Real life scenarios have been added in the module which will be discussed in small groups to help students to develop them clinical approach to understand and solve the clinical problem by correlating their basic knowledge of anatomy, physiology, biochemistry and pathology with findings of a clinical case.

Rationale

Diseases of the GIT are common all over our country. It is essential to make early diagnosis and treat the disease in order to reduce morbidity and mortality.

This module provides an integrative understanding and detailed and clinically relevant information on pathology related to the digestive and biliary system.

Learning Outcomes

At the end of the module, the students will be able to

1. Relate understanding of the pathological processes related to the gastrointestinal tract & Liver.

2. Comprehend the public health importance of Nutrition.
3. Understand the nutritional requirement for different ages and gender.

Duration: **04 weeks**

Themes

Theme 1: Disease of the oral cavity and esophagus
Theme-2: Disease of the stomach
Theme-3: Diarrheal diseases and malabsorption syndromes
Theme-4: Intestinal disorders
Theme-5: Jaundice & cholestasis
Theme-6: Metabolic & drug/toxin-related liver diseases
Theme-7: Cirrhosis
Theme 8: Tumors of the liver and gall bladder

TOPICS WITH SPECIFIC LEARNING OBJECTIVES AND TEACHINGSTRATEGIES

Theme 1: Disease of Oral Cavity and Esophagus

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
Pathology				
1	• Define leukoplakia and erythroplakia. • Describe ulcer of the oral cavity and define dental caries, fungal infection and inflammatory condition of the oral cavity. • Name the malignant tumors of oral mucosa & describe their etiopathology, morphology, and clinical features.	**GIL-S2-Path-1** Ulcer/ inflammatory lesion and cancer of oral cavity	Interactive Lecture	BQs & OSVE
2	• Mention the cause of sialadenitis, clinical features, and morphology. • Name benign and malignant tumors of the salivary gland. • Describe etiopathology, morphology, and clinical features.	**GIL-S2-Path-2** Disease of salivary gland inflammation and tumor		
3	• Define achalasia, mention its causes and morphology. • Describe causes of Hematemesis. • Describe pathogenesis, clinical features of GERD • Mention causes of dysphagia.	**GIL-S2-Path-3** Motor disorders. Esophageal varices, an inflammatory condition, and gastroesophageal reflux		
4	• Name benign and malignant tumors of esophagus. • Describe etiopathology, clinical features and morphology of carcinoma of the esophagus.	**GIL-S2-Path-4** Tumors of the esophagus		
5	• Demonstrate Gross and microscopic features of oral cavity carcinoma, salivary gland tumor and carcinoma esophagus.	**GIL-S2-Path-5** Gross and microscopic features of oral cavity carcinoma, salivary gland tumor, and carcinoma esophagus.	Practical	OSPE & OSVE
Clinical Lectures				

7	• Discuss Gastroesophageal reflux, esophagitis, Barrett's esophagus, and hiatal hernia	**GIL-S2-Med-1** Gastroesophageal reflux, esophagitis, Barrett's esophagus and hiatal hernia	Interactive Lecture	SBQs & OSVE

8	Discuss Surgical causes, presentation and management of hematemesis, dysphagia and carcinoma esophagus	**GIL-S2-Surg-1** Surgical causes, presentation, and management of hematemesis, dysphagia, and carcinoma esophagus	Interactive Lecture	SBQs & OSVE
Community Medicine				
9	• To define water purification • To learn the methods of water • purification • To understand the best method in different situations • To describe the advantages and • disadvantages of each method	**GIL-S2-CM-1** Methods of purification of water	Interactive Lecture	MCQs & OSPE
Forensic Medicine				
10	• Define Corrosive & classify. • Discuss mode of action, signs & • symptoms, effects on different parts of body, different test and its • management. • Discuss postmortem appearance(s) and medicolegal importance. • Define vitriolage and discuss its • features, effect & punishment	**GIL-S2-FM-1** Corrosive Poisoning (Oxalic Acid, Carbolic Acid [Phenol], Sulphuric Acid & Hydrochloric Acid)	Interactive Lecture	MCQs & OSPE

Theme 2: Disease of Stomach

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
Pathology				
9	• Mention causes, pathogenesis of gastritis (Acute and chronic) • Describe causes, etiopathology, complication and morphology of peptic ulcer disease. • Mention role of H. Pylori in peptic ulcer disease, describe various methods of diagnosis of H. Pylori infection.	**GIL-S2-Path-6** Gastritis and peptic ulcer disease	Interactive Lecture	SBQs & OSVE
10	• Name benign and malignant tumors of stomach, describe etiopathology, clinical features and morphology of carcinoma stomach.	**GIL-S2-Path-7** Tumor of the stomach		
11	• Demonstrate Gross and microscopic features of peptic ulcerand carcinoma of the stomach	**GIL-S2-Path-8** Gross and microscopic features of a peptic ulcer and carcinoma stomach	Practical	OSPE & OSVE
Pharmacology				
12	• Describe drugs used for Acid peptic disorders including H. Pylori infection proton pump inhibitors	**GIL-S2-Pharm-2** Drugs used for Acid peptic disorders	Interactive Lecture	SBQs & OSVE
Clinical Lectures				

13	• Discuss diagnosis and management of gastritis/Acid pepticdisease and endoscopic management of bleeding peptic ulcer	**GIL-S2-Med-2** Diagnosis and management of gastritis/Acid pepticdisease and endoscopic management of bleeding peptic ulcer	Interactive Lecture	SBQs & OSVE
14	• Surgical management in Acid pepticdisease and carcinoma of stomach.	**GIL-S2-Surg-2** Surgical management in Acidpeptic disease & carcinoma of stomach.		
Community Medicine				
15	• To define WHO criteria for purification of water • To learn about different pathogens causing water pollution as per WHO criteria • To Discuss water surveillance • To describe the physical, chemical, biological and bacteriological quality of water	**GIL-S2-CM-2** World Health Organization (WHO) criteria for purification of water	Interactive Lecture	MCQs & OSPE
• **Forensic Medicine**				
10	• Define food poisoning • Differentiate b/w food infection and food intoxication • Enlist the bacteria causing food poisoning • Discuss S/S, Diagnosis & Mgt of food poisoning • Describe the measure how to prevent food poisoning	**GIL-S2-FM-2** Food Poisoning	Interactive Lecture	MCQs & OSPE

Theme 3: Diarrheal Diseases and Malabsorption Syndromes				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
Pathology				
15	• Name various cases of enterocolitis. • Mention various causes of diarrhea and dysentery (Microbiology). • Describe clinical features. • Mention etiopathogenesis and clinical features.	**GIL-S2-Path-9** Enterocolitis and ischemic colitis, Hemorrhoids	Interactive Lecture	SBQs & OSVE
16	• Define malabsorption and name various causes. • Describe clinical features, etiopathology, morphology and diagnosis of coelic disease.	**GIL-S2-Path-10** Malabsorption syndrome (Coeliac disease)		
17	• Name inflammatory bowel disease. • Describe etiopathology, clinical features, and morphological features of Crohn's disease and ulcerative colitis.	**GIL-S2-Path-11** Inflammatory bowel diseases		

18	• Describe various microbialagents causing diarrhea and dysentery and mention their lab diagnosis.	**GIL-S2-Path-12** Various microbial agents causing diarrhea and dysentery, and mention their lab diagnosis.	Practical	SBQs & OSVE
		Pharmacology		
19	Describe Anti-Diarrheal Drugs	**GIL-S2-Pharm-3** Anti-Diarrheal Drugs	Interactive Lecture	SBQs & OSVE
		Clinical lecture		
20	Explain Causes and, clinical presentation and management of malabsorption syndrome / Coeliac disease. Irritable bowel syndrome.	**GIL-S2-Med-3** Causes and clinical presentation and management of malabsorption syndrome / Coeliac disease. Irritable bowel syndrome.		
21	Discuss Clinical presentation and surgical management of inflammatory bowel disease.	**GIL-S2-Surg-3** Clinical presentation and surgical management of inflammatory bowel disease.	Interactive Lecture	SBQs & OSVE
22	Discuss causes and clinical presentation and management of acute diarrhea.	**GIL-S2-Paeds-1** Causes and clinical presentation and management of acute diarrhea.		
		Community Medicine		
23	To learn about hydrological cycle • To define water pollution • To understand sources of water • pollution and types	**GIL-S2-CM-3** Hydrological cycle & sources of water pollution	Interactive Lecture	MCQs & OSPE

Theme 4: Intestinal Disorders

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
		Pathology		
23	• Mention various causes of intestinal obstruction • Define volvulus, intussusception, hernias and adhesions. • Discuss etio-pathogenesis, clinical features and morphology of Hirschsprung disease.	**GIL-S2-Path-13** Intestinal obstruction	Interactive Lecture	SBQs & OSVE
24	• Define acute appendicitis. • Describe causes, clinical features and morphology of acute appendicitis. • Mention clinical features and morphology of Meckel's diverticulitis. • Define diverticulosis, describe etiopathology, and morphology.	**GIL-S2-Path-14** Inflammatory condition of abdomen		
25	• Name benign polypoidal lesion of intestine. • Describe etiopathology, clinical features and morphology of benign polyp.	**GIL-S2-Path-15**		

	• Define familial adenomatous polyposis syndrome. • Describe etiopathology and morphology of FAP syndrome.	Benign tumors of small intestine and large intestine-1		
26	• Name malignant tumor of large intestine. • Describe etiopathology, clinical features and morphological features.	**GIL-S2-Path-16** Malignant tumors ofsmall intestine and large intestine-2		
27	• Describe gross and microscopic features of benign and malignant tumors of intestine.	**GIL-S2-Path-17** Benign and malignant tumors of intestine.	Practical	OSPE & OSVE

Pharmacology				
28	• Describe drugs used in constipation. • Explain management of diarrhea and inflammatory bowel syndrome.	**GIL-S2-Pharm-4** Drugs used for constipation.	Interactive Lecture	SBQs & OSVE
Clinical Lecture				
29	• Discuss causes and management of intestinal obstruction	**GIL-S2-Surg-4** Causes and management of intestinal obstruction.	Interactive Lecture	SBQs & OSVE
Community Medicine				
30	• To describe different types of health hazards arising from consuming polluted water • To understand various water borne diseases caused due to consuming polluted water	**GIL-S2-CM-4** Health Hazards arising from consuming polluted water; water borne disease	Interactive Lecture	MCQs & OSPE
	• To discuss the problem statement of typhoid fever • To define typhoid fever • To understand the epidemiology of typhoid fever • To discuss the preventive and • control measures of Typhoid fever	**GIL-S2-CM-5** Epidemiology & control measure of Typhoid	Interactive Lecture	MCQs & OSPE

Theme 5: Jaundice & Cholestasis

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
Pathology				
30	Describe • Bile Formation and Secretion • Pathophysiology of Hyperbilirubinemia • Explain etiology & clinical diagnosis of • Pre-Hepatic Jaundice • Hepatic Jaundice • Post-Hepatic Jaundice • Hereditary Hyperbilirubinemia • Gilbert's syndrome Crigler–Najjar syndrome type I &II • Dubin-Johnson syndrome (DJS) • Rotors syndrome (DJS)	**GIL-S2-Path-18** Jaundice and cholestasis	Interactive Lecture	SBQs & OSVE

31	Explain etiology, pathogenesis & clinical features & Diagnostic criteria of • Type I Autoimmune liver diseases • Type II Autoimmune liver diseases • Primary Biliary Cholangitis (PBC) • Primary Sclerosing Cholangitis (PSC)	**GIL-S2-Path-19** Autoimmune liver diseases & Cholangiopathies		

Community Medicine				
32	• To describe rapid and slow sand filters • To understand the role of rapid and slow sand filtration in water • purification	**GIL-S2-CM-6** Slow sand & rapid sand filters	Interactive Lecture	MCQs & OSPE
	• To discuss the problem statement of amoebiasis • To Know public health importance of Amoebiasis • To discuss the Important factors of Agent/Host/Environment responsible for occurrence of amoebiasis • To discuss the preventive and • control measures of amoebiasis	**GIL-S2-CM-7** Epidemiology and control measure of Amoebiasis	Interactive Lecture	MCQs & OSPE

Theme 6: Metabolic & Drug/Toxin Related Liver Diseases

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
	Pathology			
32	Explain etiology, pathogenesis & clinical features & Diagnostic criteria of • Hemochromatosis • Wilson Disease • α1-Antitrypsin Deficiency	**GIL-S2-Path-20** Metabolic Liver Diseases-1	Interactive Lecture	SBQs & OSVE
33	Explain etiology, pathogenesis & clinical features &Diagnostic criteria of Alcoholic Liver Disease, Non-alcoholic Fatty liver	**GIL-S2-Path-21** Drug- and Toxin-Induced Liver Injury & Fatty Liver Disease		
	Community Medicine			
34	• Define a balanced diet • Understand the importance of a • balanced diet • Explain the food pyramid • Describe the different focus groups in a balanced diet • Enumerate the routine dietary • requirements and nutritional values at different age groups	• **S2-CM-8** Balanced Diet and Nutritional status assessment	Interactive Lecture MCQs & OSPE	MCQs & OSPE
	Forensic Medicine			

	• Define alcohol & its metabolism • Discuss acute & chronic alcohol poisoning • Discuss diagnostic methods of alcohol poisoning, sample collection for • examination and management. • Discuss postmortem appearances and medicolegal importance's.	**GIL-S2-FM-3** Alcohol and Its Poisoning	Interactive Lecture	MCQs & OSPE

Theme 7: Cirrhosis				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
		Pathology		
34	• Describe etiology, pathogenesis, symptoms and complications	**GIL-S2-Path-22** Cirrhosis of liver	Interactive Lecture	SBQs & OSVE
35	• Demonstrate gross andmicroscopic features	**GIL-S2-Path-23** Cirrhosis of liver	Practical	OSPE & OSVE
		Pharmacology		
36	Describe the drugs used in Hepatitis	**GIL-S2-Pharm-5** Drugs used in Hepatitis	Interactive Lecture	SBQs & OSVE
		Clinical Lecture		
37	Discuss Clinical presentation and outline management of Hepatitis B&C	**GIL-S2-Med-4** Clinical presentation and outline management of Hepatitis B&C	Interactive Lecture	SBQs & OSVE
38	Discuss management of acute hepatitis and fulminant hepaticfailure	**GIL-S2-Med-5** Management of acute hepatitis and fulminant hepatic failure		
39	Discuss clinical presentation and indication of surgery in liver cirrhosis.	**GIL-S2-Surg-5** Clinical presentation and indication of surgery in liver cirrhosis.		
		Community Medicine		
35	• Describe micro and macronutrient components. • Comprehend the importance of micro and macro nutrient components. • Enumerate the different factors of micro and macronutrient deficiencies. • Describe the burden of micro and macronutrient deficiency in Pakistan. • Describe the malnutrition • Classify the types of malnutrition among children under and over 5 years. • Discriminate between the risk factors responsible for malnutrition among	**GIL-S2-CM-9** Micro and macro nutritional Deficiencies And Malnutrition in under and over five years age children	Interactive Lecture	MCQs & OSPE

Theme 8: Tumors of Liver and Gall Bladder				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
		Pathology		

40	• Describe Etiology, pathogenesis, gross & histologic Features of Focal Nodular Hyperplasia,cavernous Hemangioma Hepatocellular Adenoma Hepatoblastoma Hepatocellular Carcinoma Malignant Biliary Tumors	**GIL-S2-Path-24** Tumors of the liver	Interactive Lecture	SBQs & OSVE
41	• State congenital anomalies etiology, pathogenesis, gross &histologic Features of • Cholelithiasis (Gallstones) • Acute & Chronic Cholecystitis • Gall bladder Carcinoma	**GIL-S2-Path-25** Diseases & Tumors of gall bladder		
42	• Demonstrate gross and microscopic features of hepatocellular carcinoma and carcinoma gall bladder	**GIL-S2-Path-26** Ca liver and Gall Bladder	Practical	SBQs & OSVE
		Clinical Lecture		
43	Describe Cirrhosis, partial hypertension, variceal bleeding, medical and endoscopic management.	**GIL-S2-Med-6** Cirrhosis, partial hypertension, variceal bleeding, medical and endoscopic management.	Interactive Lecture	SBQs & OSVE
44	Describe Ascites, Hepatic encephalopathy, and hepatorenal syndrome	**GIL-S2-Med-7** Ascites, Hepatic encephalopathy, and hepato-renal syndrome		
45	Describe the clinical presentation and management of cholelithiasis	**GIL-S2-Surg-6** Clinical presentation and management of cholelithiasis		
		Community Medicine		
46	• Define food preservation, fortification, and adulteration. • Describe the public health importance • of food preservation and fortification. • Discriminate between food adulteration and fortification. • Define food poisoning • Describe what causes food poisoning • Explain the effects of food poisoning	**GIL-S2-CM-10** Food preservation, fortification and adulteration/ Food Poisoning	Interactive Lecture	MCQs & OSPE

ENDOCRINOLOGY MODULE II

Introduction

The Endocrine system is made up of ductless glands, which secrete chemical substances (hormones) directly into blood, relays information and maintains a constant internal environment of the body called homeostasis. The endocrine glands where hormones are produced, stored, and released. Once released into the bloodstream, they travel to their target organ or tissue, which has receptors that recognize and react to the hormone. Hormones of the endocrine system coordinate and

control growth, metabolism, temperature regulation, the stress response, reproduction, and many other functions.
This module will help the students to develop knowledge and understanding the basic concepts of endocrinehormone their disorders relates to primary pathogenesis, and how this knowledge help in diagnosis and treatment.
This endocrine system module will facilitate to recognize the clinical presentations of common endocrinological and metabolic disorders and relate clinical manifestations to basic sciences.
Rationale Endocrine disorders like Diabetes Mellitus and Thyroid related diseases are very common in all parts of Pakistan. This module provides the basis on which 3rd year MBBS students will learn not only knowledge application to know the pathology but will be able to link abnormalities with treatment options in the 2nd spiral of the curriculum.
Common endocrinological disorders like Diabetes mellitus, thyrotoxicosis, hypothyroidism, Cushing syndrome, pituitary disorders are necessary to be understood for comprehensive management. These diseases are commonly encountered in medical practice. In this module with the integration of the basic knowledge obtained in the first spiral, a sound clinical base is developed by learning their pharmacotherapy in detail.

Duration: **02 weeks**

Learning Outcomes

- Describe the clinical uses and adverse effects of growth hormone and adrenocorticotropic (ACTH)hormones.
- Explain the therapeutic effects of thyroxine in the treatment of hypothyroidism.
- Explain the mechanism of action, therapeutic and adverse effects of anti-thyroid drugs.
- Explain the therapeutic and preventive role of iodine in thyroid disorders.
- Classify diabetes mellitus on the basis of WHO criteria.
- Describe the pathogenesis, clinical features, pathological changes, complications and prevention ofdiabetes mellitus.
- Describe the pharmacokinetics, mechanism of action and adverse effects of insulin and oralhypoglycemic agents.
- Classify mineralocorticoids & glucocorticoids on the basis of duration of action, anti- inflammatoryand salt retaining properties.
- Describe the clinical uses and adverse effects of mineralocorticoids and glucocorticoids.
- To describe and discuss the roles of hormone receptors in hormone action including their location, type and signaling pathways.
- To apply endocrinological principles to determine the pathophysiological basis and consequencesof specific endocrine disorders.
- Discuss the epidemiology and consequences of iodine deficiency and the salient features of iodinecontrol program in Pakistan
- Describe the epidemiology of diabetes mellitus in terms of global perspectives in Pakistan
- Describe the levels of prevention of diabetes mellitus and its control.

Themes

Theme 1: Non-neoplastic & neoplastic diseases of the Pituitary Gland
Theme 2: Non-neoplastic & neoplastic diseases of Thyroid & Parathyroid
Theme 3: Non-neoplastic & neoplastic diseases of the pancreas
Theme 4: Non-neoplastic & neoplastic diseases of Adrenal Gland
Theme 5: Multiple Endocrine Neoplasia Syndromes

TOPICS WITH SPECIFIC LEARNING OBJECTIVES AND TEACHINGSTRATEGIES **Theme 1: Non-Neoplastic & Neoplastic Diseases of Pituitary Gland**				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
Pathology				

1	• Describe clinical manifestations of Anterior Pituitary gland disorders & Syndromes • Describe the pathophysiology and Histologic features of i. Lactotroph Adenoma ii. Somatotroph Adenoma iii. Corticotroph Adenoma iv. Other Anterior PituitaryTumors • Explain histologic features of Hypothalamic Suprasellar Tumors	**End-S2-Path-1** Disorders and neoplasms of Pituitary gland.	Interactive Lecture	SBQs & OSVE
Pharmacology				
2	• Discuss the pharmacology of anterior pituitary growth hormone (Somatotropin)	**End-S2 Pharm-1** Anterior pituitary hormones	Interactive Lecture	SBQs & OSVE
Clinical Lecture				
3	• Describe clinical manifestations of the anterior & posterior pituitary gland.	**End-S2 Med-1** Hypopituitarism/ Pan hypopituitarism, GHD, Sheehan Syndrome. Diabetes Insipidus	Interactive Lecture	SBQs & OSVE
4	• Describe the clinical features of pituitary tumors + Hypothalamic suprasellar tumors. • Clinical features of hyperfunction tumors + Mass effects	**End-S2 Med-2** Pituitary tumors + Hypothalamic suprasellar tumors		
5	• Identify the indications for trans sphenoidal Hypophysectomy Describe the technique in regards to trans sphenoidal Hypophysectomy • Outline the appropriate evaluation of the potential complications of trans sphenoidal Hypophysectomy • Review some interprofessional team strategies for improving care, coordination , and communication to advance transsphenoidal Hypophysectomy and improve outcomes	**Endo-S2-Surgery-1** Hypophysectomy		

Community Medicine				
	• Describe the major components of the research proposal. • Describe the SMART objectives in writing a research proposal. • Design a research questionnaire.	**End-S2-CM-1** How to write a Research proposal and develop the research questionnaire	Interactive Lecture	MCQs & OSPE
Forensic Medicine				
	• Determine Age estimation in medico legal cases by General examination • Discuss Medico legal importance of age	**End-S2-FM-1** Age Determination	Interactive Lecture	SBQs & OSVE

Theme 2: Non-Neoplastic & Neoplastic Diseases of Thyroid & Parathyroid

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
Pathology				
6	• Describe the pathophysiology of • Hyperparathyroidism • Primary Hyperparathyroidism • Secondary Hyperparathyroidism Hypoparathyroidism • Pseudohypoparathyroidism	**End-S2-Path-2** Disorder of Parathyroid gland	Interactive Lecture	SBQs & OSVE
7	• Histology thyroid hormones T3 and T4 synthesis and functions. • Pathophysiology, clinical features and laboratory diagnosis of simple and multinodular goiter.Toxic multinodular goiter	**End-S2-Path-3** Diseases of Thyroid gland Introduction Simple goiter and Multinodular goiter		
8	• Hyperthyroidism and thyrotoxicosis. • Primary and secondary hyperthyroidism. • Pathophysiology causes, clinical features and laboratory diagnosis of Graves' disease	**End-S2-Path-4** Hyperthyroidism. Graves' disease Thyroid storm Apathetic hyperthyroidism		
9	• Discuss Hypothyroidism its causes clinical features and laboratory diagnosis	**End-S2-Path-5** Hypothyroidism Cretinism Myxedema		
10	• Discuss the clinical and morphologicalfeatures of: i. Hashimoto Thyroiditis ii. Subacute Lymphocytic Thyroiditis iii. Granulomatous Thyroiditis	**End-S2-Path-6** Inflammatory diseases of the thyroid gland		
11	• Discuss the Causes, pathogenesis, morphological features, and laboratory diagnosis of thyroid adenoma and papillary carcinoma	**End-S2 Path-7** Thyroid Neoplasms-I		
12	• Causes, pathogenesis, morphological features, and laboratory diagnosis of follicular carcinoma, medullary carcinoma, and anaplastic carcinoma.	**End-S2-Path-8** Thyroid Neoplasms-II		

13	• Laboratory interpretation of parathyroid gland diseases	**End-S2-Path-9** Parathyroid gland Lab interpretation	Practical	OSPE & OSVE
14	• Thyroid function test and its interpretation according to the disease	**End-S2-Path-10** Thyroid function tests		
15	• Neoplastic lesions of the thyroid gland	**End-S2-Path-11** Benign and malignant tumors of the thyroid gland		
Pharmacology				
16 **17**	• Classify the drugs used in Thyroid disorders • Pharmacological effects of anti-thyroid drugs • Discuss the drugs used for hypothyroidism • Drugs used in parathyroid disorders (Tetany)	**End-S2-Pharm-2+3** Thyroid and Parathyroid hormones	Interactive Lecture	SBQs & OSVE
Clinical Lecture				
18	• Describe the clinical features & management of & Hyperparathyroidism	**End-S2-Med-3** Primary+ Secondary+ tertiary. Hyperparathyroidism		
19	• Describe the clinical features & management of hypoparathyroidism	**End-S2-Med-4** Primary+ Secondary+ tertiary. Hypoparathyroidism + Pseudo-hypoparathyroidism		
20	• Discuss Clinical features of inflammatory thyroid disorders	**End-S2-Med-5** Thyroiditis. Hypothyroidism (Hashimoto thyroid disease, Myxedema and cretinism)	Interactive Lecture	SBQs & OSVE
21	• Discuss Clinical features of inflammatory thyroid disorders	**End-S2-Med-6** Hyperthyroidism (Graves' disease)		
22	• Discuss Toxic adenoma. • Multinodular Goiter • Simple Nontoxic goiter • Types of thyroid carcinomas.	**End-S2-Med-7** Goiter + Adenoma +Thyroid Malignancies.		
23	• Identify the indications of Parathyroidectomy • Describe the technique of Para thyroidectomy. • Review the clinical significance of Para thyroidectomy. • Summarize the potential complications of Para thyroidectomy	**End-S2-Surg-2** Para thyroidectomy.		
Community Medicine				
20	• Determine the steps of data entry using statistical software. • Understand the basics of operating SPSS. • Describe how to analyze data using SPSS	**End-S2-CM-2** Data entry and Statistical analysis	Interactive Lecture	MCQs & OSPE
Forensic Medicine				
•	• Define negligence, & its types. • Define Professional negligence • Discuss Res-Ipsa-Liquor, Novus Actus Inter venus & Vicarious Liability	**End-S2-FM-2** Medical Negligence	Interactive Lecture	SBQs & OSVE

•	• Discuss Professional Secrecy & misconduct (Infamous conduct	**End-S2-FM-3** Professional Misconduct	Interactive Lecture	SBQs & OSVE

Pathology				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
24	• Glucose homeostasis, metabolic action of insulin and mechanism of insulin release. Classification of diabetes mellitus. Types of incretins. Impaired glucose tolerance test. Laboratory diagnosis of diabetes mellitus	**End-S2-Path-12** Disorder of Endocrine Pancreas Diabetes Mellitus-1	Interactive Lecture	SBQs & OSVE
25	• Pathogenesis of type-I and type-II diabetes mellitus, clinical presentation and complications of diabetes mellitus.	**End-S2-Path-13** Disorder of Endocrine Pancreas Diabetes mellitus-II		
26	• Discuss clinical presentation, pathogenesis and histologic features of Common Pancreatic Endocrine Neoplasms Hyperinsulinism (Insulinoma) Zollinger-Ellison Syndrome (Gastrinoma) Pancreatic carcinoid tumors	**End-S2-Path-14** Pancreatic tumors		
27	• Diabetes mellitus its type and laboratory interpretation	**End-S2-Path-15** Diabetes mellitus Lab interpretation		

Pharmacology				
28	• Describe the pharmacology of insulin and benefits of glycemic control in diabetes mellitus type-I	**End-S2-Pharm-4** Anti-Diabetic Drugs Pancreas (Insulin)	Interactive Lecture	SBQs & OSVE
29	• Describe the drugs used in type IIdiabetes mellitus.	**End-S2-Pharm-5** Non-Insulin antidiabetic agents		
Clinical Lecture				
30	• Describe Diabetes (Definition +WHO Classification). Management of diabetes.	**End-S2-Med-8** Diabetes Mellitus-I	Interactive Lecture	SBQs & OSVE
31	• Discuss Acute & chronic complications of diabetes.	**End-S2-Med-9** Diabetes Mellitus-II		

Theme 4: Non-Neoplastic & Neoplastic Diseases of the Adrenal Gland Theme 5: Multiple Endocrine Neoplasia Syndromes				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
Pathology				

32	• Describe the hyper-secretory & hypo-secretory disorders of adrenal cortex • Adrenocortical Hyperfunction Hypercortisolism (Cushing • Syndrome) Primary Hyperaldosteronism Adrenogenital Syndromes • Adrenocortical Insufficiency Primary Acute Adrenocortical • Insufficiency Primary Chronic Adrenocortical • Insufficiency (Addison Disease) • Discuss clinical presentation, pathogenesis, and histologic features of Adrenocortical Neoplasms, Adrenocortical adenomas, and Pheochromocytoma.	**End-S2-Path-16** non-neoplastic diseases of the adrenal cortex Neoplastic diseases of adrenal cortex & Medulla MEN-I & MEN-II	Interactive Lecture	SBQs & OSVE
Pharmacology				
33	• Describe the pharmacokinetic, pharmacodynamics clinical uses and the toxicity of glucocorticoids	**End-S2-Pharma-6** Corticosteroids (Glucocorticoids).	Interactive Lecture	SBQs & OSVE
34	• Discuss the pharmacology of Mineralo corticoids.	**End-S2-Pharm-7** Mineralo corticoids		
35	• Discuss the corticosteroid antagonists	**End-S2-Pharm-8** Corticosteroid antagonists		

Community Medicine				
	• To understand Health Education • To discuss the importance of Health • To describe the Aims and Objectives of Health Education • To discuss various Principles of Health Education • To describe the Stages of Health Education	**End-S2-CM-3** Health Education: Concept, Aims and Objectives, Principles and Stages of Health Education	Interactive Lecture	MCQs & OSPE
Forensic Medicine				
•	• Discuss Acquired and congenital deformities. • Define Tattoo marks. • Medicolegal Importance of • Name, Age, Sex & Race	**End-S2-FM-4** Methods of Identification	Interactive Lecture	SBQs & OSVE
Medicine				
36	• Describe Diabetes (Definition + WHO Classification). • Management of diabetes.	**End-S2-Med-8** Diabetes Mellitus-I	Interactive Lecture	SBQs & OSVE
37	• Discuss Acute & chronic • complications of diabetes.	**End-S2-Med-9** Diabetes Mellitus-II		
38	• Describe the clinical manifestations of hyperfunctioning of the • Adrenal gland. (Cortex)	**End-S2-Med-10** Cushing Syndrome		
39	• Describe the clinical manifestations of hypo functioning of the Adrenal gland. (Cortex)	**End-S2-Med-11** Adrenal insufficiencies (Addison disease)		
40	• Describe the clinical features of. Corticotropin adenoma.	**End-S2-Med-12** Corticotrophin adenoma. (Cushing Syndrome of pituitary origin)		

41	• Discuss the Clinical manifestation of Adrenal Medullary tumors + paragangliomas	**End-S2-Med-13** Pheochromocytoma + paragangliomas		
42	• Discuss the genetic mutation in Endocrinology	**End-S2-Med-14** MEN-I, MEN-II, A&B		
Surgery				
43	• Identify the indications of adrenalectomy • Describe the management of adrenalectomy • Outline the complications of adrenalectomy	**End-S2-Surg-3** Adrenalectomy	Interactive Lecture	SBQs & OSVE
Community Medicine				
	• To describe the term Communication and its various Methods • To elaborate the Barriers of communication and discuss how to overcome it.	**End-S2-CM-4** Communication Methods, Barriers and skills in Health Education	Interactive Lecture	MCQs & OSPE

RENAL & EXCRETORY MODULE II

Introduction

Welcome to the Renal & excretory module. This exciting module will serve as a building block and is very essential to your future work as doctors. This module is designed to make your learning both interesting and productive by including several interactive activities.

This module covers topics which are Pathogenesis of glomerular disease, Glomerular conditions associated with system disorders and Isolated glomerular abnormalities, Renal vascular disease, Obstructive uropathy (Urolithiasis, Hydronephrosis), Tumors of Renal and Lower Urinary System, Kidney function tests,Urine Analysis and Urine C/S. All these topics are interactive and helpful in understanding the renal pathology.

Rationale

Renal system and excretory system is Responsible for the body to get rid of waste and toxic substances. In this module the renal and excretory system will be examined in detail with emphasis on Pathogenesis of glomerular disease, Glomerular conditions associated with system disorders and Isolated glomerular abnormalities, Renal vascular disease, Obstructive uropathy (Urolithiasis, Hydronephrosis), Tumors of Renal and Lower Urinary System, Kidney function tests, Urine Analysis and Urine C/S.
This module will enable the students of third year to recognize the clinical presentations of common renal diseases and relate clinical manifestations to basic sciences.

Duration: **02 weeks**

Learning Outcomes

At the end of this module, the students will be able to understand common clinical problems like
kidney syndromes and to correlate with Pathogenesis of glomerular disease, Glomerular conditions associated with systemic disorders and Isolated glomerular abnormalities, Renal vascular disease, like benign and malignant nephrosclerosis, Obstructive uropathy (Urolithiasis, Hydronephrosis), Tumors of Renal and Lower Urinary System, Kidney function tests, Urine Analysis and Urine C/S.

Themes

Theme 1: Glomerular conditions including glomerular syndromes, conditions associated with systemic disorders and Isolated glomerular abnormalities.
Theme 2: Kidney/ Excretory Infections and Renal Vascular Disorders
Theme 3: Obstructive uropathy (Urolithiasis, Hydronephrosis)
Theme 4: Tumors of the Renal/ excretory System

TOPICS WITH SPECIFIC LEARNING OBJECTIVES AND TEACHINGSTRATEGIES

Theme 1: Glomerular Conditions Including Glomerular Syndromes, Conditions Associated with Systemic Disorders, and Isolated Glomerular Abnormalities

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING	ASSESSMENT

			STRATEGY	
Pathology				
1	• Classify glomerular disease. • Define glomerular syndrome • Discuss pathogenesis of glomerular injury and mediators of glomerular injury.	**EXC-S2-Path-1** Glomerular diseases	Interactive Lecture	SBQs & OSVE
2	• Describe various glomerular syndromes • Define nephritic syndrome • Describe pathophysiology and clinical features of nephritic syndrome • Differentiate between nephritic and nephrotic syndrome.	**EXC-S2-Path-2** Nephritic Syndrome		
3	• Define and describe causes: • Pathophysiology and clinicalfeatures of nephrotic syndrome. • Differentiate between nephritic and nephrotic syndrome.	**EXC-S2-Path-3** Nephrotic Syndrome		
4	• Discuss the pathophysiology, morphology, and clinical features in glomerular conditions associated with systemic disease e.g., Diabetic nephropathy, Lupus nephritis, Henoch-Schönlein-Purpura. • Explain isolated glomerular abnormalities, including IGA nephropathy, Hereditary nephritis, Alport syndrome.	**EXC-S2-Path-4** Glomerular conditions associated with systemic disorders and Isolated glomerular abnormalities		
5	• Name the kidney function test • Mention clinical interpretation of serum urea, creatinine, BUN and creatinine clearance test.	**EXC-S2-Path-5** Kidney function tests	Practical	OSPE & OSVE
Community Medicine				
	• To define waste and its types • To understand the public health importance of various types of wastes • To learn about different sources of wastes • To learn about different methods of collection and disposal of refuse	**EXC-S2-CM-1** Introduction, Public Health importance of waste management. methods of collection & disposal of refuse	Interactive Lecture	MCQs & OSPE

Theme 2:	**Kidney/ Excretory Infections and Renal Vascular Disorders**			
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
Pathology				
6	• Describe causes and pathogenic mechanism of tubulointerstitialinjury • Etiology, pathogenesis and morphology of acute tubular necrosis. • Describe etiopathogenesis and morphology of tubulointerstitial nephritis.	**EXC-S2-Path-6** Tubulo insterstitial Injury		

7	• Identify predisposing factors of pyelonephritis • Describe causes, pathogenic mechanisms and morphology ofacute pyelonephritis. • Describe clinical course and complications of acute pyelonephritis.	**EXC-S2-Path-7** Pyelonephritis	Interactive Lecture	SBQs & OSVE
8	• Define chronic pyelonephritis • Enumerate causes and morphological features of chronic pyelonephritis.	**EXC-S2-Path-8** Chronic Pyelonephritis		
9	• Identify the causes of UTI. • Describe predisposing factors andclinical presentation.	**EXC-S2-Path-9** Urinary tract infections		
10	• Classify renal vascular disease. • Discuss etiology, pathogenesis, morphology, and clinical features of benign and malignantnephrosclerosis. • Define renal artery stenosis, mention its causes, and clinical features. Describe thrombotic microangiopathy and other vascular disorders	**EXC-S2-Path-10** Renal Vascular Disease		
11	• Describe the urine detail report and different methods of urine culture	**EXC-S2-Path-11** Urine Analysis andUrine Culture	Practical	OSPE & OSVE
Community Medicine				
	• To understand the methods of human excreta disposal • To describe the hazards of improper excreta disposal • To understand different methods of sewage disposal	**EXC-S2-CM-2** Methods of disposal of human excreta & sewage	Interactive Lecture	MCQs & OSPE

Theme 3: Obstructive Uropathy (Urolithiasis, Hydronephrosis)				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
Pathology				
12	• Name various types of renalcalculi. • Describe etiopathology causes and complication.	**EXC-S2-Path-12** Kidney stones	Interactive Lecture	SBQs & OSVE
13	• Identify causes, Pathophysiology, gross and microscopic features & clinical features of hydronephrosis.	**EXC-S2-Path-13** Hydronephrosis		
Community Medicine				
	• To learn about sources of hospital wastes • To understand different types of hospital waste • To learn about different methods for prevention and control of hospital wastes and treatment of hospital waste	**EXC-S2-CM-3** Hospital Waste management	Interactive Lecture	MCQs & OSPE

Theme 4: Tumors of the Renal/ excretory System

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
		Pathology		
14	• Name the benign and malignant tumors of the kidney. • Describe etiopathology, risk factor and, morphology and clinical features of Renal Cell Carcinoma.	**EXC-S2-Path-14** Tumors of Kidney-I	Interactive Lecture	SBQs & OSVE
15	• Classify urothelial tumor. • Discuss etiology, pathogenesis, morphology, clinical features and diagnosis of urothelial tumors.	**EXC-S2-Path-15** Tumor of Urinary System-II		
16	• Describe gross and microscopic features of benign & malignant kidney and urinary bladder tumors	**EXC-S2-Path-16** Kidney and urinary bladder tumors	Practical	OSPE & OSVE
		Pharmacology		
17	• Classify different types of Diuretics. • Describe the mechanism of action of Diuretics, • Identify the clinical uses and adverse effects of Diuretics	**EXC-S2-Pharm-01** Diuretics	Interactive Lecture	SBQs & OSVE

REPRODUCTIVE MODULE II

Introduction

Welcome to the Reproductive module. This exciting module will serve as building block and is very essential to your future work as doctors. This module is designed to make your learning both interesting and productive by including several interactive activities.

Reproductive health is a state of complete physical, mental and social well-being in all matters relating to thereproductive system. Reproductive Health is essential for peoples' overall well-being. Hence Reproductive health and specifically women's reproductive health is given prime importance at a global level.

This module will address inflammatory, neoplastic and non-neoplastic diseases of female genital organs, breast, sexually Transmitted Diseases and infertility. It will also address the inflammatory, non-neoplastic and neoplastic diseases of male reproductive system.

Rationale

More than half of the population of Pakistan are females. Diseases related to female and male reproductivesystems constitute a large segment of medical practice in all countries. These diseases together with pregnancy and its related disorders are the core teaching in this module. Reproductive module is expected to build students basic knowledge about normal structure, development and diseases of reproductive system. This will help the students to gain the knowledge about the etiology and pathogenesis of diseases of both male and female reproductive system and methods of diagnosis these diseases.

This module will enable the students of fourth year to recognize the clinical presentations of common reproductive diseases. The student will develop an understanding of the pathology, clinical presentation, and diagnosis of reproductive disorders, normal pregnancy and its disorders.

Duration: **03 weeks**

Learning Outcomes

At the end of this module, students should be able to:

- Recall the anatomy & physiology of the male and female reproductive system.
- Discuss the etiology of early pregnancy disorders.
- Differentiate the non-neoplastic and neoplastic lesions of male and female genital tract.
- Differentiate between primary and secondary amenorrhea and discuss the management of infertility.
- Interpret the semen analysis report.
- Explain the clinical features diagnosis and management testicular tumors.
- Classify breast tumor and differentiate between non proliferative and proliferative breast lesions

Themes

Theme 1: Lesions of Female Genital Tract
Theme 2: Lesions of Breast
Theme 3: Lesions of Male Genital Tract

TOPICS WITH SPECIFIC LEARNING OBJECTIVES AND TEACHINGSTRATEGIES Theme 1: Lesions of Female Genital Tract Theme 2: Lesions of Breast				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
1	• Discuss congenital anomalies of female genital tract • Define sexually transmitted infections • Define Pelvic Inflammatory Disease • List the organism causing genital tract infection • Discuss complications of PID	**Rep-S2-Path-1** Congenital anomalies & Infections of female genital tract	Interactive Lecture	SBQs & OSVE
2	• Discuss the morphology, pathogenesis and clinical presentation of non-neoplastic & neoplastic vulvar conditions. • Explain the pathogenesis and morphology of vaginal intraepithelial neoplasia and squamous cell carcinoma	**Rep-S2-Path-2** Non-neoplastic and neoplastic conditions of vulva and vagina		
3	• Explain the infections of cervix including acute & chronic cervicitis and Endocervical Polyps • Discuss risk factors, pathogenesis and morphology of cervical intraepithelial lesions and cervical carcinoma	**Rep-S2-Path-3** Non-neoplastic and neoplastic conditions of the cervix		
4	• Discuss the etiology, pathogenesis, morphology and clinical features of Abnormal uterine bleeding and Anovulatory Cycle • Explain the etiology, pathogenesis, morphology and clinical features of acute and chronic Endometritis, Endometriosis and Adenomyosis and Endometrial Polyps • Define Endometrial hyperplasia • and explain its etiology and morphology	**Rep-S2-Path-4** Functional Endometrial Disorders & Endometrial Hyperplasia		
5	• Explain the procedure of pap smear • Differentiate the normal and abnormal pap smear	**Rep-S2-Path-5** Pap smear	Practical	OSPE & OSVE
6	• Discuss the etiology, pathogenesis, morphology and clinical features of Carcinoma of the Endometrium • Describe benign and malignant tumors of myometrium	**Rep-S2-Path-6** Tumors of Uterus	Interactive Lecture	
7	• Describe non neoplastic and functional cyst of ovary • Explain etiology, morphology and clinical presentation of polycystic ovarian disease	**Rep-S2-Path-7** Diseases of ovary		
8	• Classify tumors of ovary • Discuss the etiology, pathogenesis, morphology and clinical	**Rep-S2-Path-8** Tumors of the ovary		

	features of ovarian tumors			
9	• Discuss the etiology, pathogenesis and morphology of hydatiform mole including complete mole, partial mole and invasive mole • Explain the pathogenesis and morphology of choriocarcinoma and placental site trophoblastic tumor	**Rep-S2-Path-9** Gestational Trophoblastic Diseases		SBQs & OSVE
10	• Describe the morphology, gross and microscopic features of gestational tumors	**Rep-S2-Path-10** Gestational Tumor	Practical	OSPE & OSVE
THEME 2: LESIONS OF THE BREAST				
11	• Name non-proliferative and proliferative breast lesions • .Discuss the etiology, pathogenesis, morphology and clinical features of all non- proliferative and proliferative breast diseases	**Rep-S2-Path-11** Non-proliferative & proliferative breast diseases	Interactive Lecture	BCQ SAQs OSPE
12	• Classify Breast tumors • Discuss the etiology, pathogenesis, morphology, and clinical features of various types of breast cancer	**Rep-S2-Path-12** Carcinoma of Breast		
13	• Describe the gross & microscopic features of benign and malignant breast tumor	**Rep-S2-Path-13** Benign and malignant tumor of breast	Practical	OSPE
Community Medicine				
	• To discuss the problem statement of Sexually Transmitted disease & HIV/AIDS • To define Sexually Transmitted disease & HIV/AIDS • To understand the epidemiolog of Sexually Transmitted disease & HIV/AIDS • To discuss the preventive and control measures of Sexually Transmitted disease & HIV/AIDS	**Rep-S2-CM-1** Epidemiology & control measure of Sexually Transmitted disease (STDs) & HIV/AIDS	Interactive Lecture	MCQs & OSPE
Forensic Medicine				
15	• Discuss Locard's principle of exchange & its medico legal importance • Describe Determination of race • Discuss Osteometric indices • Determine Sex and intersex states	**Rep-S2-FM-1** Race & Sex Determination	Interactive Lecture	SBQs & OSVE
	• Discuss Traumatic Asphyxia • Discuss Sexual asphyxia (auto-erotic asphyxia)	**Rep-S2-FM-2** Traumatic & Sexual Asphyxia	Interactive Lecture	SBQs & OSVE
	• Define & Classify Sexual offences • Define the legal definition of Rape • Describe Procedure of examination a victim & accused person of of rape and the collection of specimens during examination • Define Rape in children • Define Incest and its legal aspects	**Rep-S2-FM-3** Sexual Offences (Intro) & Natural Sexual Offences and Its Legal Aspects	Interactive Lecture	SBQs & OSVE
	• Define Legal definition of sodomy and its types • Describe the examination of a victim of Sodomy	**Rep-S2-FM-4** Unnatural Sexual Offences and	Interactive Lecture	SBQs & OSVE

	• Describe Examination of a habitual passive agent (Catamite) and habitual active agent (Sodomite) • Describe the collection of samples from passive and active agents • Define Bestiality with examination • Define Tribadism or female • homosexuality and its legal aspects • Define Buccal coitus Unnatural • Sexual Offences and Its Legal • Aspects	Its Legal Aspects		
	• Define Sexual perversions • Classify Sexual perversions • • Discuss Sexual perversions	**Rep-S2-FM-5** Sexual Perversions	Interactive Lecture	SBQs & OSVE

Theme-3: Lesions of the Male Genital Tract				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
11	• Discuss congenital anomalies of male genital tract • Describe inflammatory conditions of testis and epididymis	**Rep-S2-Path-14** Congenital anomalies and inflammation of testis and epididymis	Interactive Lecture	SBQs & OSVE
12	• Classify testicular tumors • Discuss the etiology, pathogenesis, morphology and clinical features of various types of testicular tumors	**Rep-S2-Path-15** Testicular Tumors		
13	• Explain the etiology and morphology of prostatitis • Describe gross and microscopic features and complications of BPH	**Rep-S2-Path-16** Prostatitis & benign prostatic hyperplasia		
14	• Describe etiology, morphology, type, and staging of carcinoma of the prostate	**Rep-S2-Path-17** Carcinoma of the prostate		
15	• Explain the sample collection, gross, microscopic, and chemical examination of semen	**Rep-S2-Path-18** Semen D/R	Practical	OSPE & OSVE
FORENSIC MEDICINE				
	• Describe Virginity and its medico-legal perspectives • Describe the signs of virginity on medico legal examination • Differentiate between a true and false virgin on examination.	**Rep-S2-FM-6** Virginity & Pregnancy	Interactive Lecture	SBQs & OSVE
	• Define Abortion, types of abortion & its medico-legal aspects • Define Criminal abortion and its types according to the Pakistan Penal Code • Describe the causes of death in criminal abortion and autopsy findings • Describe Delivery and its medico legal aspects • Describe Signs of recent delivery in living & dead • Describe the signs of remote delivery in living & dead	**Rep-S2-FM-7** Abortion & Delivery	Interactive Lecture	SBQs & OSVE
	• Define Impotence, Sterility, and Artificial insemination, along with causes • Describe Consummation of marriage, causes of nullity of marriage, and divorce from legal aspects • Discuss the examination of a case of	**Rep-S2-FM- 8** Impotence	Interactive Lecture	SBQs & OSVE

	impotency and how to give an opinion in such a case			
	• Define Infanticide & Feticide. • Differentiate Still born & Dead born baby • Describe Signs of live birth • Discuss the criminal causes of death of newborn babies, i.e., Acts of commission and acts of omission • Explain Autopsy on the bodies of newborn babies	**Rep-S2-FM-9** Infanticide	Interactive Lecture	SBQs & OSVE
	• Define Battered Baby Syndrome, Shaken Baby Syndrome • Discuss Etiology & Clinical Features of a battered baby. • Describe Injuries seen in Shaken Baby Syndrome with mechanism & legal importance of SIDS.	**Rep-S2-FM-10** Battered Baby Syndrome & Sudden Infant death syndrome (SIDS)	Interactive Lecture	SBQs & OSVE
16	• Enlist different estrogen and antiestrogen preparations • Describe the pharmacological effects, clinical uses and side effects of these agents	**Rep-S2-Pharm-1** Estrogen And Antiestrogen	Lecture	SBQs & OSVE
17	• Enlist different types of hormonal contraceptives. • Describe the mechanism of action of hormonal, contraceptives, their clinical uses and adverse effects of hormonal contraceptives.	**Rep-S2-Pharm-2** Androgen and Anti-Androgen		
18	• Describe the role of endogenous oxytocin in labour • Describe the clinical conditions that mayrequire the exogenous oxytocin • Discuss the unwanted effects of Oxytocin.	**Rep-S2-Pharm-3** Oxytocin		

MUSCULOSKELETAL MODULE II

Introduction

Welcome to the soft tissue and bone module. This exciting module will serve as building block and is very essential to your future work as doctors. This module is designed to make your learning both interesting andproductive by including several inter active activities.

This module covers the topics which are basic structure and function of bone, developmental disorders of bone and cartilage, fractures, bone repair and osteomyelitis, arthritis, benign bone and cartilage forming tumors, malignant bone and cartilage forming tumors, tumors of unknown origin and soft tissue tumors. All these topics are interactive and helpful in understanding the soft tissue and bone pathology.

Rationale

The soft tissue and bone module is designed with a compelling rationale, aiming to equip students withessential knowledge and skills for various disciplines:

Duration: **02 weeks** Learning Outcomes

At the end of this module, the students will be able to understand pathological conditions, etiology, diagnostictechniques, treatment planning, radiological interpretation, histopathology and clinical correlation.

Themes

Theme 1: Developmental Disorders of Bone & Cartilage, Basic Structure & Function of Bone. Theme 2: Fractures, Osteomyelitis and Arthritis.

Theme 3: Benign Bone and Cartilage Forming Tumors, Malignant Bone and Cartilage FormingTumors and Tumors of Unknown Origin

Theme 4: Soft Tissue Tumors

TOPICS WITH SPECIFIC LEARNING OBJECTIVES AND TEACHINGSTRATEGIES Theme 1: Developmental Disorders of Bone & Cartilage, Basic Structure & Function of Bone				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
1	• Functions of Bone • Matrix • Cells • Development • Homeostasis and Remodeling	**MSK-S2-Path-1** Basic Structure and Function of Bone	Interactive Lecture	SBQs & OSVE
2	• Diseases Associated with Defects in Nuclear Proteinsand Transcription Factors • Diseases Associated with defects in Hormones and Signal Transduction Proteins • Diseases Associated with Defects in Metabolic Pathways (Enzymes, Ion Channels, andTransporters) • Diseases Associated With Defects in the Degradation of Macromolecules	**MSK-S2-Path-2** Developmental Disorders Of Bone AndCartilage		
Community Medicine				
	To learn about the relationship between health and housing To learn about the criteria of healthful housing	**MSK-S2-CM-1** Healthful housing	Interactive Lecture	MCQs & OSPE
Forensic Medicine				
	Define dactylography & its types Discuss medicolegal importance of fingerprint	**MSK-S2-FM-1** Dactylography	Interactive Lecture	SBQs & OSVE
	Define electrical burn and its types Enlist the body tissues that are resistant to electrical burn & factors on which injury of electrical burn depends.	**MSK-S2-FM-2** Thermal Injury & Burn	Interactive Lecture	SBQs & OSVE
	Describe the mortality of electrical burn • Define Features of injuries due to various types of electrical current • Describe Causes of death due to electrocution. • Discuss Lightning injuries and lightning deaths	**MSK-S2-FM-3** Electrocution/ Lighting	Interactive Lecture	SBQs & OSVE

Theme 2: Fracture, Osteomyelitis and Arthritis				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
3	• Define terms related to fracture • Describe mechanism of bone healing • Complications of fracture • Pathophysiology of bone infection (osteomyelitis)	**MSK-S2-Path-3** Fractures, bone repair and osteomyelitis	Interactive Lecture	SBQs & OSVE

4	• What is arthritis • Define Osteoarthritis and Rheumatoid Arthritis • Explain pathophysiology of osteoarthritis and Rheumatoid Arthritis. • Describe the clinical features of osteoarthritis and Rheumatoid Arthritis • Treatment of osteoarthritis and Rheumatoid Arthritis • Crystal-Induced Arthritis.	**MSK-S2-Path-4** Arthritis		
	• To treat non-inflammatory conditions • The main mechanism of action of NSAIDs is the inhibition of the enzymes COX	**MSK-S2-Pharma-1** NSaids		
	• To alleviate the pain and inflammation • To reduce uric acid level in the blood	**MSK-S2-Pharma -2**		
	• To minimize joint inflammation • To prevent further joint damage • To improve joint function to improve quality of life	**MSK-S2-Pharma -3** Treatment of Rheumatoid Arthritis		
Community Medicine				
	• To define noise and noise pollution • To understand types and sources of noise pollution • To describe preventive and control measures of noise pollution	**MSK-S2-CM-2** Noise pollution	Interactive Lecture	MCQs & OSPE
Forensic Medicine				
	• Define Forensic Odontology & Radiology • Discuss the medicolegal importance of Forensic Odontology & Radiology	**MSK-S2-FM-2** Forensic Odontology & Radiology	Interactive Lecture	SBQs & OSVE
	• Discuss the mechanism of mechanical Injury • Classify Mechanical Injuries • Define Injury, Hurt, Wound, Assault and Battery • Describe Blunt weapon injuries, Abrasions, and bruises with medico-legal significance.	**MSK-S2-FM-3** Mechanical Injuries-1	Interactive Lecture	SBQs & OSVE
	• Describe Lacerated wounds, types, • mechanism of production and medico legal significance	**MSK-S2-FM-4** Mechanical Injuries-2	Interactive Lecture	SBQs & OSVE
	• Describe Sharp weapon injuries • Describe incised wounds with medico-legal significance.	**MSK-S2-FM-5** Mechanical Injuries-3	Interactive Lecture	SBQs & OSVE
	• Describe Stab wounds with medico legal significance.	**MSK-S2-FM-6** Mechanical Injuries-4	Interactive Lecture	SBQs & OSVE

Theme 3: Benign Bone and Cartilage Forming Tumors, Malignant Bone and Cartilage Forming Tumors and Tumors of Unknown Origin				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
5	• Osteoid Osteoma • Osteoblastoma • Osteochondroma • Chondroma	**MSK-S2-Path-5** Benign Bone and cartilage FormingTumors	Interactive Lecture	SBQs & OSVE
6	Gross and Microscopic Features	**MSK-S2-Path-6** Cartilage And Bone Forming Tumors		
7	• Osteosarcoma • Chondrosarcoma • Tumors of Unknown Origin • Ewing Sarcoma • Giant Cell Tumor • Aneurysmal Bone Cyst	**MSK-S2-Path-7** Malignant Bone and cartilage Forming Tumors Tumors of Unknown Origin		
Community Medicine				
	• To describe the effects of extreme heat and extreme cold on human body • To describe how to manage the effects of heat and cold extremes	**MSK-S2-CM-3** Effect of health and cold extremes	Interactive Lecture	MCQs & OSPE
• **Forensic Medicine**				
	• Discuss Identification of a • dead, decomposed body. • Discuss Mutilated & burnt • bodies, Skeletal & Fragmentary • remains	**MSK-S2-FM-** Mass Disaster Identification	Interactive Lecture	MCQs & OSPE

Theme 4: Soft Tissue Tumors				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
8	• Tumors of AdiposeTissue • Lipoma • Liposarcoma • Fibrous Tumors • Nodular Fasciitis • Fibromatoses • Superficial Fibromatosis • Deep Fibromatosis (Desmoid Tumors) • Skeletal Muscle Tumors • Rhabdomyosarcoma • Smooth Muscle Tumors • Leiomyoma • Leiomyosarcoma	**MSK-S2-Path-8** Soft Tissue Tumors	Interactive Lecture	SBQs & OSVE
9	Gross and MicroscopicFeatures	**MSK-S2-Path-9** Soft Tissue Tumors	Practical	OSPE & OSVE
Community Medicine				

	• To understand the magnitude of cancer problem in Pakistan. • To understand the • epidemiological features of cancer. • To describe different causes of cancer • To explain screening of cancer. • To describe risk factors of cancer. • To explain the control • measures and prevention of cancer	**MSK-S2-CM-4** Epidemiology & control measures of cancer	Interactive Lecture	MCQs & OSPE

Theme 5: Skin Module				
Learning objectives of Skin Module: Describe the pathophysiology, clinical features, laboratory diagnosis, and treatment of skin tumors, acute and chronic inflammatory disorders, bullous disorders and common infections.				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
10	Explain the pathophysiology, clinical features, laboratory diagnosis and treatment of acute and chronic inflammatory dermatosis.	**MSK-S2-Path-10** Acute and Chronic Inflammatory Dermatosis (Urticaria, Psoriasis, Lichen Planus)	Interactive Lecture	SBQs & OSVE
11	Explain the pathophysiology, clinical features, laboratory diagnosis and treatment of common skin tumors.	**MSK-S2-Path-11** Common Skin Tumors (BCC, SCC, Melanoma)		
12	To Explain the pathophysiology, clinical features, laboratory diagnosis and treatment of Bullous disorders.	**MSK-S2-Path-12** Blistering (Bullous) Disorders (Pemphigus, Pemphigoid)		
13	To explain the pathophysiology, clinical features, laboratory diagnosis and treatment of common infections.	**MSK-S2-Path-13** Infections (Viral, Bacterial & Fungal Infections)		
	Forensic Medicine			
	• Describe Late signs of death i.e., • Putrefaction, mechanism, changes, gases of decomposition • Explain Adipocere formation & • Mummification	**MSK-S2-FM-4** Decomposition	Interactive Lecture	MCQs & OSPE

NEUROSCIENCE MODULE II

Introduction

Welcome to the Neuroscience module-II. This exciting module will serve as building block and is very essential to your future work as doctors. This module is designed to make your learning interesting and productive by including several inter active activities. This module covers the topics which are Pathogenesis of infective and tumorous conditions of nervous system like meningitis including bacterial, viral, tuberculous and fungal meningitis CSF findings to differentiate various types of meningitis and brain tumors including both central and peripheral nervous system tumors like gliomas, neuronal tumors, meningiomas, peripheral nerve sheath tumors and others. All these topics are interactive and helpful in understanding the renal pathology.

Rationale

Diseases of the nervous system are common all over the world. Timely diagnosis and management of acuteCNS problems like cerebrovascular accidents and infections prevent morbidity and mortality. Early diagnosis and prompt treatment of ischemic, infective

and tumorous conditions like meningitis, cerebrovascular accident and brain tumors is important to reduce the occurrence of disability burden on community. After Understanding the structure and function of nervous system and its relationship with the pathophysiology of diseases in the neuroscience module-I, the students will be able to understand various infectious and tumorous conditions of the nervous system, the neuropathology module-II, by integrating the teachings of basic and clinical pathology, clinical medicine, and surgery related to the disorders of the central and peripheral nervous system.

Duration: 02 weeks

Learning Outcomes

At the end of this module, the students will be able to understand common clinical problems like meningitis and brain tumors and to correlate with the pathogenesis of diseases of the meninges and brain parenchymal disease,related investigations like CSF examination and biopsies

Themes

Theme 1: Meningitis Including Bacterial, Viral, Fungal and T.B Meningitis
Theme 2: Tumors of the Central Nervous System
Theme 3: Autonomic Nervous System

TOPICS WITH SPECIFIC LEARNING OBJECTIVES AND TEACHING STRATEGIES Theme 1: Inflammatory and Infective Diseases of CNS				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
Pathology				
1	• Define meningitis and encephalitis • Discuss common Central Nervous System infections including acute (pyogenic) bacterial infections, acute aseptic viral infections, chronic bacterial meningo-encephalitis, and fungal meningo-encephalitis	**NS-S2-Path-1** Inflammation and infections of CNS-1	Lecture/ Demonstration ,SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
2	• Viral pathogens causing meningitis, Enteroviruses, HSV-2, Arboviruses	**NS-S2-Path-2** Inflammation and infections of CNS-2		
	• Discuss pathogenesis of cerebral malaria, Naeglaria fowleri and Cysticercosis	**NS-S2-Path-3** Inflammation and infections of CNS-3		
	• Infection of Brain & Meninges &CSF interpretation	**NS-S2-Path-4** Inflammation and infections of CNS-4		
	• List the most common organisms that cause CNS infection in different age groups	**NS-S2-Path-5** Inflammation and infections of CNS-5		
	• Discuss CSF findings of bacterial, tuberculous, viral, and fungal meningitis	**NS-S2-Path-6** Inflammation and infections of CNS-6		
Community Medicine				
	• To discuss the problem statement of Meningitis • To understand the epidemiology of Meningitis • To define Meningitis and describe the mode of transmission of Meningitis • To discuss the preventive and • control measures of Meningitis	**NS-S2-CM-1** Epidemiology & control measure of Meningitis	Interactive Lecture	MCQs & OSPE
Forensic Medicine				
	• Describe Head injuries to scalp & Fractures of Skull and their medico legal significance. • Classify types of injuries to the brain, spine & their medico-legal importance.	**NS-S2-FM-1** Injuries Head & Neck	Interactive Lecture	SBQs & OSVE

	• Discuss Face & Neck, including different cervical fractures, whiplash injuries, homicidal and suicidal cutthroat.			
	• Describe the Mental Health ordinance 2001 with special reference to admission, care, and discharge of a mentally ill person	**NS-S2-FM-2** Mental Health Ordinance	Interactive Lecture	SBQs & OSVE
	• Describe Civil and criminal Responsibilities of a mentally ill person. • Discuss Testamentary capacity. • Discuss McNaughten rules, Durham rule and Currens rule. • Define insanity & differentiate between true insanity from feigned insanity.	**NS-S2-FM-3** Civil/ Criminal responsibilities of a mentally ill & Insanity	Interactive Lecture	SBQs & OSVE

THEME 2: TUMORS OF THE CENTRAL NERVOUS SYSTEM				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
3	• Classify CNS tumors according to the WHO classification • List genetic mutations, pathogenesis, morphology, and clinical features of brain tumors • Including all types of Glioma, Ependymoma, Medulloblastoma, and Meningioma • Discuss the metastatic tumorsto the brain	**NS-S2-Path-7** Brain tumors	Lecture/ Demonstration,SGD, Practical, CBL/PBL	SBQs & OSVE, OSCE, Clinical Exam
Pharmacology				
1	• Classify different types of antiepileptic agents. • Describe the mechanism of action, and clinical uses and side effects of Anti-Epileptics.	**NS-S2-Pharm-1** Anti-epiletics drugs		
2	• Classify the Anti-Psychotics • Difference between typical and Atypical Anti-Psychotics • Discuss the clinical uses and side effects of typical and Atypical Anti-Psychotics	**NS-S2-Pharm-2** Antipsychotics		
3	• Classify the Anti-Parkinson drugs • Discuss the clinical uses and side effects of Anti-Parkinson drugs	**NS-S2-Pharm-3** Drugs used in Parkinson Disease		
4	• Discuss the pathophysiology of migraine headaches • Discuss both pharmacologic and non-pharmacologic treatment strategies for migraine.	**NS-S2-Pharm-4** Treatment of Migraine		
5	• Classify the Anti-Depressants • Discuss the clinical uses and side effects of MAO's inhibitors • Discuss the clinical uses and side effects of TCA's • Discuss the clinical uses and side effects of SSRI'S AND SNRI'S	**NS-S2-Pharm-5** Anti-Depressants		
6	• Classify the Sedative Hypnotics • Discuss the mechanism of action, clinical uses and side effects of benzo diazepam • Discuss the mechanism of action, clinical uses and side effects of Barbiturates	**NS-S2-Pharm-6** Sedatives and Hypnotics		

7	• Classify the General Anesthetic Agents • Discuss the mechanism of action, clinical uses and side effects of Inhaled Anesthetic Agents • Discuss the mechanism of action, clinical uses and side effects of Intravenous Anesthetic Agents	**NS-S2-Pharm-7** General anesthesia - 1 (inhaled)		
8		**NS-S2-Pharm-8** General anesthesia -2 (I.V)		
9	• Classify the Local Anesthetic Agents • Discuss the mechanism of action, clinical uses and side effects of local Anesthetic Agents	**NS-S2-Pharm-9** Local Anesthetic Agents		
10	• To treat acute pain • Give in palliative care and end of life care	**NS-S2-Pharm-10** Opioids		

Forensic Medicine				
•	• Define drug, drug dependence, & drug addiction. • Enlist addictive drugs. • Define drug abuse, habituation, hypnotics, & narcotics. • Discuss different terminologies, i.e. physical & psychological dependence, psychotropic drugs, sedatives, stimulants, and tolerance. • Discuss the law related to drugs Addiction/Abuse. • Discuss the management of drug Addiction /Abuse.	**NS-S2-FM-4** Dependence/ Drug addiction	Interactive Lecture	SBQs & OSVE
•	• Introduction (Definition, Pathophysiology) • Discuss sources, S/S, fatal dose and fatal period and Management. • Discuss postmortem appearances and medicolegal importances	**NS-S2-FM-5** Narcotics & Nicotine	Interactive Lecture	SBQs & OSVE
•	• Discuss Introduction, source, mode of action, S/S, fatal dose, fatal period and management of Hallucinogens. • Discuss Postmortem appearance. • Describe the medicolegal importance	**NS-S2-FM-6** Hallucinogens	Interactive Lecture	SBQs & OSVE

THEME 3: AUTONOMIC NERVOUS SYSTEM

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
1	•	**ANS-S2-Pharm-1** Introduction To ANS	Lecture/ Demonstration,SGD, Practical, CBL/PBL	
2	• Receptor distribution of the Cholinergic Nervous System • Classify the Cholinergic agonists • Describe the mechanism of direct and indirect Cholinergic agonists • Discuss the clinical uses of Cholinergic agonists • Discuss the side effects of Cholinergic agonists	**ANS-S2-Pharm-2** Cholinergic agonists		

3	• Classify the Cholinergic antagonists • Discuss the clinical uses of Cholinergic antagonists • Discuss the side effects of Cholinergic antagonists	**ANS-S2-Pharm-3** Cholinergic antagonists		SBQs & OSVE, OSCE, Clinical Exam
4	• Receptor distribution of adrenergic Nervous System • Classify the adrenergic agonists • Describe the mechanism of direct and indirect adrenergic agonists • Discuss the clinical uses of adrenergic agonists • Discuss the side effects of adrenergic agonists	**ANS-S2-Pharm-4** Adrenergic agonists-1		
5	• Classify the adrenergic antagonists • Discuss the clinical uses and side effects of Alpha Blockers • Discuss the clinical uses and sideEffects of Beta Blockers	**ANS-S2-Pharm-5** Adrenergic agonists-2		
6	•	**ANS-S2-Pharm-6** Alpha Blockers		
7	•	**ANS-S2-Pharm-7** Beta blockers		
Forensic Medicine				
	• Define Narcotics (Opium & Heroin). • Discuss S/S of acute & chronic opium poisoning. • Discuss fatal dose & fatal period and management of narcotics. • Define heroin addiction • Discuss causes, symptoms and withdrawal of heroin addiction. • Discuss prevention to avoid side effects • Discuss postmortem appearance and medico legal aspect of Narcotics	**NS-S2-FM-7** Opium & Heroin	Interactive Lecture	SBQs & OSVE
	• Introduction & Classify types of Deliriant poisons. • Discuss Clinical Features of Acute & Chronic Poisoning, investigation techniques for the detection. • Discuss Mode of action, Metabolism, Fatal doses, antidote and management • Discuss P/M appearances & medicolegal importance of deliriant poisons.	**NS-S2-FM-8** Deliriants Poison(s) (Cannabis Indica, Cocaine & Dhatura)	Interactive Lecture	SBQs & OSVE
	• Define Properties, Pharmacological Action, Absorption, Distribution & Elimination of Barbiturates. • Explain Classification, Features of Acute & Chronic Toxicity & the Methods used for the Detection, Management & Postmortem changes in a Victim of Barbiturate Toxicity. • Discuss Fatal & Lethal Doses, Medico-legal Aspects of	**NS-S2-FM-9** Sedative Poison(s) (Barbiturates)	Interactive Lecture	SBQs & OSVE

	Barbiturates.			

TABLE OF SPECIFICATION
THIRD PROFESSIONAL MBBS EXAMAINATION
(Single Best Question & OSPE)

PAPER-II Foundation-II, Infectious, Blood=II +Skin

MODULE	Pathology	Pharmacology	Community Medicine	Total	OSPE
Foundation-II	9	8	2 (Demography)	19	Pathology=02 Pharmacology=02 C. Medicine=01 TOTAL=05
Infectious	27	13	12 (Communicable Diseases)	52	
Blood=II	20	08	-	28	
Skin	01	-	-	01	
Total	57	29	14	100	

Paper-III Respiratory-II, CVS-II, GIT-Liver=II, Endocrinology-II

MODULE	Pathology	Pharmacology	Community Medicine	Total	OSPE
Respiratory-II	13	04	12 (Environmental Health)	29	Pathology=02 Pharmacology=02 C. Medicine=01 TOTAL=05
CVS-II	10	06	06 (Occupational Health)	22	
GIT-Liver=II	24	03	03 (Food & Nutrition)	30	
Endocrinology-II	11	04	04 (Health Education)	19	
Total	58	17	25	100	

Paper-IV (Renal & Excretory system-II, Reproductive-II [Female genital tract/Breast, Male genital tract], musculoskeletal system-II, CNS-II)

MODULE	Pathology	Pharmacology	Community Medicine	Total	OSPE
Renal & Excretory system-II	11	04	18 (Epidemiology)	33	Pathology=02 Pharmacology=02 C. Medicine=01 TOTAL=05
Reproductive system-II	15	04	13 (Biostatistics)	32	
Musculoskeletal system-II	05	02	04 (Research Methods)	11	
CNS-II	04	20	-	24	
Total	35	30	35	100	

INSTITUTE OF FORENSIC SCIENCES
FORENSIC MEDICINE & TOXICOLOGY

LIAQUAT UNIVERSITY OF MEDICAL & HEALTH SCIENCES,
JAMSHORO SINDH Telephone No. 022-9213333

Doc:LUMHS/FM/[illegible] /25
Dated:06-11-2025

To,

The Director Academic's
LUMHS, Jamshoro.

SUBJECT: **MODIFIED FORMAT SUBJECT OF FORENSIC MEDICINE & TOXICOLOGY 3RD YEAR MBBS EXAMINATION UNDERGRADUATE.**

R/Sir.

This is to inform that modified format subject of Forensic Medicine & Toxicology 3rd year MBBS examination undergraduate as under.

DISTRIBUTION OF FORENSIC MEDICINE & TOXICOLOGY BCQS , OSPES / VIVA VOCE & INTERNAL EVALUATION MARKS							
THEORY		OSPE/ VIVA VOCE					
BCQ	Marks	OSPE	Marks	Interactive\ Viva Voce	Marks	Internal Evaluation	Total Marks
100	100	10	50	2/3	30	20	100

PROF. DR. WAHEED ALI NAHYOON
CHAIRMAN
INSTITUTE OF FORENSIC SCIENCES FORENSIC MEDICINE & TOXICOLOGY

COPY FOR INFORMATION:

1. Controller of Examination Undergraduate LUMHS, Jamshoro.

FIELD VISITS

COMMUNITY MEDICINE		FORENSIC MEDICINE VISITS AND PRACTICALS	
Visit-1	Industry and Social Security Hospital	Visit-1	Forensic Museum
Visit-2	Water Treatment Plant	Visit-2	Sir Cowasjee Jehangir Institute of Psychiatry & Behavioral Sciences, Hyderabad
Visit-3	Mental Hospital	Visit-3	MLC Section
		Visit-4	Court
		Practical-1	Medical Certificate
		Practical-2	Medicolegal Examination/Certificate
		Practical-3	Application of Qisas & Diyat Laws in Medical Practice
		Practical-4	Clinical Examination in case of Sexual Offenses
		Practical-5	Collection, Preservation & dispatch of Biological & other evidentiary material
		Practical-6	Medicolegal Autopsies
		Practical-7	Exhumation Protocol & Autopsy Instruments

EXAMINATION ASSESSMENT

ASSESSMENT PLAN FOR EACH PAPER	END OF YEAR ASSESMENT	INTERNAL EVALUATION	TOTAL %AGE
THEORY (SBQS)	80%	20%	100%
PRACTICAL EXAM (OSVE; OSPE)	80%		

ALLOCATION OF INTERNAL ASSESSMENT MARKS		
COMPONENT	**SCORING MATRIX**	**PERCENTAGE**
THEORY	ATTENDANCE (>90%=03; 89-80%=02; 79-70%=01;<70%=00	**3%**
	Module tests	**3%**
	Block tests	**4%**
		10%
PRACTICAL	ATTENDANCE (>90%=03; 89-80%=02; 79-70%=01;<70%=00	**3%**
	Module tests including ethics, conduct, and practicals, assignments)	**3%**
	Block tests	**4%**
		10%
TOTAL		**20%**

LEARNING RESOURCES

Pathology:

TEXTBOOKS

- Robbins & Cotran, Pathologic Basis of Disease, 9th edition.
- Rapid Review Pathology, 4th edition by Edward F. Goljan MD

Pharmacology:

TEXTBOOKS

- Lippincot Illustrated Pharmacology
- Basic and Clinical Pharmacology by Katzung

MicroBiology:

TEXTBOOKS

- Review of Medical Microbiology and Immunology, Seventeenth Edition 17th Edition by by Warren Levinson (Author), Peter Chin-Hong (Author), Elizabeth A. Joyce (Author), Jesse Nussbaum (Author), Brian Schwartz (Author)
- Jawetz Melnick & Adelbergs Medical Microbiology 28 Edition

PARASITOLOGY:

TEXTBOOKS

- Parasitology (Protozoology and Helminthology) by KD Chatterjee. 13th Edition
- A Guide to Human Parasitology by Blacklock and Southwell Hardcover 10th edition

COMMUNITY MEDICINE

- Parks Textbook of Preventive and Social Medicine – Latest Edition - Author: K. Park
- Public Health and Community Medicine – 8th Edition - Author: Ilyas, Ansari
- Textbook of Community Medicine and Public Health – 1st Edition, Edited by: Saira Afzal - Sabeen Jalal
- Fundamentals of Preventive Medicine – 5th Edition, Author: Dr. Zulfikar Ali Shaikh

FORENSIC MEDICINE & TOXICOLOGY

- Nasib R. Awan. Principles and Practice of Forensic Medicine, 1st ed. 2002.
- Parikh, C.K. Parikh's Textbook of Medical Jurisprudence, Forensic Medicine and Toxicology. 6th ed.1999.
- Knight B. Simpson's Forensic Medicine. 11th ed.1993.
- Polson. Polson's Essentials of Forensic Medicine. 4th edition. 1985.
- Taylor. Taylor's Principles and Practice of Medical Jurisprudence. 1984.
- Gradwhol, R.B.H. Gradwhol's Legal Medicine. 3rd ed.1976.
- Rao. Atlas of Forensic Medicine.
- Govindiah. Color Atlas of Forensic Medicine. 1999.

CDs:

- Lectures on Forensic Medicine.
- Atlas of Forensic Medicine.