MUHAMMAD MEDICAL COLLEGE

STUDY GUIDE FOURTH 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-Place 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 with 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 ISUM

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, the program aims to produce Medical graduates who can:

1. Utilizing knowledge of basic and clinical sciences for patient care.
2. Acquiring an integrated knowledge of the organ, structure, function, and its regulatory mechanism through the end of integrated teaching.
3. Achieving competence in the 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 an exemplary citizen by observing medical ethics and fulfilling social and professional obligations, responding to national aspirations.
6. Taking focused history, performing physical examination, formulating a 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 improving 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.

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01	Prof. Dr. Rajesh Rathi {**CHAIRPERSON**}
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02	Dr. Ashique Hussain
SENIOR REGISTRAR	
03	Dr. Muhammad Rihan
04	Dr. Muhammad Ashfaque Abbasi
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05	Dr. Shakeel Hyder
06	Dr. Anand Kumar
07	Dr. Nigar Ahmed
08	Dr. Abdul Hameed Soomro
09	Dr. Faran Ahmed
10	Dr. Nadeem
11	Dr. Sania

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07	Dr. Saira
08	Dr. Tatheer Zaura

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13	Dr. Muhammad Ishafaq Hassan
14	Dr. Zartasha Khan
15	Dr. Saleem
16	Dr. Mudasir

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02	Dr. Raffia Mazhar
	REGISTRAR

03	Dr. Haresh
04	Dr. Eareej

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06	Dr. Didar Hussain Gaju

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03	Dr. Ponam Talpur
04	Dr. Iram Imam

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14	Dr. Sultan Ahmed
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15	Dr. Umme Habiba
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09	Dr. Syed Hadi Iman
10	Dr. Aneela Faisal Memon
11	Dr. Ali Abuzar Raza
12	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
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13	Dr. Shazia Shaikh
14	Dr. Bushra
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16	Dr. Afsheen Shoukat
	Dr. Huda Afzal
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18	Dr. Nazima
19	Dr. Bakhtawar Mahar

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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 the MBBS Curriculum and 16 modules in four years of the BDS program. Each year has an average of 40 weeks of studies. Weekly plan is organized as a "theme".

Regular classes, practicals, 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 (Mondays & Wednesdays) Final Year(Tuesdays and Thursdays)**
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

FOURTH PROFESSIONAL MENTORING GROUPS CLASS COORDINATOR: PROF. DR. AYESHA MAJEED		
Group	**Mentor**	**Meeting venue (Mentor should fill)**
A1	Dr. Palwasha	
A2	Prof Dr Sumbal	
A3	Dr. Faria	
B1	Dr. Ayesha Majeed	
B2	Dr. Mehwish	
B3	Dr Aneela Faisal	
C1	Dr. Urooj	
C2	Dr. AB Rajar	
D1	Dr. Aftab	
D2	Dr Saleem Raza	
D3	Dr Ashfaq	

PURPOSE OF STUDY GUIDE

A study guide is a strategic and effective approach to

- ❖ Provide students with 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 that 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.

CLINICAL ROTATION / POSTING FOURTH YEAR MBBS STUDENTS-
MUHAMMAD MEDICAL COLLEGE, MIRPURHAS FROM DATE 20TH JANUARY 2025 TO 31ST OCTOBER 2025

Students Groups	20-01-2025 TO 28-02-2025	03-03-2025 TO 11-04-2025	03-03-2025 TO 23-05-2025	26-05-2025 T0 06-06-2025+EID & 07-07-2025 T0 08-08-2025	11-08-2025 TO 19-09-2025	22-09-2025 T0 31-10-2025
Group-A	ENT	GYNAE/OBS	PEDIATRICS	EYE	SURGERY	MEDICINE
Group-B	GYNAE/OBS	PEDIATRICS	EYE	SURGERY	MEDICINE	ENT
Group-C	PEDIATRICS	EYE	SURGERY	MEDICINE	ENT	GYNAE/OBS
Group-D	EYE	SURGERY	MEDICINE	ENT	GYNAE/OBS	PEDIATRICS
Group-E	SURGERY	MEDICINE	ENT	GYNAE/OBS	PEDIATRICS	EYE
Group-F	MEDICINE	ENT	GYNAE/OBS	PEDIATRICS	EYE	SURGERY

NOTE: Fourth-year MBBS medical students will complete their ophthalmology clinical rotation at Zainab Eye Hospital, Mirpurkhas, in addition to the ophthalmology department at MMCH

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 the PMDC rules for eligibility in annual examinations.

- ➢ Minimum attendance requirement is 75% in each subject: attendance is for lectures, demos, practicals, 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.

DISTRIBUTION OF MODULES, THEMES, CONTACT HOURS, CREDIT HOURS FOURTH YEAR OF MBBS PROGRAM-2025						
FOURTH YEAR MBBS						
4TH YEAR	**Total 12 Modules**	**Total Themes=55**		36 weeks	**1300**	**81.25**
	Module-1 Eye	**1**	Foundation of ophthalmology Community Medicine	1 week	35	2.18
		2	Lid abnormalities &bulging eyes Community Medicine			
		3	Red eye	1 week	35	2.18
		4	Visual loss			
		5	Multiple endocrine neoplasia syndromes Community Medicine	1 week	35	2.18
	Total Contact Hours for 03-Weeks			**03-Weeks**	**105 Hours**	**6.56 Credit Hours**
	Module-2 ENT	**1**	Disorders of Ear and Audio-Vestibular System (Pain, Itching, Discharge, Facial Palsy, Tinnitus, Vertigo, Deafness) Community Medicine	1 week	32.5	2.03
		2	Disorders of Nose & Para Nasal Sinuses (Nasal Obstruction, Rhinorrhea, Sneezing, Itching, Impaired Smell, Epistaxis, Headache), Community Medicine	1 week	32.5	2.03
		3	Disorders of Oral Cavity, Pharynx and Oesophagus (Sore Throat, Difficulty in Swallowing, Change of Voice) Community Medicine	1 week	32.5	2.03
		4	Disorders of Larynx Trachea and Bronchi (Cough, Hoarseness of Voice, Difficulty in Breathing)	1 week	32.5	2.03
	Total Contact Hours for 04-Weeks			**04-Weeks**	**140 Hours**	**8.75 Credit Hours**
	Module-3 Orthopaedic & Traumatology	**1**	Fractures & Dislocations Community Medicine	1 week	35	2.18
		2	Infections	1 week	35	2.18
		3	Metabolic Bone Disorders Community Medicine	1 week	35	2.18
		4	Bone Tumors Community Medicine	1 week	35	2.18
		5	Congenital Annmolies	1 week	35	2.18
		6	Degenerative Disorders			
	Total Contact Hours for 5-Weeks			**05-Weeks**	**175 Hours**	**10.93 Credit Hours**
	Module-4 Neurosurg	**1**	Traumatic Brain Injury Community Medicine	1 week	35	2.18
		2	Intracranial haemorrhage Community Medicine	1 week	35	2.18

	ery	**3**	Spinal cord trauma and myelopathy Community Medicine	1 week	35	2.18
		4	Congenital Anomalies of CNS Community Medicine	1 week	35	2.18
		5	Composition, Synthesis and Flow of CSF, Hydrocephalus and Its Management Community Medicine	1 week	35	2.18
		6	Approaches and Management of CNS tumors at different ages Community Medicine	1 week	35	2.18
	Total Contact Hours for 06-Weeks			**06-Weeks**	**210 Hours**	**13.12 Credit Hours**
	Module-5 Neuroscience & Psychiatry	**1**	Psychosis/ Schizophrenia Patho-Physiology, Classification Investigation/Management Community Medicine	1 week	35	2.18
		2	Mood Disorders and Anxiety Disorders, Patho-Physiology, Classification Investigation			
		2	Weakness (Monoplegia, Hemiplegia)	1 week	35	2.18
		3	Loss of Consciousness and Fits Community Medicine			
		4	Headache Community Medicine			
		5	Tremors and Difficulty in Walking / Loss of Balance (Ataxia)	1 week	35	2.18
		6	Vertigo and Loss of Vision Community Medicine	1 week	35	2.18
		7	Forgetfulness and Loss of Memory			
		8	Paraplegia, Quadriplegia			
		9	Loss of Vision Community Medicine	1 week	35	2.18
		10	Numbness and Paresthesia (Tingling, Needling Sensation)			
		11	Inflammatory and Infective Diseases of CNS Community Medicine			
		12	Tumors of Central Nervous System Community Medicine	1 week	35	2.18
		13	Autonomic Nervous System			
	Total Contact Hours for 06-Weeks			**06-Weeks**	**210 Hours**	**13.12 Credit Hours**
	Module-6 Cardiology	**1**	Ischemia, Heart Failure, Congenital Heart Diseases and Vascular Diseases Community Medicine	1 week	35	2.18
		2	Arrhythmias, Valvular Heart Disease and Heart Diseases and Pregnancy Community Medicine	1 week	35	2.18
	Total Contact Hours for 02-Weeks			**02-Weeks**	**70 Hours**	**4.37 Credit Hours**
	Module-7	**1**	Introduction and Inflammatory Dermatosis	1 week	35	2.18

	Integumentary (Dermatology)		Community Medicine			
		2	Infections of the Skin Community Medicine	1 week	35	2.18
	Total Contact Hours for 02-Weeks			**02-Weeks**	**70 Hours**	**4.37 Credit Hours**
	Module-8 Plastic Surgery/BURNS	**1**	Burns and Wound Healing	1 week	35	2.18
		2	Birth Defects	1 week	35	2.18
		3	Skin lesions/ tumours			
	Total Contact Hours for 02-Weeks			**02-Weeks**	**65 Hours**	**4.06 Credit Hours**
	Module-9 Paediatrics	**1**	Paediatric history, integrated approach & IMNCI Community Medicine	1 week	35	2.18
		2	Nutrition and Nutritional disorders Topics to be covered: Community Medicine			
	Total Contact Hours for 01-Weeks			**1 week**	**35**	**2.18**
	Module-10 Renal & Excretory System	**1**	Glomerular Conditions Including Glomerular Syndromes, Conditions Associated with Systemic Disorders and Isolated Glomerular Abnormalities	1 week	35	2.18
		2	Kidney/ Excretory Infections and Renal Vascular Disorders Community Medicine			
		3	Obstructive Uropathy (Urolithiasis, Hydronephrosis) Community Medicine	1 week	32.5	2.03
		4	Tumors of Renal/ Excretory System Community Medicine			
	Total Contact Hours for 02-Weeks			**02-Weeks**	**70 Hours**	**4.37 Credit Hours**
	Module-11 MSK-III	**1**	Developmental Disorders of Bone & Cartilage, Basic Structure & Function of Bone Community Medicine	1 week	35	2.18
		2	Fracture, Osteomyelitis and Arthritis			
		3	Benign Bone and Cartilage Forming Tumors, Malignant Bone and Cartilage Forming Tumors and Tumors of Unknown Origin Community Medicine			
		4	Soft Tissue Tumors	1 week	35	2.18
		5	Skin Module Community Medicine			
	Total Contact Hours for 02-Weeks			**02-Weeks**	**70 Hours**	**4.37 Credit Hours**

	Module-12 Reproductory System- III	**1**	Lesions of Female Genital Tract Community Medicine	1 week	35	2.18
		2	Lesions of Male Genital Tract Community Medicine			

FOURTH YEAR MBBS

LIST OF SKILL-BASED WORKSHOPS AND COMPETENCIES ACCORDING TO MODULES

S. No.	Procedure	Description	Level of competence	YEAR/ MODULE	Subject
1	Carry out abdominal and rectal examination and its interpretation.	Systemic approach in clinical examination: Completes all steps of examination and documents appropriately	Safe to practice under indirect supervision	4th Year	**Surgery**
2	Carry out Inguinoscrotal examination and its interpretation.	Systemic approach in clinical examination: Completes all steps of examination and documents appropriately	Safe to practice under indirect supervision	4th Year	**Surgery**
3	Carry out Neck examination and its interpretation.	Systemic approach in clinical examination: Completes all steps of examination and documents appropriately	Safe to practice under indirect supervision	4th Year	**Surgery**
4	Carry out Breast examination and its interpretation.	Systemic approach in clinical examination: Completes all steps of examination and documents appropriately	Safe to practice under indirect supervision	4th Year	**Surgery**
5	Interpretation of radiological examination of surgery, including erect chest x-ray, erect & supine abdominal x-ray, contrast x-rays including IVU, Double contrast Barium Enema, CT scans, MRI, Isotope Scans	Systemic approach in radiological examination.	Safe to practice under indirect supervision	4th Year	**Surgery**
6	Interpretation of X-rays of upper and lower limbs	should be able to identify gross musculoskeletal pathology on X-rays including fractures & dislocations	safe to practice under indirect supervision	4th Year	**Surgery**

7	Interpretation of X-rays of the chest, abdomen, and pelvis	should be able to identify rib fractures, hemothorax, pneumothorax, free air under the diaphragm, and pelvic fractures	safe to practice under direct supervision	4th Year	**Surgery**
8	Carry out a respiratory examination and its interpretation.		Safe to practice under direct supervision	4th Year	Medicine
9	Carry out a cardiovascular examination and its interpretation.		safe to practice under direct supervision	4th Year	Medicine
10	Carry out a neurological examination and its interpretation.		safe to practice under direct supervision	4th Year	Medicine
11	Carry out intravenous cannulation	Insert a cannula into a patient's vein and apply an appropriate dressing.	Safe to practice under direct supervision	4th Year	Medicine
12	Carry out a safe and appropriate blood transfusion	Following the correct procedures, give a transfusion of blood (including correct identification of the patient and checking blood groups). Observe the patient for possible reactions do the transfusion, and take action if they occur.	Experienced in a simulated setting; further training required before direct Supervision	4th Year	Medicine
13	Carry out a 3- and 12-lead electrocardiogram	Set up a continuous recording of the electrical activity of the heart, ensuring that all leads are correctly placed.	Safe to practice under indirect supervision	4th Year (also in final year)	Medicine
14	History taking	Gynae/ Obs	Safe to practice under indirect supervision	4th Year	Gynae/ Obs
15	Obstetric & Gynecological Examination.	Perform Obstetric & Gynecological examination	Safe to practice under indirect supervision	4th Year	**Gynae/ Obs**
16	Ophthalmoscopy- Eye ward rotation	Perform basic ophthalmoscopy and identify common abnormalities	Safe to practice under direct supervision	4th Year	**EYE WARD ROTATION**

17	Otoscopy- ENT Ward	Perform basic otoscopy and identify common abnormalities	Safe to practice under indirect supervision	4th Year	**ENT WARD ROTATION**
18	Basic ENT Examination	Should be able to conduct an ENT Examination	safe to practice	4th year	**ENT WARD ROTATION**

PROGRAM INTENDED LEARNING OUTCOMES AND RATIONALE OF VARIOUS SUBJECTS AND MODULES

OPTHALMOLOGY MODULE

Introduction

- To feel more comfortable performing a basic eye examination
- To identify common eye conditions and be able to treat or triage these disorders. To expose students to the field of ophthalmology
- To identify potential longitudinal patients who could be followed in other clinics.

Rationale: The purpose of the Ophthalmology curriculum is to produce doctors with the generic professional and specialty-specific capabilities needed to understand and diagnose a wide range of medical conditions affecting the eyes, orbits, and visual pathways. Eye disorders are frequently seen in the practice of medicine in all age groups. The scope of medical ophthalmology is broad and includes refraction problems, ocular inflammatory diseases like conjunctivitis, cataracts, glaucoma, retina disorders, neuro-ophthalmic conditions, and urgent eye care in adults and children. A physician also has to understand the fundamentals of fundoscopy in order to evaluate common eye problems.

Duration **04 Weeks**

Curriculum Goals

After completion of MBBS course the student should be able to:

- To feel more comfortable performing a basic eye examination
- To identify common eye conditions and be able to treat or triage these disorders.
- To expose students to the field of ophthalmology
- To identify potential longitudinal patients that could be followed in other clinics.

Learning Objectives At the end of the ophthalmology rotation the student should be able to:

1. **Perform the following skills:**
   - ***a)*** **History taking regarding**
     - Pain in and around the eye
     - Abnormal appearance of the eye and orbit
     - Discharge from the eye
     - Defect in visual activity, color vision, field of vision and diplopia.
   - ***b)*** **Physical examination**
     - Visual acuity test for distance and near
     - Pin Hole Examination
     - Color vision

- Measure the IOP by palpation
- External (pen torch) Adnexa anterior segment by examination by inspection and palpation,
- upper lid eversion
- Regurgitation test.
- Pupillary examination
- Ophthalmology (distant direct and direct)
- Ocular alignment and motility tests (corneal reflection test, cover test and motility test)
- Visual field test (confrontation method)

c) **Management**

- Ocular irrigation (chemical burns)
- Instillation of eye drops
- Patching (pressure patch and eye shield)

2. **Diagnose and manage common eye problems such as:**

- Blepharitis
- Hordeolum (styes)
- Periorbital cellulitis (mild)
- Conjunctivitis
- Ophthalmia neonatorum
- Trachoma
- Episcleritis
- Subconjunctival hemorrhage

3. **Recognize / Evaluate and refer as appropriate**:

- Acute red eyes
- Corneal ulceration and its complications
- Herpes simplex and Herpes zoster infections
- Orbital cellulitis
- Pterygium
- Diseases of lids: lumps, Trichiasis, entropion, ectropion, ptosis
- Disease of lacrimal passage: epiphora, acute and chronic dacryocystitis
- Acute visual loss
- Chronic visual loss
- Cataract
- Refractive error and presbyopia
- Glaucomas
- Childhood squint
- Childhood cataract (white pupil)
- Moderate to severe eye injuries, chemical burns
- Ocular manifestations of nervous diseases: papilloedema, nerve palsies
- Ocular manifestations of systemic diseases: diabetic retinopathy, thyroid eye disease

TOPICS WITH PMDC SYLLABUS				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**

1		**Anatomy of Eye – Review** • Orbit: Bones and Contents • Eyeball, • Extraocular muscles, • Adnexia (lid, conjunctiva & lacrimal system) • Vascular supply • Cranial nerves II, III, IV, VI & VII cranial nerves)	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam SBQs & OSVE, OSCE, Clinical Exam
2		**Physiology of Eye – Review** • Visual functions • Aqueous humour dynamics		
3		**Eyelid** • Stye • Chalazion • Blepharitis • Trichiasis • Entropion • Ectropion • Ptosis • Basal cell carcinoma • Squamous cell carcinoma		
4		**Conjunctiva** • Infective Conjunctivitis - Bacterial Conjunctivitis - Viral Conjunctivitis • Ophthalmia Neonatorum • Trachoma • Vernal keratoconjunctivitis (VKC) • Keratoconjunctivitis Sicca (Dry Eye) • Pterygium • Pinguecula • Vitamin A Deficiency		
5		**Nasolacrimal system** • Lacrimation & epiphora • Congenital Nasolacrimal Duct Block • Acute Dacryocystitis • Chronic Dacryocystitis		

6		**Cornea** • Infective keratitis (Corneal ulcer) - Viral - Bacterial - Fungal - Amoeba • Contact lens-related problems • Kerato-refractive surgeries	ecture/ Demonstration , SGD, Practical, CBL/ PBL	
7		**Sclera** • Scleritis • Episcleritis		
8		**Lens** • Congenital cataract - Classification & Etiology - Clinical features - Differential diagnosis - Management • Acquired Cataract Types & Etiology, Clinical features Management Complications of Cataract surgery		
9		**Glaucoma** • Classification • Primary open-angle glaucoma • Primary Angle Closure Glaucoma • Diagnostic Tools • Congenital Glaucoma • Secondary Glaucoma - Lens induced - Neovascular - Inflammatory		
10		**Uveitis** • Classification • Clinical features of Acute and Chronic uveitis • Management of uveitis		
11		**Medical Retina** • Diabetic retinopathy • Hypertensive retinopathy • Retinal vein occlusion • Retinal artery occlusion • Age-related macular degeneration • Retinoblastoma • Retinopathy of prematurity (ROP)		

12		**Surgical Retina** • Retinal detachment – Rhegmatogenous, Exudative, and Tractional detachment • Management of retinal detachment • Vitreous hemorrhage		
13		**Neurophthalmology** • Pupillary & Visual pathway • Relative Afferent Pupillary Defect (RAPD) • Optic neuritis • Papilledema • Optic atrophy • Third, Fourth, Sixth & Seventh Cranial Nerves		
14		**Orbit** • Proptosis • Orbital Infection and Inflammation - Preseptal Cellulitis - Orbital Cellulitis • Thyroid Eye Disease		
15		**Ocular injuries** • Ocular Foreign Bodies • Blunt injuries • Penetrating injuries • Chemical injuries - Acid burns - Alkaline burns		
16		**Strabismus** • Amblyopia • Non paralytic squint • Paralytic squint		
17		**Refractive error** • Emetropia • Ametropia - Hypermetropia - Myopia - Astigmatism • Presbyopia		

Common Symptoms/ Signs of Ophthalmology

i. **Red Eye:** Painful and Painless
ii. Watery eye
iii. **Visual Loss**: Gradual and Sudden
iv. Causes of Diplopia

v. Halos
vi. Hyphema
vii. Hypopyon
viii. Distortion of images
ix. White pupillary reflex (leukokoria)
x. Dilated pupil
xi. Small pupil
xii. Proptosis
xiii. Night blindness
xiv. Eso deviation
xv. Exo deviation

Assessment at the end of the posting

- MCQs and OSPE

COMMUNITY MEDICINE				
S.NO	**Content/Area**	**Learning Objectives**	**Teaching strategy**	**Assessment tool**
1.	Introduction to demography	• 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.	Lecture	SBQs
2.	Demographic indicators	• Define population and vital statistics. • Define fertility and mortality. • Describe the determinants of fertility and mortality. • Describe different indicators of population statistics. • Describe indicators of vital statistics • Determine the factors affecting fertility-related statistics.	Lecture	SBQs

3.	Urbanization and social mobilization	• Define urbanization • Understand the importance of social mobilization • Determine the social implications of high population growth	Lecture	SBQs

OTOLARYNGOLOGY (ENT) MODULE

Introduction This module uses an integrated curriculum of basic science and clinical material to develop the student's knowledge and ability to describe and diagnose conditions related to the Ear, Nose, and Throat. It covers learning a wide range of areas using team-based and small-group learning exercises, lectures, anatomy labs, hands-on clinical skills labs, independent learning, clinical experiences, and radiological imaging. In addition, the students will learn the microbiology, physiology, and pharmacology of the upper respiratory region. The goal of this module is to provide medical students with a comprehensive pathophysiologic understanding of the Ear, Nose, and Throat and their diseases. Otorhinolaryngology is an important, interesting, and diverse specialty, and the study guide is carefully designed in such a manner that the students are able to better comprehend and analyze the objectives of their course in the ENT department.

Rationale: The knowledge and skills acquired in this module will enable students to appropriately evaluate, diagnose, treat, and manage a broad spectrum of common problems like hearing loss, earache and discharge, rhinorrhea, and sore throat. Students can order suitable investigations and diagnose common conditions, and be able to undertake adequate referral where appropriate. This module will act as a guide to identify various common ENT conditions and implement their knowledge in medical practices.

Duration 04 Weeks

Learning Outcomes

Knowledge: At the end of the course, the student should know of:

- Common problems affecting the Ear, Nose, and Throat.
- Principles of management of major ENT emergencies
- Effects of local and systemic diseases on the patient and the necessary action required to minimize the sequelae of such diseases;

Skills: At the end of the course, the student should be able to:

- Know how to remove the foreign bodies from the ear, nose and throat.
- know the indication for tracheostomy and explain its procedure, postoperative care and complications
- know the methods to control the Epistaxis

Attitude At the end of course, the student should have:

- Patient-Centered Attitude:
  - Cultivate respect and compassion for patients, actively listen to their concerns and involve them in their care.
- **Empathetic Understanding:**
  - Develop empathy for patients experiencing discomfort, acknowledging their emotional and physical challenges.
- **Cultural Sensitivity:**
  - Appreciate the importance of culturally sensitive care, respecting diverse backgrounds of patients.
- **Ethical Commitment:**
  - Uphold ethical standards, maintaining patient confidentiality and informed consent.

- **Interdisciplinary Collaboration:**
  - Respect collaboration with other professionals for comprehensive patient care.

Themes:

Theme 1: Disorders of the Ear and Audio-Vestibular System
(Pain, Itching, Discharge, Facial Palsy, Tinnitus, Vertigo, Deafness)

Theme 2: Nose Disorders & Para Nasal Sinuses
(Nasal Obstruction, Rhinorhea, Sneezing, Itching, Impaired Smell, Epistaxis, Headache)

Theme 3: Disorders of Oral Cavity, Pharynx and Oesophagus (Sore Throat, Difficulty in Swallowing, Change of Voice)

Theme 4: Disorders of Larynx Trachea and Bronchi (Cough, Hoarseness of Voice, Difficulty in Breathing)

Topics with Specific Learning Objectives and Teaching Strategies

Theme 1: Disorders of Ear and Audio-Vestibular System (Pain, Itching, Discharge, Facial Palsy, Tinnitus, Vertigo, Deafness)

S #	LEARNING OBJECTIVES	THEME AND SUB-THEMES	TEACHING STRATEGY	ASSESSMENT
1	Explain Anatomy & Physiology of the Ear	**ENT-S2-Ana-1** Clinical Basis of EAR	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
2	Discuss the Causes, clinical features, investigation & management	**ENT-S2-ENT-1 PAIN** **A.** D/D of Earache & referred earache **B.** Disorder of External Ear. **1.** Traumatic- Frost Bite, Perichondritis and Aural Hematoma. **2.** Inflammatory a. Bacterial- **i.** Acute Otitis Externa **ii.** Diffuse and Malignant Otitis Externa b. Viral-Herpes Zoster Oticus. C. Disorder of Middle Ear. i. Acute Otitis Media. ii. Otitis Media with Effusion iii. Otitis Baro-trauma		
3	Diagnosis & management	**ENT-S2-ENT-2 ITCHING** Wax and Foreign Bodies in Ear Fungus- Otomycosis		
4	Discuss the Causes, clinical features, investigation & management	**ENT-S2-ENT-3 DISCHARGE** Disorder of Middle Ear. Chronic Suppurative Otitis Media, Cholesteatoma and Complications		
5	Causes, Investigation & management	**ENT-S2-ENT-4 FACIAL PALSY** Facial Nerve Palsy, Middle Ear Surgery & itscomplications		
	Describe the clinical features, investigation	**ENT-S2-ENT-5 TINNITUS** D/D of Tinnitus,Glomus tumor, Acoustic neuroma & Otosclerosis		

6	& principle of management	**ENT-S2-ENT-6 VERTIGO** D/D of Vertigo, Labrynthitis, BPPV / Meinear's Disease.		

7	Discuss causes, Clinical features, investigations/ assessment and Management of Congenital and Acquired conditions Causing Hearing Deficit.	**ENT-S2-ENT-7 DEAFNESS** Causes and assessments of hearing impairment. D/D of Conductive and Sensory neural hearing deficit, Disorder of the Inner Ear. Noise-Induced Hearing Loss / Ototoxicity/Presbyacusis.		

Theme 2: Nose Disorders & Para Nasal Sinuses
(Nasal Obstruction, Rhinorhea, Sneezing, Itching, Impaired Smell, Epistaxis, Headache)

S #	LEARNING OBJECTIVES	THEME AND SUB-THEMES	TEACHING STRATEGY	ASSESSMENT
8	Explain Anatomy & Physiology of Nose and Paranasal Sinuses	**ENT-S2-Ana-2** Clinical Basis of Nose & Paranasal sinuses	Lecture/ Demonstration , SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
9	Discuss the Causes, clinical features, investigation & management	**ENT-S2-ENT-8** **NASAL OBSTRUCTION** • D/D of Nasal obstruction • Septal Deformities Adenoid Hypertrophy		
		ENT-S2-ENT-9 RHINORHEA • D/D of Rhinorrhea • Rhinosinusitis		
		ENT-S2-ENT-10 SNEEZING • Allergic Rhinitis Non-Allergic Rhinitis		
		ENT-S2-ENT-11 ITCHING • Foreign Bodies & Rhinolith		
		ENT-S2-ENT-12 **IMPAIRED SMELL** • Sino-Nasal Polyps		
		ENT-S2-ENT-13 EPISTAXIS • D/D of Epistaxis • angiofibroma Hemangioma		
		ENT-S2-ENT-14 HEADACHE • Sinusitis • Sino-Nasal Tumors		

Theme 3: Disorders of Oral Cavity, Pharynx and Oesophagus (Sore Throat, Difficulty in Swallowing, Change of Voice)

S #	LEARNING OBJECTIVES	THEME AND SUB-THEMES	TEACHING STRATEGY	ASSESSMENT
10	Explain Anatomy & Physiology of Digestive track	**ENT-S2-Ana-3** Clinical Basis Digestive track		
11	Discuss the Causes, clinical features, investigation & management	**ENT-S2-ENT-15 SORE THROAT** • D/D of Sore throat • Mouth Ulcers • Pharyngitis & Tonsillitis • Infectious mononucleosis • Diphtheria/ Vincent Angina/ • Scarlet fever **ENT-S2-ENT-16 DIFFICULTY IN SWALLOWING** • Dysphagia • causes & management **ENT-S2-ENT-17 CHANGE OF VOICE** • Rhinolalia Clausa & Aperta • Tumors of Pharynx	Lecture/ Demonstration , SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam

Theme 4: Disorders of Larynx, Trachea, and Bronchi (Cough, Hoarseness of Voice, Difficulty in Breathing)

S #	LEARNING OBJECTIVES	THEME AND SUB-THEMES	TEACHING STRATEGY	ASSESSMENT
12	Explain Anatomy & Physiology of Airway track	**ENT-S2-Ana-4** Clinical Basis of Airway track	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
13	Discuss the Causes, clinical features, investigation & management	**ENT-S2-ENT-18 COUGH** Airway Foreign Bodies **ENT-S2-ENT-19 HOARSENESS OF VOICE** • Congenital Laryngeal web / Laryngocele • Inflammatory Acute Laryngo-trachea-bronchitis / Tuberculous Laryngitis • Non- Neoplastic • Vocal Nodule / Vocal polyps • Neoplastic Laryngeal papillomatosis / Malignant lesions Recurrent laryngeal Palsy **ENT-S2-ENT-20 DIFFICULTY IN BREATHING** • Laryngomalacia • Acute Epiglottitis • Subglottic/Tracheal stenosis • Airway management		

ORTHOPAEDIC AND TRAUMATOLOGY MODULE

Introduction

Rationale

The integrated module on Orthopedic Surgery, Traumatology and musculoskeletal system is multi- fold, it provides the students with basic knowledge of bone and joint problems. Interdisciplinary learning is fostered, simulating real-world medical scenarios where collaborative care is crucial. The integration also cultivates a well-rounded skill set by comparing immediate emergency interventions with long-term therapeutic strategies. Including musculoskeletal trauma, fractures, infections, tumors, Degenerative and Metabolic disorders. Therefore, the module is designed to offer a balanced, resourceful, and interdisciplinary approach to medical education aimed at undergraduate level. The Orthopedics and Traumatology module in the basic cycle has already provided a sound basis of the related anatomy, physiology, surgical and pathological basis of bone diseases. In this 2nd clinical spiral, apart from basic revision of different subjects, students will be able to define and learn the clinical presentations, diagnoses and management of these diseases.

Duration 06 Weeks

Learning Outcomes:

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

- Demonstrate the principles and clinical considerations in orthopedics and Traumatology, including diagnoses and treatment.
- Develop immediate and long-term treatment strategies for orthopedic and traumatic conditions.
- Adopt a patient-centered approach, considering both immediate and long-term needs in treatment planning.
- Take and demonstrate history taking, and also able to perform physically examination.
- Make proper differential diagnoses and prescribe medicine accordingly.

Themes:

Theme 1: Fractures & Dislocations
Theme 2: Infections
Theme 3: Metabolic Bone Disorders
Theme 4: Bone Tumors
Theme 5: Congenital Anomalies
Theme 6: Degenerative Disorders

TOPICS WITH SPECIFIC LEARNING OBJECTIVES AND TEACHING STRATEGIES

THEME 1: FRACTURE AND DISLOCATION

S. #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT
1	Discuss the structure of bone,	**ORTH-T-S2-Ana-1**		
	joint movements and blood supply	Revisit of bone and joint		
	Discuss the development of bone	**ORTH-T-S2-Ana-2-E-1** Anatomy with blood supply Bone development ossification of bone & joint		
2				
3	• Define fracture • Classify types of fractures	**ORTH-T-S2-Orth-1** Definition of fracture, types		

4	Identify bone lesions in the imaging scans	**ORTH-S2-Rad-1** X-Ray Definition X-ray reading &views	Lecture/ Demonstration ,SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
5	Define different types of fractures based on clinical presentation	**ORTH-T-S2-Orth-2** Sign & symptoms of fractures open & closed fractures		
6	Define joint dislocations	**ORTH-T-S2-Orth-3** Types of dislocations & subluxations		
7	Assess the patient for fractures and bone disorders	**ORTH-T-S2-Orth-4** History taking & bed side teaching		
8	Identify different types of congenital bone defects	**ORTH-T-S2-Ana-3** Developmental abnormalities and bone structures		
9	Discuss management of open and closed type of fractures	**ORTH-T-S2-Orth-6** Management of open and close fracture		
10	Describe consequences of fractures & dislocations	**ORTH-T-S2-Orth-7** Complications of Open fractures and dislocations		
11	Discuss Imaging techniques	**ORTH-T-S2-Rad-2** Imaging techniques X-ray CT-Scan and MRI		
12	Discuss post-surgical complications	**ORTH-S2-Orth-8** Complications of open fractures and post-surgical complications		
13	Prevention and multidisciplinary approach	**ORTH-S2-Orth-9** Rehabilitation and physiotherapy		
14	Pathophysiological changes in fracture healing	**ORTH-T-S2-Phy-1** Fracture healing, Remodeling functions of Osteoclasts & Osteoblasts		
15	Types of bone union	**ORTH-S2-Orth-10** Fracture union Primary and Secondary union		
16	Bone findings on Imaging	**ORTH-S2-Orth-11** X-ray Reading		
17	Approach to patient with bone disorder, fracture	History taking and bedside teaching		

Theme 2: Infections

Theme 3: Metabolic Bone Diseases

S #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT
18	Bone infections, pathophysiology	**ORTH-T-S2-Path-1** Bone Infection Types of infection, Patho-Physiology of Osteomyelitis	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
19	Define osteomyelitis and its types	**ORTH-T-S2-Orth-1** Definition of Osteomyelitis Types of Osteomyelitis		
20	Diagnosis and management of osteomyelitis	**ORTH-T-S2-Orth-2** Investigations and treatment options		
21	Assess findings of osteomyelitis by imaging techniques	**ORTH-T-S2-Rad-1** Imaging and Osteomyelitis X- ray Ct-scan and MRI		
22	Surgical management of osteomyelitis	**ORTH-T-S2-Orth-3** Surgical Interventions and osteomyelitis		
23	Prevention and multidisciplinary approach To management	**ORTH-T-S2-Orth-4** Rehabilitation and Infection Prevention		
24	Discuss Calcium and vitamin D metabolism	**ORTH-T-S2-Bio-1** Calcium Metabolism Parathyroid hormone and vitamin D Metabolism		
25	Definition, causes and bone changes in rickets	**ORTH-T-S2-Orth-5** Definition of Rickets, effects of Calcium & Vitamin D on Bone		
26	Discuss clinical features, treatment, and prevention of Rickets & osteomalacia	**ORTH-T-S2-Orth-6** Clinical Features of Rickets and Osteomalacia Treatment and Prevention		
27	Define osteoporosis and osteomalacia	**ORTH-T-S2-Phy-1** Osteoporosis & Osteomalacia		
28	Discuss hyperparathyroidism and its clinical presentation	**ORTH-T-S2-Orth-7** Diagnosis, Clinical Features, and Management of Hyperparathyroidism		
29	Discuss the management and prevention of Osteoporosis and Osteomalacia	**ORTH-T-S2-Orth-8** Management and prevention of Osteoporosis and Osteomalacia		
30	Define the WHO Classification of bone tumors	**ORTH-T-S2-Path-2** Bone Tumors and WHO Classification		

31	Define a management planof trauma patients	**ORTH-T-S2-Orth-9** Management of Upper Limb Trauma		
32	Discuss the approach to a trauma patient	**ORTH-T-S2-Orth-10** Approach to Trauma patient		
33	Approach to patient	History taking and bedside teaching		

Theme 4: Bone Tumors **Theme 5: Congenital Anomalies Theme 6: Degenerative Disorders**				
S #	**LEARNING OBJECTIVE**	**TOPIC**	**LEARNING STRATEGY**	**ASSESSMENT**
34	Common sites of benign and malignant tumors	**ORTH-T-S2-Path-1** Benign & malignant bone Tumor		
35	Radiographic features of bone tumors	**ORTH-T-Rad-1** Imaging in Tumor X-ray Ct-Scan and MRI		
36	Discuss Management protocols of bone tumors	**ORTH-T-S2-Orth-1** Management of bone Tumors		
37	• Define Bone tumors diagnostic protocols • Discuss Basic Principals of tumor biopsies	**ORTH-T-S2-Orth-2** Tumor Protocol and Biopsy Principles		
38	Discuss Surgical management of bone tumors	**ORTH-T-S2-Orth-3** Surgical Interventions and Bone Tumors		
39	Discuss Prosthetic management of bone disorders	**ORTH-T-S2-Orth-4** Prosthesis and Orthosis		
40	Define types of joints, their structure and functions	**ORTH-T-S2-Ana-1** Type of joints, joint Lining	Lecture/ Demonstration ,SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
41	Define congenital anomalies of bone Discuss clinical features	**ORTH-T-S2-Orth-5** Congenital Telepies Equino Varus, Developmental Dysplasia Hip, Sign & Symptoms & Clinical Features		
42	Discuss treatment and prevention of CTEV and DDH	**ORTH-T-S2-Orth H-6** Treatment of CTEV and DDH and its prevention		
43	Describe Metabolic pathway of uric acid production and accumulation	**ORTH-T-S2-Pharm-1** Uric Acid pathway and metabolism		

44	Define the pathophysiology and clinical features of Osteo-Arthritis. RheumatoidArthritis, Gout	**ORTH-T-S2-Orth-7** Degenerative Disorders: Osteo-Arthritis, Rheumatoid Arthritis, Gout		
45	Discuss the diagnostic and Management approach to OA, RA, and Gout	**ORTH-T-S2-Orth-8** Diagnosis and Management of Osteo-Arthritis Rheumatoid Arthritis, Gout		
46	Define an appropriate pain management plan	**ORTH-T-S2-Pharm-2** NSAIDs, DMRDs its Effects and Side Effects		
47	Discuss the surgical management of bone degenerative disorders	**ORTH-T-S2-ORTH-9** Surgical Options in Degenerative Disorders		
48	Define post-surgical Complications	**ORTH-T-S2-ORTH-10** Post- Surgical Complications		
49	Approach to patient	History taking & Bed Side teaching		

NEUROSURGERY MODULE

Learning Objectives

By the end of the curriculum, the student shall be able to:

- Recall functional neuroanatomy of the brain and spinal cord.
- Revised embryology and histology of neuron, nerve, and neuroglia.
- Enlist the investigations for diagnosing a neurological disorder.
- History taking and examination of head injury and spinal cord pathology.
- Discuss the assessment and management of raised ICP, cerebral edema, and brain herniation.
- Classify brain tumors and evaluate management plan.
- Assess the vascular pathology of the brain.
- Know the approach for assessment and management of congenital disorder the brain and spine.

Themes

Theme 1: Traumatic Brain Injury
Theme 2: Intracranial hemorrhage
Theme 3: Spinal cord trauma and myelopathy

Topics with specific learning objectives and teaching strategies

Theme 1: Traumatic Brain Injury

S #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT
		ORTH-T-S2-NSUR-2 Assessment of causes and management of cerebral edema, raised intracranial pressure and brain herniation		
		ORTH-T-S2-Rad-1 CT-scan & MRI Brain		

5	Predict the general reaction of brain to various injurious processes in terms of brain edema or razed intracranial pressure and develop a management plan	**ORTH-T-S2-NSUR-3** 1. Skull fractures 2. Parenchymal injuries • Concussion • Direct parenchymal injuries • Diffuse axonal injuries 3. Traumatic vascularinjuries • Epidural hematoma • Subdural hematoma • Parenchymal 4. Sequelae of brain trauma	Lecture/ Demonstration ,SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam

Theme 2: Intracranial Hemorrhage				
S #	**LEARNING OBJECTIVE**	**TOPIC**	**LEARNING STRATEGY**	**ASSESSMENT**
	Manage ischemic or	**ORTH-T-S2-Ana-4**		
	hemorrhagic cerebrovascular	Circulation of brain and	Lecture/	SBQs & OSVE, OSCE, Clinical Exam
6	events by knowing their effect on brain parenchyma	basalganglion **ORTH-T-S2-NSUR-4**	Demonstration, SGD, Practical,	
	and various clinical effects	Intracranial hemorrhage	CBL/ PBL	
	along with radiological diagnosis	**ORTH-T-S2-Rad-2** CT Scan & MRI		

Theme 3: Spinal cord trauma and myelopathy				
S #	**LEARNING OBJECTIVE**	**TOPIC**	**LEARNING STRATEGY**	**ASSESSMENT**
9	To localizes the lesion of compressive spinal cord pathology including vascular, neoplast ic, infective and traumatic	**ORTH-T-S2-Ana-6** Brief View of the Spinal Cord **ORTH-T-S2-NSUR-7** Etiology, clinical presentation andmanagement **ORTH-T-S2-Rad-5** X-rays, CT-Scan & MRI	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam

NEUROSCIENCE II MODULE

Introduction Neuroscience is a multidisciplinary field that looks into the causes underlying neurological illness as well as the development and cellular operations of the nervous system. This module includes basic anatomical, physiological and biochemical concepts in relation to the nervous system and its link with clinical aspects related to the diseases of brain and nerves. This curriculum combines the chance to learn about the field broadly with in-depth knowledge in one of the three primary areas of neuroscience: clinical neuroscience, functional and integration neuroscience, and cellular and systems neuroscience.

Rationale The main goal of this module is to provide the foundation for understanding the impairments of sensation, action & cognition that accompany injury, disease or dysfunction in the central nervous system. This module will build upon the knowledge acquired through prior studies of cell molecular biology, general physiology & human anatomy with primary focus on the CNS. It will cover the important clinical aspects, pathological features, therapeutics & other common diseases of the CNS. Through this module student will develop an integrated, scientific knowledge and will be able to practice in a clinical setting and develop problem-solvingskills helping to progress scientific discovery into neurological aspects of clinical and medical practice.

Duration **03 weeks**

Learning Outcomes: **By the end of this module, the students will be able to:**

- Develop a well-rounded understanding of the neuroanatomy, neurophysiology, and neuropsychology that underlie both neurological and psychiatric disorders.
- Acquire the skills to correlate anatomy, pathology, and pharmacology with clinical presentationsin both neurology and psychiatry.
- Demonstrate the utilization of diagnostic tests such as EEG, CT, MRI, and plain X-rays, along withpsychiatric evaluation tools, for accurate diagnosis.
- Formulate holistic treatment plans incorporating pharmacological, psychological, and Neuro-rehabilitation strategies for managing both neurological and psychiatric disorders.

Themes

Neurology (3 Weeks)

Theme 1: Weakness (Monoplegia, Hemiplegia)
Theme 2: Loss of Consciousness and Fits
Theme 3: Headache
Theme 4: Tremors and Difficulty in Walking / Loss of Balance (Ataxia)
Theme 5: Vertigo and Loss of Vision
Theme 6: Forgetfulness and Loss of Memory
Theme 7: Paraplegia, Quadriplegia
Theme 8: Loss of Vision
Theme 9: Numbness and Parasthesias (Tingling, Needling Sensation)

PSYCHIATRY (3 weeks)

Theme 1: Psychosis/ Schizophrenia Patho-Physiology, Classification, Investigation/Management
Theme 2: Mood Disorders and Anxiety Disorders, Pathophysiology, Classification Investigation /

NEURO PATHOLOGY AND NEUROPHARMACOLOGY

Theme 10: Inflammatory and Infective Diseases of CNS
Theme 11: Tumors of the Central Nervous System
Theme 12: Autonomic Nervous System

NEUROSURGERY

Theme 13: Congenital Anomalies of CNS
Theme 14: Composition, Synthesis, and Flow of CSF, Hydrocephalus and Its Management
Theme 15: Approaches and Management of CNS tumors at different age

NEUROSURGERY MODULE
Theme 13: Congenital Anomalies of CN

S #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT
1	Revisit the neuroanatomy of the brain	**ORTH-T-S2-Ana-1** Functional Neuroanatomy of Brain		
2	Revisit the development of the brain	**ORTH-T-S2-Ana-2-E1** Development of the brain		
3	Formulate the cases and consequences of various birth defects and developmental disorders involving CNS	**ORTH-T-S2-NSur-1** Neural tube defects, forebrain anomalies, and posterior fossa anomalies.		
4	Revisit the histology of neurons and neuroglia	**ORTH-T-S2-Ana-3-H-1** Neurons and neuroglia		
7	Synthesis and flow of CSF along with its composition, hydrocephalus and its management	**ORTH-T-S2-Phy-1** Flow and circulation of CSF **ORTH-T-S2-Ana-5** Ventricular System **ORTH-T-S2-NSUR-5** Presentation and management **ORTH-T-S2-Rad-3** CT scan & MRI	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
NEUROANATOMY				
1	Revisit the neuro anatomy of the brain, cranial nerves, and cerebellum **(revisit)** + Localize the lesion in CNS and PNS +Evaluation of ischemic or hemorrhagic cerebrovascular eventsand their clinical effect on brain parenchyma	**NS-S2-Ana-1** Functional Neuroanatomy and the blood supply to the brain **NS-S2-Ana-2** Functional Neuroanatomy of the Spinal Cord	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	
Theme 14: Composition, Synthesis, and Flow of CSF, Hydrocephalus, and Its Management				
	• Explain the neuroanatomical changes associated with mentaland behavioral disorders. • Identify specific brain regionsaffected in different disorders. • Explain the relationship betweenbrain structures and behavioral manifestations.	**NS-S2-Ana-1** Neuroanatomical Changes in Mental and Behavioral Disorders		

	• Define psychosis and its key characteristics. • Classify different types of psychosis. • Explain the clinical presentations of psychosis. • Differentiate between positive and negative symptoms ofpsychosis.	**NS-S2-PSY-1** Psychosis Concept and Classifications		SBQs & OSVE, OSCE, Clinical Exam
2	To learn about the pathological processes affecting the neuronal system. And the correlation between clinical presentations and pathogenic mechanisms.	**NS-S2-Path-1** Cerebral hypoxia and cerebraledema		
		NS-S2-Path-2 Degenerative disorders of the brain and spinal cord pathological perspective		
		NS-S2-Path-3 Pathological perspective/ classification of neuropathies		
3	• Investigations for Neurological Disorders + Correlate between clinical presentations and pathogenic mechanisms involved in CNS infections and infestations. • Identify the involvement of isolated or multiple brain regions and structures in degenerative disorders and know the resulting clinical syndromes. + Localize the lesion in the various neuroaxis. • To learn about clinical presentation and diagnosis, and investigation of stroke, headache, and epilepsy. • Differentiate between different types of anterior horn cell disorders, neuropathies, and Myopathies by knowing their pathology, clinical features, and investigations. lesions and	**NS-S2-Neu-1** Cerebrovascular Disorders diagnosis		
		NS-S2-Neu-2 Definition and classification of seizure disorders		
		NS-S2-Neu-3 Cerebrovascular disorders management		
		NS-S2-Neu-4 Diagnosis & management of epilepsy		
		NS-S2-Neu-5 Meningitis		
		NS-S2-Neu-6 Encephalitis		
		NS-S2-Neu-7 Brain abscess		
		NS-S2-Neu-8 Migraine		
		NS-S2-Neu-9 Loss of consciousness/coma (approach to diagnosis and management)		

	their radiological appearance			

	• . Predict the general reaction of brain to various injurious processes in terms of brain edema or raised intracranial pressure and develop a management plan	**NS-S2-Neu-10** Parkinson disease		
		NS-S2-Neu-11 Cerebellar dysfunctions diagnosis and management		
		NS-S2-Neu-12 Chorea		
		NS-S2-Neu-13 Friedreich's ataxia		
		NS-S2-Neu-14 Wilson disease		
		NS-S2-Neu-15 Normal pressure hydrocephalus		
		NS-S2-Neu-16 Leuko dystrophies		
		NS-S2-Neu-17 Alzheimer disease		
		NS-S2-Neu-18 Multiples sclerosis		
		NS-S2-Neu-19 Transverse myelitis		
		NS-S2-Neu-20 Neuroelectric physiology (NCSEMG, VEP, BERA, EEG)		
		NS-S2-Neu-21 TB spine		
		NS-S2-Neu-22 Acute and chronic peripheral neuropathies		
		NS-S2-Neu-23 Sub-acute combine degeneration of cord		
		NS-S2-Neu-24 Myasthenia gravis		
		NS-S2-Neu-25 Muscular dystrophies		

		NS-S2-Neu-26 Approach to the visual loss		
		NS-S2-Neu-27 Metabolic and inflammatory Myopathies		
4	To learn the basic concepts about neuroimaging and its interpretation	**NS-S2-Rad-1** Basics of neuroimaging (X -ray, CT scan, and MRI)		
		NS-S2-Rad-2 Neuroimaging of multiple sclerosis		
	• Describe the clinical features of schizophrenia. • Identify the subtype of schizophrenia. • Explain the course andprognosis of the disorder. • Explain the challenges inmanaging schizophrenia.	**NS-S2-PSY-2** Schizophrenia		
	• Explore disorders within the schizophrenia spectrum. • Explain the similarities and differences between these disorders.	**NS-S2-PSY-3** Schizophrenia Spectrum Disorders		
	• Apply the bio psycho-social model in the management ofschizophrenia. • Develop comprehensivetreatment plans considering biological, psychological, andsocial factors.	**NS-S2-PSY-4** Management of Schizophrenia Bio-Psychosocial Model		
NEUROSURGERY AND PSYCHOLOGY				
	• Define bipolar disorder and its diagnostic criteria. • Identify the different phases ofbipolar disorder. • Explain the challenges inmanaging bipolar disorder.	**NS-S2-PSY-5** Bipolar Disorder		

	• Explore neurophysiological and biochemical changes associated with mental disorders. • Explain the role of neurotransmitters in psychiatric conditions. • Identify key biomarkers related to mental and behavioral disorders.	**NS-S2-Bio-1** Neurophysiological/ Biochemical Changes in Mental Disorders		
	• Define personality and personality disorders. • Identify different types of personality disorders. • Explain the diagnostic criteria for personality disorders. • Explore the impact of personality disorders on an individual's functioning.	**NS-S2-PSY-6** Personality and Personality Disorders		
	• Apply therapeutic approaches in the management of personality disorders. • Develop strategies for coping with challenging behaviors.	**NS-S2-PSY-7** Management of Personality Disorders		
	• Explain the applications ofneuro-imaging in psychiatricconditions. Interpret neuro-imaging results in the context of mental health assessment.	**NS-S2-Rad-1** Basics of Neuro- imaging (CT Scanand MRI)		
	• Identify general medical conditions that may present withacute psychosis. • Explain the relationship between Medical conditions and psychiatric symptoms.	**NS-S2-CM-1** General Medical Conditions Presented with Acute Psychosis		
	• Implement appropriate intervention for the management of psychosis in tthe contextof general medical conditions. • Collaborate with medicalprofessionals in addressing underlying medical issues. • Explain the importance of a multidisciplinary approach in such cases.	**NS-S2-CM-2** Management of General Medical Conditions Presented with Psychosis		
	• Define major depressivedisorder and its diagnosticcriteria. • Recognize the symptoms and course of major depressive episodes. • Explain the impact of major	**NS-S2-PSY-8** Major Depressive Disorder		

	depressive disorder on individuals and society.			
	• Apply the bio-psychosocial model in the management of major depressive disorder. • Develop comprehensive treatment plans considering biological, psychological, and social factors.	**NS-S2-PSY-9** Management of Major Depressive Disorder Bio-Psychosocial Model		
	• Explain the social factors influencing suicide. • Identify risk and protective factors related to suicide. • Discuss the impact of societal attitudes on individuals at risk of suicide.	**NS-S2-PSY-10** Social Perspective of Suicide		
	• Identify risk factors associated with deliberate self-harm and suicide. • Conduct a comprehensive assessment of suicide risk. • Develop intervention strategies for individuals at risk.	**NS-S2-PSY-11** Deliberate Self- Harm / Suicide Risk Factors and Assessment		
	• Define anxiety disorders andtheir key characteristics. • Classify different types of anxiety disorders. • Explain the clinical presentations of anxiety disorders.	**NS-S2-PSY-12** Anxiety Disorders Concept and Classification		
	• Apply the bio-psychosocial model in the management of anxiety disorders. • Develop comprehensive treatment plans considering biological, psychological, and social factors. • Implement strategies for coping with anxiety symptoms.	**NS-S2-PSY-13** Management of Anxiety Disorder Bio- Psychosocial Model		
	• Define acute stress disorder and post- traumatic stress disorder. • Identify the diagnostic criteria and symptoms associated with each disorder. • Explain the impact of trauma on mental health. • Develop strategies for managing acute stress and PTSD.	**NS-S2-PSY-14** Acute Stress Disorder & Post Traumatic Stress Disorder		

	• Explore the relationship between stress and physical/mental health. • Explain the physiological and psychological effects of stress. • Identify coping mechanisms for stress management.	**NS-S2-PSY-15** Stress and its Relationship with Illness		
	• Define adjustment disorder and its diagnostic criteria. • Identify common stressors leading to adjustment disorder. • Explain the impact of adjustmentdisorder on an individual's functioning. • Develop interventions for coping with adjustment difficulties.	**NS-S2-PSY-16** Adjustment Disorder		
	• Implement strategies for the management of acute stress disorder. • Provide psychoeducation oncoping with acute stress. • Address immediate and long-term needs of individuals experiencing acute stress.	**NS-S2-PSY-17** Management of AcuteStress Disorder		
	• Classify different types of sleep disorders. • Explain the diagnostic criteria for common sleep disorders. • Explore the impact of sleep disorders on mental and physical health. • Develop management strategiesfor various sleep disorders.	**NS-S2-PSY-18** Sleep Disorders: Classification and Management		
	• Define somatoform and dissociative disorders. • Classify different types of somatoform and dissociative disorders. • Explain the clinical presentations of these disorders. • Explore the relationship between psychological factors and somatic symptoms.	**NS-S2-PSY-19** Somatoform & Dissociative Disorders Classificationand Clinical Presentations		
	• Apply therapeutic approaches in the management of somatoform and dissociative disorders. • Develop strategies foraddressing	**NS-S2-PSY-20** Management of		

	somatic symptoms ina holistic manner. • Collaborate with healthcare professionals for comprehensive care.	Somatoform & Dissociative Disorders		
	• Explain the neurobiological basis of addiction. • Identify the impact of substances on the brain's reward system. • Explore the concept of tolerance, dependence, and withdrawal. • Recognize the role of genetics in addiction susceptibility.	**NS-S2-PSY-21** Neurobiological Basis of Addiction		
	• Conduct a comprehensive assessment for substance use disorders. • Identify diagnostic criteria for different substance use disorders. • Explain the impact of substance use on mental and physical health. • Differentiate between substance abuse and dependence.	**NS-S2-PSY-22** Substance Use Disorders: Assessment and Diagnosis		
	• Develop individualized treatment plans for substance use disorders. • Implement evidence-basedinterventions for substance use disorders. • Address co-occurring mental health issues in the context of substance use.	**NS-S2-PSY-23** Management of Substance Use Disorder		
	• Explain the stages of child development. • Identify key milestones in cognitive, social, and emotional development. • Explore factors influencing child development.	**NS-S2-PSY-24** Child Development		
	• Define pervasive developmental disorders (autism spectrum disorders). • Identify diagnostic criteria for different disorders within thespectrum. • Explain the challenges faced by individuals with pervasive developmental disorders.	**NS-S2-PSY-25** Pervasive Developmental Disorders		

	• Conduct comprehensive assessments for developmental disorders. • Develop intervention plans tailored to the individual needs of children with developmental disorders.	**NS-S2-PSY-26** Assessment and Management of Developmental Disorders		
	• Differentiate between dementiaand delirium. • Explain the clinical presentations of dementia and delirium. • Identify risk factors for thesedisorders.	**NS-S2-PSY-27** Dementia and Delirium		
	• Recognize the signs and symptoms of dementia and delirium. • Explain the progression of cognitive decline in dementia. • Identify reversible causes of delirium.	**NS-S2-PSY-28** Clinical Presentations of Dementia and Delirium		
	• Implement strategies for managing behavioral and cognitive symptoms in dementia. • Provide support for individuals and caregivers coping with dementia	**NS-S2-PSY-29** Management of Dementia and Delirium		
	• Explain the concept of stigma in the context of mental health. • Explore the impact of stigma on individuals seeking mental health services. • Engage in mental health advocacy to reduce stigma.	**NS-S2-PSY-29** Stigma & Mental Health Advocacy		
	• Explain the legal framework surrounding mental health. • Identify the rights and responsibilities of individuals with mental health issues. • Navigate the legal processes related to involuntary commitment and treatment.	**NS-S2-PSY-30** Legal Aspects of Mental Health		
5	To learn about the indication contraindication of various drugs used for the management of common neurological disorders	**NS-S2-Pharm-1** Anti-epileptic drugs + Drugs for migraine **NS-S2-Pharm-2** Anti-tubercles and drugs for theCNS infections **NS-S2-Pharm-3** Drugs for Parkinsonism		

6	Recognize the importance of Community medicine in neurological disorders	**NS-S2-CM-1** Overview on global burden ofneurological Disorders		
		NS-S2-CM-2 Public health principles and awareness about neurological disorders		
7	To learn about the basic knowledge of neurorehabilitation	**NS-S2-PMR-1** Neurorehabilitation of common UMN and LMN disorders		
	• Explain the mechanisms of action of antipsychoticmedications. • Identify common anti-psychoticdrugs and their side effects.	**NS-S2-Pharm-1** Psycho-pharmacology of Antipsychotic		
	• Explain the role of mood stabilizers in psychiatric treatment. • Identify common mood stabilizers and their mechanisms of action. • Recognize indications and contraindications for mood stabilizer use.	**NS-S2-Pharm-2** Psychopharmacology of Mood Stabilizers		
	• Explain the mechanisms of action of antidepressant medications. • Identify common antidepressant drugs and their side effects.	**NS-S2-Pharm-3** Psycho-pharmacology of Antidepressants		

Theme 10: Inflammatory and Infective Diseases of the CNS

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
		Pathology		
1	• Define meningitis and encephalitis • Discuss common CentralNervous System infectionsincluding 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
	Viral pathogens causing meningitis, Enteroviruses, HSV-2, Arboviruses	**NS-S2-Path-2** Inflammation and infections of CNS-2		

2	Discuss pathogenesis of cerebral malaria, Naeglaria fowleri and Cysticercosis	**NS-S2-Path-3** Inflammation and infections of CNS-3		
	Infection of the 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		

Theme 11: Tumors of the Central Nervous System

Theme 12: Approaches and Management of CNS tumors at different ages

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
3	• Classify CNS tumors according to WHO Classification • List genetic mutations, pathogenesis, morphology and clinical features of brain tumors • Including all types of Gliomas, Ependymoma, Medullo-blastoma and Meningioma • Discuss the metastatic tumorsto brain	**NS-S2-Path-7** Brain tumors	Lecture/ Demonstration ,SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
8	Relate the neoplastic processes involving different parts of brain with their clinical presentations and differentages	**ORTH-T-S2-Path-1** Brain tumor **ORTH-T-S2-NSUR-6** Approach and management of CNS Tumors & different ages **ORTH-T-S2-Rad-4** Radiological appearance of a brain tumor	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
Pharmacology				
1	• Classify different types of antiepileptic agents. • Describe the mechanism ofaction, and adverse effects.	**NS-S2-Pharm-1** Anti-epiletics		
2	• Classify different types of antipsychotic agents. • Describe the mechanism ofaction, and adverse effects.	**NS-S2-Pharm-2** Antipsychotics		

3	• Enlist different drugs that are used for the treatment of Parkinson's disease. • Describe their mechanism of action and adverse effects.	**NS-S2-Pharm-3** Drugs used in Parkinson's 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		**NS-S2-Pharm-5** Anti-Depressants		
6		**NS-S2-Pharm-6** Sedatives Hypnotics		
7		**NS-S2-Pharm-7** General anesthesia -1 (inhaled)		
8		**NS-S2-Pharm-8** General anesthesia - 2 (I.V)		
9		**NS-S2-Pharm-9** Local Anesthetic Agents		
10		**NS-S2-Pharm-10** Opioids		

Theme 13:	**Autonomic Nervous System**			
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
1	•	**ANS-S2-Pharm-1** Introduction To ANS		
2	• Receptor distribution of 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		

4	• Receptor distribution of the 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	Lecture/ Demonstration,SGD, Practical, CBL/PBL	SBQs & OSVE, OSCE, Clinical Exam
5	• Classify the adrenergic antagonists • Discuss the clinical uses and side effects of Alpha Blockers • Discuss the clinical uses and side effects Effects of Beta Blockers	**ANS-S2-Pharm-5** Adrenergic agonists-2		
6		**ANS-S2-Pharm-6** Alpha Blockers		
7		**ANS-S2-Pharm-7** Beta blockers		

COMMUNITY MEDICINE				
1.	Introduction to Epidemiology	• Define epidemiology • Describe the basic terminology and concept of epidemiology • Understand the objectives and approaches of epidemiology. • Understand the concept of descriptive epidemiology. • Describe the concept and importance of time place, and person.	Teaching Methodology • Lecture	Type of Assessment • SBQs
2.	Measures of the occurrence of diseases	• 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	Teaching Methodology • Lecture	Type of Assessment • SBQs

3.	Causation in Epidemiology	• Define the principles of causation. • Determine the concept of necessity and sufficiency. • Describe the different models of causation. • Discuss Bradford Hill's criteria of causation.	Teaching Methodology • Lecture	Type of Assessment • SBQs

CARDIOLOGY MODULE

Introduction:

Welcome to the Cardiology module. This interesting module is essential for building your foundation in medicine and allied fields. This module is designed to make your learning both interesting and productive by including several interactive activities.

This module comprehensively covers the clinical applications that we encounter in everyday life as cardiologists. All these topics are interactive and helpful in understanding both the disease process and its management.

Rationale:

Heart is the one of if not the most, essential organ of the body, it has a complex interaction with other essentialorgans of the body, its importance in human life is critical for survival of human being to understand the complex functioning as well as the common disease process is critical for every medical student to learn andby understanding it one can truly excel in medicine.

Duration 02 Weeks

Learning Outcomes After completion of the MBBS course, the student should be able to:

- Recognize the clinical presentations of common cardiovascular diseases in the community.
- Diagnosing these diseases based on history, examination, and clinical investigations.
- Identify the preventive measures for counseling their patients.
- Practice basic principles of management of common diseases and make appropriate referrals.
- Recognition of the prognosis to counsel their patients.
- Be aware of the specific diagnostic tools for cardiovascular diseases and their interpretation.

Topics with specific learning objectives and teaching strategies

Theme 1: Ischemia, Heart Failure, Congenital Heart Diseases and Vascular Diseases

S #	LEARNING OBJECTIVE	TOPIC	LEARNING STRATEGY	ASSESSMENT

1	• NSTE-ACS:
	  ○ Unstable Angina
	  ○ NSTEMI
	• STEMI
		CAR-S2-Cardio-1 Acute Coronary Syndrome	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam

2	• Introduction • Clinical Presentation • Diagnostic testing • Therapy	**CAR-S2-Cardio-2** Chronic Coronary Syndrome		
3	• Heart Failure with systolic Dysfunction • Heart Failure with preserved ejection fraction	**CAR-S2-Cardio-3** Heart Failure		
4	• ASD • VSD • PDA • Coarctation of Aorta\ • Tetralogy of Fallot	**CAR-S2-Cardio-4** Congenital Heart Diseases		
5	• Venous thromboembolism • Peripheral Arterial disease	**CAR-S2-Cardio-5** Vascular Diseases		

	• Carotid artery disease.			

Theme 2: Arrythmias, Valvular Heart Disease and Heart Disease and Pregnancy				
S #	**LEARNING OBJECTIVE**	**TOPIC**	**LEARNING STRATEGY**	**ASSESSMENT**
1	• Supraventricular arrhythmias • Ventricular arrythmias	**CAR-S2-Cardio-6** Tacchyarrythmia	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
2	• Sinus Node Dysfunction • 1st degree AV Blocks • 2nd degree AV Block • 3rd degree AV Block	**CAR-S2-Cardio-7** Bradyarrythmias		
3	• Mitral Valve Disease • Mitral stenosis • Mitral Regurgitation	**CAR-S2-Cardio-8** Valvular Heart Disease		
4	• Aortic Valve Disease • Aortic stenosis • Aortic Regurgitation	**CAR-S2-Cardio-9** Valvular Heart Disease		
5	• Introduction • Normal Physiologic changes during pregnancy • Cardiovascular evaluation during pregnancy • Pregnancy in women with CHD • VHD and pregnancy • Hypertensive disorders in Pregnancy	**CAR-S2-Cardio-10** HeartDiseasesand Pregnancy		

COMMUNITY MEDICINE				
4.	Introduction to epidemiological study design	• 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	Lecture	SBQs
5.	Case-report, Case series, and	• Describe case reports and case series. • Define cross-sectional study	Lecture	SBQs

	Cross-sectional study	• Discuss the uses of the cross-sectional study. • Compare the relative strengths and weaknesses of Cross-sectional studies		
6.	Case-control study	• Define the case-control study. • Describe the advantages and limitations of case-control studies. • Analyze and interpret the Odd ratio.	• Lecture	• SBQs

INTEGUMENTARY MODULE

Introduction:

Welcome to the Integumentary module. This interesting module is essential for building your foundation in medicine and allied fields. This module is designed to make your learning both interesting and productive by including several inter active activities.

This module covers the structural anatomy and physiology of the skin as well as common skin disorders encounter in our society. All these topics are interactive and helpful in understanding skin diseases.

Rationale: Skin is the largest organ of the body. Its exposed position makes it susceptible to a large number of disorders which include allergic conditions, infections, and involvement in metabolic disorders. In this dermatology module the student shall gain an understanding of skin diseases, their clinical presentation, diagnosis, and their management.

Learning Outcomes **After completion of the MBBS course, the student should be able to:**

- Recognize the clinical presentations of common Skin diseases in the community.
- Diagnosing these diseases based on history, examination, and clinical investigations.
- Identify the preventive measures for counseling their patients.
- Practice basic principles of management of common diseases and make appropriate referral.
- Recognition of the prognosis to counsel their patients.
- Be aware of the specific diagnostic tools for Skin diseases, and their interpretation.

Duration **02 Weeks**

Topics with specific learning objectives and teaching strategies

Theme 1: Introduction and Inflammatory Dermatosis

S. #	LEARNING OBJECTIVES	TOPICS	TEACHING STRATEGY	ASSESSMENT
1	• Recognize the Layers of the epidermis & Dermis • Recognize the appendages • Explore the functions of epidermis and dermis	**IM-S2-Derm-1** Anatomy and physiology of the skin	Lecture/ Demonstration ,SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
2	Recognize primary and secondary cutaneous lesions	**IM-S2-Derm-2** Primary and secondary skin lesions		
3	To diagnose different types of psoriasis & their management	**IM-S2-Derm-3** Psoriasis		

4	To diagnose acne vulgaris & its management	**IM-S2-Derm-4** Acne vulgaris		
5	To diagnose atopic Eczema & study its management	**IM-S2-Derm-5** Atopic dermatitis		

Theme 2: Infections of the Skin				
S #	**LEARNING OBJECTIVES**	**TOPICS**	**TEACHING STRATEGY**	**ASSESSMENT**
6	To diagnose superficial cutaneous bacterial infections, and their management	**IM-S2-Derm-6** Bacterial Infection		
7	To diagnose different types of superficial fungal infections andtheir management	**IM-S2-Derm-7** Fungal	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
8	To diagnose common cutaneous viral infections and their management	**IM-S2-Derm-8** Viral Infections		
9	To diagnose the Leishmaniasis and their management	**IM-S2-Derm-9** Parasitic Infections		
10	To diagnose scabies and its management.	**IM-S2-Derm-10** Parasitic Infections		

PLASTIC SURGERY BURN

By the end of this module, 4th-year undergraduate medical students should be able to:

- Enlist the type of skin and its behavior after injuries like pigmentation, hypertrophic scar, and Keloid.
- Enumerate the relevant investigations in a given scenario, including blood investigations, relevant X-ray, Echo, CT, and MRI scan.
- Diagnose the type of wound and its management.
- Enlist the different skin lesions and tumors and their management based on local and regional flaps.
- Discuss the axial pattern flap for distant area coverage.
- Explain the biological and artificial skin for coverage.
- Describe the acute burn care.
- Discuss how the graft applied
- Enumerate and identify various benign and malignant skin lesions.
- Enlist and describe various congenital anomalies dealt in Plastic surgery.
- Identify appropriate patient referral for further management

Duration 02 Weeks

Theme: Burns and Wound Healing
Theme: Birth Defects
Theme: Skin lesions/ tumors

S #	LEARNING OBJECTIVES	TOPICS	TEACHING STRATEGY	ASSESSMENT
		COMMUNITY MEDICINE		
7.	Cohort Study	• Define the cohort study • Discuss the importance, uses, and limitations of the cohort study • Analysis and interpretation of relative risk and rate ratio	Teaching Methodology • Lecture	Type Of Assessment • SBQs
8.	Errors in epidemiological research	• Define different errors in research. • Define validity and reliability • Define confounder and its impact on research • Determine different biases in research	Teaching Methodology • Lecture	Type Of Assessment • SBQs
	Topics with specific learning objectives and teaching strategies **Theme: Basic**			
S #	**LEARNING OBJECTIVES**	**TOPICS**	**TEACHING STRATEGY**	**ASSESSMENT**
11	The student will be able to: • Define what is plastic surgery is. • Describe the history of plastic surgery • Define sub-specialties in plastic surgery • Describe factors involved in obtaining a fine line scar	**IM-S2-PSurg-1** Introduction to Plastic Surgery	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam

	• Describe a step ladder in plastic surgical armamentarium			
12	The student will be able to: • Define and identify different types and degrees of burns • Describe management of acute burns • Enumerate complications of Burns • Describe measures for prevention of burns and its complications	IM-S2- PSurg-2 Burns	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
13	The student will be able to: • Define stages of wound healing • Describe mechanisms involved in wound healing • Describe aberrant wound healing • Identify factors causing delayed wound healing • Describe options for wound management • Describe recent advances in wound healing strategies	IM-S2- PSurg-3 Wound healing		
14	• The student will be able to define: • What is skin graft? Types of skin graft, Mechanism of skin graft take, Uses of skin graft, Complications of skin grafts, The student is able to Define: What is a flap, Different types of flaps, Types of local flaps, Z-plasty. Uses of different flaps, Complications of different flaps	IM-S2- PSurg-4 Graft/ Flaps		
15	The student will be able to describe: • Cleft lip deformity, Cleft palate deformity, Hypospadias, Hemangioma, Vascular malformations, Syndactyly	**IM-S2-PSurg-5** Congenital anomalies	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
16	The student will be able to identify: • Benign skin lesion • Cutaneous malignancies • Squamous cell carcinoma • Basal cell carcinoma • Melanoma	**IM-S2-PSurg-6** Skin lesion/tumors	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam

PAEDIATRICS MODULE

MISSION OF UNDERGRADUATE PEDIATRIC TRAINING:

To deliver excellence in teaching and learning and actively engage students to develop the minimum essential clinical knowledge, psychomotor skills, critical thinking decision making, and counseling and communication skills regarding the management of pediatric illnesses to ensure the delivery of safe patient care keeping in mind the contextual needs of the community and to effectively deal with global healthcare challenges.

PURPOSE OF STUDY GUIDE

To facilitate the student's learning by providing an outline of the modules, teaching methods, assessment process, and evaluation strategies in context to their themes and sub themes required to achieve the exit competencies in the field of Paediatrics. This study guide also contain details of the teaching schedule and assigns faculty members for each module, whom they can contact anytime for guidance or queries.

RULES AND REGULATIONS:

1. Daily timings for pediatric posting are 8:30 am to 3.00 pm, biometric (digital) and manual attendance both will both be taken into account for this purpose.
2. 75% of class attendance is mandatory to appear in end of rotation test.
3. After 9.00 a.m. Students are considered to be late and three late arrivals will be counted as one absent.
4. Attendance at all three sessions will be mandatory for attendance of the day.
5. Formative assessment in the form of end-of-modular test/ TBL and WBA (Mini-Cex) will be taken multiple times throughout the rotation, while summative assessment will be arranged on the last day of rotation (clinical examination & OSCE).

Discipline-Specific Outcomes of Pediatric teaching (undergraduate).

At the end of the Pediatric clerkship, the students should be able to:

1. **Take the appropriate history** of patients, taking into consideration the age, birth history, development, socioeconomic status, family, nutritional, and immunization aspects.
2. **Demonstrate Physical examination skills** that reflect consideration of the clinical presentation and comfort according to the age and development of the child
3. **Formulate a problem list of active and chronic issues**, including a differential diagnosis of their pediatric presentations. A safe and patient-centered approach should be used for the diagnosis of major presenting problems encountered in pediatrics by using clinical reasoning skills based on the following:
    a. Relevant basic and clinical science knowledge and Evidence-based medicine.
4. **Select the most appropriate investigation** relevant to each of the presenting clinical scenarios with justification for its selection.
5. **Develop a management plan** for each problem on the problem list, justify it, interpret data, and learn to identify critical and acute pediatric illnesses.
6. **Demonstrate proficiency in specific procedural skills.**
7. **Demonstrate practical communication skills with the patient's family.**
    a. Establish rapport with children
    b. Counseling of patients regarding common pediatric presentations
    c. Communicate the results of pediatric history and physical examination in a well-organized, written, and oral report.

8. **Able to demonstrate professionalism.** Professional behavior in the form of:

a. Punctuality

b. Expresses awareness of emotional, personal, family, and cultural influences on patient well-being
c. Respectable and professional dress, including wearing a white coat.
d. Demonstration of respect and courtesy towards patients and classmates.

9. **Ensure patient safety**: The student should be aware of the principles of patient safety, which include.

a. Understanding and learning from errors
b. Engaging with patients and caregivers
c. Improving medication safety

10. Identify and access information/resources on evidence-based pediatric practice.

- Demonstrate continuous learning
- Participate in departmental Continuing Medical Education activities to update their knowledge.

PROGRAM

4th-year MBBS Pediatric clinical posting comprises 02-weeks of clinical rotation in pediatric department. Students go through the pediatric outpatient clinic, the EPI clinics, pediatric ward, pediatric ICU, and Neonatal ICU.

TEACHING/LEARNING STRATEGY: During rotation, students will learn through

- Case-based learning
- Bedside clinical teaching sessions
- Outpatient-based teaching
- Interactive lectures

Case base learning:

Students present the history and examination of a patient the then differential diagnosis, investigations and management is discussed in detail

Bedside teaching:

History taking, clinical examination, will be taught and practiced at the bedside or at OPD as task of the day

Seminar: Students will be taught by lead facilitator the critical aspects of assigned topic for the day. **EPI/OPD:** Students go to OPD and EPI Center in small groups to learn Vaccination and practice clinical skills, mainly focusing on IMNCI.

Clinical skills: Students master their examination and procedural skills.

Interactive lectures: Small group discussions on specific topics, scenarios, or clinical cases to enhance the active participation of students.

ASSESSMENT:

Students go through formative and summative assessments in their (02) weeks of clinical rotation.

Formative assessment:

Formative assessment focuses on learning and improvement of students by giving them specific tasks and providing them constructive feedback.

End Modular test: That will be taken after end of each module. Though that will be formative, but we will assign 5% weightage.

ii. Structured Bedside Assessment is a method of formative assessment in which groups of 4- 5 students are observed while they perform clinical skills, followed by structured feedback from the facilitator and co-facilitators.

iii. TBL Team-based learning taken after some cognitively rich modules. Though that will be formative because feedback will be given but we will assign 5% weightage as well.

Summative Assessment:

Summative assessment focuses on the cumulative evaluation of the student's learning. Its further divided into Continuous assessment and End of rotation test. 10% of the total marks are carried to the final year university-based assessment at the end of the course.

Marks assigned on Assessment:

Continuous assessment has 50% weight, and it has the following components

- End module assessment 15X2 =30
- TBL 10x2=20

Mandatory requirement to appear in end rotation assessment

- Attendance/punctuality during clinical posting. (75% attendance)
- Logbook (history and daily work record)

End of rotation test: 50%

- Students should submit a clinical Logbook at the end of their rotation in Pediatrics.
- 75% attendance is required to be eligible for the end-of-rotation test.
- In summative assessment, students will be examined for
- Short case 20 marks
- Ten stations of OSCE (static and interactive) 6x5=30

Course Content: We have divided the course contents into 2 modules

Introduction module • Overview of Pediatric Medicine • Overview of growth and development • Pediatric history taking (inpatient) • Pediatric history taking and examination (outpatient) • Physical examination.	**. Nutrition** • Normal Nutrition/ IYCF • CMAM/ SAM • Micronutrient deficiency • Wasting / Obesity

Modular Integrated Teaching for the fourth year MBBS

First Module: Paediatric history, integrated approach & IMNCI Learning outcomes:

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

- Take the pediatric history of indoor patients.
- Take Paediatric history of outdoor patients.
- Perform the general physical examination on admitted patients
- Perform the focused examination according to IMNCI guidelines
- Assess the growth and development of children under 5 years

Specific learning objectives:

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

- Comprehend the importance of paediatric history especially BIND (birth, immunization, nutritional, developmental history).
- Comprehend the importance of focused history and examination at outdoor area (integrated approach with 5 main symptoms and therapeutic and preventive aspect of IMNCI)
- Enlist the domains of growth and development in the child.
- Enlist the therapeutic and preventive aspects of IMNCI
- Write an assignment on importance of integrated / holistic Paediatric approach.

Psychomotor skills: At the end of this module students will be able to:

- Take Paediatric history and check for general danger signs and severe classification on admitted cases.
- Take Paediatric history of outdoor patients and able to fill the CRF (Both age groups)
- Perform the general physical examination on admitted patients.

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

- Able to counsel about when to return.
- Able to counsel about breast feeding and nutrition
- Able to counsel about immunization
- Able to counsel about mother's own health

Aligning LO with teaching methodology and assessment plan			
S. No	**Learning Objectives**	**Teaching methodology**	**Assessment tool**
1	Take the pediatric history of indoor patient.	Bed allotment will be done. Patients will be assigned to the group of students (3-4) who will take the history on the prescribed proforma given in their log-books (direct supervision) Daily, 3 to 4 student subgroups will present the cases in the classroom followed by discussion and feedback.	Case presentation in the Long case presentation Mini-CEX (WPBA)
2	Take Paediatric history of outdoor patient.	Practical session on focused history and filling of CRF	Case presentation Filling of CRF in the log books
3	Perform the general physical examination on admitted patients	Demonstration on the patient in the class by the lead facilitator Followed by practice in small groups on identified patients	Mini-CEX (WPBA) Short case and long case
4	Perform the focused examination according to IMNCI guidelines	OPD posting at least once in week. Practical session on focused history and filling of CRF	TBL on IMNCI
5	Enlist the domains of growth and development in the child Assess the growth and development of a child under 5 years	Demonstration of growth and developmental assessment on the patient by lead facilitator Followed by practice in small groups on identified patients	Growth and development assessment of the patients
6.	Enlist the therapeutic and preventive aspects of IMNCI	Write an assignment on the importance of an integrated/holistic Pediatric approach.	Designing the rubric for that assignment. Score on the rubric on the assignment should be 6 out of 10

WEEK 1					
Day	**08.30 - 09.30 am**	**09:30 11:00 am**	**11.30– 01:00 pm**	**01:00-02:00 pm**	**02:00-03:00pm**

1.	Paediatric history with importance of BIND and systemic enquiry	Practice on history taking in small groups	Growth and development Assessment Practical demonstration on patient.	Practice on history taking with assessment of growth and development	Summarization of today's task **Home assignment** IMNCI an integrated and holistic approach
2.	Introduction to IMNCI with demonstration on wall charts 02 months to 59 months	History taking by students in groups Integration of IMNCI	Practical demonstration by lead facilitator on general physical examination on patient.	Practice on general physical examination in small groups	Summarization of today's task Introduction to CRF 2month to 5 years (5 main symptoms)
3.	Practice on filling of CRF (2month - 5 years) Check for general danger signs And 5 main symptoms	Practical demonstration on IMNCI strategy.	Practice on filling of CRF On five main symptoms at indoor (severe classification)	Brief introduction to sick young infant's module	Summarization of today's task Home assignment for check for possible bacterial infection (PBI).
4.	Demonstration on neonatal examination Practice on filling of CRF 0-2 months	SGD and CBD on sick young infant and NNS	\SGD and CBD on NNJ Difference in physiological and pathological jaundice CBD	Practice on filling of CRF Demonstration and practice on whole process	
5.	First TBL on IMNCI	First formative assessment on history taking / general physical examination and IMNCI approach/process			

Second week: Module Two Nutrition and Nutritional disorders Topics to be covered:

- Normal nutrition
- IYCF (BFHI , nutrition during the first 1000 days)
- CMAM / SAM
- Micronutrient deficiency

<u>Learning outcomes: At the end of this module the students will be able to</u>

- Enlist the objectives and components of CMAM
- Define hidden hunger (micronutrient deficiency)
- Assess and classify the nutritional status of children under 5 years
- Manage the case of SAM without complication (OPT management)
- Enlist the 10-step management protocol of SAM child (complication of SAM).
- Counsel the families about normal nutrition (IYCF key messages).
- Counsel the families about hyegnic food preparation
- Counsel about responsive feeding and TLC

Specific learning objectives:

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

- Recall statistics about the nutritional parameters or indicators in the children of Pakistan (Sindh).
- Describe the five-star diet and role of normal nutrition in first 2 years (1000 days)
- Enlist the 4 components of CMAM and admission and discharge criteria for NSC and OTP
- Able to manage the case of SAM without complication
- Enlist the 10-step management of the SAM child admitted in NSC
- Able enlist the ingredients for Preparing F 75 and F 100 (manually)
- Enumerate the difference in ORS and ReSoMal

Psychomotor Skills:

- Take the nutritional history and can estimate the caloric intake
- Screen the children for nutritional status by doing MUAC and checking for bilateral pitting edema.
- Perform Anthropometry of children under 5 and Plot on growth charts, and calculate Z score
- Filling of the CCP form and daily care forms

Affective Domain:

- Counselling for breastfeeding / normal nutrition
- Role plays of SAM
- Able to counsel the children for nutrition to MAM and underweight

S. No	Learning Objective	Teaching methodology	Assessment tool
1	Enlist the objectives and components of CMAM	Tutorial/lead presentation to introduce the topic.	Written assessment (SBQ & SEQ)
2	Define hidden hunger (micronutrient deficiency)	Tutorial/lead presentation to introduce the topic, Assignment	Designing the rubric for that assignment. Score on the rubric on the assignment should be 6 out of 10
3	Assess and classify the nutritional status of children under 5 years	Demonstration on the patient in the class by the lead facilitator Followed by practice in small groups of identified patients	Short case and Mini CEX
4	Manage the case of SAM without complication (OTP management protocol)	Patients allotted in the OPD on the assigned	Screening done by students under direct supervision, Visit to the OTP
5	Enlist the 10-step management protocol of SAM child (complication of SAM).	Case-based discussion in small groups	Mini-CEX (WPBA) During an indoor visit of NSC OSCE
6	Counsel the families about normal nutrition (IYCF key messages).	Lead a session by a facilitator on counseling Role plays	During OPD visit and while taking history in the ward posting (WPBA)
7	Counsel about responsive feeding and TLC	Live counseling session with The mothers at NSC / role plays	WPBA

8	Counsel the families about hygienic food preparation	Live counseling session with the mothers at NSC / role plays	WPBA

WEEK 2					
Day	**08.30-09.30 am**	**09:30 – 11:00am**	**11.30 – 01:00 pm**	**01:00- 02:00 pm**	**02:00-03:00pm**
06.	Introduction CMAM With brief description of Four components	Practice on Screening by MUAC and Anthropometry	Practical demonstration by lead facilitator on GPE at NSC	Practice on GPE in small groups on patient SAM child (Macro & micro nutrients	Summarization of today's task: Home task self- reading on 10 step management of SAM
07.	10 step management of SAM Demonstration on filling of CCP form	Case-based discussion on SAM with complications	Outdoor visit of OTP OPT protocol	Indoor visit of NSC Short case evaluation in NSC essential task to be assessed on each student's nutritional assessment and GPE on SAM child (Mini CEX)	Summarization of today's task BFHI / IYCF key messages: Responsive feeding and its importance
08	IYCF key messages: Responsive feeding and its importance	Practical session on Nutritional counselling with role plays	Role play on nutritional counselling	BFHI introduction	Revision of any concept required
09	Second formative assessment on CMAM, SAM, and BFHI / IYCF Management (TBL)			Student feedback	
10	Summative Assessment - OSCE - Short Case				

RENAL/EXCRETORY III MODULE

Introduction Welcome to the Renal & excretory 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 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. Inthis 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 Renaland 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.

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 withsystemic 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.

Topics with specific learning objectives and teaching strategies

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

S. #	LEARNING OBJECTIVES	TOPIC	TEACHING STRATEGY	ASSESSMENT
1	• Classify glomerular disease. • Define glomerular syndrome • Discuss the 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 the pathophysiology and clinical features of nephritic syndrome • Differentiate between nephritic andnephrotic syndrome.	**EXC-S2-Path-2** Nephritic Syndrome		
3	• Define and describe causes: • Pathophysiology and clinical features of nephrotic syndrome. • Differentiate between nephritic andnephrotic syndrome.	**EXC-S2-Path-3** Nephrotic Syndrome		

4	nephropathy, Hereditary nephritis,Alport syndrome.	**EXC-S2-Path-4** Glomerular conditions associated with systemic disorders and Isolated glomerular conditions 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		
6	• Basic and advanced renal investigations • When, how, which, and what type of investigation to be sent according to renal illness • The basics of how such an investigation is interpreted • The significance of test in disease, its prognosis, and monitoring. • Basic case scenarios on various important investigations.	**EXC-S2-Neph-1** Investigations in renal medicine	Interactive Lecture	SBQs & OSVE
	• Definition of terms • Basic classification of glomerular diseases • Proteinuria and its types • Difference b/w nephritic and nephrotic syndrome • Approach to a patient with glomerular diseases • Management of nephritic and nephritic syndrome • Case-based scenarios on various glomerular diseases.	**EXC-S2-Neph-2** Clinical presentation and basic management of glomerular diseases: nephritic & nephrotic syndrome	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam

Theme 2: Kidney/ Excretory Infections and Renal Vascular Disorders				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
6	• Describe causes and pathogenic mechanism of tubulointerstitial injury • Etiology, pathogenesis and morphology of acute tubular necrosis. • Describe etiopathogenesis and morphology of tubulointerstitial nephritis.	**EXC-S2-Path-6** Tubulo-interstitial Injury	Lecture/ Demonstration, SGD,	SBQs & OSVE, OSCE, Clinical Exam

7	• Identify predisposing factors of pyelonephritis • Describe causes, pathogenic mechanisms and morphology of acute pyelonephritis. • Describe clinical course and complications of acute pyelonephritis.	**EXC-S2-Path-7** Pyelonephritis	Practical, CBL/ PBL	
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 And clinical presentation.	**EXC-S2-Path-9** Urinary tract infections		
10	• Classify renal vascular disease. • Discuss etiology, pathogenesis, morphology, and clinical features of benign and malignant nephrosclerosis. • 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 t h e urine detail report and the different methods of urine culture	**EXC-S2-Path-11** Urine Analysis and Urine Culture	Practical	OSPE & OSVE
	History, Clinical examination, Investigations, management. History, clinical examination, diagnosis, Medical and surgical management, follow-up and prognosis	**EXC-S2-URO-8** Urinary tract infection		
12	• Describe an overview of the anatomy & physiology of the urinary system. • Explain the classification of acute renal injury. • Discuss the clinical picture and presentation of acute renal injury. • Basic management case-based scenarios.	**EXC-S2-Neph-3** Acute kidney injury	Lecture/ Demonstration, SGD, Practical, CBL/ PBL	OSPE & OSVE
	• Identify the causes of chronic kidney disease • Explain the pathogenesis of chronic kidney disease • Describe the signs, symptoms, and presentation of CKD Management • Clinical case-based scenarios	**EXC-S2-Neph-4** Chronic kidney disease		

	PUJO, PUV, VUR, cryptorchidism	**EXC-S2-URO-10** Paediatrics Urology		
	• Different modalities of dialysis • Overview of renal transplant: Common post-renal transplant medical complications.	**EXC-S2-Neph-5** Renal replacement therapy		

Theme 3: Obstructive Uropathy (Urolithiasis, Hydronephrosis)				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
	Pathogenesis of stone formationwith different theories	**EXC-S2-URO-1** Stone disease 1		
	Diagnosis with a brief introduction to Investigations	**EXC-S2-URO-2** Stone disease 2		
12	Name various types of renal calculi. Describe etiopathology causes, and complications	**EXC-S2-Path-12** Kidney stones	Lecture/ Demonstration, SGD, Practical, CBL/PBL	SBQs & OSVE, OSCE, Clinical Exam
	History, Clinical examination, Investigations, medical and surgical management	**EXC-S2-URO-5** Urolithiasis		
13	Identify causes, pathophysiology, gross and microscopic features & clinical features of hydronephrosis.	**EXC-S2-Path-13** Hydronephrosis		
1	• Describe the distribution of potassium in the body. • Enlist the causes of hypokalemia andhyperkalemia. • Discuss the diagnosis and management of these disorders	**EXC-S2-Phy-1 Potassium Disorders**	Lecture/ Demonstration , SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
2	• Describe the distribution of sodium in the body. • Enlist the causes of hyponatremia andhypernatremia. • Discuss the diagnosis and management of these disorders	**EXC-S2-Phy-2 Sodium disorders**		
	• Physiology of acid-base homeostasis • Metabolic acidosis: causes. Pathophysiology, case-based interpretation with compensation.			

3	• Metabolic alkalosis: causes. Pathophysiology, case-based interpretation with compensation • Respiratory acidosis: causes. Pathophysiology, case-based interpretation with compensation • Respiratory acidosis: causes. Pathophysiology, case-based interpretation with compensation • Mixed disorders, diagnosis	**EXC-S2-Neph-6** Management of Acid-base disorders& Arterial blood Gases interpretation (two days)		
1	• Describe the distribution of potassium in the body. • Enlist the causes of hypokalemia andhyperkalemia. • Discuss the diagnosis and management of these disorders	**EXC-S2-Phy-1** Potassium Disorders	Lecture/ Demonstration , SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
2	• Describe the distribution of sodium in the body. • Enlist the causes of hyponatremia andhypernatremia. • Discuss the diagnosis and management of these disorders	**EXC-S2-Phy-2** Sodium disorders		
3	• Physiology of acid-base homeostasis • Metabolic acidosis: causes. Pathophysiology, case-based Interpretation with compensation. • Metabolic alkalosis: causes. Pathophysiology, case-based Interpretation with compensation • Respiratory acidosis: causes. Pathophysiology, case-based Interpretation with compensation • Respiratory acidosis: causes. Pathophysiology, case-based Interpretation with compensation • Mixed disorders, diagnosis	**EXC-S2-Neph-6** Management of Acid base disorders& Arterial blood Gases interpretation (two days)		

Theme 4: Tumors of Renal/ Excretory System				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
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 the Kidney- I	Interactiv e Lecture	SBQs & OSVE
15	• Classify urothelial tumor. • Discuss etiology, pathogenesis, morphology, clinical features, and diagnosis of urothelial tumors.	**EXC-S2-Path-15** Tumor of the 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
	History, Clinical examination, Investigations, management. History, clinical examination, diagnosis, Medical and surgical management, follow-up, and prognosis	**EXC-S2-URO-9** Renal Neoplasms	Lecture/Demon stration, SGD, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
	Types of bladder tumors, pathogenesis, and diagnosis	**EXC-S2-URO-4** Urinary bladder Neoplasms	Lecture/Demon strations, Practical, CBL/ PBL	SBQs & OSVE, OSCE, Clinical Exam
17	Classify different types of Diuretics. Describe the mechanism ofaction of Diuretics Identify the clinical uses and adverse effects of Diuretics	**EXC-S2-Pharm-1** Diuretics,	Interactiv e Lecture	SBQs & OSVE
COMMUNITY MEDICINE				
9	Experimental studies	• Define Experimental Studies. • Differentiate randomized control trail and non-randomized control trials.	Teaching Methodology Lecture	Type Of Assessment • SBQs

		• Discuss the importance of randomized control trials.		
10.	Screening	• Define screening • Discuss the type of screening • Understand the concept of sensitivity and specificity. • Describe the predictive values.	Lecture	SBQs
1.	Introduction to Biostatistics and Data	• Define basic concepts and uses of biostatistics • Define the data and its types • Define variables and their different types • Describe the different methods of data presentation	Lecture	• SBQs
2.	Measures of Central Tendency	• 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.	Lecture	SBQs

MUSCULOSKELETAL III MODULE

Introduction

Welcome to the soft tissue and bone module. This exciting module will serve as a building block and is 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 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 soft tissue and bone pathology.

Rationale

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

Learning outcomes:

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

Topics with specific learning objectives and teaching strategies

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 Proteins and Transcription Factors • Diseases Associated with Defects in Hormones and Signal Transduction Proteins • Diseases Associated with Defects in MetabolicPathways (Enzymes, Ion Channels, and Transporters) • Diseases Associated with Defects in the Degradation of Macromolecules	**MSK-S2-Path-2** Developmental Disorders Of Bone AndCartilage		

Theme 2: Fracture, Osteomyelitis, and Arthritis				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMEN**
3	• Define terms related tofracture • Describe the mechanism of bone healing • Complications of fracture • Pathophysiology of boneinfection (osteomyelitis)	**MSK-S2-Path-3** Fractures, bone repair, and osteomyelitis	Interactiv e Lecture	SBQs & OSVE
4	• What is arthritis • Define Osteoarthritis and Rheumatoid Arthritis • Explain pathophysiology of osteoarthritis and Rheumatoid Arthritis. • Describe the clinical features of osteoarthritisand Rheumatoid Arthritis • Treatment of osteoarthritis and Rheumatoid Arthritis • Crystal-Induced Arthritis.	**MSK-S2-Path-4** Arthritis		
	• Drugs used in Gout	**MSK-S2-Pharma-1** Gout		
	•	**MSK-S2-Pharma -2** NSaids		

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**	**ASSESSMEN T**
5	• Osteoid Osteoma • Osteoblastoma • Osteochondroma • Chondroma	**MSK-S2-Path-5** Benign Bone and Cartilage-Forming Tumors	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		

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 Microscopic Features	**MSK-S2-Path-9** Soft Tissue Tumors	Practical	OSPE & OSVE

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)		
COMMUNITY MEDICINE				
	Measure of Dispersion	• Define the measures of dispersion • . Explain the purpose of measures of dispersion • Define and compute Variance, standard deviation, range, and interquartile range • Construct data tables that facilitate the calculation of Variance and standard deviation Apply the concept of measure of dispersion in raw data.	Teaching Methodology Lecture	
	Normal Distribution	• Define the normal distribution. • Describe the purpose and importance of normal distribution in biostatistics. • Describe the normal distribution curve	Lecture	
5	Statistical tests interpretations	• Define the statistical tests • Describe the different statistical tests. • Distinguish between categorical and continuous measures. • Describe the interpretation of data analyzed through t h e t-test and the chi-square test	Lecture	
6	Sampling	• Define sampling • Describe the purpose and importance of sampling. • Describe different methods of sampling. • Differentiate between probability and non-probability sampling.	Lecture	

REPRODUCTIVE MODULE

Introduction

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

Reproductive health is a state of complete physical, mental, and social well-being in all matters relating to the reproductive system. Reproductive Health is essential for people's 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 reproductive systems 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 the 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 diagnosing these diseases.

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

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 ofinfertility.
- Interpret the semen analysis report.
- Explain the clinical features, diagnosis and management of testicular tumors.
- Classify breast tumor and differentiate between non-proliferative and proliferative breast lesions

Topics with specific learning objectives and teaching strategies Theme 1: Lesions of the Female Genital Tract				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**

1	• Discuss congenital anomalies of the 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 the female genital tract		
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	Interactive Lecture	SBQs & OSVE
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 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 clinica features of Carcinoma of the Endometrium • Describe benign and malignant tumors of myometrium	**Rep-S2-Path-6** Tumors of the Uterus	Interactive Lecture	SBQs & OSVE
7	• Describe non-neoplastic and functional cysts of the ovary • Explain etiology, morphology and clinical presentation of polycystic ovarian disease	**Rep-S2-Path-7** Diseases of the ovary		
8	• Classify tumors of the ovary • Discuss the etiology, pathogenesis, morphology, and clinical features of ovarian tumors	**Rep-S2-Path-8** Tumors of the ovary	Interactive Lecture	SBQs & OSVE
9	• Discuss the etiology, pathogenesis, and morphology of hydatidiform 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		
10	• Describe the morphology, gross and microscopic features of gestational tumors	**Rep-S2-Path-10** Gestational Tumor	Practical	OSPE & OSVE
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	Interactive Lecture	BCQ SAQs OSPE
13	• Describe the gross & microscopic features of benign and malignant breast tumors	**Rep-S2-Path-13** Benign and malignant tumors of the breast	Practical	OSPE

Theme 2: Lesions of the Male Genital Tract				
S. #	**LEARNING OBJECTIVES**	**TOPIC**	**TEACHING STRATEGY**	**ASSESSMENT**
11	• Discuss congenital anomalies of the male genital tract • Describe the inflammatory conditions of the testis and epididymis	**Rep-S2-Path-14** Congenital anomalies and inflammation of the 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 the 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
Pharmacology				
16	• Enlist different estrogen and antiestrogenpreparations • 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 the adverse Effects of hormonal contraceptives.	**Rep-S2-Pharm-2** Hormonal Contraceptives		

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		
	• Pathogenesis of BPE and carcinoma of prostate, overview of • investigative modalities.'	**EXC-S2-URO-3** Prostate (benign And Malignant)		
	History, Clinical examination, Investigations, medical and surgical management.	**EXC-S2-URO-6** Benign prostatic enlargement		
	• History, Clinical examination, Investigations, medical and surgical management, prognosis, follow-up.	**EXC-S2-URO-7** Prostatic neoplasms		
	• Renal, ureter, bladder, male genitals	**EXC-S2-URO-11** Urological Trauma		
	• Hydrocele, varicocel, epididymal cyst.	**EXC-S2-URO-12** Benign scrotal conditions		
	• History, Clinical examination, Investigations, management. • History, clinical examination, diagnosis, • Medical and surgical management, follow-up, and prognosis	**EXC-S2-URO-13** Malignant scrotal conditions		

COMMUNITY MEDICINE MODULE				
S.NO	**Content/Area**	**Learning Objectives**	**Teaching strategy**	**Assessment tool**
1.	Introduction to Research Methodology	• Define research and research methods. • Define the survey methodology • Differentiate between qualitative and quantitative research. • Describe the purpose of conducting research.	Lecture	SBQs
2.	How to write a research proposal	• Define the research proposal • Describe the major components of the research proposal. • Understand how to write a good research question. • Distinguish the purpose statement, a research question or hypothesis, and a research objective. • Describe the SMART objectives in writing a research proposal.	Lecture	SBQs
3.	Developing a research questionnaire	• Understand the role of the questionnaire in the data collection process. • Describe the steps in developing a good survey questionnaire. • Design a research questionnaire.	Lecture	SBQs
4.	Data entry and Statistical analysis	• Determine the steps of data entry using statistical software. • Understand the basics of operating SPSS. • Describe how to analyze data using SPSS	Lecture	SBQs

TABLE OF SPECIFICATION
FOURTH PROFESSIONAL MBBS ANNUAL EXAMINATION 2025
PAPER III: CNS + ANS (NEUROSCIENCE II). BONE AND SKIN (MSK II)

SUBJECT	NO OF BCQ'S EACH 02 MARKS	NO OF STATIC OSPE EACH 04 MARKS	NO OF INTERACTIVE STATIONS/ OSPE EACH 16 MARKS
PATHOLOGY	10	02	01
PHARMACOLOGY	06	02	01
COMMUNITY MEDICINE	10	01	01
PSYCHIATRY	08	01	00
NEUROLOGY	08	01	00
ORTHOPEDICS	08	01	00
TOTAL	**50**	**08**	**03**
		32 MARKS	**48 MARKS**
		80 MARKS	
		INTERNAL EVALUATION = 20 MARKS	
GRAND TOTAL (MARKS)	**100 MARKS**	**100 MARKS**	

PAPER IV: KIDNEY/ RENAL II, MALE AND FEMALE REPRODUCTIVE II + BREAST

SUBJECT	NO OF BCQ'S EACH 02 MARKS	NO OF STATIC OSPE EACH 04 MARKS	NO OF INTERACTIVE STATIONS/ OSPE EACH 16 MARKS
PATHOLOGY	25	03	01
PHARMACOLOGY	05	01	01
COMMUNITY MEDICINE	10	02	01
UROLOGY	07	01	00
NEPHROLOGY	03	01	00
TOTAL	**50**	**08**	**03**
		32 MARKS	**48 MARKS**
		80 MARKS	
		INTERNAL EVALUATION = 20 MARKS	
GRAND TOTAL (MARKS)	**100 MARKS**	**100 MARKS**	

ASSESMENT

ASSESSMENT PLAN FOR EACH PAPER		END OF YEAR ASSESMENT	INTERNAL EVALUATION	TOTAL %AGE
THEORY (SBQS)		80%	20%	100%
PRACTICAL EXAM (OSVE; OSCE)		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, practical's, assignments)		**3%**	
	Block tests		**4%**	
			10%	
TOTAL			**20%**	

LEARNING RESOURCES

ENT

1. Logan Turner's Diseases of the Nose, Throat, and Ear: Head and Neck Surgery" by Michael J. Gleeson, 12th Edition
2. Diseases of Ear, Nose, and Throat" by P. L. Dhingra and Shruti Dhingra, 7th Edition
3. Oto-Rhino-Laryngology A Problem Oriented Approach – 2nd EditionIqbal Hussain Udaipurwala
4. Current Diagnosis & Treatment Otolaryngology—Head and Neck Surgery, 4th Edition

PLASTIC SURGERY

1. Plastic Surgery: Volume 1: Principles" and "Plastic Surgery: Volume 2: Aesthetic Surgery" By Peter C. Neligan
2. Essentials of Plastic Surgery" by Jeffrey E. Janis

DERMATOLOGY

1. ABC of Dermatology, Authors: Paul K. Buxton, Rachael Morris-Jones, 7th Edition
2. Rook's Textbook of Dermatology, Authors: Christopher Griffiths, Jonathan, 9th Edition

PATHOLOGY

1. Robbins Basic Pathology, Authors: Vinay Kumar, Abul K. Abbas, Jon C. Aster, 10th Edition
2. Rapid Review Pathology" Author: Edward F. Goljan MD, 4th Edition

PHARMACOLOGY

1. Lippincott Illustrated Reviews: Pharmacology. Authors: Richard A. Harvey, Pamela C. Champe, 7th Edition.
2. Basic and Clinical Pharmacology by Katzung. Authors: Bertram G. Katzung, Anthony J. Trevor. 14th Edition.

OPTHALMOLOGY

1. Clinical Ophthalmology" by J. J. Kanski, 9th Edition
2. Clinical Ophthalmology by Shafi Muhammad Jatoi

NEPHROLOGY

1. Davidson’s Principles and Practice of Medicine, Ian D Penman, Stuart H. Ralston, MD, 24th Edition
2. Current Medical Diagnosis and Treatment, Maxine A. Papadakis, Stephen J. McPhee, Michael W.Rabow, 5th Edition
3. Primer on Kidney Disease, Scott J. Daniel & Weiner, 8th Edition

UROLOGY

1. Bailey & Love's Short Practice of Surgery, 28th Edition.
2. Smith and Tanagho's General Urology, by Jack McAninch & Tom Lue, 19th Edition 19th

Edition

3. Oxford Handbook of Urology, John Reynard, Simon F. Brewster, 4th Edition

ORTHOPAEDICS

1. Campbell's Operative Orthopedics, Frederick M. Azar & S. Terry Canale & James H. Beaty. 14th Edition
2. Miller's Review of Orthopedics, Mark D. Miller, Stephen R. Thompson, 8th Edition
3. Orthopedic Physical Assessment by David J Magee, 6th Edition

NEUROSURGERY

1. Neurology and Neurosurgery Illustrated, Kenneth W. Lindsay, Ian Bone, Geraint Fuller, 5th Edition
2. Greenberg's Handbook of Neurosurgery by Mark S. Greenberg, 10th Edition

PSYCHIATRY

1. Shorter Oxford Textbook of Psychiatry – 7th Edition
2. Behavioral Sciences by Mowadat H. Rana, 3rd Edition

NEUROLOGY

1. Davidson's principles and practice of Medicine
2. Hutchison's Clinical Methods: An Integrated Approach to Clinical Practice
3. Macleod's Clinical Examination – 14th Edition

PAEDIATRICS

Text Books:

1. Nelson textbook of pediatrics, 21st edition
2. Nelson Essentials of Pediatrics
3. Current Diagnosis & Treatment Pediatrics, 23edition
4. Pakistan Pediatric Association textbook
5. Illustrated Pediatrics by Tom Lissauer

WHO publications and society guidelines:

6. WHO publications on IMNCI
7. GINA Guidelines, Global Strategy for Asthma Management and Prevention.
8. WHO; Global Database on Child Growth and Malnutrition
9. WHO publication on Tuberculosis
10. Expanded Program on Immunization in Pakistan

Clinical Methods

11. Macleod's Clinical Examination
12. Hutchison's Clinical Methods

COMMUNITY MEDICINE

1. Parks Textbook of Preventive and Social Medicine – Author: K. Park
2. Public Health and Community Medicine – Author: Ilyas, Ansari
3. Textbook of Community Medicine and Public Health Edited by: Saira Afzal - Sabeen Jalal
4. Fundamentals of Preventive Medicine – Author: Dr. Zulfikar Ali Shaikh

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 Edited by Warren Levinson (Author), Peter Chin-Hong (Author), Elizabeth A. Joyce (Author), Jesse Nussbaum (Author), Brian Schwartz (Author)
- Jawetz, Melnick, & Adelberg's 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.