NISHTAR MEDICAL UNIVERSITY

MULTAN, PAKISTAN

CURRICULUM OF 3rd year MBBS

MBBS PROGRAM

Academic Session 2025–2026

List of Contributors		
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SECTION I: PREAMBLE

Message from the Vice Chancellor

It gives me immense pleasure to welcome you to Nishtar Medical University. Nishtar Medical University is a premier, historical, and prestigious institution established in 1951-52. It holds a unique position among public sector universities as the first and currently the only medical university in South Punjab. It serves as an interface between healthcare provision and medical education. Its allied hospitals meet the healthcare needs of South Punjab and adjoining areas of Sindh, Baluchistan, and Khyber Pakhtunkhwa.

My aim is to develop Nishtar Medical University as a state-of-the-art medical university capable of nurturing undergraduate and postgraduate students through quality teaching and training. The university should promote research culture, ethical orientation, professionalism, leadership, and lifelong learning. The faculty of Nishtar Medical University remains committed to high standards of teaching, training, research, and service delivery.

Prof. Dr. Mehnaz Khakwani
Vice Chancellor, Nishtar Medical University

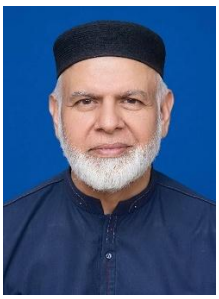
Message from the Principal NMC

Medical education is changing globally, and Nishtar Medical College is committed to academic excellence and student-centered learning in line with WFME and PM&DC expectations. The integrated modular curriculum reflects our commitment to producing graduates who are scientifically sound, clinically competent, critical thinkers, and empathetic professionals.

This prestigious institution aims to provide a learning environment that connects foundational science with early clinical exposure. This approach helps students translate theoretical knowledge into patient care from the early years of training.

Prof. Dr. Rashad Qamar Rao
Principal, Nishtar Medical College

Message from Dean Basic Medical Sciences



On behalf of the Faculty of Basic Medical Sciences, Nishtar Medical University, Multan, I am pleased to acknowledge the dedicated efforts of the faculty members and subject experts who have contributed to the revision of the curriculum for the 1st Year MBBS program. The revised curriculum has been prepared after careful deliberation in the meetings of the Board of Studies of all the department, incorporating the latest developments in medical education, national health priorities, and the evolving needs of pediatric care.

I extend my sincere gratitude to all members of the Board of Studies for their valuable input, constructive suggestions, and commitment to ensuring that this curriculum meets the highest standards of academic excellence and clinical relevance. Their collaborative spirit and professional dedication have been instrumental in finalizing this document.

This revised curriculum is presented with the expectation that it will serve as a comprehensive guide for students, equipping our graduates with the knowledge, skills, and professional values required to address the healthcare needs of children and contribute positively to the medical profession.

Prof. Dr. Asghar Javaid
Dean of Basic Medical Sciences

Institutional Identity and Program Objectives

The MBBS program adopts the vision and mission of Nishtar Medical University to guide its educational framework.

Vision Statement:

We envision healthy mankind enlightened by most accomplished health professionals.

Mission Statement:

Develop a patient oriented medical university that produces health professionals thriving for ethics, knowledge, skill and research.

Program Scope (MBBS):

The MBBS program prepares graduates with medical knowledge, clinical skills, ethics, and public health orientation. The program scope extends beyond treatment of illness to disease prevention, health advocacy, research, and response to local and global health determinants.

Program Outcomes (MBBS):

Apply foundational knowledge to clinical reasoning and medical decision-making.
Demonstrate ethical and professional behavior in academic and clinical settings.
Engage in lifelong learning and scientific inquiry in the medical field.
Communicate effectively and function as a team member in interdisciplinary healthcare settings.
Recognize the biological and clinical foundations of common health problems with relevance to community health needs.

Curricular Basis

Educational Foundation:

The NMU curriculum uses Constructivist and Behaviorist approaches with selected elements of Cognitivism. Students build knowledge on prior understanding and apply it to purposeful learning activities that require decision-making, problem-solving, and clinical judgment.

Curricular Structure:

The curriculum follows an Integrated Modular System. It targets early integration from nesting to correlation, representing Level 7 of Harden's Integration Ladder. Foundational disciplines are retained for subject mastery, while teaching is organized around body systems and clinical themes.

Spiral Integration:

Core concepts are introduced at a basic level in early years and revisited later with increasing depth, complexity, and clinical application across the five-year continuum.

MBBS Program Competencies:

The program outcomes are mapped to the PM&DC 7-Star Doctor attributes to ensure regulatory graduate competencies are addressed.

PM&DC 7-Star Doctor Attribute	NMU Program Outcomes (MBBS)
1. Knowledgeable	Recognize the biological and clinical foundations of common health problems with relevance to community health needs.
2. Skillful	Apply foundational knowledge to clinical reasoning and medical decision-making.
3. Professional	Demonstrate ethical and professional behaviour in academic and clinical settings.
4. Scholar and Researcher	Engage in lifelong learning and scientific inquiry in the medical field.
5. Critical Thinker	Apply foundational knowledge to clinical reasoning and medical decision-making.
6. Leader and Role Model	Communicate effectively and function as a team member in interdisciplinary healthcare settings.
7. Community Health Promoter	Recognize the biological and clinical foundations of common health problems with relevance to community health needs.

Standardized Policies

Internal Assessment and Examination Policy: The assessment structure comprises 20% Internal Assessment and 80% University Examination.

Attendance Policy: A minimum of 75% attendance is mandatory for eligibility to appear in the examination.

Research, Anti-Plagiarism, and Mentorship Frameworks: Undergraduate Research Ethics, Anti-Plagiarism, and Student Mentorship/Counselling are governed by the institutional NMU policy manual, prepared in accordance with HEC and PM&DC guidelines.

Dissemination of curriculum & Study Guide:

Comprehensive student study guides outlining learning objectives, teaching strategies, and assessment formats for all modules are officially published and distributed to enrolled students through the official Nishtar Medical University website at the start of the academic year.

Proposed Educational Strategies

To successfully deliver the integrated modular curriculum, the instructional methodology shifts from traditional passive teaching to active, student-centered learning. The selection of these educational strategies is highly dynamic and subject to contextual requirements, logistical feasibility, and the specific cognitive or psychomotor demands of each module.

- **Large Group Interactive Sessions (LGIS):** Traditional didactic lectures are replaced with interactive sessions. Faculty utilize questioning, think-pair-share techniques, and clinical case introductions to maintain engagement and promote higher-order thinking in large cohorts.
- **Case-Based Learning (CBL) & Problem-Based Learning (PBL):** Small group formats where students are presented with standardized clinical scenarios (e.g., a patient presenting with shortness of breath). These scenarios serve as the anchor for learning the underlying basic sciences, fostering clinical reasoning and problem-solving skills early in the curriculum.
- **Small Group Discussions (SGD):** Facilitated by faculty, these sessions allow 15–20 students to collaborate, discuss complex topics, and clarify concepts, thereby enhancing communication and teamwork.
- **Early Clinical Exposure (ECE):** Introduced from Year 1, students visit hospital wards, clinics, or community health centers. This provides immediate context for their basic science education and introduces them to the realities of patient care, empathy, and health systems.
- **Skill Lab & Practical Sessions:** Safe, simulated environments where students practice basic psychomotor and clinical skills (e.g., vital signs, spirometry, basic life support) using mannequins and standardized patients before interacting with real patients.
- **Self-Directed Learning (SDL):** Dedicated, timetabled hours provided to students to independently research, read, and reflect on specific topics. This strategy is critical for developing the lifelong learning skills required of a modern physician.
- **Clinical attachments** form a major teaching block in later years. Students rotate through wards, OPDs, emergency departments, and ICUs. They observe admissions, follow patient progress, and learn bedside examination from consultants and residents.

- **Ward rounds** are structured learning sessions. Students present patients, discuss differentials, and receive feedback on history and examination. This develops clinical reasoning and communication under supervision.
- **Outpatient department (OPD) exposure** allows students to see common diseases. They learn triage, follow-up care, and chronic disease management. Students observe doctor–patient interaction in real time.
- **Emergency department exposure** teaches acute care priorities. Students observe initial assessment, resuscitation steps, and rapid decision-making in trauma and medical emergencies.
- **Community medicine field visits** take students outside hospitals. They visit primary health centers, rural health units, schools, and vaccination programs. They observe public health delivery, disease prevention, and health education activities.
- **Research and audit projects** are included in many universities. Students learn study design, data collection, analysis, and presentation. This builds evidence-based thinking and critical appraisal skills.
- **Faculty clinical learning sessions** and **bedside teaching sessions** focus on direct patient interaction. Teachers demonstrate examination techniques, then students practice under supervision on real patients.
- **Tutorials, demonstrations,** and **grand rounds** support deeper learning. Complex cases are discussed across specialties, linking pathology, imaging, and management in a single session.
- **Observations in operation theatres**. Students observe live surgeries in general surgery, gynecology, ENT, orthopedics, and other specialties. They learn aseptic techniques, surgical anatomy, instrument handling, and team roles in the OT. Some rotations include scrub-in observation, where students stand inside the sterile field under supervision. This builds early familiarity with surgical environments and decision-making flow.

Implementation of the Curriculum

The successful execution of an integrated curriculum requires robust governance, interdisciplinary collaboration, and strategic resource management.

- **Curriculum Governance:** The overarching implementation is governed by the Curriculum Committee and the Department of Medical Education (DME). The DME acts as the central coordinating body, ensuring that disciplinary silos are broken down and that teaching is aligned with the defined macro and micro-maps.
- **Module Management Teams:** For every block/module, a Module Director (or Focal Person) is appointed, supported by an interdisciplinary team comprising both basic science and clinical faculty. This team collaboratively designs the timetable, selects the clinical themes, and writes integrated assessments.
- **Centralized Timetabling:** The timetable is managed centrally to ensure a seamless narrative flow. Subjects are sequenced logically (e.g., normal anatomy followed immediately by relevant physiology and biochemistry, culminating in clinical correlation) rather than being taught in isolation.

- **Faculty Development:** Continuous pedagogical training is mandatory. Faculty are actively encouraged and supported to complete certifications in Health Professions Education (CHPE). Regular institutional workshops are conducted on interactive teaching methodologies, CBL facilitation, and the drafting of high-quality, clinically oriented MCQs and SEQs.
- **Infrastructure & Resource Allocation:** The institution commits to maintaining and upgrading essential infrastructure, including Wi-Fi-enabled campus spaces for SDL, fully equipped simulation laboratories, and small group tutorial rooms to support the active learning framework.

Curriculum Evaluation & Continuous Quality Improvement (CQI)

Curriculum evaluation is not a terminal event but a continuous, iterative process designed to identify gaps, reduce redundancies, and ensure the educational program remains responsive to evolving healthcare needs and PM&DC regulations.

- **Multi-Source Feedback Mechanisms:**
    - **Student Feedback:** Anonymous, standardized evaluation forms are administered at the conclusion of every module to assess the clarity of objectives, the effectiveness of teaching strategies, and the fairness of assessments.
    - **Faculty Feedback:** Instructors provide structured feedback regarding logistical challenges, student engagement levels, and the effectiveness of horizontal/vertical integration.
- **Assessment Analytics (Psychometrics):** The Department of Medical Education collaborates with the Examination Department to conduct post-hoc analyses of all major internal and university examinations. Metrics such as the Difficulty Index (p-value) and Discrimination Index (Point Biserial) are utilized to evaluate the reliability and validity of the curriculum's assessment tools.
- **Annual Curriculum Review:** At the end of each academic year, the Curriculum Committee convenes to review all collected data (feedback, assessment outcomes, and external examiner reports). Modifications are formally proposed, debated, and implemented for the subsequent academic cycle.
- **Alignment with WFME Standards:** The evaluation process strictly monitors the program's compliance with PM&DC and World Federation for Medical Education (WFME) standards, ensuring that graduates meet national requirements and are eligible for international postgraduate opportunities.

Glossary of Terms

Term	Operational Definition
Block	A major temporal division of the academic year containing one or more related modules, such as a block containing CVS and Respiration modules.
Module	A self-contained thematic unit of study integrating basic and clinical sciences around a body system or major theme, such as Blood and Immunity.
Spiral	A curricular design in which longitudinal themes are introduced at a basic level in early years and revisited with increasing complexity in later clinical years.
Theme	The central clinical, physiological, or conceptual focus organizing a segment of study.
Anchor	A primary clinical discipline, condition, or problem that grounds basic science learning.
Linker	A clinical scenario or topic used to connect multiple disciplines within an integrated teaching session.

Section 2: Curriculum Mapping

The MBBS curriculum is organized through a spiral model across five academic years.

The first two years represent **Spiral I**, where students develop core understanding of basic sciences through integrated system-based modules. Early clinical exposure, research, professionalism, communication, and leadership run throughout these years. Islamiat, Pakistan Studies, and Fehm-ul-Quran are also included as longitudinal components in Year 1 and Year 2.

The third and fourth years represent **Spiral II**, where students move toward paraclinical sciences, special pathology, and pre-clinical rotations. Basic science concepts are revisited with greater clinical relevance. Clinical clerkship, research, and PCL continue as year-long longitudinal themes.

The final year represents **Spiral III**, where learning is centered on supervised clinical clerkships and patient management. Students rotate separately through Medicine, Paediatrics, Surgery and Allied, and Gynaecology and Obstetrics.

This map shows that the curriculum progresses from foundational knowledge to applied clinical practice. It also highlights that longitudinal themes are not separate blocks. They continue across the academic year and support the development of knowledge, skills, professionalism, communication, leadership, and research orientation.

MBBS Curriculum Map

Phase / Spiral Level	MBBS Year	Block			
Spiral I: Basic Sciences & Early Clinical Exposure	**Year 1**	**Block I:** Foundation & MSK-I	**Block II:** MSK-II & Blood and Immunity		**Block III:** CVS & Respiration
		Clinical Clerkship, Research, PCL: Professionalism, Communication & Leadership			
		Islamiat, Pakistan Studies, Fahm-ul-Quran			
	Year 2	**Block IV:** Neuroscience-I & Neuroscience-II	**Block V:** Special Senses & Endocrine		**Block VI:** Genitourinary & GIT
		Clinical Clerkship, Research, PCL: Professionalism, Communication & Leadership			
		Islamiat, Pakistan Studies, Fehm-ul-Quran			
Spiral II: Paraclinical Sciences & Pre-Clinical Rotations	**Year 3**	**Block VII:** Fundamentals, Infectious Diseases & Chemotherapy	**Block VIII:** Cardiovascular, Blood & Inflammation, Respiratory & Endocrinology		**Block IX:** CNS & GIT, Skin & Neoplasia
		Clinical Clerkship, Research, PCL: Professionalism, Communication & Leadership			
	Year 4	**Block X:** Hematopoietic & lymphoid, Infectious disease epidemiology, Breast & genetics, Population dynamics & nutrition + Eye-I, ENT-I	**Block XI:** lung & renal system + Environmental & occupational health, Hepatobiliary system & GIT Tumors, Biostatistics & Research+ Eye-II, ENT-II		**Block XII:** Reproductive system & Endocrine tumors, Study designs & medical ethics, musculoskeletal system, skin & CNS tumors, health system & noncommunicable diseases + Eye-III & ENT-III
		Clinical Clerkship, Research, PCL: Professionalism, Communication & Leadership			
Spiral III: Clinical Clerkships	**Year 5**	**Clerkship Rotation:** Medicine & Allied	**Clerkship Rotation:** Paediatrics	**Clerkship Rotation:** Surgery & Allied	**Clerkship Rotation:** Gynaecology & Obstetrics

Spiral Progression Matrix (Theme Based)

This framework illustrates the vertical linkage of the designated clinical themes across the curriculum. By keeping the progression generic to the domains of learning, it ensures comprehensive coverage of all relevant conditions within a system rather than prematurely narrowing the educational scope to a few specific diseases. Core concepts introduced at a foundational level in Spiral I are sequentially revisited in Spiral II (Paraclinical) and mastered in Spiral III (Clinical Clerkships).

This iterative, spiral approach aligns with modern adult learning theories by gradually increasing both the cognitive load and the clinical responsibility. In Spiral I, students build a robust mental scaffolding of normal human biology. As they progress into Spiral II, they utilize this established framework to analyze pathological deviations, pharmacological interventions, forensic implications, and broader public health impacts. Finally, in Spiral III, this accumulated theoretical knowledge is translated into advanced psychomotor skills, diagnostic reasoning, and ethical patient management directly at the bedside.

By continuously revisiting these overarching themes in a layered, progressive manner, the curriculum reinforces long-term memory retention, actively breaks down traditional disciplinary silos, and ensures a safe, competent transition from the classroom to independent clinical practice.

Integrated Module/Themes	Spiral I (Years 1 & 2)	Spiral II (Years 3 & 4)	Spiral III (Year 5)
Haematology / Blood & Immunity Anemia / Pallor, Bleeding & Thrombotic Disorders, Infection, Transfusion Reaction	Normal gross structure, histology, embryology, physiological functions, and biochemical basis of the hematopoietic and immune systems.	Pathological mechanisms, pharmacological interventions, and public health/preventive aspects of blood and immune disorders.	Clinical assessment, diagnostic reasoning, and therapeutic management of hematological and immunological conditions in medical clerkships.
Musculoskeletal Joint Pain, Backache, Bone Aches, Muscle Weakness, Skin Rash / Itching	Normal structure, histology, embryological development, and biomechanical/biochemical foundations of the musculoskeletal and integumentary systems.	Pathophysiology of musculoskeletal and dermatological diseases, related pharmacology, forensic traumatology, and medicolegal aspects.	Clinical evaluation, diagnostic imaging interpretation, and surgical/medical management in orthopedics, dermatology, and rehabilitation.
Cardiovascular Chest Pain, Palpitations, Shortness of Breath, BP (High/Low), Leg Pain/ Oedema	Normal gross/microscopic anatomy, developmental embryology, physiological hemodynamics, and biochemical markers of the cardiovascular system.	Pathological alterations, systemic cardiovascular pharmacology, and public health epidemiology of cardiovascular diseases.	Patient evaluation, diagnostic reasoning, and comprehensive medical and surgical management of cardiovascular conditions in clinical rotations.
Respiratory Chest Wall Injury Shortness of Breath Cough & Hemoptysis Chest Pain	Normal structure, histology, embryology, pulmonary physiology, and biochemical basis of the respiratory system.	Pathophysiological mechanisms of respiratory diseases, respiratory pharmacology, and community medicine/environmental health aspects.	Clinical assessment, diagnostic reasoning, and medical/surgical patient management in pulmonology and intensive care clerkships.

Integrated Module/Themes	Spiral I (Years 1 & 2)	Spiral II (Years 3 & 4)	Spiral III (Year 5)
Neurosciences Headache, Numbness/Tingling Paraplegia, Hemiplegia Syncope, Coma & Head Injury Seizures, Tremors Disturbed Mood/Sleep	Normal neuroanatomy, histology, neurodevelopment, neurophysiology, and biochemical basis of the central and peripheral nervous systems.	Neuropathology, neuro-pharmacology, forensic psychiatry, and public health impacts of neurological and psychiatric disorders.	Clinical neurological examination, diagnostic reasoning, and therapeutic management in neurology, neurosurgery, and psychiatry clerkships.
GIT & Hepatology Difficulty/Pain in Swallowing, Vomiting Pain Abdomen Diarrhoea & Constipation Jaundice Distension Bleeding per Rectum	Normal structure, histology, embryological development, gastrointestinal physiology, and biochemical metabolism.	Pathological mechanisms, gastrointestinal pharmacology, and public health/preventive aspects of GI and hepatobiliary diseases.	Clinical assessment, diagnostic reasoning, and comprehensive medical and surgical management in gastroenterology and general surgery clerkships.
Renal & Genitourinary Dysuria, Flank Pain Urine Output variations Incontinence Facial Swelling & Oedema	Normal structure, histology, embryology, renal physiology, and biochemical basis of the excretory and genitourinary systems.	Renal and genitourinary pathology, relevant pharmacology, and public health/preventive aspects of renal diseases.	Clinical evaluation, diagnostic reasoning, and therapeutic management in nephrology and urology clerkships.
Endocrine & Reproductive Tall/Short Stature Goitre Excessive Thirst/Urination Weight Gain Pregnancy & Child Birth Infertility&Contraception, Scanty/Heavy Menses	Normal structure, histology, embryology, physiological regulation, and biochemical basis of the endocrine and reproductive systems.	Pathophysiology of endocrine and reproductive disorders, relevant pharmacology, and community medicine (maternal and population health).	Clinical assessment, diagnostic reasoning, and medical/surgical management in endocrinology, obstetrics, and gynecology clerkships.

Integrated Module/Themes	Spiral I (Years 1 & 2)	Spiral II (Years 3 & 4)	Spiral III (Year 5)
PCL (Professionalism, Communication, Leadership)	Normal baseline of medical ethics, basic communication models, and fundamental principles of professionalism.	Application of bioethics in research, handling medicolegal scenarios, and communication in complex situations (e.g., breaking bad news).	Leadership in clinical teams, ethical decision-making in patient management, and advanced professional communication in clerkships.

3RD PROFESSIONAL MBBS MODULAR INTEGRATED CURRICULUM STUDY GUIDE-2025 NISHTAR MEDICAL UNIVERSITY MULTAN

1. Preamble

- Integration has been accepted as an important educational strategy in medical education.
- This curriculum meets the standards of PMDC, and our students on completion of program will develop required competencies as defined worldwide in a graduate doctor.

2. Curriculum perspective

- This curriculum is evolved taking into consideration constructivist and behaviorist with some element of cognitivist approach. It allows students to construct their own knowledge based on what they already know and to use that knowledge in purposeful activities requiring decision making, problem solving, and judgments.

3. Curricular organization and structure

- Year III will deal with abnormal structure and function, pharmacological aspects of therapeutics and medico legal aspect, which will be delivered with clinical relevance.
- The total academic year will have 38 weeks of teaching.
- There will be 06 modules in 3 blocks.
- Each module has a title, which represents the content learned in that module.
- The duration of each Block I, II & III are 14, 12 and 12 weeks respectively.
- The syllabus will be integrated horizontally around systems of the body.
- General pathology and microbiology will be taught in 3rd year in correlation with Pharmacology.
- Forensic Medicine, Behavioral Sciences & Research Methodology will run throughout the year.
- Additional chunks of content will be added in a module that exactly does not fit in the central theme of the module.
- Patient safety has been added to enhance their approach for patient care management.
- Clinical rotations in Medicine and Surgery are part of the teaching sessions and ward test will be taken at the end of each clinical rotation, which will contribute towards its internal assessment.
- Assessment framework ensures that the applied/clinical aspect also is inculcated in the concept development of the learner keeping the clinical relevance and context at the Core.

- The time calculation for completion of modules and blocks is based on 35 hours per week. Total hours of teaching, learning and formative/summative internal assessment to be completed in a year are 1200. The hours mentioned within each module are the mandatory minimum required. The rest of the hours are left to the discretion of the institution that can be used in teaching, learning and assessment as per decision of the institutional academic council.
- The content and the intended learning outcomes written are mandatory, to be taught, at the level required, as the end year assessment will be based on these.
- Pharmacology, General pathology &Microbiology, Behavioral Sciences and Forensic medicine formatively assessed in third Professional MBBS.

4. Competencies

The focus of this curriculum is on the roles of a general physician as identified in by PMDC. These are skillful, knowledgeable, community health promoter, critical thinker, professional and role model, researcher, and leader. Generic competencies addressed in year III are:

a. Medical Knowledge
b. Procedural skills
c. Clinical skills
d. Problem solving
e. Communication skills
f. Empathy
g. Professionalism
h. Research

5. Outcomes

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

a. Comprehend the mechanisms behind cell and tissue injury and how the body responds to and repairs injury
b. Correlate the important morphological and pathogenic characteristics, laboratory diagnosis, prevention and virulence factors produced by various microbes with their clinical significance Apply the fundamental concepts of pharmacokinetics, pharmacodynamics, applied pharmacology and therapeutics in medicine
c. Identify the importance of medicolegal aspects in medicine
d. Applythefundamentalconceptsofsocialandbehaviouralsciencesinclinicalsubjects
e. Apply the knowledge of infection control in clinical settings
f. Finalize are search topic and related literature review
g. Take a detailed relevant history and perform physical examination of common relevant medical and surgical disorders

6. Aim

- This curriculum also aims to improve different skills of the future doctors including communication, leadership & management and research skills and inculcate ethical values and professionalism

7. Academic Calendar Year III

Blocks	VII			VIII			IX		
	(13+1=14weeks)			(11+1=12weeks)			(11+1=12weeks)		
38wks	7	6	1	5	6	1	7	4	1

Modules	Fundamentals	Infectious diseases	EOB	Cardiovascular, Blood& inflammation	Respiratory System, Endocrinology	EOB	CNS, GIT	Immunology, Skin & Neoplasia	EOB
Modules	**13**	**14**		**15**	**16**		**17**	**18**	
**EOB= End of Block assessment*									
***Integration**: Pharmacology, General Pathology, Microbiology, Forensic Medicine and relevant clinical disciplines*									
***Across the year:** Behavioral Sciences, Research Methodology and Infection Control*									

TOOLS OF ASSESSMENT

- MCQ
- SEQ
- OSPE
- VIVA

METHODS OF INFORMATION TRANSFER

- Lecture (Large group discussion)
- Practical (small group discussion)
- Clerkship

TOTAL MARKS

- 900

Criteria for Assessment:

- Total marks for 3RD Prof. Exam will be 900

Internal assessment:

- 10% for each block

TABLE OF SPECIFICATION 3rdYear MBBS

The Table of Specifications provided will be used for the three papers of the 3rd professional examination. The same table of specifications should be used for the respective three block exams for internal assessment.

TABLE – I

Papers	Marks (marks+ I.A)	Theory (marks+ I.A)	Viva& OSPE (marks+ I.A)	Total Marks (marks+ I.A)
Paper-I (Block-7)	300 (270+ 30)	150 (135+15)	150 (135+15)	

Paper-II (Block-8)	300 (270+30)	150 (135+15)	150 (135+15)	900 (810+90)
Paper-III (Block-9)	300 (270+30)	150 (135+15)	150 (135+15)	

***I.A= Internal assessment**

TABLE – II (Marks distribution subjects & blocks wise)

BLOCK VII

	Pharmacology	General pathology	Forensic	Behavioural sciences	Anatomy	Physio	Bio -chem	Total
MCQ (1 Mark each)	18	18	10	4	5	5	5	65
SEQ (5 Marks each)	4x5=20	4x5=20	3x5=15	3x5=15	0	0	0	70
Written (MCQ+SEQ)	18+20= 38	18+20= 38	10+15=25	4+15=19	5+0=5	5+0=5	5+0=5	135
OSPE (5 Marks for unobserved each)	3x5=15 Unobserved / 1x5=5 observed = 20	3x5=15 Unobserved / 1x5=5 Observed = 20	3x5=15 unobserved	2x4=8 Observed	0	0	0	135
VIVA	10+10+2=22	10+10+2=22	9+9+2=20	4+4=8				
OSPE+ viva	20+22=42	20+22= 42	15+20= 35	8+8=16				
Subject vise marks	80	80	60	35	5	5	5	270

BLOCK VIII

	Pharmacology	General pathology	Forensic	Behavioural sciences	Anatomy	Physio	Bio chem	Total
MCQ (1 Mark each)	18	18	10	4	5	5	5	65
SEQ (5 Marks each)	4x5=20	4x5=20	3x5=15	3x5=15	0	0	0	70
Written (MCQ+SEQ)	18+20= 38	18+20= 38	10+15=25	4+15=19	5+0=5	5+0=5	5+0=5	135
OSPE (5 Marks for unobserved each)	3x5=15 Unobserved / 1x5=5 observed = 20	3x5=15 Unobserved / 1x5=5 Observed = 20	3x5=15 unobserved	2x4=8 Observed	0	0	0	135
VIVA	10+10+2=22	10+10+2=22	9+9+2=20	4+4=8				
OSPE+ viva	20+22=42	20+22= 42	15+20= 35	8+8=16				
Subject vise marks	80	80	60	35	5	5	5	270

BLOCK IX

	Pharmacology	General pathology	Forensic	Behavioural sciences	Anatomy	Physio	Bio chem	Total
MCQ (1 Mark each)	18	18	10	4	5	5	5	65
SEQ (5 Marks each)	4x5=20	4x5=20	3x5=15	3x5=15	0	0	0	70
Written (MCQ+SEQ)	18+20= 38	18+20= 38	10+15=25	4+15=19	5+0=5	5+0=5	5+0=5	135
OSPE (5 Marks for unobserved each)	3x5=15 Unobserved / 1x5=5 observed = 20	3x5=15 Unobserved / 1x5=5 Observed = 20	3x5=15 unobserved	2x4=8 Observed	0	0	0	135
VIVA	10+10+2=22	10+10+2=22	9+9+2=20	4+4=8				
OSPE+ viva	20+22=42	20+22= 42	15+20= 35	8+8=16				
Subject vise marks	80	80	60	35	5	5	5	270

Subjects	PAPER-I (Block-7)		PAPER-II (Block-8)		PAPER-III (Block-9)		Total subject vise		Total Marks
	Marks	Internal assessment 10%	Marks	Internal assessment 10%	Marks	Internal assessment 10%	Marks	Internal assessment 10%	
	270	30 marks	270	30 marks	270	30 marks	810	90	900
Pharmacology& Therapeutics	80	10	80	10	80	10	240	30	270
Pathology	80	10	80	10	80	10	240	30	270
Forensic Medicine & Toxicology	60	6	60	7	60	7	180	20	200
Behavioural sciences	35	4	35	3	35	3	105	10	115
Anatomy	5	0	5	0	5	0	15	0	15
Physiology	5	0	5	0	5	0	15	0	15
Biochemistry	5	0	5	0	5	0	15	0	15

***Note: 30 marks or 10% of 300 marks Internal assessment will be included in each block.**

ACADEMIC OUTLINE FOR INTEGRATED MODULAR CURRICULUM FOR 3rd YEAR MBBS

ACADEMIC OUTLINE FOR INTEGRATED MODULAR CURRICULUM FOR 3rd YEAR MBBS

Sr no	Module	Weeks	Date of Starting	Date of Ending	Exam Date		
					MCQ	SAQ	OSPE/VIVA
13	Fundamentals	7	28-4-2025	28-4-2025			
14	Infectious Diseases	6	14-7-2025	14-7-2025			
	End Of Block	1	16-7-2025	19-7-2025			
BLOCK VII (13+1=14weeks)							
15	Cardiovascular, Blood & Inflammation	5	25-8-2025	25-8-2025			
16	Respiratory System & Endocrinology	6	6-10-2025	6-10-2025			
	End Of Block		7-10-2025	11-10-2025			
BLOCK VIII (11+1=12weeks)							
17	CNS, GIT	7	1-12-2025	1-12-2025			
18	Immunology, Skin & Neoplasia	4	1-1-2026	1-1-2026			
	End Of Block		2-1-2026	7-1-2026			
BLOCK IX (11+1=12weeks)							

TIMETABLE FOR 3rd YEAR MBBS FOR THE SESSION 2025 – 2026

Days	08:00am–09:00am	09:00am – 10:00am	Break 10:00am to 10:30am	10:30am-11:30am	11:30am-01:00pm	01:00pm-02:00pm
Monday	**Pathology**	**Pharmacology**		**Forensic**	**Indoor**	**Practical** **Batch A (Pharma)** **Batch B (Patho)** **Batch C (FM)** **Batch D (B.S)**
Tuesday	**Pharmacology**	**Pathology**		**Forensic**	**Indoor**	**Practical** **Batch B (Pharma)** **Batch C (Patho)** **Batch D (FM)** **Batch A (B.S)**
Wednesday	**Pharmacology**	**Forensic Medicine**		**Pathology**	**Indoor**	**Practical** **Batch C (Pharma)** **Batch D (Patho)** **Batch A (FM)** **Batch B (B.S)**
Thursday	**Forensic Medicine**	**Pharmacology**		**Pathology**	**Indoor**	**Practical** **Batch D (Pharma)** **Batch A (Patho)** **Batch B (FM)** **Batch C (B.S)**
Friday	**Behavioral Sciences** 8:00am-8:50am	**Pharmacology** 8:50am-9:40am	**30 min**	**Pathology** 10:10am-11:00 am	**LECTURES* Rotational** 11:00am-12pm	--------
Saturday	**Pathology**	**Pharmacology**		**Research methodology**	**Indoor**	**Behavioral Sciences**

*LECTURES will be rotational by the Departments of Pharmacology, Pathology, Forensic Medicine, Behavioral sciences, Anatomy, Physiology, Biochemistry / week

BLOCK – VII (13 WEEKS)

MODULE- XIII

MBBS YEAR – III
FUNDAMENTALS
MODULE DURATION: 07 WEEKS

Pharmacology

	Module	Course content
13	**Fundamentals**	**General Pharmacology:** • Definition of pharmacology and therapeutics, definition of a drug, Pro-drug, etc. and drug nomenclature. • General principles of pharmacology i.e., of pharmacokinetic & pharmacodynamic. • Branches /divisions of pharmacology. • Sources of drugs with examples. • Active principles of drugs and pharmacopoeias with characteristics and examples. • Posology, Dose calculations. • Formulations/Preparations of drugs **Pharmacokinetics:** **ADME (Absorption, Distribution, Metabolism & Excretion of drugs)** • Different Routes of Drug Administration with their Merits and Demerits. • Transport of drugs across cell-membrane. • Absorption of drugs and processes involved in drug absorption. • Factors Modifying Absorption of Drugs. • First-Pass Effect, and use of alternative routes of administration. • Bio-availability, its clinical significance and factors affecting bio-availability. • Distribution, redistribution of drugs, plasma protein binding, volume of distribution and drug reservoirs. • The time course of drug effect; the target concentration & a rational dosage regimen; dose individualization- application of pharmacological parameters. • Metabolism & biotransformation of drugs, enzyme induction, enzyme inhibition, clinical relevance of drug metabolism and entero-hepatic circulation. • Excretion, elimination, and clearance of drugs. • Plasma half-life of drugs, steady state concentration, its clinical importance and factors affecting

	Pharmacodynamics: • Definition and various types of receptors • Mechanisms of drug action (receptor-mediated* & nonreceptor-mediated), second messengers; regulation of receptors. • Various types of ligands (agonists and antagonists); types of antagonisms • Plot and explain dose response curves in respect of affinity, potency, efficacy, spare receptors; therapeutic index, therapeutic window; clinical selectivity: beneficial versus toxic effects of drugs. • Factors modifying action and doses of drugs. • Relation between Drug Dose & Clinical Response. • Variation in drug responsiveness Pharmacogenetics of Isoniazid, Succinylcholine, Primaquine, Hydrogen peroxide, Warfarin and Vitamin D, etc. • Outline of development of new drugs. • Transmembrane Signaling Mechanisms
A N S	• Introduction to Autonomic Pharmacology with brief Anatomy, Neurotransmitter's Chemistry, Autonomic Receptors, Functional Organization of Autonomic Activity, Pharmacologic Modification of Autonomic Functions. • Pharmacokinetic & Pharmacodynamics of Cholinoceptor Activating Drugs (Direct- acting and Indirect-acting Cholinoceptor activating Drugs / Parasympathomimetics (including Organophosphorus Compounds). • Pharmacokinetic & Pharmacodynamics of Cholinoceptor Blocking Drugs, and Anticholinergic like Groups • Pharmacokinetic & Pharmacodynamics of Adrenoceptor Agonists and Sympathomimetic Drugs. • Pharmacokinetic & Pharmacodynamics of Adrenoceptor Antagonist Drugs (Sympatholytics). • Pharmacokinetic & Pharmacodynamics of Ganglion Stimulants and Blockers • Pharmacokinetic & Pharmacodynamics of Adrenergic Neuron Stimulants and Blockers. • Glaucoma • Paralytic Ileus, Atonic Bladder, etc. • Alzheimer's Disease • Myasthenia Gravis • Organophosphorus Poisoning • Smooth Muscles Spasmodic States, Mydriatic State & Parkinsonism, etc. • Pheochromocytoma • Prostatic Hyperplasia, etc **Drugs useful as Skeletal Muscle Relaxants:** Pharmacokinetic & Pharmacodynamics of: Neuromuscular blocking agents / Depolarizing & Non-depolarizing Agents. Spasmolytics / Centrally Acting Muscle Relaxants
Practicals	Justify the advantages and disadvantages of different routes of administration and dosage forms of drugs Meterology Posology Abbreviations used clinically

	Instruments used in pharmacy practicals Interpret and report the effects of drugs in rabbit's eye Pharmacodynamic Principles Pharmacokinetic Principle
Pathology	
Fundamentals	Cell injury General bacteriology General virology Hemodynamics **Cell Injury** Introduction, Examples and clinicopathologic correlation Reactive oxygen species, Reversible and irreversible injuries, Adaptation Necrosis Gangrene Apoptosis Intracellular accumulations Pathological calcifications Fatty change **General Bacteriology** Structure of bacterial cells Growth and genetics of bacteria The human microbes Pathogenesis of bacteria Mechanism of action of antibacterial drugs Antimicrobial resistance Bacterial vaccines Sterilization and disinfection Laboratory diagnosis **General Virology** Basic concepts Viral replication Viral genetics Pathogenesis Antiviral drugs **Hemodynamics** Hemostasis Hyperemia and congestion Edema Thrombosis and embolism Infarction Shock

Practical	1.Study of microscope 2.Necrosis 3.Sterilization techniques 4. Infarction, Thrombosis 5.Biosafety equipment 6.Pathological calcification
Forensic	
Fundamentals	**General Toxicology** Introduction, classification, how to diagnose and manage the case Specimen collection, preservation **Personal Identification** Introduction, Methods of identification in living, dead, decomposed, mutilated & burnt bodies, Skelton & fragmentary remains Objective methods, Bartilion system, Dactylography, role of dentistry. DNA fingerprinting & superimposition techniques Method of determination of age, race, by various methods showing medicolegal importance **Biological Specimens, Forensic serology** Blood Semen + Trace evidence + Locard exchange principal, hair, medicolegal importance Agrichemical Poisons (ALP, organophosphates)
Practicals	Forensic osteology 1
Behavioral Sciences	
Fundamentals	**Introduction to Behavioral Sciences and Psychiatry (Revision)** **Significance of Psychology, anthropology and Sociology in Healthcare** Health, Normality and disease Psychological reactions to Illness and Hospitalization **International professional standard "7 star doctors"** **Non pharmacological interventions in clinical practice** Communication skills (Revision) Empathy Counselling (Revision) Informational care (Revision) **Psychosocial Assessment in Health Care** Clinical Situations Demanding a Comprehensive Psychosocial Assessment **Rights and Responsibilities of Patients and Doctors** Rights of the Patient Responsibilities of the Patients Rights of the Doctor Responsibilities of the Doctor **Psychological reactions in doctor patient relation** Transference Counter transference **Introduction to Behavioral Sciences and Psychiatry (Revision)** **Significance of Psychology, anthropology and Sociology in Healthcare**

		Psychosocial aspects of health and disease Health, Normality and disease Psychological reactions to Illness and Hospitalization **International professional standard "7-star doctors"** **Non pharmacological interventions in clinical practice** Communication skills (Revision) Empathy Counselling (Revision) Informational care (Revision) **Psychosocial Assessment in Health Care** Clinical Situations Demanding a Comprehensive Psychosocial Assessment **Rights and Responsibilities of Patients and Doctors** Rights of the Patient Responsibilities of the Patients
	Practicals	Interviewing Techniques Communication Skills Informed Consent Confidentiality Accepting Gifts and Sponsorships from patient and medical companies Breaking the bad news
	Community Medicine	
		Introduction to Medical Research What is Medical Research? An Overview Importance of Research in Medicine and Healthcare Types of Medical Research: Basic, Clinical, and Epidemiological Understanding Scientific Method in Medical Research How to Ask a Good Research Question?

BLOCK – VII (13 WEEKS)

MODULE- XIV

MBBS YEAR – III
INFECTIOUS DISEASES
MODULE DURATION: 06 WEEKS

Pharmacology		
	Module	Course content
14	**INFECTIOUS DISEASES**	**Introduction & General Principles of Chemotherapy** Mechanism of Resistance Penicillin Cephalosporin Sulfonamides Macrolides Tetracyclines Chloramphenicol Aminoglycosides Quinolones Misc. Drugs: Clindamycin, Fusidic acids, Vancomycin, Nitrofurantoin, Linezolid **Anti tuberculous drugs** **Anti-viral drugs** **Anti parasitic drugs** **Anti-Malarial** **Anti-Amoebic** **Antihelmintics**
	Practicals	Analyze the given quantitative data in a statistically significant manner. Write an appropriate prescription Concept of P-drug Prescription writing Write Prescription writing of following clinical conditions Typhoid fever , with resistant case management, Amoebiasis, Malaria, Acute watery diarrhea, Bacillary dysentery, Acute streptococcal pharyngitis, Hepatitis B/C, Bird flu, Dengue, Covid-19
	Pathology	
	Microbiology	Special Bacteriology, Special Virology, Mycology **Special Bacteriology** Staphylococci, Streptococci, Gram negative Cocci Gram positive Bacilli (Bacillus, Corynebacterium, Listeria)

	Gram negative bacilli (Haemophilus, Escherichia coli, Salmonella, Shigella, Vibrio, Bordetella, Legionella, Klebsiella, Enterobacter, Campylobacter, Helicobacter, Clostridium, Pseudomonas Aeruginosa). Spirochetes, Mycoplasma Mycobacterium tuberculosis, Atypical mycobacteria **Special Virology** Herpes virus, Varicella Zoster virus Cytomegalovirus, Ebstein Barr virus Papovaviridae, Adenoviridae, Pavoviridae Orthomyxoviruses: Influenza viruses Paramyxoviruses: Measles virus, Mumps virus, Respiratory syncytial virus (RSV), Parainfluenza viruses Coronaviruses Togaviruses: Rubella virus. Rhabdoviruses: Rabies virus Enteroviruses: i) Poliovirus. ii) Coxackie viruses. iii) Echoviruses Rhinoviruses. Caliciviruses: Noroviruses. Reoviruses: Rotavirus Hepatitis viruses (A,B,C,D,E) RNA Non-enveloped viruses Dengue virus HIV **Mycology** Structure and growth of fungi. Pathogenesis & classification Fungal toxins & allergens. Lab diagnosis Antifungal therapy Cutaneous Mycosis Subcutaneous Mycosis Systemic Mycosis Opportunistic Mycosis
Practicals	1.Culture media, 2.ZN staining, 3.Gram staining, 4.Motility of bacteria, 5.Biochemical reactions I & II
Forensic	
Forensic	Pakistan Legal System, Law in relation to medical man, Qisas & Diyat Ordinance **Pakistan legal system** Types of courts Inquest & its type Medicolegal terms

	Evidence & its types Role of doctor in medicolegal system **Law in relation to medical man** Privilege & obligation of RMP. Medical ethics Euthanasia , Medical negligence, consent Professional secrecy Medical report Medical certificate Medical notification Non Culpable & culpable homicide & laws relation to abortion **Qisas & Diyat Ordinance** Definition of hurt + Daman + Arsh + Diyat Classification **Forensic Psychiatry** To distinguish between true & feigned insanity Mental Health Ordinance Limitations to Civil & Criminal responsibility of mentally ill
Practicals	Medicolegal system
Behavioral Sciences	
Behavioral sciences	**Myths and Stigma regarding Psychiatric Illnesses** **Psychiatric aspects of neuro-medical disorders** **Physical illnesses** **Epilepsy** **Cerebral infections** **Psychiatric side effects of commonly prescribed medicines** **Psycho trauma (PTSD)** **Psychosocial aspects of Terrorism** **Psychosocial aspects of Aging** Neurobiological Changes of Aging Psychological Changes of Aging Social Problems of Old age Dementia **Psychosocial aspects of health and disease** Defense Mechanisms **Principles of Psychology** Piaget's theory of personality development **Psychosocial Issues in Special Hospital Settings** Emergency Department Coronary Care Unit Intensive Care Unit **Conflict resolution in healthcare settings** **Psychological reactions in doctor patient relation** Social bonding Dependence

		Resistance Unwell physician / burn out
	Practical	Empathy Desensitization of Phobias Informational Care Compliance Sleep
	Community Medicine	
		Research Planning and Study Design Introduction to Research Methodology Observational vs. Experimental Studies: What's the Difference? Introduction to Case Reports and Case Series How to Design a Simple Research Study? Basics of Clinical Trials and Their Importance

BLOCK – VIII (11 WEEKS)

MODULE - XV

MBBS YEAR – III

CARDIOVASCULAR, BLOOD & INFLAMMATION

MODULE DURATION: 5 WEEKS

Pharmacology		
	Module	Course content
15	**Cardiovascular Blood & Inflammation**	**CVS** Antihypertensive Agents Vasodilators and the treatment of Angina Pectoris Drugs used in Heart Failure Agents used in cardiac Arrhythmias Diuretic Agents **Blood** Eicosanoids & GUT Alkaloids Agents used in cytopenias, hematopoietic growth factors Drugs used in disorders of coagulation Agents used in dyslipidemia Non steroidal anti-inflammatory drugs, Disease modifying antirheumatic drugs, Non opiod Analgesics, Drugs used in Gout
	Practical	Perform and interpret the effects of cardiac specific drugs on frog's heart. Evaluate the effect of drugs on blood vessels of frogs. Justify the selection of priority drugs for certain indications of CVS and prescribe medicine accordingly Calculate different concentrations of drugs or solutions I Justify the selection of priority drugs for certain indications and prescribe medicine accordingly. Acute angina and prophylaxis HTN & Acute hypertensive Crisis Left Ventricular Failure Anaphylactic & Cardiogenic Shock Iron deficiency anemia
	Pathology	
	Pathology	Inflammation, healing and repair, Blood vessels, Heart **Inflammation, healing and repair** General features of inflammation Causes of inflammation Sequential steps of inflammation Vascular reaction in inflammation Sequential steps of cellular response in inflammation

	Overview of inflammatory mediators Role of vasoactive amines & AA Metabolites in inflammation Role of Cytokines, chemokines & PAF in inflammation Role of complement system, products of coagulation, Kinins& neuropeptides in inflammation. Chronic Non-Specific inflammation Process of chronic granulomatous inflammation General process of healing & repair. Role of stem cells & growth factors in repair Process of regeneration & healing by scar formation. Phases & types of cutaneous wound healing **Blood Vessels** Factors controlling wound healing Enlist and explain Etiology, pathogenesis, early lesion, late and complicated lesions Monkeyberg medical calcification sclerosis and complications of Atherosclerosis and Arteriosclerosis Enlist and explain classification, causes of secondary hypertension, vascular changes in hypertension Enlist and explain Aneurysm, classification and etiology, atherosclerotic aneurysms, pathogenesis, type of vessels involved, morphological and clinical features Enlist and explain Varicose veins common sites, predisposing factors, clinical features Enlist and explain Benign and malignant tumors of blood vessels Enlist and explain Common pathogenetic mechanism of vasculitis **Heart** Benign and malignant disease of heart, Causes of heart failure and Pathogenesis of IHD/MI, Causes of sudden cardiac death RHD, Bacterial endocarditis, Myocarditis pericarditis, Cardiomyopathies, Congenital heart disease, Primary secondary cardiac tumors
Practical	1.Acute inflammation/ appendicitis 2.Chronic granulomatous inflammation, 3.Chronic inflammation, 4.Pigmentation (melanin, anthracosis), 5.Chronic venous congestion
Forensic	
Forensic	Thanatology, Mechanical Injuries **Thanatology** Introduction of death Types of death How to diagnose death

	Immediate changes after death Early changes after death Late changes after death Very late changes after death **General Traumatology** Classification of medicolegal injuries Abrasion, bruise, Incised wound Lacerated wound, chop wounds, stab wounds, Defense wounds & self-inflicted To diagnose whether death is suicidal, homicidal / accidental Injuries & its medicolegal aspects Difference between ante mortem & postmortem wounds **Cardiac Poisons** **Aconite, Digitalis, Oleander, Nicotine** **Medicinal Poisons (Aspirins, Paracetamol)**
Practicals	Forensic osteology 2
Behavioral Sciences	
Behavioral Sciences	**Psychological factors in Medical Practice** Role of psychological factors in the etiology, presentation and management of health problems Psychological and social factors in diseases causing disability handicap and stigma Role of psychological factors in patients' reactions to illness Medically Unexplained Physical Symptoms (MUPS) **Psychosocial aspects of Cardiovascular Conditions** Hypertension Angina, myocardial infarction Heart failure, coronary heart disease **Principles of Psychology** Personality development Types of personality disorders Personality types and cardiac disorders Personality theories Freud's theory of personality development Erickson's theory of personality development **Psychosocial Issues in Special Hospital Settings** Emergency Department Coronary Care Unit Intensive Care Unit **Stress and Stress Management** Introduction of Stress Physical, behavioral and cognitive manifestations of Stress Stress Management Job related stress / Burnout

		Mental Health & Common Psychiatric Disorders Anxiety disorders Panic Disorder Depressive disorders Unexplained Somatic Complaints: Persistent Complainers **Psychosocial aspects of Alternative Medicine**
	Practicals	Personal and Psychosexual history Family dynamics and family history Forensic and addiction history Health Belief Model
	Community Medicine	
		Data Collection and Analysis Introduction to Data Collection Methods in Medical Research Understanding Variables and Measurement in Research Basics of Data Analysis: An Introduction Common Mistakes in Medical Research and How to Avoid Them How to Read and Understand a Research Paper?

BLOCK – VIII (11 WEEKS)

MODULE - XVI

MBBS YEAR – III
RESPIRATORY SYSTEM & ENDOCRINOLOGY
DURATION: 06 WEEKS

Pharmacology	
Module	Course content
Respiratory system & Endocrinology	**Respiratory** Expectorants & Anti-tussives Drugs used in Bronchial Asthma Antihistamines (H1 antagonists) **Endocrinology** Anti- diabetic drugs Thyroid/Anti-thyroid drugs Adrenal Hormones Sex Hormones: Estrogens &Progestins, Anabolic steroids Drug used in treatment of Infertility Hormonal contraceptives Oxytocic drugs &Uterine Relaxants
Practical	Justify the selection of priority drugs for certain indications and prescribe medicine accordingly Bronchial Asthma Allergic Rhinitis Interpret and report the effects of drugs on isolated rabbit's ileum Interpret the dose response curve on rabbit's ileum Justify the selection of priority drugs for certain indications and prescribe medicine accordingly Acute attack of asthma and status asthmaticus Tuberculosis, Primary & Complicated (like in HIV patients etc.) Allergic Rhinitis
Pathology	
Pathology	**Endocrinology** **Thyroid & Pituitary** Types of endocrine glands, mechanism of hormone release, endocrine axis and its regulation Cells of pituitary gland, pituitary adenoma, types of pituitary adenomas, hyperprolactinemia, hypopituitarism, SIADH, diabetes insipidus, craniopharyngioma. Hyperparathyroidism, primary and secondary hyperparathyroidism, hypoparathyroidism.

	Pituitary thyroid axis, regulation of thyroid hormones, hyperthyroidism. Hypothyroidism Types of thyroiditis and Graves' disease. Multinodular goiter, thyroid neoplasms, follicular adenoma, papillary carcinoma, follicular carcinoma, medullary carcinoma, anaplastic carcinoma, congenital abnormalities. **Diabetes & other pancreatic pathologies** Introduction to endocrine pancreas and diabetes mellitus. Diagnosis of diabetes mellitus (DM). Classification of diabetes mellitus. Glucose homeostasis Pathogenesis of type 1 diabetes and type 2 diabetes. Monogenic causes of Diabetes Mellitus Morphology of pancreas and chronic complications in diabetes. Clinical features of diabetes. Gestational diabetes mellitus. Pancreatic neuroendocrine tumors. → Hyperinsulinism. → Zollinger-Ellison syndrome. Acute pancreatitis. Chronic pancreatitis: Pancreatic neoplasms **Adrenal Glands** Adrenocortical hyperfunction and Cushing syndrome. Primary and secondary hyperaldosteronism. Adrenogenital syndrome. Primary acute adrenocortical insufficiency. Primary chronic adrenocortical insufficiency (Addison disease). Secondary adrenocortical insufficiency. Introduction to adrenal medulla. Pheochromocytoma. Multiple endocrine neoplasia syndromes.
	Parasitology Introduction, classification Pathogenesis of parasitic diseases, lab diagnosis Entamoeba histolytica, Giardia Lamblia, Dientamoeba fragilis, Cystoisospora Belli, Cryptosporidium SPP, Cyclospora SPP, Trichomonas Vaginalis, Plasmodium SPP, Babesia SPP, Leishmania SPP, Trypanosoma Cruzi, T. Brucei, Toxoplasma Gondii,

	Naegleria and Acanthamoeba SPP, Taenia Solium, T. Saginata, Hymenolepsis Nana, H. Diminuta Diphyllobothrium Latum, Echinococcus Granulosus, E. Multilocularis, Schistosoma SPP Paragonimus Westermani Fasciola Hepatica, Fasciolopsis Buski, Opisthorchis (Clonorchis) Sinensis Ascaris Lumbricoides, Enterobius Vermicularis Ancylostoma Duodenale, Necator Americanus Strongyloides Stercoralis, Trichuris trichura, Richinella spiralis, Toxocara SPP Wuchereria Bancrofti, Brugia Malayi, Loa Loa Onchocerca Volvulus, Dracunculus Medinensis
Practical	1. Urine examination, 2.Thyroid follicular adenoma & follicular carcinoma, papillary carcinoma 3. MNG, Grave's disease 4. Diabetic profile 5. Cardiac profile, lipid profile
Forensic	
Forensic	**Firearm injuries** Introduction & types Mechanism of wound production Mechanism of discharge of Projectile Characteristics of Shot gun & Rifled firearms M/L Importance & P/M findings **Asphyxia & Drowning** Introduction & classification Hanging & strangulation Throttling, Smothering, Gagging, Chocking, Traumatic asphyxia Mechanism of Drowning **Transportation injuries** (Intro, Mechanism, causes, P/M findings, Medicolegal Importance, Railway Injuries) **Autopsy** Introduction, Types, Objections Protocols & pre-requisites of medicolegal autopsy Autopsy room hazards & closure of the body

	Incision's techniques & closure of the body Collection & preservation of viscera and its labeling Negative autopsy & obscure autopsy **Exhumation** **Collection and preservation of samples** **Asphyxiants (CO)**
Practicals	Forensic serology 1
Behavioral Sciences	
Behavioral sciences	**Psychosocial aspects of Gastro intestinal and Respiratory disorders** Indigestion Irritable bowel disease Asthma Allergies **Psychosocial aspects of Gender, Sexuality and neuroendocrine disorders** Sexual Identity Gender Identity Gender dysphoria and its management Sexual Behavior Gender differences in Sexual Behavior Masturbation Sexual orientation Psychiatric morbidity
Practicals	1. Stool examination, 2. Pregnancy test and other ICT, 3. H.Pylori gastritis & gastric carcinoma 4. Colorectal carcinoma & polyps
Community medicine	
	Ethics and Integrity in Research Ethics in Medical Research: Why It Matters The Role of Informed Consent in Research Plagiarism and Scientific Misconduct in Research

BLOCK – IX (11 WEEKS)

MODULE - XVII

MBBS YEAR – III
CNS & GIT
DURATION: 07 WEEKS

Pharmacology		
	Module	Course content
17	CNS & GIT Pharmacology	**GIT** Anti-emetics Antidiarrheals Purgatives/laxative Drugs used in Peptic Ulcer **CNS** Central Neurotransmission Gen Anesthetics Local Anesthetics Aliphatic Alcohols Sedatives/ Anxiolytics & Hypnotics Anti-epilepsy drugs Antipsychotic drugs Anti-depressants Drugs used in Parkinsonism Drug treatment of Migraine Non-Narcotic Analgesics Opioids Drug Dependence
	Practical	Interpret and report the effects of CNS stimulants/depressants on frog" Calculate different concentrations of drugs or solutions II Justify the selection of priority drugs for certain indications and prescribe medicine accordingly

	Status epilepticus Migraine Acid peptic disease
Pathology	
Pathology	CNS, Oral cavity & GIT, Parasitology **CNS** Patterns of nerve injury, cerebral edema and raised Intracranial pressure. Traumatic injuries to CNS, epidural and subdural hematomas. Cerebrovascular diseases (hypoxia, ischemia and infarction) Hypertensive cerebrovascular disease, intracranial hemorrhage and malformations. Neurodegenerative diseases, Alzheimer and Parkinson's diseases. Brain tumors, primary and metastatic **Oral Cavity & GIT** Oral Cavity Leukoplakia and Squamous cell Carcinoma Tumors of salivary glands. GERD & Barrett esophagus Esophageal Carcinoma, Acute gastritis & Acute gastric ulcerations, Chronic gastritis & Peptic disease, Gastric Carcinoma, Hirschsprung's disease, Malabsorption syndromes Infectious Enterocolitis Ischemic bowel disease & causes of intestinal obstruction, Idiopathic Inflammatory bowel diseases. Intestinal polyps, Colorectal carcinoma Carcinoid Tumors Acute appendicitis and Tumors of appendix
Practical	1. Stool examination, 2. Pregnancy test and other ICT, 3. H.Pylori gastritis & gastric carcinoma 4. Colorectal carcinoma & polyps
Forensic	
Forensic	**Regional Injuries** Introduction & mechanism of skull injuries

	Types of skull fractures Contusions, Concussions Hemorrhages Limb Fractures and all vertebral injuries, abdominal thoracic injuries **Thermal Injuries** Introduction & types of burns Medicolegal importance and postmortem findings **Electrocution & lightning injuries** Introduction & types Medicolegal importance and postmortem findings **Inabrients** **Ethyl and methyl alcohol** **Sedatives and hypnotics (barbiturates)** **Delirients (Dhatura, cannabis, cocaine)** **Spinal Poisons (Strychnine)**
Practicals	Forensic serology 2 How to diagnose the case of drunkenness
Behavioral Sciences	
Behavioral Sciences	**Neurobiological Basis of Behavior** Emotion Language Memory. Arousal Sleep **Psychosocial aspects of health and disease** Defense Mechanisms Clinical Situations Demanding a Comprehensive Psychosocial Assessment Psychological reactions to Illness and Hospitalization **Principles of Psychology** Memory Perception Thinking Emotions Motivation (**Maslows hierarchy of needs in hospital settings)** Intelligence and emotional intelligence Intelligence scales Mini mental state examination **Mental Health & Common Psychiatric Disorders in community**

		Delirium Dementia Dissociative and Possession States Drug Abuse, Alcohol & Tobacco Use Suicide and Deliberate Self harm (DSH)
	Practical	Mental State Examination PMR + Deep Breathing exercise Conflict and its resolution Grief and its management Disaster management Psychological First Aid
	Community Medicine	
		Ethics and Integrity in Research The Importance of Peer Review in Medical Research How to Conduct Ethical Research with Human Participants? **Presenting and Publishing Research** How to Write a Research Paper? A Beginner's Guide Introduction to Referencing and Citation Styles

BLOCK – IX (11 WEEKS)

MODULE - XVIII

MBBS YEAR – III

IMMUNOLOGY, SKIN & NEOPLASIA

DURATION: 04 WEEKS

Pharmacology		
	Module	Course content
18	**Pharmacology**	Anti-fungal drug Cancer chemotherapeutics Vitamins & minerals Dermatological drugs Immunomodulators, Immunosuppressants Heavy metals and Chelators
	Practical	Calculate different concentrations of drugs or solutions IV
	Pathology	
	Pathology	Neoplasia Immunology **Neoplasia** Introduction Nomenclature

		Characteristic features of benign and malignant tumors Differences between benign and malignant tumors Grading and staging of tumors Molecular basis of cancer Carcinogenic agents Paraneoplastic syndrome Tumor markers Laboratory diagnosis of cancer **Immunology** Overview of immunity Cellular basis of immune response Innate immunity Adaptive immunity Complement system Major histocompatibility complex and transplantation Antigen antibody reactions in laboratory Primary and secondary response Hypersensitivity reactions type I, II, III, IV Tolerance and Autoimmunity Immunodeficiency Tumor immunity Antimicrobial vaccines
	Practical	1. Features of benign and malignant tumors, 2. Leiomyoma/Lipoma, 3. Hemangioma, 4. Squamous and Basal cell carcinoma
	Forensic	
	Forensic	**Metallic** Arsenic, Lead, Mercury Non-Metallic Copper Phosphorus Organic irritants Sulfuric acid, carbolic acid, Hydrogen cyanide, Oxalic acid Plants Poisons Animals Poisons Somniferous poisons Opiods Forensic Sexology Virginity, pregnancy Abortion Sexual offences

		Rape Sodomy Infanticide
	Practicals	How to diagnose the case of different metallic non metallic as well organic irritants How to perform gastric lavage
	Behavioral Sciences	
		Psychosocial issues in special hospital settings **Oncology** **Dermatology** **Psychosocial Aspects of Pain** Types of pain Psychogenic pain disorder Sick Role Psychological Management of Pain Relaxation method / Coping techniques **Non pharmacological interventions in critical scenarios** Handling difficult patients and their families **Psychosocial Aspects of Death & Dying** **Psychosocial issues in special hospital settings**
	Practicals	Gender identity and gender issues Suicide and deliberate self-harm Use of operant conditioning for bad habits Addiction, drug abuse and smoking
	Community Medicine	
		Presenting and Publishing Research How to Create a Research Poster for Conferences? Basics of Writing a Research Proposal How to Present Your Research Effectively?

DEPARTMENT OF ANATOMY

Paper	Module	Competencies	Relevance
Paper I Block VII	**Fundamentals**	• General Anatomy of Vascular System	**Important**
	Infectious diseases	• Liver & Kidney Architecture	**Important**
Paper II Block VIII	**Cardiovascular, Blood & Inflammation**	• Gross Anatomical Features & Blood Supply of Heart • Histology of Cardiovascular system	**Important**
	Respiratory & Endocrinology	• Gross Anatomical Features of Pleura and Lungs • Histology of Endocrine Organs	**Important**

Paper III Block IX	**CNS & GIT**	• General Anatomy Of Central and Peripheral Nervous System • Overview of the Gross Anatomical Features of Gastrointestinal Tract	**Important**
	Immunology, Skin & Neoplasia	• General Anatomy & Histology of Integumentary System	**Important**

DEPARTMENT OF PHYSIOLOGY

Sr.#	Curricular Topics	Competencies	Relevance
Fundamentals			
1	**Physiology of Signal transduction and 2nd messengers**	Physiology of receptors, signal transduction pathways, regulation of gene expression by signal transduction pathways	Essential
2	**Physiology of Autonomic nervous system**	functional organization of autonomic nervous system, parasympathetic & sympathetic nervous system, Central control of autonomic function	Essential
3	**Neuromuscular junction physiology**	Physiology of neuromuscular junction, synaptic transmission across neuromuscular junction, factors involved in synaptic transmission across neuromuscular junction	Essential
Cardiovascular, Blood and Inflammation			
1.	**Blood pressure, its regulation and hypertension**	Nervous regulation of the circulation and rapid control of arterial pressure. Role of the kidneys in long term control of arterial pressure and in hypertension.	Essential
2.	**Physiological basis of cardiac failure**	Circulatory dynamics in cardiac failure. Compensated and decompensated heart failure. Low output cardiac failure. High output cardiac failure. Edema in patients with cardiac failure. Concept of cardiac reserve.	Essential

Respiration			
1.	**Functions of respiratory passageways and physiological basis of bronchial asthma**	Functions of trachea, bronchi and bronchioles. Nervous and local control of bronchiolar musculature. Mechanism of muco-cilliary clearance of respiratory passageways, cough and sneeze reflex. Physiological basis of bronchial asthma.	Essential
Endocrinology			
1	**Physiology of insulin, glucagon and diabetes mellitus**	Insulin synthesis, secretion and its effects on carbohydrate, fat and protein metabolism. Glucagon and its functions. Diabetes mellitus, its types and physiology of diagnosis of diabetes mellitus and its treatment.	Essential
2	**Physiology of pituitary, thyroid and adrenal hormones**	Anterior and posterior pituitary hormones, their secretion and physiological functions. Thyroid hormones synthesis, secretion and its physiological functions. Physiological basis of thyroid disorders. Synthesis and secretion of adrenal hormones and their functions. Physiological basis of adrenal disorders.	Essential
3	**Physiology of reproductive hormones**	Synthesis and secretion of androgenic hormones and their functions. Physiological basis of infertility. Synthesis and secretion of oxytocin and its functions.	Essential

Sr.#	Curricular Topics	Competencies	Relevance
Central Nervous System			
1	**Physiological basis of migraine and epilepsy**	Physiological basis of migraine and epilepsy. Types of epileptic seizures.	Essential
2	**Physiological roles of specific neurotransmitter systems in brain disorders**	Roles of specific neurotransmitters in psychotic behavior, depression and manic-depressive psychoses, schizophrenia, Parkinsonism, Alzheimer's disease, role of amyloid plaques and depressed memory.	Important
3	**Physiology of cerebrospinal fluid system**	Regulation of cerebral blood flow, cerebrospinal fluid system, formation, flow and absorption of cerebrospinal fluid. Formation of blood brain barrier, cerebrospinal fluid pressure and high cerebrospinal fluid pressure in various pathological conditions of brain. Physiological basis of brain edema.	Important
4	**Physiology of speech, memory and sleep**	Sensory and motor aspects of communication, physiological basis of various aphasias. Classification of memories, role of synaptic facilitation and synaptic inhibition in memory formation and consolidation. Physiological basis of amnesias. Classification of sleep, its basic theories and functions.	Essential
Gastrointestinal System			
1	**Neuroendocrine circuitry of GIT**	General principles of gastrointestinal function, its motility nervous control and blood circulation, functional types of movements in the	Essential

		gastrointestinal tracts and their control, hormonal control of GIT motility, neural control of GIT function-enteric nervous system	
2	**Disorders of swallowing, esophagus and stomach.**	Stages of swallowing, Achalasia and mega esophagus. Formation and secretion of HCL, physiological basis of disorders of stomach, gastritis, peptic ulcer, GERD and its complications.	Essential
3	**Disorders of small, large intestine and vomiting reflex.**	Disorders of small intestine, physiological basis of sprue, Crohn's disease, physiological basis of large intestine disorders, constipation and diarrhea, ulcerative colitis. Vomiting reflex.	Essential
Skin and Neoplasia			
1	**Physiological basis of immunity & allergy**	Types of immunity, role of T&B lymphocytes in cell mediated and humoral immunity, physiological basis of allergy and hypersensitivity.	Essential

DEPARTMENT OF BIOCHEMISTRY

Papers	Module	Competencies	Relevance
Paper-I Block-VII	Fundamentals (7 Weeks)	• Explain the biochemical basis of drug absorption, metabolism, and excretion (pharmacokinetics) • Correlate enzyme functions with drug metabolism (e.g., cytochrome P450). • Explain the biochemical basis of receptor interactions. (pharmacodynamics).	Essential
		Clinical Application • Interpret Liver Function Tests (LFTs) and Renal Function Tests (RFTs) .	Important
	Infectious Diseases & Chemotherapy (6 Weeks)	• Explain biochemical mechanisms of bacterial resistance to antibiotics. • Correlate viral replication with antiviral drug targets (e.g., reverse transcriptase inhibitors in HIV).	Essential
		Clinical Application • Role of vector in viral replication	Important
Paper-II Block-VIII	Cardiovascular, Blood & Inflammation (5 Weeks)	• Explain the biochemical basis of atherosclerosis and lipid metabolism. • Understand Biochemical role of inflammatory mediators (cytokines, prostaglandins, leukotrienes)	Essential
		Clinical Application • Interpret lipid profile tests and justify the biochemical use of statins.	Important
	Respiratory & Endocrinology (5	• Correlate biochemical basis of acid-base balance with respiratory diseases (e.g., metabolic acidosis in COPD). • Explain the hormonal regulation of glucose metabolism and insulin action	Essential

		• Understand biochemical basis of thyroid hormone.	
		Clinical Application • Interpret arterial blood gases (ABGs) in acid-base disorders.	Important
Paper-III Block-IX	CNS & GIT (7 Weeks)	• Understand biochemical basis of neurotransmitter metabolism (dopamine, serotonin, GABA) • Explain the biochemical basis of antiemetic and antidiarrheal drugs.	Essential
		Clinical Application • Interpret biochemical role of misfolded proteins	Important
	Skin & Neoplasia (4 Weeks)	• Explain biochemical mechanisms of cancer development (oncogenes, tumor suppressor genes).	Essential
		Clinical Application • Interpret tumor markers (AFP, CEA, PSA) in cancer diagnosis.	Important

DEPARTMENT OF PHARMACOLOGY

LEARNING OUTCOMES OF PHARMACOLOGY

FUNDAMENTAL MODULE (7 WEEKS)

- Interpret the different pharmacokinetic patterns, their clinical significance and factors affecting these parameters.
- Correlate the concept of molecular mechanistic to the therapeutics.
- Identify the genetic principles in drug disposition
- Correlate the physiology of autonomic receptors with the therapeutic application.

INFECTIOUS DISEASES (6 WEEKS)

- Justify the treatment modalities for various microbes (bacteria, viruses) according to mode of action, resistance patterns and regional current practices
- Justify the treatment modalities for various microbes (helminths, parasites) according to mode of action, resistance patterns and regional current practices

CARDIOVASCULAR BLOOD & INFLAMMATION MODULE (5 WEEKS)

- Relate the pathophysiology of heart and vessels to its treatment modalities
- Recollect the anatomical physiological basis of renal system.
- Differentiate therapeutic application of different diuretics

- Justify the management plan of anemia, coagulation disorders and dyslipidemias by correlating it to the patho-physiological basis of disease

RESPIRATORY SYSTEM & ENDOCRINOLOGY MODULE (6 WEEKS)

- Develop and justify the management plan of common disorders of gastrointestinal tract (peptic ulcer, vomiting, constipation, gastropathies, diarrhea
- Develop and justify the management plan of obstructive pulmonary disorders (Asthma, COPD).
- Correlate the pathophysiological basis of pituitary, thyroid and adrenal hormones with their therapeutics.
- Correlate types of diabetes mellitus to their different treatment modalities
- Justify the clinical use of sex hormones in relation to reproductive physiology
- Correlate the patho-physiological basis of osteoporosis to its pharmacological management
- Justify the clinical use of sex hormones in relation to reproductive physiology

CNS & GIT MODULE (7 WEEKS)

- Correlate the patho-physiology of psychiatric illnesses to their management
- Differentiate between different pharmacological agents(LA, GA, opioids, NSAIDs) used in the pain management
- Justify the use of antiparkinsonian drugs correlating it to the underlying pathophysiology of the disease
- Analyze the effects of anti-epileptic drugs in relation to neuro-excitatory illnesses
- Strategize the management of migraine in accordance with the underlying disease mechanism
- Correlate the effects of substances of abuse (alcohol, opioids, heroin) on body to its plan for aversion therapy
- Critique on the pharmacological
- Effects of sedative/Hypnotics
- Outline the essential pharmacological principles of toxicology.
- Understand the Pharmacological uses of Vitamins & minerals

IMMUNOLOGY, SKIN & NEOPLASIA MODULE (4 WEEKS)

- Appraise the principles of cancer chemotherapy in relation to its current therapeutic modalities
- Outline the essential pharmacological principles of Anti-fungal drug& Dermatological drugs.

DEPARTMENT OF PATHOLOGY

LEARNING OUTCOMES OF PATHOLOGY

FUNDAMENTAL MODULE (7 WEEKS)

Cell Injury:

- Describe the general mechanisms of cell injury, including the roles of ATP depletion, mitochondrial damage, reactive oxygen species, calcium influx, and membrane damage.
- Explain the morphologic changes associated with reversible cell injury (e.g., cellular swelling, fatty change) and irreversible cell injury (e.g., necrosis, apoptosis).
- Differentiate between the various types of necrosis (e.g., coagulative, liquefactive, caseous, fat) and their characteristic features and causes.
- Describe the process of apoptosis and its role in normal physiology and disease.

- Explain the cellular adaptations to stress, including atrophy, hypertrophy, hyperplasia, and metaplasia, and how they can be beneficial or detrimental.
- Discuss the causes and consequences of cellular aging.

General Bacteriology:

- Describe the fundamental structural components of bacterial cells, including cell walls (Gram-positive and Gram-negative), capsules, flagella, pili, and endospores, and explain their respective functions.
- Explain the mechanisms of bacterial growth, metabolism, and reproduction, including binary fission, nutrient requirements, and the influence of environmental factors.
- Summarize the principles of bacterial classification and nomenclature, including the use of phenotypic and genotypic characteristics for identification and differentiation.
- Outline the key processes of bacterial genetics, including transformation, transduction, and conjugation, and their roles in the spread of antibiotic resistance and other genetic traits.
- Discuss the various factors contributing to bacterial pathogenicity, such as virulence factors (e.g., toxins, adhesins, enzymes), mechanisms of host-pathogen interaction, and the development of antibiotic resistance.

General Virology:

- Describe the basic structural components of viruses, including their nucleic acid genomes (DNA or RNA), capsid, and envelope (if present), and explain their respective functions.
- Explain the mechanisms of viral replication, including attachment, penetration, uncoating, biosynthesis, assembly, and release, highlighting the variations among different virus types.
- Summarize the principles of viral classification and nomenclature, including the criteria used to group viruses based on their structure, genome, and replication strategy.
- Outline the different types of viral-host cell interactions, including lytic, persistent, latent, and transforming infections, and their potential consequences for the host.
- Discuss the various methods used for viral detection, identification, and diagnosis, as well as the principles of antiviral therapy and prevention.

Hemodynamics:

- Describe normal fluid exchange and how it's altered in disease.
- Explain edema pathogenesis and its various types.
- Discuss thrombosis mechanisms, including Virchow's triad.
- Describe different emboli types and their consequences.
- Explain infarction and its influencing factors.
- Discuss the various types of shock and their mechanisms.

INFECTIOUS DISEASES MODULE (6 WEEKS)

Special Bacteriology:

- Identify the key characteristics, virulence factors, and clinical manifestations of important bacterial pathogens, including Gram-positive cocci (e.g., Staphylococcus, Streptococcus), Gram-positive rods (e.g., Bacillus, Clostridium), Gram-negative cocci (e.g., Neisseria), Gram-negative rods (e.g., Escherichia, Salmonella, Shigella, Pseudomonas), and other bacterial groups (e.g., Mycobacterium, Chlamydia, Treponema, Borrelia).

- Correlate the mechanisms of pathogenesis with the clinical features of infections caused by specific bacterial species.
- Describe the laboratory methods used for the identification and diagnosis of bacterial infections, including culture techniques, biochemical tests, and serological assays.
- Outline the principles of antimicrobial therapy and the mechanisms of antibiotic resistance in clinically relevant bacteria.
- Explain the epidemiology, transmission, and prevention strategies for bacterial diseases.

Special Virology:

- Identify the key characteristics, replication strategies, and clinical manifestations of important viral pathogens, including DNA viruses (e.g., herpesviruses, adenoviruses, papillomaviruses), RNA viruses (e.g., picornaviruses, influenza viruses, retroviruses, coronaviruses), and other viral groups.
- Correlate the mechanisms of viral pathogenesis with the clinical features of viral infections.
- Describe the laboratory methods used for the detection, identification, and diagnosis of viral infections, including serological assays, nucleic acid amplification tests, and viral culture.
- Outline the principles of antiviral therapy and the mechanisms of antiviral resistance.
- Explain epidemiology, transmission & prevention strategies for viral diseases including the use of vaccines.

Mycology:

- Identify the key characteristics, morphology, and growth requirements of medically important fungi, including yeasts (e.g., Candida, Cryptococcus), molds (e.g., Aspergillus, Mucor), and dimorphic fungi (e.g., Histoplasma, Blastomyces).
- Correlate the mechanisms of fungal pathogenesis with the clinical features of fungal infections, including superficial, cutaneous, subcutaneous, and systemic mycoses.
- Describe the laboratory methods used for the identification and diagnosis of fungal infections, including microscopy, culture techniques, and serological tests.
- Outline the principles of antifungal therapy and the mechanisms of antifungal resistance.
- Explain the epidemiology, transmission, and predisposing factors for fungal diseases.

CARDIOVASCULAR BLOOD & INFLAMMATION MODULE (5 WEEKS)

Inflammation, Healing, and Repair:

- Describe the major components of the inflammatory response, including cells (e.g., neutrophils, macrophages, lymphocytes) and mediators (e.g., cytokines, chemokines, histamine).
- Explain the sequence of events in acute inflammation, including vascular changes, cellular recruitment, and mediator release.
- Differentiate between the various patterns of acute inflammation (e.g., serous, fibrinous, purulent) and their characteristic features.

- Describe the mechanisms of chronic inflammation, including the roles of macrophages, lymphocytes, and granuloma formation.
- Explain the processes of tissue repair, including regeneration and scar formation, and the factors that influence wound healing.
- Discuss the complications of wound healing, such as keloids and contractures.

Heart:

- Describe the normal structure and function of the heart, including the chambers, valves, and conduction system.
- Explain the mechanisms of heart failure, including systolic and diastolic dysfunction, and the compensatory mechanisms involved.
- Discuss the various pathological processes that can affect the heart, including ischemic heart disease, cardiomyopathies, valvular disease, and congenital heart defects.
- Describe the morphologic features and clinical manifestations of common heart diseases.

Blood Vessels:

- Describe the normal structure and function of arteries, veins, and capillaries.
- Explain the pathogenesis of atherosclerosis, including the role of endothelial dysfunction, lipid accumulation, and inflammation.
- Discuss the various vascular diseases, including aneurysms, vasculitis, and Raynaud phenomenon.
- Describe the morphologic features and clinical manifestations of common vascular diseases.

RESPIRATORY SYSTEM & ENDOCRINOLOGY MODULE (6 WEEKS)

Endocrine System

- Describe the normal structure and function of the major endocrine glands, including the pituitary, thyroid, parathyroid, and adrenal glands.
- Explain the pathogenesis of common endocrine disorders, such as hyperpituitarism, hypopituitarism, thyroiditis, hyperthyroidism, hypothyroidism, hyperparathyroidism, hypoparathyroidism, and adrenal insufficiency.
- Discuss the morphologic features and clinical manifestations of these endocrine diseases.
- Outline the mechanisms of hormone action and regulation.

Pancreas:

- Describe the normal structure and function of the exocrine and endocrine pancreas.
- Explain the pathogenesis of pancreatitis, including acute and chronic forms, and the factors that contribute to its development.
- Discuss the morphologic features and clinical manifestations of pancreatitis.
- Describe the various types of pancreatic neoplasms, including exocrine (e.g., adenocarcinoma) and endocrine (e.g., insulinoma) tumors.
- Explain the clinical features and diagnostic methods for pancreatic diseases.

Diabetes:

- Describe the normal physiology of glucose metabolism and insulin regulation.

- Explain the pathogenesis of type 1 and type 2 diabetes mellitus, including the roles of genetic factors, autoimmune destruction of beta cells, and insulin resistance.
- Discuss the acute and chronic complications of diabetes, such as diabetic ketoacidosis, hyperosmolar hyperglycemic state, microvascular disease (retinopathy, nephropathy, neuropathy), and macrovascular disease (atherosclerosis).
- Describe the morphologic changes associated with diabetes in various organs.
- Describe the diagnostic criteria for diabetes mellitus.
- Clinical features of diabetes including those of acute and chronic complications.

CNS & GIT MODULE (7 WEEKS)

Central Nervous System:

- Describe the normal structure and function of the brain and spinal cord, including neurons, glial cells, and meninges.
- Explain the pathogenesis of common neurological diseases, such as stroke, Alzheimer disease, Parkinson disease, multiple sclerosis, and infections of the nervous system (e.g., meningitis, encephalitis).
- Discuss the morphologic features and clinical manifestations of these neurological diseases.
- Outline the mechanisms of neuronal injury and repair.

Gastrointestinal Tract:

- Describe the normal structure and function of the various segments of the gastrointestinal tract.
- Explain the pathogenesis of common gastrointestinal diseases, such as inflammatory and proliferative lesions of oral cavity, esophagitis, gastritis, peptic ulcers, appendicitis, inflammatory bowel disease, infectious enterocolitis and gastrointestinal neoplasms.
- Discuss the morphologic features and clinical manifestations of these diseases.
- Outline the mechanisms of malabsorption and its consequences.

Parasitology:

- Identify the key characteristics, life cycles, and mechanisms of pathogenesis of major parasitic groups, including protozoa (e.g., Plasmodium, Giardia, Entamoeba, Trypanosoma, Leishmania), helminths (e.g., nematodes, cestodes, trematodes), and ectoparasites.
- Correlate the clinical manifestations of parasitic infections with the specific parasite involved and its mechanism of action.
- Describe the laboratory methods used for the diagnosis of parasitic infections, including microscopy, serological tests, and molecular techniques.
- Outline the principles of antiparasitic therapy and the mechanisms of drug action and resistance.
- Explain the epidemiology, transmission routes, and prevention strategies for parasitic diseases, including vector control measures where applicable.

IMMUNOLOGY, SKIN & NEOPLASIA MODULE (4 WEEKS)

Neoplasia:

- Define neoplasia and differentiate between benign and malignant neoplasms.
- Explain the characteristics of malignant tumors, including their capacity for invasion and metastasis.
- Describe the process of carcinogenesis, including the roles of oncogenes, tumor suppressor genes, and other genetic and environmental factors.

- Discuss the various types of neoplasms, including carcinomas, sarcomas, lymphomas, and leukemias.
- Explain the clinical manifestations of cancer, including local and systemic effects.
- Outline the principles of cancer diagnosis and treatment.

Immunology:

- Describe the components of the innate and adaptive immune systems, including cells (e.g., lymphocytes, macrophages, dendritic cells) and molecules (e.g., antibodies, cytokines, complement).
- Explain the mechanisms of immune responses, including antigen recognition, lymphocyte activation, and effector functions.
- Differentiate between humoral and cell-mediated immunity.
- Discuss the mechanisms of immune tolerance and autoimmunity.
- Describe the various types of hypersensitivity reactions (I, II, III, IV) and their roles in disease.
- Explain the pathogenesis of immunodeficiency disorders, such as AIDS.
- Outline the principles of immunodiagnostics and immunotherapy

DEPARTMENT OF PSYCHIATRY & BEHAVIOURAL SCIENCES

LEARNING OUTCOMES

FUNDAMENTAL MODULE (7 WEEKS)

Introduction to Behavioral Sciences and Psychiatry

- Compare the holistic with the traditional medicine
- Relate the significance of Psychology, Sociology and Anthropology in health and disease

Psychosocial aspects of health and disease

- Explain normal and abnormal state of health
- Describe the stages and mechanism of reactions to illness and hospitalization

International professional standard "7-star doctors"

- Explain the important components of professionalism in doctors

Non pharmacological interventions in clinical practice

- Apply effective communication skills in clinical scenarios and critical care situations
- Describe components of counselling and informational care

Psychosocial Assessment in Health Care

- Describe components of psycho social assessment

Psychological reactions in doctor patient relation

- Explain and differentiate psychological reactions in doctor patient relations
- Identify unhealthy behaviours in doctor patient communication

Rights and Responsibilities of Patients and Doctors

- State rights and responsibilities of doctors
- State rights and responsibilities of patients

- Critique medical situations requiring execution of rights and responsibilities in patient care

INFECTIOUS DISEASES MODULE (6 WEEKS)

Myths and Stigma regarding Psychiatric Illnesses
- Explain myths and stigmas in healthcare
- Relate myths and stigmas with psychiatric illnesses

Psychiatric aspects of neuro-medical disorders
- Recognize psychiatric sign and symptoms in physical illnesses

Psychological side effects of commonly prescribed medicines
- Recall psychological and behavioural side effects of commonly prescribed medicines

Psycho trauma (PTSD)
- Sign and symptoms of psycho trauma

Psychosocial aspects of Terrorism
- Describe characteristics of terrorists

Psychosocial aspects of Aging
- Describe psychological, neurobiological and social aspects of healthy and unhealthy aging
- Plan steps in care of elderly
- Management plan of dementia

Psychosocial aspects of health and disease
- Explain and differentiate defense mechanisms

Principles of Psychology
- Name and explain stages of Piaget's theory

Psychosocial Issues in Special Hospital Settings
- State and manage issues in Organ transplant, Dialysis unit, Reproductive health, Paediatric ward, Operation theatre

Conflict resolution in healthcare settings
- Explain steps of conflict resolution

Psychological reactions in doctor patient relation
- Identify and explain psychological reactions in doctor patient relation

CARDIOVASCULAR BLOOD & INFLAMMATION MODULE (5 WEEKS)

Psychological factors in Medical Practice
- Relate the psycho social factors in etiology, presentation and management of health problems
- Describe medically unexplained symptoms
- Management plan for medically unexplained symptoms

Psychosocial aspects of Cardiovascular Conditions
- Explain the psycho social aspects in cardiovascular conditions

Principles of Psychology
- Describe personality
- Explain types of personality
- Relate different personality types with health care problems
- Name and explain stages of Freud's theory of personality development

- Name and explain stages of Erickson's theory of personality development

Psychosocial Issues in Special Hospital Settings

- State and manage issues in emergency, coronary and intensive care units

Stress and Stress Management

- Define stress
- Name sign and symptoms of stress
- Describe job related stress
- Medical and psycho social interventions in stress management

Mental Health & Common Psychiatric Disorders

- Describe sign and symptoms on common psychiatric disorders
- Formulate management plan of common psychiatric disorders

Psychosocial aspects of Alternative Medicine

- Define alternative medicine
- Relate alternative medicine with holistic medicine

RESPIRATORY SYSTEM & ENDOCRINOLOGY MODULE (6 WEEKS)

Psychosocial aspects of Gastrointestinal and Respiratory disorders

- Explain indigestion, irritable bowel syndrome, asthma, allergies in relation with mental health
- Discuss psychosocial aspects of indigestion, irritable bowel syndrome, asthma, allergies

Psychosocial aspects of Gender, Sexuality and neuroendocrine disorders

- Explain indigestion, irritable bowel syndrome, asthma, allergies in relation with mental health
- Discuss psychosocial aspects of indigestion, irritable bowel syndrome, asthma, allergies

Mental Health & Common Psychiatric Disorders

- Explain sign symptoms and management of anxiety disorder and panic disorder

Principles of Psychology

- Describe learning and meta cognition
- Explain types of learning and meta cognition
- Discuss significance of learning and meta cognition

CNS & GIT MODULE 7(WEEKS)

Neurobiological Basis of Behavior

- Explain components of emotion, language, memory, arousal and sleep
- Name anatomical structures and physiological mechanisms underlying emotion, language, memory, arousal and sleep

Psychosocial aspects of health and disease

- Explain and compare defense mechanisms
- Explain components of psychosocial assessment
- Describe psychological reactions to illness and hospitalization

Principles of Psychology

- Explain psychological development of Memory, Perception, Thinking, Emotions, Motivation
- Name and explain stages of Maslow's hierarchy
- Differentiate intelligence from emotional intelligence
- Name components of intelligence scale

- Name components and scoring of mini mental scale examination

Mental Health & Common Psychiatric Disorders in community

- Describe the signs and symptoms of Delirium, Dementia, Dissociative and Possession States, Drug Abuse, Alcohol & Tobacco Use, Suicide and Deliberate Self harm (DSH)

IMMUNOLOGY SKIN & NEOPLASIA MODULE (4 WEEKS)

Psychosocial issues in special hospital settings

- Explain the psychosocial and emotional issues in Oncology and Dermatology departments

Psychosocial Aspects of Pain

- Explain types of pain
- Describe psychogenic pain disorder
- Formulate management plan of pain disorders
- Describe non-pharmacological interventions of pain management, deep breathing and PMR
- Explain psycho social issues related to sick role

Non pharmacological interventions in critical scenarios

- Explain the steps and analyze situations pertaining important decisions in breaking bad news and handling difficult patients

Psychosocial Aspects of Death & Dying

- Explain steps of grief
- Describe psychosocial aspects of death and dying

PRACTICALS

Topic List and Learning Objectives

1. Communication skills – Demonstrate funneling, paraphrasing, selective reflection, empathy, summarizing abilities in doctor patient communication.
2. Interviewing Techniques – Demonstrate open ended, closed ended and leading questions in communication.
3. Informed Consent – Assess capacity of patient for giving consent and Take informed consent from patient in different clinical scenarios.
4. Confidentiality – Demonstrate maintenance of confidentiality and circumstance in which confidentiality can be breached.
5. Accepting gifts and sponsorships from patient and medical companies – Demonstrate appropriate responses for accepting or rejecting gifts and sponsorships from patients and medical companies.
6. Breaking the bad news – Demonstrate how to break bad news.
7. Empathy – Demonstrate empathic understanding and ways to empathize patient.
8. Desensitization of Phobias – Perform desensitization techniques for reducing phobia.
9. Informational care – Give informational care according to 3D model (doctor, disease and drugs).
10. Personal and Psychosexual History – Take Personal and Psychosexual history from patient.
11. Family Dynamic and family history – Take Family history from patient.
12. Forensic and addiction History – Take Forensic and Addiction history from patients and family member.
13. Health Belief Model – Assess health belief model.
14. Compliance to medication – Execute an ability to check compliance to medication.
15. Chambers of Horror / Psychosocial issues in special hospital setting – Assess Psychosocial issues in special health settings.

16. Sleep – Demonstrate sleep hygiene and sleep-inducing techniques.
17. Pain – Demonstrate pain management and medicine reducing techniques according to operant conditioning.
18. Stress Management – Assess stress in patient and explain stress coping techniques.
19. Mini-Mental state examination – Perform mini mental state examination.
20. PMR + Deep Breathing techniques – Perform PMR and Deep Breathing techniques.
21. Mental state examination – Perform mental state examination.
22. Conflict and its resolution – Demonstrate techniques to resolve conflict.
23. Grief and its management – Explain stages of grief and its management.
24. Disaster management – Demonstrate techniques to manage psychological distress of disaster.
25. Psychological First Aid – Demonstrate techniques of psychological first aid.
26. Gender identity and gender issues – Assess gender identity and manage gender issues in healthcare.
27. Suicide and deliberate self harm – Assess risk of suicide and deliberate self harm in patient.
28. Use of Operant conditioning for bad habits – Perform and explain operant techniques for bad habits.
29. Addiction, drug abuse and smoking – Assessment and Counseling techniques for drug addiction and smoking.

DEPARTMENT OF FORENSIC MEDICINE

LEARNING OUTCOMES OF FORENSIC MEDICINE

Law: -For the students to know about different law's applicable on civil & criminal issues for furtherance of justice.

Forensic Psychiatry: -How to abscond from any punishment on the basis of mental diseases.

General toxicology: -To know about cause, diagnose, mode of action, treatments/antidotes.

Personal Identification: - To know how to fix identity from molecular –gross land.

Biological specimens/Forensic Serology: - To make students understands about biological fluids which are helpful in crime scene investigation.

Thanatology: - To know about the sequences that accompany death & for the purpose of time since death.

General Thanatology: -To identify the nature of injuries in living &nonliving bodies.

Special Traumatology: - To make students understood that how to deal with injuries that are due to mechanical obstruction at the level of respiratory passages.

→ To make students about mechanism of different weapons and injuries produced by them.
→ To know about injuries produced by RTA's electrical & thermal appliances.
→ Different hemorrhages, skull fractures and their mechanism.
→ To make students understood in detail about autopsy-protocols and collection & preservation of different samples.
→ To understand about natural and unnatural sexual offences.

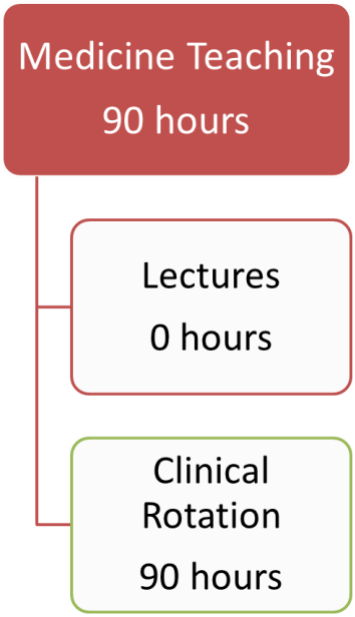
→ To understand about different ways used infant, child violence.

Special Toxicology: - To make students understand about mechanism skin cute & chronic poisons, management with its specific antidote. Postmortem finding, medico legal importance

Clinical rotation in Medicine 3rd year MBBS

Teaching Hours

- **Monday-Thursday, Saturday** 11.30 AM -1.00 PM
- 7.5 hrs/week = 30/month **= 90 hours per year.**



WARD PROGRAMME OF 3RD YEAR MBBS CLASS (N-70) FOR THE SESSION 2022-23 W.E.F. 15.02.2023 (PART-I)

Department	15.02.23 To 14.03.23	15.03.23 To 17.04.23	18.04.23 To 17.05.23	22.05.23 To 23.07.23	24.07.23 To 24.08.23
Medical-I (Ward No. 10)	M1	M2	M3	M4	M1
Medical-II (Ward No 07)	M2	M3	M4	M1	M2
Medical-III (Ward No.12)	M3	M4	M1	M2	M3
Medical-IV (Ward No.11)	M4	M1	M2	M3	M4

Department	15.02.23 To 19.03.23	20.03.23 To 07.05.23	08.05.23 To 19.07.23	20.07.23 To 24.08.23
Surgery-I (Ward No. 06)	S1	S2	S3	S4
Surgery-II (Ward No. 05)	S2	S3	S4	S1
Surgery-III (Ward No. 09)	S3	S4	S1	S2
Surgery-IV (Ward No. 04)	S4	S1	S2	S3

Each Medical Unit will teach history and GPE to the first batch of 3rd year MBBS. The relevant allocated system will be taught from the next batch.

WARD PROGRAMME OF 3RD YEAR MBBS CLASS FOR THE SESSION 2025-26 W.E.F. March .2025 (PART-II)

Department					
Medical-I (Ward No.10)	**S1**	**S2**	**S3**	**S4**	**S1**
Medical-II (Ward No.07)	**S2**	**S3**	**S4**	**S1**	**S2**
Medical-III (Ward No.11)	**S3**	**S4**	**S1**	**S2**	**S3**
Medical-IV (Ward No.12)	**S4**	**S1**	**S2**	**S3**	**S4**

Department				
Surgery-I (Ward No. 06)	**M1**	**M2**	**M3**	**M4**
Surgery-II (Ward No. 05)	**M2**	**M3**	**M4**	**M1**
Surgery-III (Ward No. 09)	**M3**	**M4**	**M1**	**M2**
Surgery-IV (Ward No. 04)	**M4**	**M1**	**M2**	**M3**

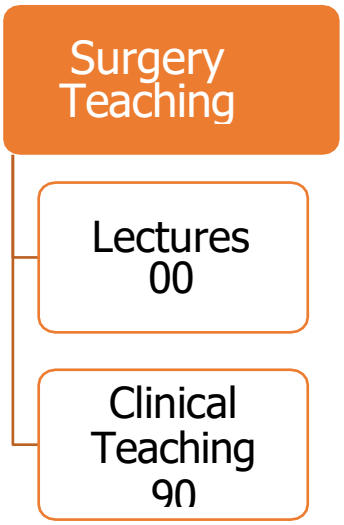
Each Medical Unit will teach history and GPE to the first batch of 3rd year MBBS. The relevant allocated system will be taught from the next batch.

Clinical rotation in surgery 3rd year MBBS

Teaching Hours

- **Monday-Thursday, Saturday** 11.30 AM -1.00 PM

- 7.5 hrs/week = 30/month = **90 hours per year.**



WARD PROGRAMME OF 3RD YEAR MBBS CLASS (N-70) FOR THE SESSION 2022-23 W.E.F. 15.02.2023 (PART-I)

Department	15.02.23 To 14.03.23	15.03.23 To 17.04.23	18.04.23 To 17.05.23	22.05.23 To 23.07.23	24.07.23 To 24.08.23
Medical-I (Ward No. 10)	M1	M2	M3	M4	M1
Medical-II (Ward No 07)	M2	M3	M4	M1	M2
Medical-III (Ward No. 12)	M3	M4	M1	M2	M3
Medical-IV (Ward No. 11)	M4	M1	M2	M3	M4

Department	15.02.23 To 19.03.23	20.03.23 To 07.05.23	08.05.23 To 19.07.23	20.07.23 To 24.08.23
Surgery-I (Ward No. 06)	S1	S2	S3	S4
Surgery-II (Ward No. 05)	S2	S3	S4	S1
Surgery-III (Ward No. 09)	S3	S4	S1	S2
Surgery-IV (Ward No. 04)	S4	S1	S2	S3

Each Medical Unit will teach history and GPE to the first batch of 3rd year MBBS. The relevant allocated system will be taught from the next batch.

Learning outcome for 3rd year MBBS

- History taking
- Clinical methods
- Medical ethics

Clinical Ward Teaching of 3rd Year MBBS (Batch-)

Sr #	Date	Topic	Course Contents	No. of Session	Facilitator
1		History Taking	• History Taking of surgical patient • History of pain, vomiting, constipation, abdominal constipation.	2 2	Dr. Irfan (AP)
2		Lump	• History • Examination • Differential Diagnosis	1 1 1	Dr. Tania (AP)
3		Ulcer	• History • Examination • Etiology • Differential Diagnosis	1 1	Dr. Sabir
4		Sinus & Fistula	• History • Examination • Differential Diagnosis	1 1	Dr. Manan (AP)
5		Abdomen	• History Taking of Pain abdomen according to different regions • Differential Diagnosis of pain abdomen	1 3	Dr. Irfan (AP)
6		Abdominal		1	Dr. Afzal

		Mass	• History • Examination • Differential Diagnosis of Abdominal mass according to different regions	1 2	Sajjid (Senior Consultant)
7		Vascular System	• History and examination of Arterial diseases. • History and examination of venous system. • History and examination of lymphatic system	1 1 1	Dr. Tania (AP)

3RD YEAR MBBS CLINICAL LOG BOOK MEDICINE "Annex-A"

3RD YEAR MBBS CLINICAL LOG BOOK SURGERY "Annex-B"