



LAHORE
MEDICAL & DENTAL
COLLEGE

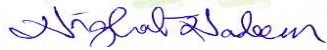
CURRICULUM FOR MBBS PROGRAMME



FOREWORD

The expanding role of the faculty necessitates paths which lead to a curriculum which is flexible and responsive to needs of the increasing diversity in student body. A commitment to high curricular standards with implementation of an organized, efficient curriculum is the need of the time. A collective wisdom of the faculty led to compiling requirements and good practices that go hand in hand to develop, review, renew and approve sound curricula.

Indeed, like a nautilus turns and comes back in a spiral, curriculum similarly never stops to rest but improves unto itself, winding educational strategies with assessments in light of the content to achieve intended outcomes of our graduate. This curriculum caters for traditional system as per UHS curriculum for Second Year to Final Year MBBS. For First Year MBBS new UHS Modular Integrated Curriculum 2023 has been implemented in the college, link to [UHS Modular Integrated Curriculum 2023](#) & LMDC First Year Curriculum Document.



Dr. Nighat Nadeem

Associate Professor

Head of Department of Medical Education

November, 2022

PREAMBLE

The ability to improvise works best in times of adversity. COVID-19 pandemic forced medical educators to opt online-teaching strategies in almost all medical schools. The COVID-19 pandemic is almost over and all medical schools officially open for face to face teaching at full strength. The pandemic has played a catalytic role in the development and introduction of many innovative teaching methods. The purpose of this document is to review and revise the existing curriculum that was partly online to yield the one that is well suited for complete face to face teaching.

PMDC has recently been promulgated and replaced Pakistan Medical Commission. PMDC 2019 criteria has been enforced by PMDC. Moreover, LMDC is now officially a part of Punjab group of colleges and has a new logo.

All teaching and learning activities are being documented online under one platform. The scope of existing LMDC academic portal has been broadened with the development of a tailor-made LMDC App having the ability to register and monitor all academic activities involving students' and facilitators.

LMDC curriculum is in line with United Nation sustainable development goals focusing on good health and well- being of people, provision of quality education and gender equality. This curricular revision emphasizes the development of a flexible curriculum which is responsive to the needs of the system.

This curriculum is the result of a tireless effort of Subject Specialists and Medical Educationists combined (list attached). It is because of their dedication and support that the curriculum committee was able to complete this daunting task.



Prof. Dr. Shazia Ibnerasa
Chairperson, Curriculum Committee

November, 2022

SUBJECT SPECIALISTS & CONTRIBUTORS

(MEMBERS CURRICULUM COMMITTEE)

1	Prof. Iffat Badar Head of Anatomy Department	9	Dr. Nighat Nadeem Head of Medical Education In-charge Modular Curriculum
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AFFILIATING UNIVERSITY

UNIVERSITY OF HEALTH SCIENCES



UNIVERSITY VISION

“Qualitative and Quantitative Revolution in Medical Education and Research through Evolution and thereby Improve Health Care Delivery to Populace”.



VISION

To foster a culture of innovation, diversity, and learning for our students by putting students first and training them to be the best Healthcare Professionals, researchers and visionaries.

MISSION STATEMENT

To train future leaders of medicine who will set new standards in knowledge, care, and compassion.

INTRODUCTION TO CURRICULUM

Curriculum is a set of courses; subject content, teaching, learning methods and assessments.

It was mandatory to review the existing curriculum following replacement of PMC by PMDC last year. This curriculum follows Pakistan Medical and Dental Council and University of Health Sciences curricular guidelines 2019

The curriculum of LM&DC revolves around 3 themes which are reflected in all years during teaching.

The curriculum spans over total of 6000 teaching hours covered during 5-yrs MBBS program.

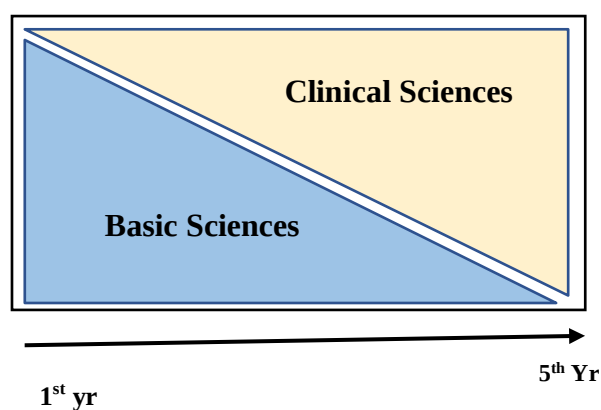
Within the guidelines given by Pakistan Medical and Dental Council and University of Health Sciences, the following are the key points of the curriculum applied at Lahore Medical & Dental College.

1. The curriculum is Traditional (discipline-based) curriculum, involving both traditional (discipline based) and integrated pattern of teaching and learning.
2. Both vertical and horizontal integration is done between subjects within the confines of Curricular University guidelines.
3. The curriculum is aligned with the vision and mission of the institute.
4. The curriculum retains few flexible components for Blended learning. These were developed during Covid-19 pandemic and were delivered online in 2020 using online platform (Google class room and Microsoft Teams software). In addition, educational innovations are also incorporated by some departments to keep up with the changing times.
5. Curricular structure follows institutional policy guidelines (mentioned separately as for example Assessment Policies, Program Evaluation Policy and Research Guidelines and these are reflected in all courses run by different departments.

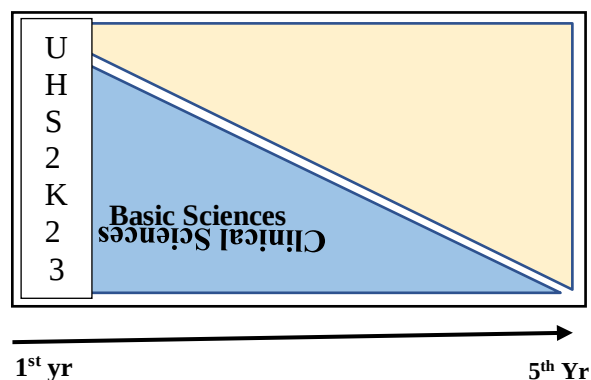
CURRICULAR ORGANIZATION & STRUCTURE

LMDC has been following a traditional curriculum with integration between different departments at various levels. Following curricular guidelines of PMDC, LMDC has adopted the curriculum developed by its affiliating university - UHS.

The basic division of basic and clinical components of LMDC curriculum is as shown in the diagram, which shows a division of basic sciences content versus clinical science content over 5 years curriculum.



This curriculum address 1st 2nd, 3rd, 4th, and 5th yr of MBBS program. The curriculum is a hybrid curriculum and incorporates both traditional and integrated approaches for its implementation.



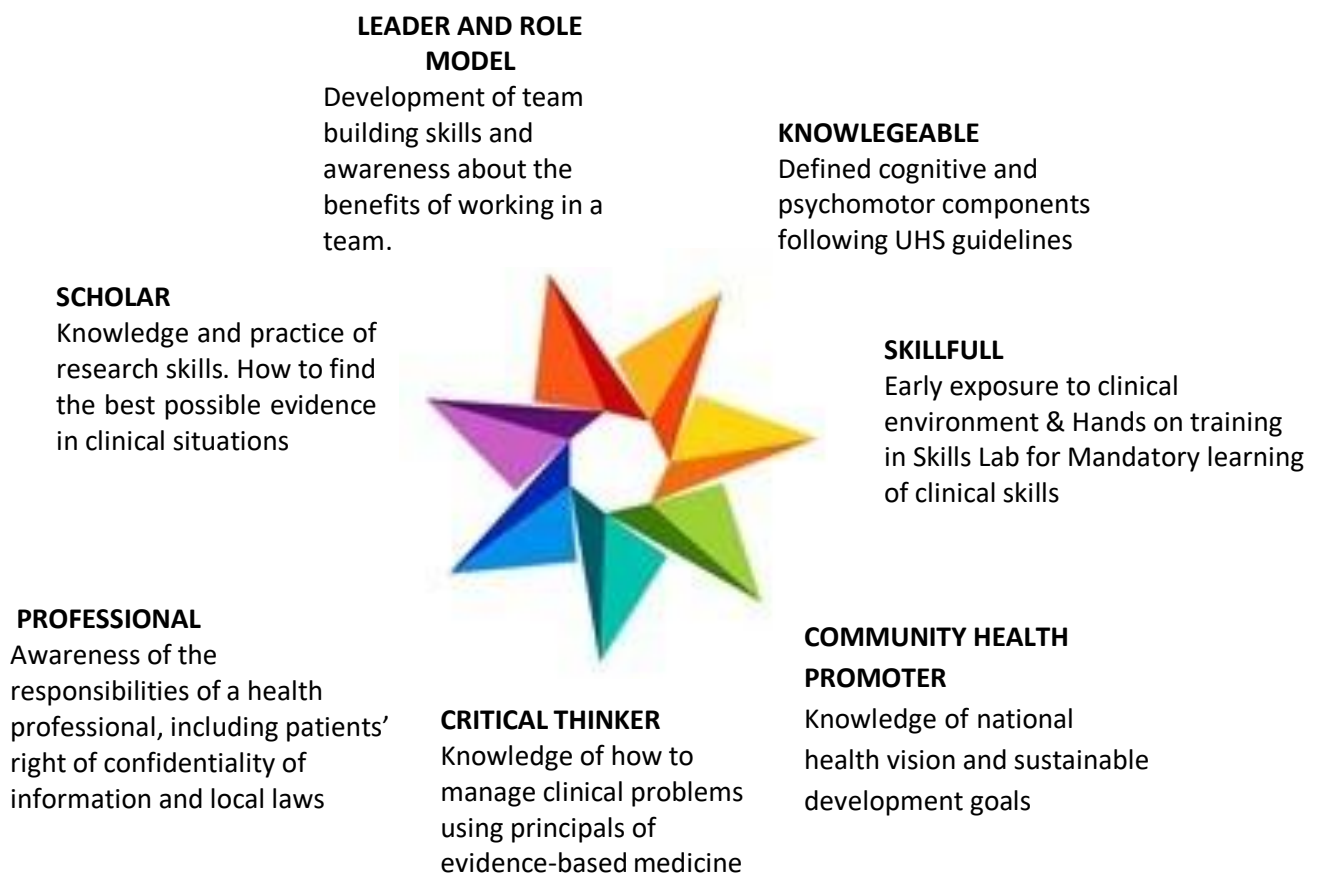
University of Health Sciences recently introduced integrated modular curriculum for 1st year of MBBS programme for sessions starting in 2023. The guidelines and details of UHS curriculum is available on UHS website and are compiled in a separate document.

CURRICULAR UNDERPINNING

Curricular underpinning rests on the concept of **7-star doctor** as described by PMDC curricular guidelines. The concept emphasizes seven competencies which a medical graduate must possess as a medical doctor.

The curriculum of LMDC revolves around these seven competencies (mentioned below). Competencies are reflected at various levels throughout the curriculum.

The expected generic competencies in a medical graduate of a LM& DC medical graduate (as per PMDC guidelines) are as follows



DURATION OF THE MBBS PROGRAM

Five-year program, as directed by PMDC.

ENTRY REQUIREMENT

Follows Admission regulations of PMDC, UHS and Punjab govt. @
[regulationsmbbs.pdf \(uhs.edu.pk\)](https://uhs.edu.pk/regulationsmbbs.pdf)

CURRICULUM MODEL

Medical school Years	Curriculum Model
5 th year	TRADITIONAL CURRICULUM
4 th year	
3 rd year	
2 nd year	
1 st year	TRADITIONAL CURRICULUM TILL 2022
1 st year	INTERGRATED MODULAR CURRICULUM (from 2023)*

***Available online @**

[University of Health Sciences – For World Class Professionals \(uhs.edu.pk\)](https://uhs.edu.pk)

CURRICULAR OUTCOMES OF THE MEDICAL PROGRAM

The graduate outcomes are overarching statements reflecting the intended abilities of LMDC graduates on exit from the medical program. These essential abilities are educational statements that provide the path for developing curricular content, teaching and learning strategies and assessments.

A thematic framework organizes our graduate outcomes into three domains:

- 1. Clinical practice:** the medical graduate as a medical practitioner
- 2. Health and society:** the medical graduate as a healthcare advocate
- 3. Professionalism and Leadership:** the medical graduate as a professional and leader

6. OBJECTIVES OF THE MBBS CURRICULUM

Keeping in view the intended graduate outcomes, following objectives of MBBS program are formulated for guidance of the medical curriculum. The ultimate goal is to produce well-trained graduates who efficiently assume patient care responsibilities expected of new medical graduates.

1. MEDICAL GRADUATE AS MEDICAL PRACTITIONER

The curriculum must ensure that the graduate understands the scientific basis of medicine and is able to apply it to the practice of medicine by demonstrating:

- 1.1.** Knowledge of normal, altered and abnormal structure of the body and its organ systems encountered frequently in different physiological and pathological conditions
- 1.2.** Knowledge of normal, altered and abnormal functions of the body and its organ systems is encountered frequently in different physiological and pathological conditions.
- 1.3.** Knowledge of biochemical and genetic basis of diseases including cancers, homeostatic mechanisms and the disturbances commonly encountered in clinical practice
- 1.4.** Ability to apply basic principles of human nutrition in clinical practice and recognition of vulnerable groups for timely interventions, ability to recognize conditions resulting

from deficiency or excess of various nutrients and suggest appropriate and prompt measures

- 1.5. Knowledge of the clinical, biochemical, radiological, and pathological manifestations of common diseases, and ability to interpret and efficiently utilize this knowledge for diagnostic and prognostic purposes
- 1.6. Ability to obtain an accurate, pertinent yet comprehensive history and perform general and systemic examination efficiently
- 1.7. Ability to reason deductively and inductively in solving clinical problems and to construct appropriate management strategies for patients with common acute and chronic conditions
- 1.8. Ability to efficiently perform common procedures (as specified separately for different subjects)
- 1.9. Ability to recognize patients with immediately life threatening cardiac, pulmonary, or neurological conditions, and to institute appropriate initial therapy
- 1.10. The ability to communicate effectively, both verbally and in writing, with patients, patients' families, colleagues and other members of health care team
- 1.11. Capability to engage in lifelong learning to keep abreast with the recent advances

2. MEDICAL GRADUATE AS A HEALTHCARE ADVOCATE

The curriculum must ensure that the graduate understands the need to promote, maintain and improve the health of individuals and community by demonstrating:

- 2.1. Knowledge of the risk factors for disease and injury and how to effectively employ disease and injury prevention practices
- 2.2. Knowledge of the determinants of poor health and the economic, psychological, social, and cultural factors that contribute to the development and/or prolongation of diseases.
- 2.3. Knowledge of the epidemiology of common diseases within a defined population, and the systematic approaches useful in reducing the incidence and prevalence of those diseases

- 2.4. Ability to retrieve, manage, and utilize recent scientific information and evidence-based knowledge for solving problems and making decisions that are relevant to the care of individuals and populations
- 2.5. Knowledge of the system involved in the organization, financing, and delivery of health care
- 2.6. Ability to advocate for health care needs of underprivileged populations

3. MEDICAL GRADUATE AS A PROFESSIONAL AND LEADER

The curriculum must ensure that the graduate understands the importance of professionalism and leadership qualities by demonstrating:

- 3.1. Knowledge of the principles that govern ethical decision making and a commitment to bring to the practice of medicine those attitudes and values that underpin ethical and beneficent medical care
- 3.2. Ability to practice professionalism without any discrimination
- 3.3. Empathy while caring for patients, and respect their privacy and dignity
- 3.4. Integrity and trustworthiness in professional dealings
- 3.5. Ability to perform collaboratively with members of health care team, capability to lead when appropriate and to defer to the leadership of others when indicated
- 3.6. Accountability to patients, community and the profession

ALIGNMENT OF CURRICULAR OUTCOMES AND OBJECTIVES WITH VISION AND MISSION

UHS VISION	LMDC VISION	LMDC MISSION	OUTCOMES	OBJECTIVES
“Qualitative and Quantitative Revolution in Medical Education and Research through Evolution and thereby Improve Health Care Delivery to Populace”.	To foster a culture of innovation, diversity, and learning for our students by putting students first and training them to be the best Healthcare professionals, researchers and visionaries.	To train future leaders of medicine who will set new standards in knowledge, care, and compassion.	CLINICAL PRACTICE: Medical graduate as a medical practitioner	The curriculum must ensure that the graduate understands the scientific basis of medicine and is able to apply it to the practice of medicine by demonstrating:
				1.1. Knowledge of normal, altered and abnormal structure of the body and its organ systems encountered frequently in different physiological and pathological conditions
				1.2. Knowledge of normal, altered and abnormal functions of the body and its organ systems encountered frequently in different physiological and pathological conditions.
				1.3. Knowledge of biochemical and genetic basis of diseases including cancers, homeostatic mechanisms and the disturbances commonly encountered in clinical practice
				1.4. Ability to apply basic principles of human nutrition in clinical practice and recognition of vulnerable groups for timely interventions, ability to recognize conditions resulting from deficiency or excess of various nutrients and suggest appropriate and prompt measures

				1.5. Knowledge of the clinical, biochemical, radiological, and pathological manifestations of common diseases, and ability to interpret and efficiently utilize this knowledge for diagnostic and prognostic purposes
				1.6. Ability to obtain an accurate, pertinent yet comprehensive history and perform general and systemic examination efficiently
				1.7. Ability to reason deductively and inductively in solving clinical problems and to construct appropriate management strategies for patients with common acute and chronic conditions
				1.8. Ability to efficiently perform common procedures (as specified separately for different subjects)
				1.9. Ability to recognize patients with immediately life threatening cardiac, pulmonary, or neurological conditions, and to institute appropriate initial therapy
				1.10. The ability to communicate effectively, both verbally and in writing, with patients, patients' families, colleagues and other members of health care team
				1.11. Capability to engage in lifelong learning in order to keep abreast with the recent advances

				The curriculum must ensure that the graduate understands the need to promote, maintain and improve the health of individuals and community by demonstrating:
				2.1. Knowledge of the risk factors for disease and injury and how to effectively employ disease and injury prevention practices
				2.2. Knowledge of the determinants of poor health and the economic, psychological, social, and cultural factors that contribute to the development and/or prolongation of diseases.
			HEALTH AND SOCIETY: Medical graduate as a healthcare advocate	2.3. Knowledge of the epidemiology of common diseases within a defined population, and the systematic approaches useful in reducing the incidence and prevalence of those diseases
				2.4. Ability to retrieve, manage, and utilize recent scientific information and evidence-based knowledge for solving problems and making decisions that are relevant to the care of individuals and populations
				2.5. Knowledge of the system involved in the organization, financing, and delivery of health care
				2.6. Ability to advocate for health care needs of underprivileged populations

				The curriculum must ensure that the graduate understands the importance of professionalism and leadership qualities by demonstrating:
				3.1. Knowledge of the principles that govern ethical decision making and a commitment to bring to the practice of medicine those attitudes and values that underpin ethical and beneficent medical care
				3.2. Ability to practice professionalism without any discrimination
				3.3. Empathy while caring for patients, and respect their privacy and dignity
				3.4. Integrity and trustworthiness in professional dealings
				3.5. Ability to perform collaboratively with members of health care team, capability to lead when appropriate and to defer to the leadership of others when indicated
				3.6. Accountability to patients, community and the profession

ALIGNMENT OF CURRICULAR OUTCOMES / OBJECTIVES
AND CURRICULAR CONTENT

OUTCOMES	OBJECTIVES	SUBJECT TAUGHT IN	Year of Study
CLINICAL PRACTICE: Medical graduate as a medical practitioner	The curriculum must ensure that the graduate understands the scientific basis of medicine and is able to apply it to the practice of medicine by demonstrating:		
	1.1. Knowledge of normal, altered and abnormal structure of the body and its organ systems encountered frequently in different physiological and pathological conditions	ANATOMY	1 ST YR 2 ND YR
	1.2. Knowledge of normal, altered and abnormal functions of the body and its organ systems encountered frequently in different physiological and pathological conditions.	PHYSIOLOGY	1 ST YR 2 ND YR
	1.3. Knowledge of biochemical and genetic basis of diseases including cancers, homeostatic mechanisms and the disturbances commonly encountered in clinical practice	BIOCHEMISTRY	1 ST YR 2 ND YR
	1.4. Ability to apply basic principles of human nutrition in clinical practice and recognition of vulnerable groups for timely interventions, ability to recognize conditions resulting from deficiency or excess of various nutrients and suggest appropriate and prompt measures	PHYSIOLOGY BIOCHEMISTRY PHARMACOLOGY COMMUNITY MEDICINE CLINICAL SUBJECTS	1 ST YR 2 nd YR 2 nd YR 3 RD YR 4 th YR 5 TH YR
	1.5. Knowledge of the clinical, biochemical, radiological, and pathological manifestations of common diseases, and ability to interpret and efficiently utilize this knowledge for diagnostic and prognostic purposes	PATHOLOGY CLINICAL SUBJECTS	3 rd YR 4 TH YR 5 TH YR
	1.6. Ability to obtain an accurate, pertinent yet comprehensive history and	CLINICAL ROTATIONS	3 RD YR

	perform general and systemic examination efficiently		
	1.7. Ability to reason deductively and inductively in solving clinical problems and to construct appropriate management strategies for patients with common acute and chronic conditions	PHARMACOLOGY CLINICAL SUBJECTS	3 RD YR 4 TH YR 5 TH YR
	1.8. Ability to efficiently perform common procedures (as specified separately for different subjects)	SKILLS LAB CLINICAL ROTATIONS	3 RD YR 4 TH YR 5 TH YR
	1.9. Ability to recognize patients with immediately life threatening cardiac, pulmonary, or neurological conditions, and to institute appropriate initial therapy	CLINICAL ROTATIONS	5 TH YR
	1.10. The ability to communicate effectively, both verbally and in writing, with patients, patients' families, colleagues and other members of health care team	CLINICAL ROTATIONS	3 RD YR 4 TH YR 5 TH YR
	1.11. Capability to engage in lifelong learning in order to keep abreast with the recent advances	MEDICINE & ALLIED DEPTS SURGERY & ALLIED DEPTS	5 TH YR

OUTCOMES	OBJECTIVES	SUBJECT TAUGHT IN	Year of Study
HEALTH AND SOCIETY: Medical graduate as a healthcare advocate	The curriculum must ensure that the graduate understands the need to promote, maintain and improve the health of individuals and community by demonstrating:		
	2.1. Knowledge of the risk factors for disease and injury and how to effectively employ disease and injury prevention practices	PATHOLOGY COMMUNITY MEDICINE	3 RD YR 4 TH YR
	2.2. Knowledge of the determinants of poor health and the economic, psychological, social, and cultural factors that contribute to the development and/or prolongation of diseases.	COMMUNITY MEDICINE	4 TH YR
	2.3. Knowledge of the epidemiology of common diseases within a defined population, and the systematic approaches useful in reducing the incidence and prevalence of those diseases	COMMUNITY MEDICINE	4 TH YR
	2.4. Ability to retrieve, manage, and utilize recent scientific information and evidence-based knowledge for solving problems and making decisions that are relevant to the care of individuals and populations	COMMUNITY MEDICINE RESEARCH	4 th yr ALL YRS
	2.5. Knowledge of the system involved in the organization, financing, and delivery of health care	COMMUNITY MEDICINE	4 TH YR
	2.6. Ability to advocate for health care needs of underprivileged populations	COMMUNITY MEDICINE	4 TH YR

OUTCOMES	OBJECTIVES	SUBJECT TAUGHT IN	Year of Study
PROFESSIONALISM AND LEADERSHIP: Medical graduate as a professional and leader	3.1. The curriculum must ensure that the graduate understands the importance of professionalism and leadership qualities by demonstrating:		
	3.2. Knowledge of the principles that govern ethical decision making and a commitment to bring to the practice of medicine those attitudes and values that underpin ethical and beneficent medical care	1- FORENSIC MEDICINE 2- CLINICAL SUBJECTS CLINICAL ROTATIONS	3 rd yr Clinical rotations
	3.3. Ability to practice professionalism without any discrimination	CLINICAL ROTATIONS	Clinical rotations
	3.4. Empathy while caring for patients, and respect their privacy and dignity	CLINICAL ROTATIONS	Clinical rotations
	3.5. Integrity and trustworthiness in professional dealings	FORENSIC MEDICINE CLINICAL SUBJECTS CLINICAL ROTATIONS	3 rd yr Clinical rotations
	3.6. Ability to perform collaboratively with members of health care team, capability to lead when appropriate and to defer to the leadership of others when indicated	CLINICAL SUBJECTS CLINICAL ROTATIONS	Clinical rotations
	3.7. Accountability to patients, community and the profession	CLINICAL SUBJECTS CLINICAL ROTATIONS	Clinical rotations

TABLE OF SPECIFICATIONS SHOWING CURRICULAR ALIGNMENT

OBJECTIVE	Medical Graduate as Medical Practitioner The medical college must ensure that the graduate understands the scientific basis of medicine and be able to apply to the practice of medicine by demonstrating:	MODES OF INFORMATION TRANSFER	ASSESSMENT
KNOWLEDGE	1. Knowledge of the normal and abnormal structure and functions of the bodily organ systems	1. Interactive Lectures 2. Small Group Discussions 3. Tutorials 4. Student Presentations 5. Peer Assisted Learning 6. CPC 7. Field Trips	1. MCQs 2. SEQs
	2. Knowledge of the molecular, cellular and biochemical mechanisms considered essential in maintaining the body's homeostasis		
	3. Knowledge of the altered structure and function (pathology and pathophysiology) of the body and its organ systems, that are seen in varied diseases and conditions		
	4. An understanding of the scientific power in establishing the causes of the diseases and efficacy of therapies		
	5. An understanding to engage in lifelong learning to stay ahead of recent and relevant advances		
	6. Intellect to obtain an accurate medical history that covers all essential aspects of the history		
	7. Interpretation of the most frequent clinical, laboratory, radiologic, and pathologic manifestations of common diseases		
	8. Understanding about relieving pain and ameliorating the suffering of patients		
SKILL	1. The ability to perform both a complete and an organ system specific examination	1. Practical 2. Clinical Wards 3. Bedside Teaching	1. OSPE 2. OSCE 3. Long Case 4. Viva Voce
	2. The ability to perform routine technical procedures		
	3. The ability to interpret the results of commonly used diagnostic procedures		
	4. The ability to reason deductively in solving clinical problems		
	5. The ability to construct appropriate management strategies (both diagnostic and therapeutic) for patients with common acute and chronic conditions		
	6. The ability to recognize patients with immediately life threatening cardiac, pulmonary, or neurological conditions regardless of etiology, and to institute appropriate initial therapy		

	7. The ability to communicate effectively, both verbally and in writing, with patients, patients' families, colleagues and allied health professionals		
ATTITUDE	1. To show empathetic attitude towards the patients	1. Clinical Wards 2. Bedside Teaching	1. OSPE 2. OSCE 3. Long Case 4. Viva Voce

OBJECTIVE	Medical Graduate as a Healthcare Advocate The medical college must ensure that the graduate understands the need to promote, maintain and improve the health of individuals and community by demonstrating:	MODES OF INFORMATION TRANSFER	ASSESSMENT
KNOWLEDGE	1. Knowledge about the risk factors for disease and injury and how to utilize disease and injury prevention practices for the patients	1. Interactive Lectures 2. Small Group Discussions 3. Tutorials 4. Student Presentations 5. Peer Assisted Learning 6. CPC 7. Field Trips	1. MCQs 2. SEQs
	2. Knowledge of the determinants of poor health and of the economic, psychological, social, and cultural factors that contribute to the development and/or continuation of diseases		
	3. Knowledge of the epidemiology of common diseases within a defined population, and the systematic approaches useful in reducing the incidence and prevalence of those diseases		
	4. The comprehension to retrieve, manage, and utilize biomedical information for solving problems and making decisions that are relevant to the care of individuals and populations		
	5. Knowledge of various approaches to the organization, financing, and delivery of health-care		
SKILL	1. A commitment to advocate for access to health care for underprivileged populations	1. Practical 2. Clinical Wards 3. Bedside Teaching	1. OSPE 2. OSCE 3. Long Case 4. Viva Voce
	2. The ability to perform examinations according to community needs		
ATTITUDE	1. To practice professionalism without gender or caste discrimination	1. Clinical Wards 2. Bedside Teaching	1. OSPE 2. OSCE 3. Long Case 4. Viva Voce

OBJECTIVE	Medial Graduate as a Professional and Leader The medical college must ensure that the graduate understands professionalism and leadership qualities by demonstrating:	MODES OF INFORMATION TRANSFER	ASSESSMENT
KNOWLEDGE	1. Knowledge of the principles that govern ethical decision making	1. Interactive Lectures 2. Small Group Discussions 3. Tutorials 4. Student Presentations 5. Peer Assisted Learning 6. CPC 7. Field Trips	1. MCQs 2. SEQs
	2. Knowledge of social accountability to patients, community and the profession		
SKILL	1. Trust and integrity in professional dealings	1. Practical 2. Clinical Wards 3. Bedside Teaching	1. OSPE 2. OSCE 3. Long Case 4. Viva Voce
	2. The practice to perform collaboratively/ teamwork with other physicians and health care professionals		
	3. Capability to lead when appropriate and to defer to the leadership of others when indicated		
ATTITUDE	1. Empathy while caring for patients, and respect their privacy and dignity	1. Clinical Wards 2. Bedside Teaching	3. OSPE 4. OSCE 5. Long Case 6. Viva Voce
	2. A commitment to bring to the practice of medicine those attitudes and values that underpin ethical and beneficent medical care		

TEACHING HOURS FOR
UNDERGRADUATE MEDICAL CURRICULUM (MBBS)

Pre-clinical Sciences with clinical correlation = 2400

Clinical Sciences (Medicine and allied) = 1500

Clinical Sciences (Surgery and allied) = 1600

Self-Directed Learning = 500 hours

Grand Total: 2400+1500+1600+500 = 6000 Hours

*Optional elective rotation in 4th year /5TH YR MBBS = 4 weeks = 6 hours per day for 5 days per week = 120 hours.

Elective rotation (optional)	4 th year = 2wks = 60 hours	Total hours 120
	Final year 2wks = 60 hours	

Teaching hours follow the suggested breakup as specified by PMDC (see below)

YEAR WISE BREAKUP OF TOTAL TEACHING HOURS

Ref: PMDC Inspectors proforma

Note: Clinical Anatomical, Physiological, biochemical, Pharmacological and Pathological Conferences will be considered in Self Directed Learning.

Subject	Total hours	Subject	Total hours
Anatomy	500	Anesthesia and Critical care	50
Physiology	450	Orthopedic & Trauma	100
Biochemistry	250	Urology	50
Islamic Studies	15	Cardiac Surgery	50
Pakistan Studies	15	Plastic Surgery	
Behavioral Sciences & Professionalism including Ethics	150	Neurosurgery	
Pharmacology	300	Radiology	
Pathology	500	General Medicine	500
Forensic Medicine and Toxicology	100	Endocrinology	Extra marks
Community Medicine	170	Rheumatology	
Research and Evidence Based Medicine (EBM)	100	Geriatrics	
Infection Control	25	Oncology	
Patient Safety	25	Psychiatry	50
Radiology	25	Dermatology	50
Ophthalmology (Eye)	150	Emergency Medicine	50
Otorhinolaryngology (ENT)	150	Cardiology	50
Obstetrics and Gynaecology	300	Pulmonology	50
Paediatrics	300	Nephrology	50
General Surgery	600	Gastroenterology	50
		Self-Directed Learning	500
		Total	6000

BLUEPRINT OF CURRICULUM @ LAHORE MEDICAL AND DENTAL COLLEGE, LAHORE
(showing # of teaching hours and Vertical & Horizontal Integration)

	1	2	3	4	5	6*	7	8	9	10	11	
5th yr	Pediatrics	General Medicine	Ortho & Trauma	General Surgery	Allied Surgery Anaesthesia Patient safety Infection control		Gyne & Obs	Allied Medicine Gastro Nephrology Cardiology Dermatology Psychiatry		Clinical rotations	Sendup Exams	University Exam
	Clinicopathological Conference (SDL)											
4th yr	Special Pathology	General Medicine	Community Medicine	General Surgery				Research				
		Com. Med		General Surgery	ENT	Eye						
3rd yr	General Pathology		Pharmacology					Forensic Medicine	Behavior Science			
	Clinicopharmacological Conference (SDL)											
2nd yr	Anatomy			Physiology			Biochemistry		Islam/Pak	Study skills		
	Clinicoanatomical Conference, Clinicophysiological Conference, Clinicobiochemical Conference (SDL)											
1st yr	Anatomy			Physiology			Biochemistry					

MODES OF INFORMATION TRANSFER

(TEACHING METHODS)

Modes of information transfer are divided according to Basic, Preclinical, and Clinical and years

Following Multiple modalities are used.

Year	Lecture	Practical	Tutorial (SGD)	Demonstration (SGL)	Dissection	Clinical Conference	PAL	Case Based Learning	Bedside Teaching	Self Directed Learning
5th yr	√					√		√	√	√
4th yr	√	√				√	√		√	√
3rd yr	√	√	√	√		√			√	√
2nd yr	√	√	√	√	√	√				√
1st yr	√	√	√	√	√	√				√

ACADEMIC PLANNERS OF TEACHING CURRICULUM

It contains detailed information of all teaching activities for all classes (for the year), including lectures, assessments, Vacations, extracurricular activities days and Final University exam days.

This is available on the LMDC web portal.

ASSESSMENT STRUCTURE

As proposed by UHS guidelines (see below)

FORMATIVE ASSESMENT

Consists of in-house exams taken throughout the year by each subject respectively. Multiple assessment modalities are used according to the teaching methods which are applied for course content delivery.

Year	Monthly Tests (MCQs & SEQs)	OSPE	OSCE	Written Assignments	Table Viva	Clinical ward Test (OSCE & VIVA)	Midterm	Sendup
5 th yr	√		√			√	√	√
4 th yr	√	√	√	√	√	√	√	√
3 rd yr	√	√		√	√	√	√	√
2 nd yr	√	√		√	√		√	√
1 st yr	√	√		√	√		√	√

FORMATIVE FEEDBACK:

All written tests are followed by test discussion for clearing of concepts and feedback.

SUMMATIVE ASSESMENTS

Summative assessments are carried out by the university. These are end of session Professional examinations. The details are available on UHS website online:

[examinationregulations.pdf \(SECURED\) \(uhs.edu.pk\)](#)

MARKS DISTRIBUTION FOR SUMMATIVE EXAMINATIONS

1st AND 2ND yr MBBS

Subject	Theory		Practical		Total
Anatomy (Including Histology)	Part I MCQs	45 Marks	Oral and Practical	90 Marks	200
	Part II SEQs	45 Marks	Internal Assessment	<u>10 Marks</u>	
	Internal Assessment	<u>10 Marks</u>			
		100		100	
Physiology	Part I MCQs	45 Marks	Oral and Practical	90 Marks	200
	Part II SEQs	45 Marks	Internal Assessment	<u>10 Marks</u>	
	Internal Assessment	<u>10 Marks</u>			
		100		100	
Biochemistry	Part I MCQs	45 Marks	Oral and Practical	90 Marks	200
	Part II SEQs	45 Marks	Internal Assessment	<u>10 Marks</u>	
	Internal Assessment	<u>10 Marks</u>			
		100		100	
Total					600 Marks

3RD YR MBBS

Table 1

Subject	Theory		Practical		Total
General Pathology & Microbiology	Part I MCQs	65 Marks	Oral and Practical	135 Marks	300
	Part II SEQs	70 Marks	Internal Assessment	<u>15 Marks</u>	
	Internal Assessment	<u>15 Marks</u>			
		150		150	
Pharmacology & Therapeutics	Part I MCQs	65 Marks	Oral and Practical	135 Marks	300
	Part II SEQs	70 Marks	Internal Assessment	<u>15 Marks</u>	
	Internal Assessment	<u>15 Marks</u>			
		150		150	
Forensic Medicine & Toxicology	Part I MCQs	45 Marks	Oral and Practical	90 Marks	200
	Part II SEQs	45 Marks	Internal Assessment	<u>10 Marks</u>	
	Internal Assessment	<u>10 Marks</u>			
		100		100	
Behavioural Sciences	Part I MCQs	45 Marks	Oral and Practical examination	90 Marks	200
	Part II SEQs	45 Marks	Internal Assessment	<u>10 Marks</u>	
	Internal Assessment	<u>10 Marks</u>			
		100		100	
Total					1000 Marks

4TH YR MBBS

Table 1

Subject	Theory	Practical	Total
Special Pathology	Part I MCQs 65 Marks Part II SEQs 70 Marks Internal Assessment <u>15 Marks</u> 150	Oral and Practical 135 Marks Internal Assessment <u>15 Marks</u> 150	300
Community Medicine	Part I MCQs 65 Marks Part II SEQs 70 Marks Internal Assessment <u>15 Marks</u> 150	Oral and Practical 135 Marks Internal Assessment <u>15 Marks</u> 150	300
Ophthalmology	Part I MCQs 45 Marks Part II SEQs 45 Marks Internal Assessment <u>10 Marks</u> 100	Oral and Practical 90 Marks Internal Assessment <u>10 Marks</u> 100	200
E.N.T	Part I MCQs 45 Marks Part II SEQs 45 Marks Internal Assessment <u>10 Marks</u> 100	Oral and Practical 90 Marks Internal Assessment <u>10 Marks</u> 100	200
Total			1000 Marks

5TH YR MBBS

Table 1

Subject	Theory	Practical	Total
Medicine & Allied	Paper I Part I MCQs 45 Marks Part II SEQs 45 Marks Paper II Part I MCQs 40 Marks Part II SEQs 45 Marks Internal Assessment <u>25 Marks</u> 200	Oral & Practical 65 Marks Clinical Examination 210 Marks Internal Assessment <u>25 Marks</u> 300	500
Surgery & Allied	Paper I Part I MCQs 50 Marks Part II SEQs 50 Marks Paper II Part I MCQs 60 Marks Part II SEQs 65 Marks Internal Assessment <u>25 Marks</u> 250	Oral & Practical 55 Marks Clinical Examination 170 Marks Internal Assessment <u>25 Marks</u> 250	500
Obstetrics & Gynaecology	Obstetrics Part I MCQs 35 Marks Part II SEQs 35 Marks Gynaecology Part I MCQs 35 Marks Part II SEQs 30 Marks Internal Assessment <u>15 Marks</u> 150	Oral & Practical 75 Marks Clinical Examination 60 Marks Internal Assessment <u>15 Marks</u> 150	300
Paediatric Medicine	Part I MCQs 40 Marks Part II SEQs 50 Marks Internal Assessment <u>10 Marks</u> 100	Oral & Practical 40 Marks Clinical Examination 50 Marks Internal Assessment <u>10 Marks</u> 100	200
Total			1500 Marks

EXAMINATION RULES AND REGULATIONS

Available on UHS website

1. USE OF UNFAIR MEANS
[reguunfair.pdf \(uhs.edu.pk\)](#)
2. RULES FOR CONDUCT, DISCIPLINE AND APPEAL
3. QUALITY ASSURANCE
[QUALITY ASSURANCE AT UHS.pdf \(SECURED\)](#)

EXAMINATION RESULTS

Available on UHS website

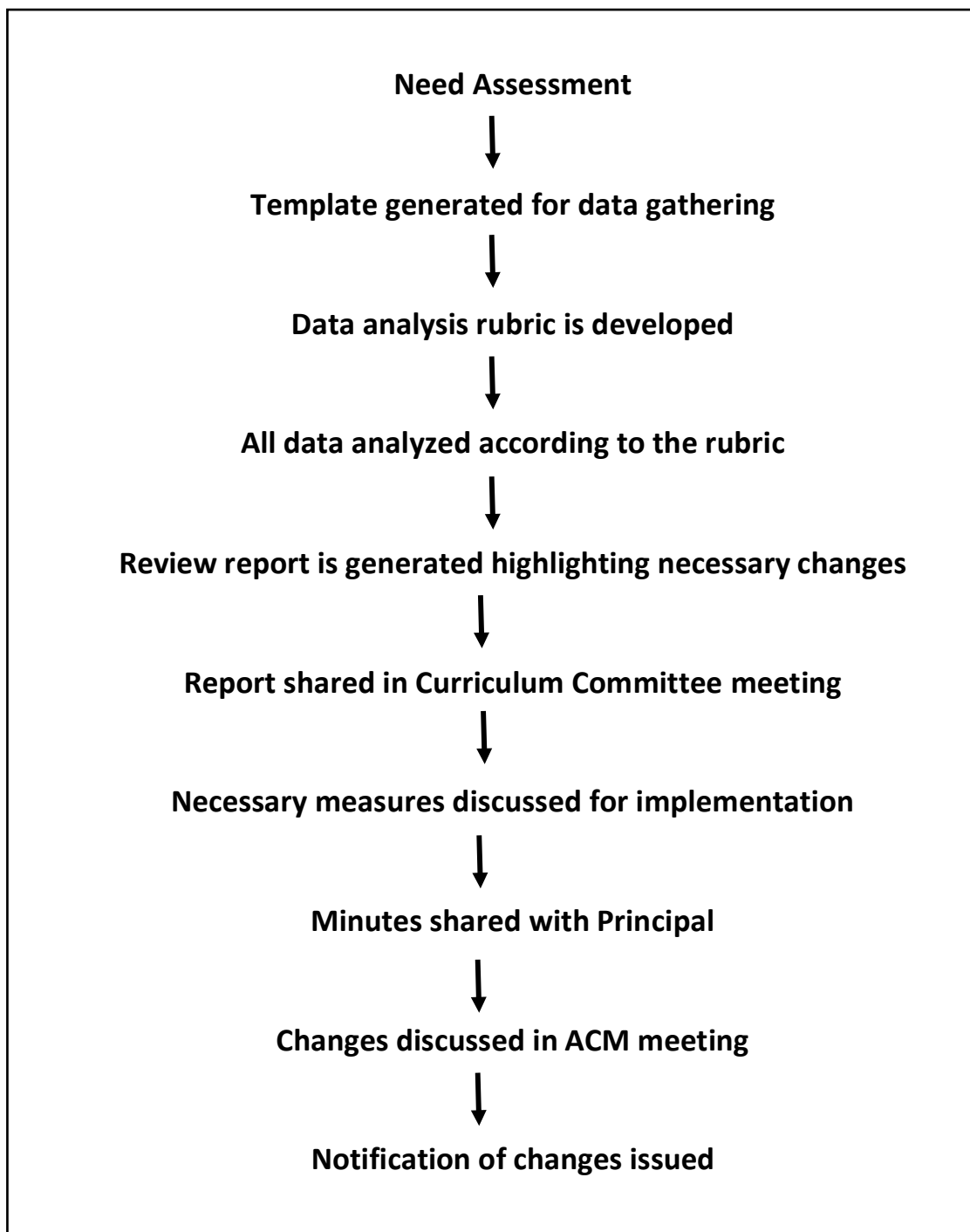
Results @ [UHS Lahore](#)

CURRICULUM REVIEW

Curriculum review is done periodically as and when need arises.

Department of Medical Education conducts the review

A systematic approach is followed as follows.



THE CONTENT/ SYLLABUS OF THE CURRICULUM

The content / course guidelines are provided by UHS/PMDC, available on its website

The departmental educational activities regarding content, context, teaching & learning methods, assessments, record keeping are part of LMDC Academic Online Portal.

DEPARTMENT OF ANATOMY

LEARNING OBJECTIVES

- The student will be able to identify the key concepts of the structure of human anatomy.
- The student will be able to build communication skills while involved in peer teaching of clinical anatomy.
- The student will be able to correlate clinical anatomy with physical diagnosis, radiologic findings and invasive procedures.
- The student will be able to demonstrate an understanding of clinical presentations and strategies for health maintenance.

SYLLABUS FOR 1ST AND 2ND PROFESSIONAL MBBS (PMDC AND UHS) 1ST PROFESSIONAL MBBS

GENERAL ANATOMY

1. Brief history of Anatomy. Different disciplines of the subject
2. Anatomical nomenclature-descriptive terms
 1. Skeletal system-bones
 - 1.1. Axial skeleton
 - 1.2. Appendicular skeleton
 - 1.3. Functions of bone
 - 1.4. Classification on the basis of shape, development, region and structure
 - 1.5. General concepts of development & ossification of bones
 - 1.6. Parts of young bone
 - 1.7. Blood supply
 - 1.8. Properties of bones and cartilages
 - 1.9. Applied aspects
 2. Joints
 - 2.1. Structural classification
 - 2.2. Regional classification
 - 2.3. Functional classification
 - 2.4. Characteristics and classification of Synovial joints
 - 2.5. Movements of Synovial joints
 - 2.6. Anatomy of joints with reference to dislocation, sprain and inflammation
3. Muscle • Parts of a muscle
 - 3.1. Classification
 - 3.2. Blood supply and nerve supply of muscle

- 3.3. Neuromuscular junction
 - 3.4. Applied anatomy of muscle with reference to spasm, paralysis, atrophy and regeneration
- 4. Cardiovascular system
 - 4.1. Heart & Blood vessels
 - 4.2. Types of circulation
 - 4.3. Anastomoses
- 5. Lymphatic system
 - 5.1. Introduction
 - 5.2. Lymph capillaries
 - 5.3. Lymph Vessels
 - 5.4. Lymph nodes
 - 5.5. Main channels
- 6. Somatic Nervous system
 - 6.1. Introduction
 - 6.2. Different parts of Central Nervous System (CNS) with their brief functions
 - 6.3. Peripheral nervous system (cranial and spinal nerves) — introduction
- 7. Autonomic nervous system
 - 7.1. Introduction to parasympathetic and sympathetic nervous system
- 8. Skin and fasciae
 - 8.1. Parts of skin
 - 8.2. Appendages of skin
 - 8.3. Types of fasciae
- 9. Embalming & museum keeping

GROSS ANATOMY

- 1. Upper limb
- 2. Lower limb
- 3. Thorax

GENERAL HISTOLOGY

Histology will be taught concurrently with Anatomy throughout the course. Underlying principles of histological techniques and staining should be given due consideration. Most of the teaching will be done on stained and mounted sections and every type of normal tissue will be covered.

- 1. Cell
 - 1.1. Cell as a whole
 - 1.2. Cell Membrane
 - 1.3. Interior of cell
 - 1.4. Nucleus
- 2. Microscopy
- 3. Epithelial tissues
- 4. Connective tissue proper
- 5. Cartilage
- 6. Bone
- 7. Muscular tissue

8. Nervous System
 - 8.1. Nervous tissue
 - 8.2. Cerebral cortex
 - 8.3. Cerebellar cortex
 - 8.4. Spinal cord
9. Lymphoid organs
10. Circulatory system
11. Integumentary system
12. Routine histological techniques

GENERAL EMBRYOLOGY

Embryology should be taught with the object of making students understand and grasp those fundamental principles, which result in better comprehension of the structural organization in the body. Stress should be laid on those developmental processes such as growth and differentiation, which have a direct bearing on clinical subjects. The genesis of congenital malformations should be one of the chief aims. All details should be kept on the essential outlines.

1. Male & female reproductive systems
2. Cell Division and Gametogenesis
3. Fertilization, cleavage, blastocyst formation and implantation
4. Development during second week
5. Development during third week
6. Embryonic period
7. Foetal period
8. Foetal membranes and Placenta
9. Introduction to genetics.
10. Teratogenesis

2nd yr MBBS

NEURO AND GROSS ANATOMY

The study of gross anatomy must lay emphasis on applied anatomy as related to clinical medicine and surgery. For teaching, actual dissection of cadavers, dissected specimens, models, and computer aided programs shall be used. Normal images of different diagnosis techniques i.e. X-rays and CT scans, MRI and Ultra-sonography shall also be introduced.

The time for dissection of the cadaver for each region is as under:

1. Neuroanatomy including Brain and Spinal cord 09 weeks
2. Head and Neck 13 weeks
3. Abdomen and Pelvis 13 weeks

NEUROANATOMY COURSE OBJECTIVES

After the end of the course, the students can:

1. Define, enumerate and describe the structure and functions of receptors.
2. Define and describe motor end plates and their functions.
3. Understand and describe the meninges of brain and spinal cord.

4. Describe subdural and subarachnoid spaces including subarachnoid cisterns.
5. Understand and describe internal structure of spinal cord at different levels:
6. Understand and describe ascending and descending tracts of spinal cord, their functions and effects of their lesions.
7. Understand and describe the internal structure of medulla oblongata.
8. Comprehend and describe the internal structure of pons.
9. Understand and describe the internal structure of mid brain.
10. Comprehend and describe the surfaces of cerebral hemisphere, its lobes, their sulci and gyri.
11. Locate, identify and describe functions of different functional areas of the brain.
12. Locate, identify and describe different types of projection and association fibres of brain and their functions.
13. Identify, locate and describe hypothalamus, its nuclei and its connection and functions.
14. Identify, locate and describe thalamus, its nuclei and its connection and functions.
15. Identify, locate and describe meta thalamus and its connections and functions.
16. Understand and describe the ventricular system of the brain.
17. Comprehend and describe production and circulation of CSF and clinical conditions associated with it.
18. Comprehend, describe and discuss blood supply of the brain and spinal cord and the effect of hemorrhagic and thrombotic lesions.
19. Describe intra cranial course of cranial nerves and their applied aspects
20. Identify, locate and describe cranial nerves nuclei and their connection and functions.
21. Understand and describe different lobes of cerebellum, its white and grey substances including the deep cerebellar nuclei.
22. Understand afferent and efferent connections of cerebellum and correlated these to its functions.
23. Understand and describe the signs and symptoms of cerebellum disease with logical explanation.
24. Understand and describe clinical conditions related to nervous system.
25. Comprehend and understand neuroanatomical basis of the following:
 1. Hemiplegia / hemiparesis.
 2. Upper motor and lower motor neuron lesions.
 3. Parkinsonism
 4. Syringomyelia.
 5. Hemi-section / complete section of spinal cord.
 6. Cerebellar ataxia
 7. Other clinical conditions

HEAD AND NECK COURSE OBJECTIVES

On completion of the course of Head and Neck, the students are able to:

1. Describe mandible and different normae of the articulated skull.
2. Identify individual bones of the skull, their parts with important features.
3. Give post-natal growth changes in skull and face.
4. Comprehend cranial fossae, identify the foramina of the skull base and the structures passing through them.

5. Understand the vertebral column as a whole including sacrum and coccyx; describe regional features of the vertebrae, intervertebral joints, the movements thereof, and comprehend clinical problems of the region.
6. Identify, comprehend and describe cervical vertebrae, and the joints of the region i.e. temporo-mandibular, intervertebral, and cranio-vertebral. (cricothyroid and cricoarytenoid joints).
7. Identify and describe important muscles of the region i.e. muscles of: Facial expression, Mastication, prevertebral, postvertebral, infra and suprahyoid, suboccipital, tongue and palate; (pharynx, and larynx) comprehend their actions nerve supply, effect of injury to them and clinical tests applied for diagnosis.
8. Name and identify muscles of the floor of the mouth, sternocleidomastoid, trapezius, levator scapulae, and describe their origin, insertion, nerve supply, actions, important relations and effects of injury to their nerves and clinical tests to diagnose the nature of injury.
9. Identify and describe important arteries of the region, their branches and distribution i.e. subclavian, common, internal and external carotid arteries.
10. Comprehend clinical importance related to the arteries of head and neck and their branches
11. Identify subclavian, internal, external, and anterior Jugular veins, give their course, relationship, tributaries and clinical importance.
12. Identify and describe cranial venous sinuses and give their clinical significance.
13. Locate, identify and enlist the regional lymph nodes and describe the scheme of lymphatic drainage of the region.
14. Understand and describe the course and distribution of the cervical spinal and cranial nerves; comprehend formation of Cervical and Brachial plexuses, describe their branches and distribution.
15. Understand and describe clinical conditions related to the nerve plexuses and their clinical manifestations.
16. Comprehend, understand and clearly describe the effects of injuries to different nerves and their clinical tests.
17. Identify sympathetic trunk and describe the scheme of sympathetic and parasympathetic innervations of the region, including the four parasympathetic ganglia, their roots, branches and distribution along with the clinical and applied anatomy..
18. .Identify and describe the boundaries, contents and subdivisions of the anterior and posterior triangles of the neck.
19. Understand and describe the superficial and deep fasciae of the region and correlate different fascial planes to their clinical importance.
20. Identify and describe the viscera of the region i.e. salivary, thyroid, parathyroid glands, trachea and esophagus, and describe their anatomy and its applied aspects correctly
21. Identify the anatomical features of the oral cavity, tongue, cheek, lips, gums and teeth, and describe these in detail with particular emphasis on their clinical applications.
22. Understand and describe the anatomy of the scalp, orbital and cranial cavities, their contents including meninges with highlights on important clinical aspects.
23. Understand and describe the anatomy of the nasal cavity, Para nasal sinuses, eye ball and external, middle and internal ear along with the clinical aspects.
24. Understand and describe the anatomy of pharynx, its muscles, their nerve supply and actions; clinical and applied aspects of pharynx.

25. Comprehend and describe the anatomy of larynx, its joints, muscles, their nerve supply and actions; clinical conditions related to the organ.
26. Correlate the anatomical information of the region to their clinical applications.
27. Interpret normal radiographs, CT Scans, MRI, and Ultrasound images.

Additional Clinical Correlates

Cranial nerves distributions and lesions, dislocation of temporomandibular and intervertebral joints, scalp wounds, danger area of face, Little's area, Horner's syndrome, cavernous sinus thrombosis, intracranial hemorrhages, tracheostomy, mumps, sinusitis and retropharyngeal abscess, lymph nodes and lymphatic drainage of head and neck and, different conditions associated with lymphatics. Important muscles of head and neck their functions and effect of their nerve lesions.

COURSE OBJECTIVES OF ABDOMEN AND PELVIS

On completion of the Gross Anatomy of Abdomen and Pelvis, the students are able to:

1. Develop a sound understanding of the topographic anatomy of the regions.
2. Mark the regions of the abdomen on the surface of the body.
3. Mark the important abdominal and pelvic viscera on the surface of the body
4. Understand the importance of percussion notes in eliciting the extent of resonant and nonresonant viscera and their clinical importance.
5. Give a description of the Anatomy of the anterolateral and posterior abdominal walls.
6. Understand and give clear description of inguinal canal, different varieties of external hernias and their complications.
7. Understand the peritoneum, peritoneal cavity and possible sites of internal hernias along with their clinical features.
8. Comprehend, understand and describe the abdomino-pelvic fasciae and their clinical importance.
9. Give a precise account of the Anatomy of abdominal and pelvic viscera, muscles, nerves and blood vessels of the regions and correlate anatomical information to common clinical conditions.
10. Understand the clinical effects and apply clinical tests to verify injuries to different nerves of the region.
11. Develop clear concepts of anatomy of normal male and female pelvises, and differences between them.
12. Understand the dimensions of the normal and contracted adult female pelvis and their clinical importance in the mechanism of delivery.
13. Understand the anatomy of the perineal region in both male and female and comprehend the anatomical basis of clinical conditions of the area.
14. Understand anatomical basis of possible birth injuries to the mother in difficult labor and the clinical conditions produced thereafter.
15. Understand the scheme of the regional lymphatic drainage and lymph nodes. 16. Comprehend normal radiological anatomy of the region, CT Scans, MRI, Ultrasound and, other diagnostic techniques.

Additional Clinical Correlates

Portosystemic anastomosis, spread of carcinoma stomach, duodenal and peptic ulcer, appendicitis, hemorrhoids, anal fistula, anterior abdominal wall hernias, abdominal incisions, varicocele, hydrocoele, benign prostatic hyperplasia and carcinoma of prostate and uterus prolapse

SYSTEMIC HISTOLOGY

At the end of the course, the students are able to:

Digestive System:

1. Name and describe the epithelium lining the oral cavity, tongue, gums, hard and soft palate, pharynx and lips and, explain the histology of tongue.
2. Understand and describe the histological structure of oesophagus, stomach, small intestine, large intestine, appendix and anal canal; explain the change in structure of their epithelium in relations to the function.
3. Comprehend and describe the histological structure and functions of salivary glands.
4. Understand and describe the histological structure and functions of Liver, Pancreas and Gall Bladder.

Urinary System:

Comprehend and describe the histological structure of kidney, ureter and urinary bladder, and their functions.

Male Reproductive System:

Comprehend and describe histological structure of testis, epididymis, vas deferens, seminal vesicle and prostate, and relate it to their functions.

Female Reproductive System:

Understand and describe histological structure of ovaries, fallopian tube, uterus and vagina, and explained their functions related to their structure.

Endocrine System:

Understand and describe the histological structure and functions of the following glands:

1. Pituitary
2. Thyroid
3. Parathyroid
4. Adrenal
5. Islets of Langerhans.

Eye and Ear:

1. Understand and describe the histological structure of eyeball with emphasis on cornea and retina, and give their functions related to their structure.
2. Comprehend and describe the Membranous Labyrinth and give the histological structure of different parts; correlate their functions to the structure.

Nervous System:

Understand and describe the histological structure of spinal cord, cerebellum and cerebrum and correlate it to the functions.

Identify, draw and label light microscopic structures of above mentioned tissues.

EMBRYOLOGY

At the end of the course, the students are able to:

Head and Neck:

1. Understand and describe the development and derivatives of pharyngeal apparatus (arch, cleft, pouch and membrane).
2. Comprehend and describe the development of tongue.
3. Describe the development of thyroid gland.
4. Understand and describe the development of pituitary gland.
5. Comprehend and describe the development of face and palate.
6. Understand different congenital malformations of the region.

Digestive System, Body Cavities and Diaphragm:

1. Understand and discuss the development of the body cavities, mesenteries and diaphragm.
2. Comprehend and describe the development of gastrointestinal tract (fore-gut, mid-gut and hind-gut).
3. Understand and describe the development of liver, pancreas and gall bladder.
4. Understand and describe the development of spleen.
5. Understand different congenital malformations of the region.

Respiratory System:

Comprehend and describe the development of upper and lower respiratory passages, and give their congenital anomalies.

Cardiovascular System:

1. Describe the development of heart, aortic arches, aorta, superior and inferior vena cavae and portal vein.
2. Describe the foetal circulation and changes at birth.
3. Understand and describe the congenital anomalies of cardiovascular system.

Urinary System:

Comprehend and describe the development of kidneys, ureters, urinary bladder and urethra, and their congenital malformations.

Reproductive System:

1. Understand and describe the development of testes, epididymis, vas deferens, seminal vesicles and prostate.
2. Comprehend and describe the development of the ovaries, uterus and vagina.
3. Describe the development of external genital organs.
4. Comprehend and describe congenital abnormalities of the regions.

Nervous System:

1. Name different brain vesicles, comprehend and describe their derivatives.
2. Understand and describe the development of spinal cord.
3. Comprehend and describe the derivatives of neural crest.
4. Understand and describe congenital abnormalities of the nervous system.

Ear:

1. Understand and describe the development of external, middle and internal ear.
2. Describe congenital abnormalities of the region.

Eye:

Comprehend and describe the development of lacrimal apparatus, eyeball and their congenital abnormalities.

SPECIAL EMBRYOLOGY

1. Head and Neck
 - 1.1. Pharyngeal apparatus (including pharyngeal arches, pharyngeal pouches & pharyngeal clefts)
 - 1.2. Tongue
 - 1.3. Thyroid
 - 1.4. Parathyroid
 - 1.5. •Thymus
 - 1.6. Pituitary
 - 1.7. Upper respiratory system
 - 1.8. Face and palate
2. Body cavities
 - 2.1. Development of body cavities
 - 2.2. Formation of diaphragm
3. The respiratory system
4. The cardiovascular system
 - 4.1. Heart
 - 4.2. Great vessels
 - 4.3. Fetal circulation and changes at birth
5. The urinary system
 - 5.1. Development of Kidney
 - 5.2. Urinary bladder
 - 5.3. Urethra
 - 5.4. Development of adrenal glands
6. The male reproductive system
 - 6.1. •Testis
 - 6.2. Genital ducts
 - 6.3. External genitalia
7. The female reproductive system
 - 7.1. •Ovaries
 - 7.2. Oviducts
 - 7.3. •Uterus
 - 7.4. Vagina
 - 7.5. External genitalia
8. The Musculo-skeletal system
 - 8.1. Development of skeleton
 - 8.2. Development of muscles
9. Development of Limbs
10. Development of Integumentary System (consisting of development of skin and its appendages and development of mammary glands)
11. Special Senses (eye and ear)
12. Nervous system
13. Digestive system
 - 13.1. Division of Gut tube
 - 13.2. Mesenteries
 - 13.3. Liver, Gall bladder, Pancreas, Spleen

GROSS ANATOMY

1. Head & neck
2. Brain and spinal cord
3. Abdomen and pelvis

SPECIAL HISTOLOGY

- Digestive System
- Respiratory System
- Urinary System
- Male Reproductive System
- Female Reproductive System
- Endocrine Glands
- Organs of Special Senses

NEURO-ANATOMY

- Spinal Cord
- Medulla Oblongata
- Pons
- Mid Brain
- Cerebellum
- Thalamus
- Hypothalamus
- Basal Ganglia
- Cerebral Cortex
- Autonomic Nervous System

During study of Gross Anatomy, emphasis should be given on applied aspect, radiological anatomy, surface anatomy and cross-sectional anatomy.

LEARNING RESOURCES

RECOMMENDED BOOKS

1. Clinically Oriented Anatomy by Keith L Moore.
2. Cunningham's Manual of Practical Anatomy by G.J. Romanes, 15th Ed., Vol. II and III.
3. The Developing Human. Clinically Oriented Embryology by Keith L. Moore, 6th Ed.
4. Medical Histology by Prof. Laiq Hussain Siddiqui.
5. Neuroanatomy by Richard S. Snell.

REFERENCE BOOKS

1. Gray's Anatomy by Prof. Susan Standring 39th Ed., Elsevier.
2. Clinical Anatomy for Medical Students by Richard S. Snell.
3. Clinical Anatomy by R.J. Last, Latest Ed.
4. Wheater's Functional Histology by Young and Heath, Latest Ed.
5. Langman's embryology

TABLE OF SPECIFICATIONS FOR SECOND PROF. MBBS WRITTEN PAPER (UHS)

	TOPIC	MCQ	SEQ
HISTOLOGY	Digestive system	1	1
	Urinary system	1	
	Nervous system	1	
	Male reproduction system	1	
	Female reproductive system	1	
	Endocrine	1	
	Special scenes		
EMBRYOLOGY	Body cavities , mesenteries and diaphragm	1	1
	Respiratory system	1	
	Cardiovascular	2	
	Nervous system	1	
	Urinary system	1	
	Male reproductive system	1	1
	Female reproductive system	1	
	Digestive system	1	
	Pharyngeal apparatus and face	1	
BRAIN	External and internal structure of brain	2	1
	External and internal structures of spinal cord	2	
	Cranial nerves , their nuclei, and their intracranial courses	1	
	Blood supply of brain and spinal cord	1	
	Meninges cisternae and ventricles	1	
PELVIS	Pelvic wall, Pelvis diaphragm, peritoneum,	1	1
	Pelvic viscera and structures	1	
	Perineum and urogenital diaphragm	1	
ABDOMEN	Abdominal wall	1	1
	Peritoneum	1	
	Abdominal viscera's and other structures	4	1
HEAD AND NECK	Cranial cavity, skull, cervical vertebra and joints of neck	2	1
	Scalp, temple and face	1	

	Side of neck and triangles , back of neck and cervical fascia	2	1
	Cranial nerves and ganglia	2	
	Orbit eye ball and ear	1	
	Parotid and temporal and infratemporal and submandibular regions	2	
	Mouth , pharynx and tongue	2	
	Nasal cavity and larynx	1	

MBBS 2nd Professional Part (II) OSPE

Gross Anatomy, Radiological Anatomy & Embryology:

Gross Anatomy

1. Total No. of stations 12, each station will have 02 marks and 04 spots of identification.
2. Each station shall be given 1.5 min.
3. Total marks shall be 24.

Time per station: 1.5 minutes (18 minutes)

Sr. No.	Region/Area	Station No.	No. of spots	Marks Each spot
1.	Head and Neck	1	4	2
	Head and Neck	2	4	2
	Head and Neck	3	4	2
2	Abdomen	4	4	2
	Abdomen	5	4	2
	Abdomen	6	4	2
3	Pelvis	7	4	2
4	Brain	8	4	2
	Brain	9	4	2
5	Radiological Anatomy	10	4	2
6	Special Embryology	11	4	2
	Special Embryology	12	4	2

Long Slide (Total Marks 10):

5. Time: 15 minutes will be given for

Identification

1 mark

Drawing

1 mark

Labeling

1 mark

Interactive Examination Long Slide:

7 marks

ANATOMY STRUCTURED VIVA

The following areas shall be examined; the questions are framed with emphasis on those areas which are not easily evaluated in theory examinations. Course segments, the marks allocation and number of questions for each are given as under:

Sr. No.	Course Area	Marks Allocated	Minimum No. of Questions
1	Surface marking	4	1
2	Head & Neck	10	2
3	Brain & Spinal cord	8	2
4	Abdomen	10	2
5	Pelvis	4	1
6	Special Embryology	10	2
Total		46	10

DEPARTMENT OF PHYSIOLOGY

LEARNING OBJECTIVES (knowledge, skills, attitude)

1. To equip the students with specific knowledge, essential skills and appropriate attitude
2. towards the human body
3. To be able to understand the functions of each organ system of the body and integrate the functioning with the knowledge of anatomy and biochemistry.
4. To comprehend how basic physiological systems interact to overcome the stressful and challenging conditions and why they fail
5. To think critically, apply the physiological relevance with the clinical situations and explain the pathophysiology of common diseased conditions
6. to become problem solvers, dealing effectively with familiar and unfamiliar problems
7. to become lifelong learners
8. to direct their own learning and evaluate this activity
9. to be able to reason critically and make justifiable decisions regarding patient management
10. to practice evidence-based medicine
11. to always ensure patient safety
12. to adopt a multidisciplinary approach for health promoting interventions
13. to be able to demonstrate professional values of self and professional accountability, LEARNING
14. honesty, probity, and ethics

DEPARTMENT OF PHARMACOLOGY

Learning Objectives: -

MBBS student, at the end of one year training in Pharmacology, is expected to:

1. Understand pharmacokinetic and pharmacodynamic principles involved in the use of drugs
2. Understand and identify the various factors that can affect the action of drugs
3. Know the various routes of drug administration with advantages and disadvantages of the various routes
4. Undertake dosage calculations as appropriate for the patient and be able to select the proper drug and dose for the at risk population i.e. patients with kidney or liver disease, elderly, pregnant and lactating females, and children.
5. Understand the importance of rational prescribing of drugs and the concept of essential drugs
6. To be able to identify and monitor adverse drug reactions (ADRs) and appreciate the importance of ADR reporting
7. Know the drugs used in systemic illnesses, infections and chemotherapy etc. with main mechanism(s) of action, pharmacokinetics, uses, side-effects and indications
8. Understand the principles and practice of pharmacy
9. Understand the methods in experimental pharmacology, principles of bioassay and be able to correlate drug effects with the action of drugs at the receptors.
10. Have knowledge of common drugs and doses used for different ailments
11. Have an understanding of basic mechanism by which a drug acts
12. Should be able to select rationally from the available drugs

1. Syllabus (PMDC/ UHS)

Topic

General Pharmacology

Excretion, 1/2 Life, Kinetics

Introduction

Pharmacodynamics

Routes of Administration

Dose response curve + Therapeutic Index

Transport across cell membrane
Absorption+ Bioavailability

Drug allergy & Adverse effects

Distribution

Drug dependence, addiction

Biotransformation

Posology

Pharmacogenetics

Bioassay & Standardization

Locally acting drugs & Chelating agents

Disinfectants & Antiseptics + Phenol
Chemo

Autonomic Nervous System

Introduction

Cholinergic Drugs

Anticholinergic Drugs

Muscle Relaxants

Ganglion Blockers

Catecholamines

Non-Catecholamines

Beta Blockers

Alpha Blockers

Adrenergic Neuron Blockers

Ergot Alkaloids & Bromocryptine

GIT Drugs

Bitters & Sialogogues

Emetics & Anti emetics

Purgatives & Laxatives

Treatment of P.U & Antacids

Anti diarrheals & Bacillary Dysentery

Respiratory System Drugs

Mucolytics, Expectorants & Antitussives

Bronchodilators & Treatment of Asthma

Cardiovascular System Drugs

Vasodilators: Direct & Ca⁺⁺ Channel
Blockers

Antihypertensive drugs & Treatment of
Hypertension

ACE Inhibitors

Antianginal Drugs

Treatment of CCF

Anti arrhythmic Drugs

Diuretics

DRUGS ACTING ON BLOOD

Antihyperlipidemic Drugs

Coagulants, Anti coagulants &
Thrombolytic agents

Anti Platelets

Treatment of Anemia (Vitamins & Iron)

Autocoids:-

Histamine & Anti histamine

Prostaglandins & Serotonins

Drugs acting on CNS

Introduction

General Anesthetics

Local Anesthetics

Anti-Psychotic drugs

Antidepressants

Antimaniacs

Anti Parkinsonian Drugs

Sedative & Hypnotics + Anti-anxiety Drugs

Alcohol & Drug abuse

Trea arcotic Analgesics

Non-narcotic Analgesics

Treatment of Rheumatoid arthritis

Treatment of Epilepsy

CNS Stimulants & Xanthines

Treatment of gout

.

Drugs acting on Endocrine System

Pituitary hormones& Parathyroid drugs

Anti-thyroid

Corticosteroids

Antidiabetic Drugs(Insulin, Oral

Hypoglycemic)

Sex Hormones, Contraceptives & Drugs
for fertility

Drugs acting on uterus

Therapeutics

Antibiotics: Introduction

Cell wall synthesis inhibitors

Penicillins & Cephalosporins

Bacitracin, Vancomycin, Monobactam,
carbapenems,aztreonam

Protein Synthesis Inhibitors

Aminoglycosides Macrolides

Tetracyclines & Chloramphenicol

Antifolates Drugs

Sulphonamides & Cotrimoxazole+

Trimethoprine and Pyrimethamine

DNA Synthesis Inhibitors

Urinary Antiseptics & Quinolone
derivatives

Anti-Cancer Drugs

Anti-Viral Drugs

Antifungal Drugs

Anti TB & Leprosy drugs

Antimalarial

Anti-amoebic Drugs

Anthelmintics

Miscellaneous Topics

Treatment of Edema, Shock, & plasma
Expanders

Immuno modulators & Anti-D

Drug Interactions

PRACTICALS

A) Experimental pharmacology exercise on isolated organ - Assay of various drugs using rabbit ileum - Identification of unknown drugs by evaluating its action antagonism and drug interaction on rabbit ileum - Determination of concentration of unknown drug solution by different methods

B) Experimental exercise on pharmacy - General principles of pharmacy - Prescription writing exercises - Preparation and dispensing of powders, emulsions ointments, mixtures, liniments, suppositories and syrups

C) Spotting exercise - Identify the commonly used items in Pharmacology

D) Exercises on drug interactions

Learning Resources

Recommended Books:-

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

1) Technologies to be Used:-

- 1) Text Books are the Most Important source to learn for this Subject
- 2) Hand Outs (by Senior Faculty Members)
- 3) E. Books (Available)
- 4) Multimedia (Power Point)
- 5) Tables of Drugs Chart
- 6) Discussions
- 7) Viva Voce type Practice
- 8) Departmental Library

Assessments Methods

Formative:-

- MCQ's and SEQ's type Test will be held at the end of the every topic.
- Viva Voce will be held at the end of every major topic.
- Assignments given, checked and marked for 10 marks
- Summer Vacation work (assignments type)
- Arrange CME's to build and improve their knowledge and skills

DEPARTMENT OF FORENSIC MEDICINE

COURSE OBJECTIVES

By the end of his/her training in Third year MBBS, a student will be able to:

- Issue various medico-legal certificates, as per law of the country, and
- Identify and address bio-ethical issues in professional practice.

COURSE CONTENT

S.NO	TOPICS
1	AUTOPSY & EXHUMATION Objectives, Rules & techniques. Autopsy protocol. Preparation of post-mortem certificate. Dispatch of viscera & other materials to the Chemical Examiner. Hazards of Autopsy. Negative Autopsy. Artifacts. Autopsy Room Essentials. Autopsy on decomposed, mutilated bodies & fragmentary remains. Embalming. Exhumation.
2	THANATOLOGY Diagnosis of death. Changes in dead body after death. Determination of post-mortem interval. Medico-legal aspects of sudden & unexpected death. Euthanasia. Medico-legal systems of death investigation. Certification of death. Organ Transplantation.
3	PERSONAL IDENTITY Parameters for identification of living & dead. Establishing identity from skeletal remains. Age & its medico legal aspects. Role of Forensic Odontology, Forensic Anthropology & Forensic Radiology in identification. Dactylography, DNA & its legal implications. Esoteric Biometrics.
4	EXAMINATION OF TRACE EVIDENCE Definition, Significance, Collection, Preservation & Dispatch to various Labs. Laboratory techniques.
5	TRAUMATOLOGY A- Laws relating to offences against human body (Hurt, Qatl, Isqat). B- Mechanical injuries; their definition, classification, mechanics. Establishing cause – effect relationship. Medico legal aspects of injuries. C- Firearm Injuries: D- Regional Injuries. E- Evaluation of disability. F- Medico legal certification.
6	VIOLENT ASPHYXIAL DEATHS & DROWNING A- Definitions, Classification and General aspects. B- Mechanical asphyxial deaths and their medico legal aspects. C- Death due to drowning and its medico legal aspects.

S.NO	TOPICS
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7.	ACCIDENTS IN HOME AND ENVIRONMENT Road Traffic Accidents, Death due to Electrocution, Heat, Cold, Starvation & their medicolegal aspects.
8.	MEDICOLEGAL ASPECTS OF SEX A- Impotence and sterility; virginity; pregnancy and delivery. B- Criminal Abortion; Relevant law and medico-legal aspects. C- Sexual offences; M/L Examination. Specimen collection and Certification. D- Sexual perversions.
9.	LAW RELATING TO MEDICAL MAN A- Law and legal procedures. B- Medical ethics; PM&DC; Consent in medical treatment; Medical negligence; Medical evidence; Professional secrecy and privileged communication; Professional misconduct. C- Law relating to drugs and poisons. D- Forensic Psychiatry.
10	GENERAL TOXICOLOGY A- General & medicolegal aspects of poisons. B- Diagnosis of poisoning in living and dead. C- Medical & Legal management of poisoning cases.
11.	SPECIFIC POISONS A- <i>Corrosive poisons</i>: Mineral acids/ Alkalis. Organic / Vegetable acids. B- <i>Irritant poisons</i>: Inorganic (metallic, nonmetallic), Organic (Animal & Vegetable). C- Poisons affecting CNS. D- <i>Drug dependence & Abuse</i>. Tobacco E- Radiation F- Miscellaneous poisons.
12	Forensic Sciences CSI, Marks & Impressions, Cyber-Forensics, Arson, Questioned Documents and Digital Forensic Evidence Examinations

DEPARTMENT OF COMMUNITY MEDICINE

At the end of the training session medical students should be able to:

1. Appreciate health in a holistic paradigm, in relation to social, economic, environmental and occupational context.
2. Recognize the role of Primary Health Care (PHC) Physician in managing community health.
3. Be familiar with the components and planning of primary health care system.
4. Understand the importance of curative, preventive and promotive aspects of health.
5. Develop skills in communicating with the community.
6. Obtain hands on training in conducting surveys.
7. Conduct research projects and write a research report.

8. Consider a large spectrum of community interventions when dealing with health problems.

CONTENT OF SYLLABUS (PMDC / UHS)

1. Concept of Health and Disease

- Concept of health,
- Definition of health (dimensions, physical, mental, social and spiritual),
- Spectrum of health,
- Determinants of health,
- Responsibility for health,
- Indicators of health
- Concept of disease,
- Concept of causation (all theories including ecological triad, agent host and environmental factors),
- Spectrum of disease,
- Iceberg phenomenon,
- Natural history of disease,
- Levels of prevention,
- Disease elimination and eradication
- Disease surveillance

2. Introduction to Public Health and Health Systems in Pakistan

- Background and concepts: Definitions and concepts in Public Health.
- Development of Public Health in Pakistan,
- Economics and Health,
- Health Policy and planning in Pakistan,
- 'Health for all': Background, Concepts and Progress,
- Primary Health Care: Concepts and Progress,
- National Disease Control programs, policies, strategies and operations
- Health System in Pakistan: The role of Federal and Provincial Governments in Health care.
- The District Health System in the context of devolution.
- The physician as a manager: Function of manager management of material, human and financial resources, Leadership and motivation,
- Partners in Health: The public and private sector. Nongovernmental Organizations and International Agencies,
- Resources for health,
- Community Mobilization.

3. Epidemiology and disease control

- General Epidemiology and Research methodology
- Background and concepts, uses, Basic measurements in Epidemiology (morbidity, mortality, disability and fatality), Epidemiological methods (descriptive, analytic and

experimental), Epidemiological transition, Association and causation, Investigation of an outbreak or an epidemic

- Screening for disease, Community diagnosis, Research and survey methodology. Introduction to Quantitative and Qualitative research methodology
- Prevention and control of Infectious diseases:

Definitions to differentiate between

- Infection, contamination, pollution, infestation
- Infectious disease, communicable disease, Contagious disease
- Host, Immune and susceptible persons
- Sporadic, Endemic, Epidemic, Pandemic
- Epizootic Exotic, Zoonosis
- Contact, fomites, Carriers, Insect Vectors, Reservoir of Infection
- Incubation period, infective period, generation time
- Cross infection, Nosocomial infection, Opportunistic infections, Iatrogenic (Physician induced) disorders
- Surveillance, Eradication, Elimination.

Dynamics of infectious disease Transmission

- Reservoir and source of infection,
- Escape of organism,
- Mode of transmission,
- Entry into the body,
- Susceptible host,
- Immunity (different types of immunity and immunization)

Control of infection

- Controlling the reservoir-notification, early diagnosis, treatment, isolation, quarantine, disinfections, Interruption of transmission
- The susceptible host (active & passive immunization
- Chemoprophylaxis, Non-specific measures).
- Health advice to travelers
- National case management guide lines.
- Epidemiology, control and prevention of infectious diseases of Public Health importance
- Diseases transmitted through inhalation
- Diseases transmitted through Faeco-oral route
- Arthropod borne diseases.
- Diseases of animals conveyed to man
- Diseases due to direct contact
- Epidemiology, Control and prevention of non-infectious diseases of Public Health importance
- Hypertension,
- Coronary heart disease,
- Cancers,
- Injuries
- Diabetes Mellitus,
- Obesity,

- Acute Rheumatic fever and heart disease.

4. Biostatistics

- Concepts and uses
- Data and its types
- Rates, ratios and proportions
- Crude, specific and standardized rates
- Collection and registration of vital events in Pakistan
- Sources of health related statistics
- Measures of central tendency, (Mean, Median, Mode)
- Measures of dispersion (Range, Standard deviation, Standard error).
- Normal curve,
- Methods of data presentation (tables, graphs & diagrams).
- Interpretation of data (t-test and Chi-square test)
- Sampling and its various techniques.
- Health Management Information System

5. Demography and Population dynamics

- Concept, demographic principles and demographic processes
- Census, definition, methodology, types.
- Determinants of fertility, mortality
- Population Pyramid and its interpretation
- Demographic Transition, Demographic Trap and its public health importance.
- Demographic and social implication of high population growth.
- Social Mobilization
- Urbanization

6. Food and Nutrition

- Concepts (Nutrition, Nutrient, Food, Diet). Food groups and their functions.
- Role of fiber in diet,
- Balanced Diet.
- Malnutrition at all stages of life, its types causes and prevention, Common nutritional problems of public health importance and their prevention and control.
- Dietary requirements of normal human being at different stages of life.
- Food hygiene, Pasteurization, fortification, additives and adulteration and preservation.
- Food poisoning
- Assessment of nutritional status of a Community.

7. Reproductive, Maternal and Child Health

- Safe motherhood, and its components. (Ante-natal, Post-natal, Family Planning & Emergency Obstetric Care)
- Maternal mortality causes and prevention.

- Infant care: Health promotion strategies. Common ailments, home accidents child mortality prevention, Strategic approaches of integrated Management of Childhood Illness
- Adolescent health.
- Reproductive tract infections: guidelines for management of STD's.

8. Health of school age children

- Role of teachers and role of doctor in maintenance of health.
- Procedures for determining health status of school age children
- Common health problems of school children

9. Environmental Health Sciences:

- Air Composition of air. Causes of Air pollution, Purification of Air, Diseases caused by impurities in air and their prevention
- Water: Sources of Water. Daily water requirement, Water pollution its causes and prevention, Purification of Water, Water quality Standards. Diseases due to polluted water
- Waste disposal: Contents, hazards and safety measures for solid and liquid; Domestic, Industrial and Hospital waste
- Climate: Climate and weather. Global environmental concerns (Green house effect, depletion of ozone layer, Acid rains).
- Effect of extremes of temperature humidity, atmospheric pressure on human health and their prevention.
- Radiation: Sources, types, causes, hazards and prevention.
- Healthful housing. Urban and rural slums. Refugee camps and hostels.
- Noise: Definition causes. acceptance level, hazards and control

10. Occupational Health

- Concepts, of occupational health, occupational medicine and occupational hygiene. Ergonomics and its importance
- Occupational hazards. Principles of control
- General principles of occupational disease prevention.
- Organization of occupational health services.
- Health Insurance and Social Security Schemes

11. Arthropods and their public health importance

- Common arthropod borne diseases
- Control of arthropods of medical importance.
- Insecticides and their public health importance

12. Prevention and control of parasitic diseases of public health importance

13. Snake Bites: Personal protection and management

14. Mental Health:

- Concept, Common mental health problems, their causes, prevention and control.
- Juvenile delinquency

15. Behavioral Sciences and lifestyle:

- Concept, attitudes health and illness Behavior
- Drug abuse, addiction and smoking
- Child abuse and child labor
- Role of physical exercise in health disease

16. Information, Education and Communication (IEC)

- Concept, Aims and objectives
- Approaches used in public health
- Contents, principles and stages of health education
- Communication methods, barriers and Skills in health education
- Planning, organizing and evaluating a health education programme
- Social marketing

17. Disaster:

- Definition,
- Classification, (Natural disasters like earthquake floods,
- Epidemic of communicable diseases,
- Man Made Disasters,
- Accidents, thermonuclear warfare, causes and prevention),
- Magnitude and effects of disaster and Public Health consequences,
- Disaster Preparedness
- Disaster Management

18. Medical Ethics:

- Background concepts and components
- National recommended guidelines.

DEPARTMENT OF PATHOLOGY

The primary goal of the pathology course is to initiate the medical student in the study of disease. Without a clear understanding of the etiology (cause), pathogenesis (development), pathological anatomy, and pathophysiology of disease, clinical medicine would mean little more to the student than memorization of clinical syndromes and the empirical treatments applied to them. These concepts are developed in close association with the other basic sciences and with the clinical science that is also being introduced at this time. This study guide will give an insight to the students about all these competencies for a 7 star doctor and how to plan their educational activities in the subject of Pathology.

COURSE REQUIREMENT

Students need to have basic knowledge of Anatomy, Physiology, Biochemistry to understand the pathogenesis and laboratory diagnosis of different infectious diseases and pathological phenomenon of underlying diseases.

TARGET AUDIENCE:

3rd year M.B.B.S (SESSION 2023)

LEARNING OBJECTIVES

GENERAL PATHOLOGY

Goal:

The broad goal of the teaching of undergraduate student in Pathology is to provide the students with a comprehensive knowledge of the causes and mechanisms of diseases, in order to enable him/her to achieve complete understanding of the natural history and clinical manifestations of disease.

OBJECTIVES

Knowledge

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

1. describe the structure and ultrastructure of a sick cell, mechanisms of cell degeneration, cell death and repair and be able to correlate structural and functional alterations.
2. explain the pathophysiological processes which govern the maintenance of homeostasis, mechanisms of their disturbance and the morphological and clinical manifestations associated with it.
3. describe the mechanisms and patterns to tissue response to injury such that she/he can appreciate the pathophysiology of disease processes and their clinical manifestations.

4. correlate normal and altered morphology (gross and microscopic) of different organ systems in common diseases to the extent needed for understanding of disease processes and their clinical significance.

Skills

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

1. describe the rationale and principles of technical procedures of the diagnostic laboratory tests and interpretation of the results.
2. draw a rational scheme of investigations aimed at diagnosing and managing the cases of common disorders.

MICROBIOLOGY

Goal: The broad goal of the teaching of undergraduate students in Microbiology is to provide an understanding of the natural history of infectious disease in order to deal with the etiology, pathogenesis, laboratory diagnosis, treatment and control of infections in the community.

OBJECTIVES

Knowledge

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

1. state the infective micro-organisms of the human body and describe the host parasite relationship.
2. list pathogenic micro-organisms (bacteria, viruses, parasites, fungi) and describe the pathogenesis of the diseases produced by them.
3. state or indicate the modes of transmission of pathogenic and opportunistic organisms and their sources, including insect vectors responsible for transmission of infection.
4. describe the mechanisms of immunity to infections.
5. acquire knowledge on suitable antimicrobial agents for treatment of infections and scope of immunotherapy and different vaccines available for prevention of communicable diseases.
6. apply methods of disinfection and sterilization to control and prevent hospital and community acquired infections.
7. recommend laboratory investigations regarding bacteriological examination of food and water.

Skills

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

1. plan and interpret laboratory investigations for the diagnosis of infectious diseases and to correlate the clinical manifestations with the etiological agent.
2. identify the common infectious agents with the help of laboratory procedures and use antimicrobial sensitivity tests to select suitable antimicrobial agents.
3. perform commonly employed bed-side tests/bench tests for detection of infectious agents such as blood film for malaria, filaria, gram staining and AFB staining and stool sample for ova cyst.

COURSE OUTLINE (SYLLABUS UHS/PMDC)

Gen. Pathology:

1. Cell Injury
2. Inflammation
3. Repair & healing
4. Hemodynamics
5. Immunity
6. Neoplasia
7. Genetics

1. General Bacteriology
2. Special bacteriology
Gm + cocci
Gm - cocci
Gm + rods
Gm - rods
3. Minor
bacteria/Spirochetes/Mycobacteria
4. Parasitology
5. Virology
6. Mycology

Microbiology

(A) GENERAL PATHOLOGY (DETAILS OF CHAPTERS)

CELL INJURY

1. Necrosis, Ischemia, Hypoxia, Infarction and Gangrene Oncosis and Autolysis.
2. Sequence of the ultrastructural and biochemical change which occur in the cell in response to the following: Ischemia, Immunological injury, e.g., Asthma / SLE / Anaphylactic reaction, Physical agents, e.g., Radiation, Genetic defects e.g., Thalassemia / Hemophilia, Nutritional deficiency, e.g., Kwashiorkor, Infectious agents :Viruses, e.g., Hepatitis, Bacteria, e.g., Staphylococcus aureus, Fungi, e.g., Candida Parasites, e.g., Malaria, Nutritional deficiency
3. Irreversible and reversible injury
4. Apoptosis and its significance.
5. Necrosis and its types
6. Exogenous and endogenous pigmentation.
7. Dystrophic and metastatic calcification along with clinical significance.
8. Metabolic disorders
9. Lipid disorders, Steatosis of liver, Hyperlipidemia
10. Protein disorders
11. Carbohydrate disorders

INFLAMMATION, MEDIATORS OF INFLAMMATION

1. Role of inflammation in the defense mechanisms of the body.
2. Vascular changes of acute inflammation and their relation to morphological and tissue effects.
3. Process of Chemotaxis, Opsonization and Phagocytosis.
4. Role of cellular components in inflammatory exudate.
5. Exudates and transudate.
6. Important chemical mediators of inflammation.
7. Pathway of Arachidonic Acid metabolism.

8. Role of products of Arachidonic acid metabolism in inflammation.
9. Mechanism for development of fever, with reference to exogenous and endogenous pyrogens.
10. Chronic inflammation including Granulomas.
11. Granuloma and its types along with causes.
12. Systemic effects of acute and chronic inflammation and their possible outcomes.
13. Significance of ESR.
14. Induced hypothermia in medicine.
15. Healing in specialized tissue.

WOUND HEALING

1. Repair and regeneration.
2. Wound healing by first and second intention.
3. Factors that influence the inflammatory reparative response.
4. Wound contraction and cicatrization.
5. Formation of granulation tissue.
6. Complications of wound healing.

DISORDERS OF CIRCULATION

a. Thrombo-embolic disorders and their modalities

1. Etiology and pathogenesis of thrombosis.
2. Possible consequences of thrombosis
3. Difference between thrombi and clots
4. Classification of emboli according to their composition.
5. Difference between arterial and venous emboli.

b. Hemorrhage, Hyperemia and Congestion

1. Definitions of common types of Hemorrhage
2. Types of hyperemia
3. Difference between hyperemia and congestion

c. Infarction

1. Types of infarction
2. Difference between anemic and hemorrhagic infarct
3. Morphological picture of infarction in different organ systems

d. Disorders of the circulation and shock

1. Edema, ascites, hydrothorax and anasarca.
2. Pathophysiology of edema with special emphasis on CHF.
3. Pathogenesis of four major types of shock (Hypovolemic, cardiogenic, vasovagal & septic) and their causes.
4. Compensatory mechanisms involved in shock.

MICROBIOLOGY

- 1. Defense mechanisms of the body.**
- 2. Microbial mechanisms of invasion and virulence.**
- 3. Difference between sterilization and disinfection.**

4. Methods of disinfection and sterilization of the following:

- a. Facility where the doctor practices,
- b. Examination table,
- c. Any spillage e.g. sputum, vomitus, stool, urine, blood,
- d. Examination tools, e.g., thermometer, nasal and ear specula and spatula,

5. Principles of aseptic techniques such as Venepuncture, urinary catheterization, bandaging, suturing and lumbar puncture.

6. Universal precautions for infection control.

7. General principles of the following serological tests:

- a. ELISA – Hepatitis (A, B, C, D, E, G) Rubella, CMV and HIV
 - b. PCR
 - c. Haemagglutination – TPHA
 - d. Western Blot –HIV
- Malaria.

8. Interpretation of :

- a. Culture reports
- b. Serological reports and
- c. Microscopic reports of gram stain and ZN stain.

9. Principles of proper collection and submission of specimens for laboratory investigations

10. General characteristics and taxonomy of Bacteria, Rickettsia, Chlamydia, Viruses and Fungi.

11. Communicable, Endemic, Epidemic, and Pandemic Diseases, Carriers Pathogens, Opportunists, Commensals and Colonizers.

12. Microorganisms responsible for infection of the following organ systems:

- Central Nervous System
- Respiratory System
- Gastrointestinal System
- Genital System
- Urinary System
- Infections of Bones and Joints
- Zoonosis
- Infection of the Skin
- Hepatic Infections

13 Pathogenesis, Treatment, Epidemiology, Prevention and Control of the following organisms:

(i) Bacteria

Staphylococcus aureus	Bacillus anthracis
Streptococcus pneumoniae	Clostridium perfringens
Beta hemolytic streptococcus group a & b	Clostridium botulinum,
Diphtheria sp.	Clostridium difficile
Bordetella sp.	Clostridium tetani

Actinomyces israeli
Nocardia asteroides
Neisseria meningitis
Neisseria gonorrhoeae
Gardnerella vaginalis
Haemophilus influenzae
Mycobacterium tuberculosis
Mycobacterium leprae
E.coli
Klebsiella
Proteus
Salmonella
Shigella

(ii) Viruses

Mumps
Herpes
Measles
Influenza,
Para influenza
RSV
Hepatitis A, B, C, D, E
Rota virus
CMV

(iv) Protozoa

Plasmodium species
Giardia lamblia
Entamoeba histolytica
Cryptosporidium

(v) Helminths

Ascaris lumbricoides
Ancylostoma duodenale
Trichuris trichuria
Enterobius vermicularis
Filaria species
Strongyloides stercoralis

Yersinia pestis
Pseudomonas
Vibrio cholera
Vibrio parahaemolyticus
Campylobacter jejuni
Helicobacter pylori
Legionella
Mycoplasma pneumoniae
Chlamydia
Treponema pallidum
Leptospira
Rickettsia sp.

EBV
Rubella
Chicken Pox
HIV
Rabies
(iii) Fungus
Cryptococcus neoformans
Candida albicans
Tinea species
Leishmania species
Trichomonas vaginalis
Toxoplasma gondii
Pneumocystis carinii

Schistosoma species
Echinococcus species
Taenia solium
Taenia saginata
Hymenolepis nana

PRINCIPLES OF ANTI MICROBIAL ACTION.

1. Antibiotics, selective toxicity, bacteriostatic and bactericidal.
2. Host determinants in relation to selection of an antimicrobial drug for therapy.
3. Minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC)
4. Bacterial resistance and the mechanisms involved in acquiring bacterial resistance.

5. Mechanisms involved in transfer of drug resistance to bacterial resistance.
6. Mode of action of various antimicrobial drug groups.
7. Superinfection and cross sensitivity.

LIST OF COMMON ORGANISMS CAUSING ORGAN SYSTEM EFFECTS

a. Common organisms causing CNS Infections

<i>(i) Bacteria</i>	Enterovirus
Streptococcus pneumoniae	Mumps
Beta hemolyticus streptococcus group b	Herpes
Neisseria meningitidis	Adenovirus
Haemophilus influenzae	<i>(iii) fungus</i>
Mycobacterium tuberculosis.	Cryptococcus neoformis
E.coli	<i>(iv) protozoa</i>
Listeria monocytogenes	Malaria
<i>(ii) Viruses</i>	Toxoplasma

B. Common organisms causing respiratory tract infection

- (i) Bacteria:*
- Streptococcus pneumoniae
 - Beta hemolyticus streptococcus group b
 - Diphtheria sp.
 - Bordetella sp.
 - Hemophilus influenzae
 - Mycobacterium tuberculosis
 - Klebsiella
 - Legionella
 - Mycoplasma pneumoniae
- (ii) Viruses*
- Herpes
 - Adeno virus
 - Measles
 - Influenza
 - Para influenza
 - Rhinovirus
 - RSV
- (iii) Protozoa*
- Pneumocystis carinii

C. Organisms causing gastrointestinal tract infection / infestation

<i>(i)</i>	
Bacteria	Salmonella
Clostridium difficile	Shigella
Mycobacterium tuberculosis	Vibrio cholera

Vibrio parahemolyticus

Campylobacter jejuni

Helicobacter pylori

(ii) Viruses

Hepatitis A

Rota

(iii) Fungus

Cryptococcus neoformis

(vi) Protozoa

Giardia lamblia

Entameba histolytica

Cryptosporidium

D. Common organisms causing hepatic infections

(i) Bacteria

Streptococcus species

Coliforms

Anaerobes

(ii) Viruses

Herpes

Hepatitis A, B, C, D, E

CMV

EBV

(iii) Protozoa

Entameba histolytica

Tape worms

Echinococcus granulosus

E. Common organisms causing skin infection

(i) Bacteria

Staphylococcus aureus

Streptococcus pyogenes

Actinomyces israeli

Nocardia asteroides

Mycobacterium tuberculosis

Mycobacterium leprae

Corynebacterium diphtheriae

(ii) viruses

Herpes

Measles

Rubella,

Chicken pox

Moluscum contagiosum

(iii) fungus

Candida albicans

Tinea species

(iv) arthropodes

Sarcoptes scabiei

Pediculus species

Cinex lectularius

(v) helminths

Filaria species

Strongyloides stercoralis

Schistosoma sp.

(vi) protozoa:

Leishmania species.

f. Common organisms causing bone and joint infection

Bacteria: Staph aureus, Streptococcus pyogenes, Haemophilus influenzae, Neisseria gonorrhoeae, Brucella melitensis, Salmonella typhi, Strep. pneumoniae, Pseudomonas sp. and Mycobacterium tuberculosis.

g. Common organisms causing genital infection

- (i) Bacteria: Mycoplasma urealyticum
- (ii) Viruses: Pox, Herpes, Hepatitis B, HIV
- (iii) Fungus: Candida albicans
- (iv) Arthropodes: Sarcoptes scabiei
- (v) Protozoa: Trichomonas vaginalis

h. Common organisms causing zoonosis

- (i) Viruses: Rabies,
- (ii) Protozoa: Toxoplasma gondii, Leishmania sp.
- (iii) Helmenthics: Echinococcus sp.

GENETICS

1. Common sex linked, autosomal recessive and autosomal dominant disorders.
2. Common genetic mutations.
3. Diseases associated with consanguineous marriages.
4. Molecular biology techniques.

GROWTH DISORDERS/NEOPLASIA

1. Atrophy and Hypertrophy, Agenesis, Dysgenesis, Aplasia, Hypoplasia, Hyperplasia, Metaplasia, Dysplasia, Neoplasia, Anaplasia,.
2. Cell cycle and cell types (stable, labile, permanent)
3. Mechanisms controlling cell growth
4. Classification systems of tumors.
5. Characteristics of benign and malignant tumors
6. Difference between Carcinoma and Sarcoma.
7. Grading and staging system of tumors.
8. Biology of tumor growth
9. Process of carcinogenesis
10. Host defense against tumors.
11. Mechanism of local and distant spread.
12. Local and systemic effects of tumors.
13. Tumor markers used in the diagnosis and management of cancers.
14. Common chemical, physical agents and viruses related to human cancer.
15. Epidemiology of common cancers in Pakistan.
16. Radiation and its effects on tissues.
17. Cancer screening.

IMMUNOLOGY

1. Antigen, antibody, epitope, hapten and adhesion molecules.
2. Difference between innate and acquired immunity.

3. Structure and function of major histocompatibility complex (MHC).
4. Cytokines.
5. Mechanism of humoral and cell mediated immunity.
6. Hypersensitivity reactions, Type I, Type II, Type III and Type IV.
7. Autograft, homograft, allograft and xenograft.
8. Immunotolerance and immunoparalysis.
9. Mechanism involved in allograft rejection and steps that can be taken to combat rejection.
10. Classification of Immunodeficiency disorders
11. Basis of autoimmunity.
12. Tissue transplantation.
13. Pathology and pathogenesis of AIDS.
14. Lab diagnosis of immunological diseases.

LIST OF PRACTICALS (OSPE) TO BE PERFORMED

MICROBIOLOGY:

1. Sterilization of wire loop by flaming. Smear making and Gram staining and identification of Gram +ve and Gram –ve bacteria.
2. ZN staining and identification of acid fast bacilli.
3. Bench tests: Catalase test, Coagulase test, Oxidase test.
4. Identify and describe the characteristics of the following culture media:
5. Blood agar, Chocolate agar, MacConkey media & LJ media.
6. Biochemical tests for identification of bacteria.
7. Identify the autoclave, hot air oven and demonstrate their working?
8. Antibiotic sensitivity testing & anaerobic jar.
9. Blood culture- sample collection & processing.
10. Urine examination.
11. Stool examination.
12. Malarial parasite examination.

GENERAL PATHOLOGY:

1. Intracellular adaptations, Necrosis and intracellular accumulations
2. Pigmentation, fatty change
3. Acute and chronic inflammation,
4. Chronic venous congestion

5. Thrombus, infarction,
6. Benign and malignant Mesenchymal tumors,
7. Benign and malignant epithelial tumors
8. Granulation tissue
9. Types of giant cells
10. Exudate and transudate

4TH YEAR MBBS PATHOLOGY COURSE

Special Pathology is a subject that describes the cause, progression, and organ involvement, anatomic and functional change in the organ, clinical presentation and complications of the disease. It forms the basis of subject of Medicine. This subject is taught by using system based approach and all important and common diseases are covered in the syllabus.

COURSE REQUIREMENTS

The learner should have sound knowledge of

1. Basic Anatomy of different systems
2. Basic Physiology of different systems
3. Basic principles of General Pathology
4. Basic Microbiology and Immunology

TARGET LEARNER

4th year MBBS student

OVERVIEW OF THE SESSION

The aims of Pathology teaching in 4th yr. MBBS are as follows:

1. To equip the student with the knowledge of common disease patterns and why do they occur as given in the university syllabus.
2. How to reach at a specific diagnosis of a disease
3. What requisite investigations are to be performed and what are the protocols of routine investigations

They are achieved through an academic session of 9mths (36 weeks), as specified by university of Health sciences and by application of both cognitive knowledge and psychomotor skills.

Cognitive Knowledge is imparted by

- i- **Lectures** – delivered by senior faculty members four times week with an allotted time of 45min each, using all types of audio-visual aids and covering all aspects of the university syllabus.
- ii- **Clinical Seminar (CPC)** – organized on a current topic of pathological importance, once in four months, with an allotted time of 60-90 min followed by open house discussion.
- iii- **Group Discussions** – on a previously notified subject, and consisting of 30 students each with an allotted time of 90 min, twice a week.

Psychomotor Skills teaching is done during practical demonstrations, held in two 90min sessions per week. The students are rotated in four sections of the pathology department, i.e. histopathology, hematology, chemical pathology and museum in batches of 35 – 40.

COURSE OBJECTIVES

LECTURES

The student should be able to

1. Classify common diseases related to different systems of the human body
2. Enumerate the etiological factors causing different diseases
3. Relate the etiological factors with the causation of the disease.
4. Enlist key points of reaching at a specific diagnosis of a disease
5. Enumerate requisite investigations which are to be performed to reach at a specific diagnosis

PRACTICALS

The student should be able to

1. Enlist and Identify basic instruments used in Pathology laboratory.
2. Enumerate basic tests used in the diagnosis of different diseases.
3. Describe the protocols of routine investigations
4. Identify gross pathological changes in the tissues by looking at a specimen
5. Identify under the microscope diagnostic histological features of a disease
6. Draw and label the microscopic histology of a specific disease

DETAILS OF TEACHING (SYLLABUS UHS)

LEARNING OBJECTIVES:

1. DISEASES OF BLOOD VESSELS & HEART

1. Differentiate among atherosclerosis, Monckeberg's sclerosis and arteriosclerosis.
2. Describe atherosclerosis with respect to the following factors
Etiology and pathogenesis, early lesion, Late and complicated lesion, Vessels affected and Complications
3. Classify hypertension. List the causes of secondary hypertension. Describe the vascular changes in hypertension.
4. Discuss the common pathogenic mechanisms of vasculitis.
5. Classify aneurysm according to the etiology.
Describe atherosclerotic aneurysm with respect to Pathogenesis, Type of vessel involved, Morphological & clinical features.
6. Describe varicose veins with respect to Common sites, predisposing factors, Clinical features.
7. List the benign and malignant tumors of blood vessels.
8. Describe the pathogenesis of ischemic heart disease.
9. Describe myocardial infarction with respect to the following
Sequence of changes in myocardial infarction (MI)
Pattern of elevation of biochemical markers used in the evaluation of M.I
Complications
10. List the causes of sudden cardiac death
11. Describe cor-pulmonale and list the predisposing disorders

12. Describe rheumatic fever with respect to Etiology, Pathogenesis, Morphological & clinical features
13. List the causes of myocarditis.
14. Describe morphological and clinical features of myocarditis
15. Describe the three major clinico-pathological groups of cardiomyopathy (dilated, hypertrophic and restrictive)
16. List the causes of pericarditis. Describe the clinical and morphological feature of pericarditis
17. List the primary & secondary cardiac tumors
18. Describe the main features of Fallot's tetralogy and coarctation of aorta

2. HAEMATOPOIETIC AND LYMPHOID SYSTEMS

1. Outline the stages in the formation of red blood cell and white blood cells.
2. List the normal values of red cell count, hemoglobin level, packed cell volume, MCH, MCV, MCHC, WBC count and platelet count.
3. Classify anemia on the basis of mechanism of RBC production.
4. Describe the causes of iron deficiency.
5. Describe the morphological and clinical features of iron deficiency anemia.
6. List the types of megaloblastic anemia.
7. List the conditions which predispose to folate deficiency.
8. Describe vit. B12 deficiency with respect to the conditions which produce it, Blood picture and clinical features
9. Differentiate between anemia of chronic disease and nutritional deficiency anemia.
10. Describe hereditary spherocytosis with respect to incidence, Etiology, Pathogenesis, Morphological and clinical features
11. Discuss the pathogenesis of thalassemia.
12. Classify thalassemia on the basis of clinical and genetic features.
13. Differentiate between the blood picture and clinical feature of Beta-thalassemia minor and major.
14. Discuss the mechanism of hemolytic anemia due to glucose-6-phosphate dehydrogenase deficiency.
15. Classify immunohemolytic anemia.
16. Differentiate between warm and cold antibodies immunohemolytic anemia.
17. Describe aplastic anemia with respect to the Etiology and pathogenesis
18. Clinical features and Lab. Diagnosis
19. Describe the mechanisms which can cause neutropenia/ agranulocytosis.
20. Describe the causes of leukocytosis.
21. Describe the epidemiological, morphological and clinical features of infectious mononucleosis.
22. Differentiate between acute and chronic non-specific lymphadenitis.
23. Describe the different classifications (REAL and working formulations) of non-Hodgkin's lymphoma.
24. Describe Hodgkin's disease with respect to classification, clinical stages, etiology and pathogenesis
25. Classify leukemia
26. Discuss the prognostic factors of acute lymphoblastic and acute myeloblastic leukemia.
27. Describe the pathophysiology of chronic myeloid and chronic lymphocytic leukemia

28. Describe multiple myeloma with respect to Etiology, Pathogenesis, Morphology, Clinical features
29. Describe disseminated intravascular coagulation with respect to Etiology and pathogenesis Clinical features and laboratory diagnosis
30. List the causes of decreased production and decreased survival of platelets.
31. Describe the pathogenesis of idiopathic & thrombotic thrombocytopenic purpura
32. Indicate the value of following tests in the assessment of bleeding disorders
33. Bleeding time , Clotting time, Platelets count, Platelet function test, Partial thromboplastin time , Prothrombin time, Mixing test studies
34. Describe polycythemia with respect to Etiology Pathogenesis Clinical significance Lab. Diagnosis
35. Describe the ABO and Rhesus blood groups and outline the way in which a sample of blood is typed.
36. List the hazards of blood transfusion and how these can be prevented.

3. DISEASES OF RESPIRATORY SYSTEM

1. List micro-organisms causing upper respiratory tract infection.
2. Describe the etiology and clinical features of rhinitis and nasal polyps.
3. List malignant & benign tumors of nasopharynx and larynx.
4. Discuss pleural effusion, hemothorax, hydrothorax, pleuritis, pneumothorax and chylothorax.
5. Discuss acute pharyngitis, acute bacterial epiglottitis and acute laryngitis.
6. Classification of atelectasis on the basis of underlying mechanism.
7. Differentiate between restrictive & obstructive lung disease on the basis of pulmonary function tests.
8. Describe the etiology pathogenesis, morphology & clinical features of asthma.
9. Describe various types of emphysema, its pathogenesis, morphology and clinical features.
10. Describe pathogenesis and clinical features of chronic bronchitis.
11. Describe the predisposing factors, pathogenesis, morphology & clinical features of bronchiectasis.
12. List the clinical conditions associated with restrictive lung diseases.
13. Describe the pathogenesis, morphology & clinical features of adult respiratory distress syndrome.
14. Describe the pathogenesis, morphology & clinical features of sarcoidosis and hypersensitivity pneumonitis.
15. Describe the pathogenesis, morphology and clinical features of idiopathic pulmonary fibrosis.
16. Describe clinical features of Good pasture's syndrome.
17. List the pathogenesis, morphology & clinical features of thromboembolism.
18. Describe the morphology & clinical features of pulmonary infarction.
19. List the causes of pulmonary hypertension and vascular sclerosis.
20. Describe the etiology, pathogenesis, morphology & clinical features of acute bacterial pneumonia.
21. List the micro-organisms causing atypical pneumonia.
22. Discuss the etiology, pathogenesis & clinical features of tuberculosis of the lung.
23. List the Fungi (candida, pneumocystis carinii) causing lung infections.

24. Describe the classification, etiology, pathogenesis and clinical features of bronchogenic carcinoma.
25. Describe etiology & pathogenesis of mesothelioma.
26. Describe pneumoconiosis with respect to etiology, pathogenesis and clinical features.

4. DISEASES OF ORAL CAVITY AND GASTROINTESTINAL TRACT

4.1 Oral cavity

1. Define the term leukoplakia.
2. List the possible predisposing factors (pipe smoking, ill-fitting denture, alcohol abuse, irritant foods) of leukoplakia.
3. Discuss the risk factors of oral cancer.
4. Describe the clinical and morphological feature of oral cancer.
5. List the benign and malignant tumors of salivary glands.
6. Describe the clinical and morphological features of pleomorphic adenoma.

4.2 Esophagus

1. Describe the predisposing factors of esophagitis.
2. Carcinoma of the esophagus.

4.3 Stomach

1. List the predisposing factors associated with acute gastritis.
2. Describe the pathogenesis and clinical features of acute gastritis.
3. Describe the pathogenesis, morphological and clinical features of chronic gastritis.
4. Describe the pathogenesis, morphological and clinical features of peptic ulcer.
5. Describe the gastric carcinoma with respect to Risk factors Pathogenesis Clinical and morphological features Prognosis

4.4 Intestine

1. Describe the clinical and morphological features of Hirschsprung's disease.
2. Describe the pathogenesis, morphological and clinical features of Celiac sprue Tropical sprue
3. Describe the predisposing conditions for ischemic bowel disease.
4. Describe the clinical and morphological features of ischemic bowel disease.
5. Differentiate between Crohn's disease and ulcerative colitis.
6. List the major causes of intestinal obstruction.
7. Describe the clinico-pathological features of following diseases of intestine Amebiasis Tuberculosis Typhoid
8. List the non-neoplastic polyps of intestine.
9. Classify adenomas on the basis of epithelial architecture.
10. Describe the clinical and morphological features of adenomas.
11. Discuss the pathogenesis of colorectal carcinoma.
12. Describe the morphological and clinical features of colorectal carcinoma.
13. Describe the Aster-Collar classifications of carcinoma of the colon and rectum.
14. Describe carcinoid tumor with respect to the Peak incidence most prevalent sites in the gut Morphological features.
15. Describe the clinical features of carcinoid syndrome.
16. Describe the etiology, pathogenesis, morphological and clinical features of acute appendicitis. List the tumors of appendix.

5. DISEASES OF LIVER & BILIARY TRACT

5.1 Liver

1. Describe the pathway of bilirubin metabolism and its elimination from the body.

2. Describe the types of jaundice with respect to the following: Causes Clinical features Lab diagnosis
3. Differentiate between intrahepatic and extrahepatic biliary obstruction.
4. List the causes of hepatic failure.
5. Describe the morphological and clinical features of hepatic failure.
6. Describe the important complication of liver failure (hepatic encephalopathy, hepatorenal syndrome).
7. List the common causes of cirrhosis (viral hepatitis, cryptogenic, alcohol, biliary disease, genetic hemochromatosis, Wilson's disease, alpha-1 anti-trypsin deficiency).
8. Discuss the pathogenesis of cirrhosis.
9. Describe the complications of cirrhosis (progressive liver failure, portal hypertension, hepatocellular carcinoma).
10. Differentiate among viral hepatitis A, B, C, D and E with respect to Route of transmission Incubation period Clinical features. Potential outcome of acute infection.
11. Define carrier state and differentiate between acute and chronic hepatitis.
12. List the common causes of liver abscess (amebic, echinococcal, bacterial, and fungal).
13. Describe clinical and morphological features of liver abscess.
14. List the drugs and toxins which cause hepatic injury along with their specific effects.
15. Discuss the pathogenesis of alcohol liver disease.
16. Describe the morphological and clinical features of alcoholic hepatitis and cirrhosis.
17. List the causes of secondary hemochromatosis.
18. Describe the pathogenesis, morphological and clinical features of hemochromatosis.
19. Discuss the clinico-morphological features of Wilson's disease.
20. Describe the clinico-morphological features of alpha-1 anti-trypsin deficiency.
21. List the causes of neonatal hepatitis.
22. Differentiate between primary and secondary biliary cirrhosis.
23. Discuss the epidemiology, pathogenesis, morphological and clinical features of hepatocellular carcinoma.

Biliary tract

24. Describe the pathogenesis and risk factors of cholelithiasis.
25. Describe the morphological and clinical features of acute and chronic cholecystitis.
26. Describe clinical and morphological features of gall bladder cancer.

Pancreas

27. Describe acute pancreatitis with respect to
28. Etiology and pathogenesis
29. Clinical and morphological features.
30. Describe the clinical and morphological features of chronic pancreatitis.
31. Describe the clinical and morphological features of carcinoma of pancreas.

6. THE URINARY SYSTEM

1. Define the terms: Azotemia Uremia Acute renal failure Chronic renal failure
2. Discuss the types, genesis, basis, clinical features and complications of polycystic kidney disease.
3. Describe different types and pathogenesis mechanisms of glomerulonephritis.

4. Differentiate between nephrotic and nephritic syndrome. List the diseases included in these categories, their etiology and pathogenesis mechanisms (membranous, minimal change, membranoproliferative & acute post streptococcal glomerulonephritis).
5. Discuss the etiology, clinical course, pathogenesis and complications of acute pyelonephritis.
6. Discuss pathogenesis mechanism, morphology clinical features and complications of chronic pyelonephritis.
7. Define acute tubular necrosis, its pathogenesis and clinical course.
8. Differentiate between benign and malignant nephrosclerosis. (on the basis of clinical date). Discuss the pathogenic mechanism, morphology and clinical course (Gross & microscope picture).
9. Discuss the pathogenesis, clinical features and lab diagnosis of nephrolithiasis. List the various types of renal stones.
10. Define hydronephrosis, what are its causes, clinical features and complications.
11. Discuss the epidemiology, morphology and clinical features (paraneoplastic syndrome) of renal cell carcinoma.
12. Describe the clinical features, morphology and prognosis of Wilm's tumor.
13. Describe the etiology, morphology & clinical features of cystitis.
14. Describe the clinical features, etiology and morphology of transitional cell carcinoma of the urinary bladder.

7. MALE GENITAL SYSTEM

1. Discuss the following congenital conditions Hypospadias Undescended testis
2. Describe the etiology, route of infection, pathogenesis and methods of diagnosing urethritis. Gonococcal Non gonococcal
3. Discuss the etiology, pathogenesis and natural history of Prostatitis Prostatic hyperplasia Prostatic carcinoma
4. Discuss the causes, pathogenesis and clinical features of scrotal swelling Testicular adnexa Varicocele Hydrocele Spermatocoele Testis and epididymis Inflammation (Orchitis) Epididymitis Tumor
5. Discuss the causes, pathogenesis and relevant investigations of male infertility.
6. Classify the tumors of the male genital tract. Prostate Testis

8. FEMALE GENITAL SYSTEM

1. List the causes, routes of infection & methods of diagnosis of sexually transmitted diseases. List the micro-organisms involved, route of infection, pathogenesis and methods of diagnosing the following:
2. Gonorrhea, syphilis, chlamydia, HPV, herpes simplex and trichomonas vaginalis.
3. Classify the neoplasms of cervix with special reference to cervical intraepithelial neoplasia.
4. Describe the clinical features and pathogenesis of adenomyosis and endometriosis.
5. Describe the causes, pathogenesis and clinical features of dysfunctional uterine bleeding with special reference to endometrial hyperplasia, endometrial polyp and carcinoma.
6. Classify tumors of the uterus.
7. Classify tumors of the ovary.
8. Describe the etiology, clinical features and pathogenesis of ectopic pregnancy and toxemia of pregnancy.

9. Classify gestational trophoblastic tumors with special reference to their clinical features.

9. BREAST

1. List the causes of lump in the breast and discuss etiology, pathogenesis, morphology, clinical features and natural history of
2. Mastitis
3. Fibrocystic disease of the breast
4. Benign tumors of the breast (Fibroadenoma and Phyllodes tumor)
5. Carcinomas of the breast (Ductal and Lobular)
6. List the causes of nipple discharge with special reference to intraductal papilloma.
7. Describe gynecomastia, and list its causes.

10. MUSCULOSKELETAL SYSTEM

1. Describe the pathogenesis and clinical features of each of the following
Achondroplasia. Osteogenesis imperfecta. Osteoporosis
List the causes of osteoporosis.
Describe the pathogenesis, morphological and clinical features of osteoporosis.
2. **Osteomyelitis** with respect to Common causative micro-organism
(Staphylococcus aureus, Pseudomonas, Escherichia coli, group-B Streptococci, Salmonella, Mycobacterium tuberculosis).
Common routes of spread
(Hematogenous, direct extension from the focus of infection, traumatic implantation).
Complications.
Differentiate between acute and chronic osteomyelitis.
List the common sites involved in **tuberculosis osteomyelitis** (vertebral bodies, long bones).
3. Describe the pathogenesis, morphological and clinical features of **Paget's disease** (osteitis deformans).
4. List the benign and malignant **bone forming tumors. Osteogenic sarcoma**
List the common sites (lower end of femur, upper end of tibia, upper end of humerus).
Describe the morphological and clinical features of osteogenic sarcoma.
5. List the benign and malignant **cartilaginous tumors**.
6. Describe **Chondrosarcoma** with respect to Peak incidence (sixth decade) Common sites of origin (shoulder, pelvis, proximal femur, and ribs) Morphological and clinical features.
7. List the most frequent sites (distal femur, proximal tibia, proximal humerus and distal radius) of **Giant cell tumors of bone**
Describe the clinical and morphological features of giant cell tumors of bone.
8. Describe **Ewing's sarcoma** with respect to Peak incidence (second decade) Common sites of origin (femur, tibia, pelvis) Chromosomal abnormality t(11:22) (q24; q12).
Morphological and clinical features.
9. Describe the pathogenesis, morphological and clinical features of **Osteoarthritis**
10. Explain **Rheumatoid arthritis** with respect to Pathogenesis Morphological and clinical features
11. Give Classification of **Gout**. Describe the pathogenesis, morphological and clinical features of gout.
12. What is **Duchenne muscular dystrophy** Describe the pathogenesis, morphological and clinical features of Myotonic dystrophy

13. List congenital myopathies (central core disease, nemaline myopathy and centronuclear myopathy).
14. List inflammatory myopathies (dermatomyositis, polymyositis and inclusion body myositis).
15. Describe the clinico-pathological features of **myasthenia gravis**.
16. Differentiate between lipoma and liposarcoma.
17. Describe **rhabdomyosarcoma** with respect to Peak incidence (1st decade of life).
Histological variants (embryonal, alveolar, sarcoma botryoides, pleomorphic).
Frequent sites (head & neck region, genitourinary, retroperitoneum).

11. ENDOCRINE SYSTEM

Pituitary

1. List the causes of hypopituitarism.
2. Describe the morphology and clinical features of pituitary adenomas.
3. Describe the clinical features of acromegaly and gigantism.
4. List the causes of hypopituitarism.
5. Describe the etiology, pathogenesis and clinical features of Sheehan's syndrome
6. Dwarfism
7. Describe the etiology factors, clinical features, and pathogenesis and lab findings in inappropriate secretion of ADH.

Adrenal Cortex and Medulla

8. List the causes of adrenal cortical hyper function.
9. Describe the etiology, pathogenesis clinical features and lab diagnosis of Conn's syndrome Adrenogenital syndrome. Cushing syndrome
10. List the causes of hypofunction of adrenal cortex.
11. Describe the etiology, pathogenesis, and clinical features of Addison's disease.
12. List the tumors of adrenal medulla and cortex.
13. Describe the clinical features and diagnosis of pheochromocytoma.

Thyroid

14. List the etiology and clinical features of hyperthyroidism.
15. List the etiology and clinical features of hypothyroidism including Cretinism Myxedema.
16. Discuss the investigation/lab tests for diagnosis of thyroid dysfunction.
17. Define goiter and list its types (diffuse and multinodular).
18. Describe the etiology, pathogenesis and clinical features of diffuse and multinodular goiter.
19. List the causes of solitary thyroid nodule and discuss the diagnostic approach.
20. Describe the types, with pathogenesis, morphology and clinical features of thyroiditis with special reference to auto-immune thyroiditis (Hashimoto's thyroiditis and Grave's disease).
21. Classify the etiology, pathogenesis, morphology and clinical features of Follicular adenoma papillary carcinoma Follicular carcinoma medullary carcinoma.
22. List the types of MEN syndromes.

Parathyroid

23. List the etiologic factors and clinical features of hyperparathyroidism.
24. List the etiologic factors and clinical features of hypoparathyroidism
25. Differentiate between primary, secondary and tertiary hyperparathyroidism.
26. Discuss calcium homeostasis and causes of hyper and hypocalcemia.

12. SKIN

1. Define the following macroscopic and microscope terms:
2. Macule, papule, nodule, plaque, vesicle, bulla, blister, pustule, scale, lichenification, excoriation, hyperkeratosis, parakeratosis, acanthosis, dyskeratosis, acantholysis, papillomatosis, lentiginous spongiosis.
1. Describe the morphological and clinical features of urticaria.
2. Classify eczematous dermatitis.
3. Describe the etiology and pathogenesis of Contact dermatitis Atopic dermatitis Drug related eczematous dermatitis Photoeczematus eruptions Primary irritant dermatitis
4. Describe the morphological and clinical features of acute eczematous dermatitis.
5. List the conditions which are associated with erythema multiforme.
6. Describe the clinical features of erythema multiforme.
7. Describe the pathogenesis, morphological and clinical features of psoriasis.
8. Describe the variants of pemphigus with respect to frequent site of involvement and clinical features.
9. Discuss the pathogenesis of pemphigus.
10. Describe the clinical and morphological features of bullous pemphigoid.
11. List the pre-malignant epithelial lesions.
12. List the types of warts and their most frequent locations.
13. List the predisposing factors of squamous cell carcinoma of skin.
14. Describe the clinical and morphological features of basal cell carcinoma.
15. List the types of Nevocellular Nevi (congenital nevus, blue nevus, spitz's nevus, halo nevus, dysplastic nevus) along with their clinical significance.
16. Describe the clinical and morphological features of dysplastic nevi.
17. Describe malignant melanoma with respect to frequent site of origin, clinical and morphological features.

13. NERVOUS SYSTEM

1. Describe clinico-pathological features of hydrocephalus.
2. Describe the categories of cerebral edema (vasogenic & cytotoxic).
3. List the types of herniation of brain along with clinical significance.
4. Describe the clinical and morphological features of intra-cranial hemorrhage.
5. Differentiate between acute purulent meningitis and acute lymphocytic meningitis.
6. List the etiologic agents of chronic meningitis (mycobacterium tuberculosis, Cryptococcus neoformas, Treponema pallidum).
7. Describe clinical and morphological features of chronic meningitis.
8. List the route of infecting agents causing brains abscess
9. Describe the clinical and morphological features of brain abscess.
10. Describe the clinical and morphological features of tuberculosis meningitis.
11. List the causative organisms of viral encephalitis (herpes simples virus, cytomegalovirus, HIV, JC virus, arbovirus).
12. Describe clinico-pathological features of Guillain Barre Syndrome.
13. List the infectious agents associated with polyneuropathies (leprosy, C. diphtheria, Varicella-zoster virus).
14. List the organic and inorganic compounds which can produce toxic neuropathy (organophosphorus esters, vincristine, acrylamide, hexame, ethanol, arsenic and lead).

15. List the important types of intracranial tumors (astrocytoma, oligodendrogliomas, ependymoma, medulloblastoma and meningioma) along with clinical significance of glial tumors.
16. List the frequent metastatic tumors to the brain (carcinoma of the lung, breast, malignant melanoma, leukemia and lymphoma).
17. List common primary peripheral nerve sheath neoplasms along with their clinical significance.

14. CHEMICAL PATHOLOGY

1. Introduction to chemical pathology, reference/ranges conventional and SI units.
2. Renal functions.
3. Causes of proteinuria and its lab diagnosis.
4. Lab diagnosis of acid base disorders.
5. Lab diagnosis of diabetes mellitus.
6. Liver function tests.
7. Lab diagnosis of hyperlipidemia and its clinical interpretation.
8. Role of enzymes in diagnosis of pancreatitis.
9. Lab diagnosis of inborn errors of metabolism.
10. Lab diagnosis/investigations of endocrine disorders:-
 - i. Thyroid function tests.
 - ii. Adrenal function test.
 - iii. Lab diagnosis of hyper and hypoparathyroidism.
 - iv. Role of hormone estimation in diagnosis of infertility.
 - v. Role of hormone estimation in diagnosis of growth disorder.

DEPARTMENT OF GENERAL SURGERY

LEARNING OBJECTIVES/OUTCOMES (knowledge, skills, attitude)

By the end of this academic session the students should be able ,

- 1) to acquire specific knowledge, essential skills and appropriate attitude of the human body
- 2) to become problem solvers, dealing effectively with familiar and unfamiliar situations
- 3) to become lifelong learners
- 4) to direct their own learning and evaluate this activity
- 5) to be able to reason critically and make justifiable decisions regarding patient management
- 6) to practice evidence-based medicine
- 7) to always ensure patient safety
- 8) to ensure compliance with the legal system in accordance with the PM&DC regulations
- 9) to adopt a multidisciplinary approach for health promoting interventions
- 10) Medical graduates should be able to demonstrate professional values of self and professional accountability, honesty, and ethics
- 11) Medical graduates are expected to demonstrate exemplary professional conduct
- 12) to be able to understand the pathogenesis of specific diseases

- 13) to be able to take a focused history and identify the patient's risk factors related to the disease process
- 14) to be able to perform a physical examination on a patient, to diagnose specific surgical diseases and differentiate from other systems
- 15) to formulate a provisional diagnosis with justification, and the likely differential diagnoses
- 16) to be able to select appropriate biochemical investigations and interpret their reports to confirm the diagnosis
- 17) to be able to select specific radiological investigations for specific diseases
- 18) to be able to apply evidence-based medicine concepts for the medical treatment of different diseases
- 19) to be able to describe the required surgical procedures for different diseases

Essential Skills to be acquired

1. Provide First Aid: Resuscitation (ABC) of polytrauma, CPR.
2. Collect samples of blood, urine, stool, sputum, pus swab etc.
3. Insert Naso-gastric tube, have observed chest intubation and paracentesis.
4. Do IV cannulation, have observed CV-line insertion and cut- down of veins.
5. Catheterize male and female patients.
6. Prepare the patient for and know the procedure of doing X-Ray chest, abdomen, KUB, bones, IVU, barium studies, ultrasound and other imaging investigations.
7. Principles of pre-operative preparations, sterilization/disinfection techniques.
8. Principles of wound care, skin suturing and suture removal, incision, tissue lumps, needlebiopsies, aspiration of localized fluids, etc.
9. Have observed common surgical procedures, treatment of fracture/dislocation and methods of general / local anaesthesia.
10. Apply bandage and splint/pop cast to the patient's limbs.
11. Have observed instillation of chemotherapy and principles of radiotherapy

SYLLABUS MBBS

The course outline is as follows:

GENERAL SURGERY

Principles of Surgery

1. Metabolic response to Surgical trauma and homeostasis
2. Pathophysiology and Management of Shock
3. Fluid, electrolyte and acid base balance
4. Haemorrhage, coagulopathy and Blood/products Transfusion and its complications
5. Nutrition of surgical patients
6. Wounds, wound repair and its complications
7. Investigation and treatment of common Infections and Parasitic Infestations of Surgical Importance including clinical therapeutics
8. Gas Gangrene and Tetanus

9. Special Infections related to surgery
10. Tuberculosis
11. Principles in the Management of common Skin and Soft Tissue Problems: Ulcers, abscesses, inflammations, cysts, sinuses & fistulae, swellings, embedded foreign Bodies, minor Injuries and benign and malignant conditions
12. Principles of oncologic therapy and palliation
13. Principles of organ transplantation and its ethics and implications
14. Surgical Audit
15. Surgical ethics

Trauma

16. Pre-hospital care
17. Triage
18. Primary survey, ABCDE
19. Primary Survey of Polytrauma patients with airway difficulty and circulatory instability
20. External Haemorrhage
21. Airway management
22. Tension Pneumothorax
23. Cardiac Tamponade

Head injuries

24. Resuscitation
25. Management of the Patient with Head Injury
26. Management of an Unconscious patient due to Head Injury and Glasgow Coma Scale
27. Skull fractures
28. Intracranial pressure
29. Intracranial hemorrhage
30. Cervical spine injury
31. Spinal cord trauma
32. Blunt and Penetrating Injuries of chest and their Complications including haemothorax, pneumothorax, resuscitation, chest drains
33. Principles of management of (blunt and penetrating), liver/spleen, pelvic and urogenital trauma
34. Principles of management of fractures / dislocation
35. Focused Abdominal Sonographic Assessment for trauma (FAST)
36. Peripheral nerve Injuries
37. Amputations

Lump/swelling

38. Congenital
39. Traumatic
40. Inflammatory
41. Neoplastic

Neck swelling

42. Lymphadenopathy (Inflammatory), acute and chronic
43. Chronic granulomatous
44. Neoplastic benign/malignant

45. Lymphatic leukemia
46. Autoimmune disorders
47. Lipoma
48. Neurofibroma
49. Sebaceous cyst
50. Sublingual dermoid
51. Thyroglossal cyst
52. Salivary Glands: calculi, enlargement (benign/malignant)
53. Thyroid gland enlargement
54. Branchial cysts, sinus or fistula
55. Cystic hygroma
56. Carotid artery tumor

Plastic and reconstructive surgery

57. Principles of skin coverage
58. Common benign and malignant skin lesions
59. Burns, principles of management
60. Cleft lip and palate
61. Epispadias
62. Hypospadias

Principles of Anaesthesia

63. Pre-operative assessment of patients and pre-medication
64. Local Anaesthesia
65. Local Anaesthetic agents (Pharmacology)
66. Regional Anaesthesia (Spinal and Epidural)
67. Intravenous Anaesthetic agents
68. Muscle Relaxants
69. Inhalational Anaesthetic agents
70. Complications of Anaesthesia
71. Perioperative Management
72. Recovery from Anaesthesia
73. Pain Management and postoperative care
74. ICU Monitoring

Neurosurgery

75. Raised intracranial pressure/ hydrocephalus
76. Introduction to intracranial infections
77. Introduction to intracranial tumors
78. Peripheral nerve Injuries

Paediatric surgery

79. Pediatrics Tumors
80. Neonatal surgical problems
81. Tracheoesophageal malformations
82. Pyloric stenosis
83. Hirschsprung's disease
84. Imperforate anus
85. Intestinal obstruction
86. Intussusception
87. Foreign body (Aspirated or Ingested)

2. SYSTEMIC SURGERY

Head, face and neck

3. Developmental abnormalities of face, palate, lips.
4. Principles of management of head injuries and its complications.
5. Oral cavity including tongue.
6. Diseases of salivary glands (Inflammation, Calculus, Tumours)
7. Neck lumps including lymph nodes, thyroid and parathyroid

Breast

8. Diseases of the breast, nipple and areola
9. Benign and malignant tumours.

Chest wall & thorax

10. Blunt & penetrating injuries and their complications.
11. Lung abscess and empyema thoracis.
12. Tumors and cysts in the lungs.

Gastro Intestinal Tract

13. Diseases causing oesophageal obstruction.
14. Peptic ulcer disease & its complications.
15. Tumours of stomach.
16. conditions causing acute abdomen
17. Conditions causing chronic abdomen including malignant lesions of small and large bowel
18. Ano-rectal and peri-anal conditions requiring surgery.

Abdominal, Pelvic and Genital Trauma and Hernia

19. Principles in management of abdominal pelvic and urogenital trauma.
20. Inguinal/ Inguinoscrotal and femoral hernia.
21. Epigastric hernia/umbilical/ para-umbilical hernia.
22. Incisional hernia.

Liver

23. Trauma.
24. Obstructive jaundice.
25. Liver abscess.
26. Hydatid cyst.
27. Malignancy (Hepatoma & secondaries)

Gall Bladder

28. Acute and chronic cholecystitis.
29. Cholelithiasis and its complications.
30. Tumors

Pancreas

31. Acute, relapsing and chronic pancreatitis.
32. Pancreatic masses including cysts
33. Benign and malignant neoplasia.

Spleen

34. Trauma
35. Surgical aspects of spleen

Urinary Tract

36. Common congenital anomalies.

- 37. Infection & its sequelae.
- 38. Calculus disease and its sequelae.
- 39. Bladder lesions.
- 40. Enlarged prostate.
- 41. Urogenital trauma.
- 42. Neoplasms of kidney and urinary tract.

External Genitalia, Male and Female

- 43. Developmental abnormalities.
- 44. Common pelvic conditions

Scrotal and testicular lesions

- 45. Scrotal swelling.
- 46. Testicular swelling.

Skin & Soft Tissues

- 47. Common benign and malignant skin lesions.
- 48. Wounds/ulcers/abscesses/sinuses/fistulae.
- 49. Soft tissue lumps.

Vascular and Nerve Disorders

- 50. Vascular afflictions and limb ischaemia
- 51. Varicosities
- 52. Deep venous thrombosis.
- 53. Peripheral nerve injuries

Radiology

Orthopedics

- 54. Applied basic orthopaedics
- 55. Congenital and developmental diseases Bone & joint infection
- 56. Metabolic bone disease Neuro muscular disorders Bone Tumors
- 57. Neck pain, low back pain Arthritis
- 58. Soft Tissue Injury Deformity Fractures

MBBS FINAL PROFESSIONAL

SURGERY PAPER-I (MULTIPLE CHOICE QUESTIONS)

Table of Specifications

50 MCQs of one mark each

Time allowed 01 hour

Sr. No	Topic	No of Questions
1	Surgical Anatomy	3
2	Wounds, tissue repair and scars	3
3	Accident and emergency Surgery, Warfare Injuries	3
4	Fluid, electrolytes and Acid base Balance	3
5	Blood Transfusion and Shock	3

6	Nutrition	3
7	Wound Infection	3
8	Special Infection, AIDS, Sterile Precautions	3
9	Tumors, Cysts, Ulcers and Sinuses	3
10	Burns	3
11	Skin Lesions; Skin Grafts and Flaps	3
12	Arterial Disorders	3
13	Venous Disorders	3
14	Lymphatic Disorders	3
15	Principles of Anaesthesia and Pain Management	3
16	Principles of Radiology	3
17	Principles of radiotherapy and Chemotherapy	3

SURGERY PAPER-I (SHORT CHOICE QUESTIONS)

Table of Specification

10 SEQs of five marks each

Time allowed 02 hour

Question No	Content
1	Surgical Anatomy
2	Wounds, tissue repair and scars, Accident and emergency Surgery, Warfare Injuries
3	Fluid, electrolytes and Acid base Balance; Blood Transfusion and Shock and Shock
4	Nutrition
5	Wound Infection, Special Infection, AIDS, Sterile Precautions
6	Tumors, Cysts, Ulcers and Sinuses, Burns, Skin Lesions ; Skin Grafts and Flaps
7	Arterial, Venous and Lymphatic Disorders

8	Principles of Anaesthesia and Pain Management
9	Principles of Radiology
10	Principles of radiotherapy and Chemotherapy

SURGERY PAPER-II (MULTIPLE CHOICE QUESTIONS)

Table of Specification

60 MCQs of one mark each

Time allowed 01 hour and 05 minutes

1. Musculoskeletal System (6)		
S. No	Contents	No. of Questions
1	Fractures and Dislocations General Principles	1
2	Fractures and Dislocations Upper Limb	1
3	Fractures and Dislocations Lower Limb	1
4	Other diseases of Bones, Joints and Related tissues	2
5	Hand and foot	1
2. Upper GIT (14)		
S. No	Contents	No. of Questions
6	Oesophagus	2
7	Stomach and Duodenum	2
8	Liver	2
9	Spleen	2
10	Gall Bladder and Bile Ducts	2
11	Pancreas	2
12	Peritoneum, Omentum, Mesentery and Retroperitoneal Space	2
3. Lower GIT (12)		
S. No	Contents	No. of Questions
13	Small and Large Intestine	2
14	Intestinal obstruction	2
15	Vermiform Appendix	2
16	Rectum	2
17	Anus and Anal Canal	2

18	Hernia, Umbilicus and Abdominal Wall	2
4. Urogenital System (10)		
S. No	Contents	No. of Questions
19	Kidney and Ureter	2
20	Urinary Bladder	2
21	Prostate and Seminal Vessels	2
22	Urethra and Penis	2
23	Testes and Scrotum	2
5. Head and Neck(4)		
S. No	Contents	No. of Questions
24	Thyroid Gland and Thyroglossal Tract	1
25	Parathyroid and Adrenal Glands	1
26	Slivary Glands	1
27	Others	2
6. Thorax (4)		
S. No	Contents	No. of Questions
28	Chest trauma	2
29	Others	2
7. breast (4)		
S. No	Contents	No. of Questions
30	Malignant Diseases	2
31	Benign Disease	2
8. Nervous System (2)		
S. No	Contents	No. of Questions
32	Head, Spine and Nerve Injuries	1
33	Others	1
9. Heart and Great vessels (2)		
S. No	Contents	No. of Questions
34	Heart	1
35	Great Vessels	2
10. Orodontal (2)		
S. No	Contents	No. of Questions

36	Maxillofacial Injuries	1
37	Others	1

SURGERY PAPER-II (SHORT CHOICE QUESTIONS)

Table of Specification

13 SEQs of five marks each

Time allowed 02 hour

Question No	Content
1	Musculoskeletal System
2	Upper GIT
3	Lower GIT
4	Urogenital System
5	Head and Neck
6	Thorax
7	Breast
8	Nervous System
9	Heart and Great Vessels
10	Orodontal

Recommended books

- 1) Bailey and Love's Short Practice of Surgery, 28th edition published in 2022 by CRC PressTaylor & Francis Group.
- 2) General surgery (lecture Notes Series) by Harold Ellis, Roy Calne, Chris Wastson
- 3) **Schwartz's Principles of Surgery** by F. Charles Brunicaudi, Dana K. Anderson, Timothy R. Billiar and David L. Dunn 11th edition 2019
- 4) **Current Surgical Practice:** by Norman L. Browse, Alan G. Johnson and Tom. Vol.6
- 5) Browse's Introduction to symptoms and signs of surgical disease, 6th edition published in 2021 CRC Press Taylor & Francis Group. Kevin G Burnand John Black, Steven A Corbett and William EG Thomas.
- 6) Hamilton Bailey. Demonstration of physical signs in clinical surgery
- 7) Clinical Skills for Undergraduates by Abdul Majeed Ch. and Aamer Zaman Khan
- 8) Online Journals and Reading Materials through HEC Digital Library Facility.

DEPARTMENT OF OBSTETRIC & GYNAECOLOGY

LEARNING OUTCOMES OF SUBJECT (knowledge, skills, attitude)

1. To equip the students with specific knowledge, essential skills and appropriate attitude towards the human body
2. To become problem solvers, dealing effectively with familiar and unfamiliar problems To become lifelong learners
3. To direct their own learning and evaluate this activity
4. To be able to reason critically and make justifiable decisions regarding patient management
5. To practice evidence-based medicine
6. To ensure patient safety
7. To ensure compliance with the legal system as it impacts health care and the PM&DC regulations
8. To adopt a multidisciplinary approach for health promoting interventions
9. Medical graduates should be able to demonstrate professional values of self and professional accountability, honesty, probity, and ethics
10. Medical graduates are expected to demonstrate exemplary professional conduct
11. To be able to understand the pathogenesis of specific obstetric and gynaecological diseases
12. To be able to take a focused history and identify the patient's risk factors related to the obstetric and gynaecological disease process
13. To be able to perform a physical examination on a patient, to diagnose specific obstetric and gynaecological diseases.
14. To formulate a provisional diagnosis with justification, and the likely differential diagnoses
15. To be able to select appropriate biochemical investigations and interpret their reports to confirm the diagnosis
16. To be able to select specific radiological investigations for specific obstetric and gynaecological diseases
17. To be able to apply evidence-based medicine concepts for the treatment of obstetric and gynaecological diseases
18. To be able to describe the required operative procedures for different obstetric and gynaecological disease process.

CONTENT SYLLABUS (PMDC/UHS)

OBSTETRICS

1. Introduction.
2. Obstetric history taking and examination.
3. Conception, implantation and development of placenta,
4. fetal circulation, abnormalities of placenta.
5. Fetal skull and bony pelvis.
6. Diagnosis of pregnancy. Physiological changes associated with pregnancy.

7. Ante-natal care.
8. Physiology of labour.
9. Mechanism of labour.
10. Management of labour.
11. Complications of 3rd stage of labour.
12. Abnormal labour e.g. Prolonged labour/obstructed labour.
13. Pre-term labour.
14. Induction of labour.
15. Pre-maturity.
16. Post-maturity.
17. Conduction of normal delivery.
18. Operation delivery.
19. Forceps delivery.
20. Vacuum delivery.
21. Caesarean section.
22. Ante-partum haemorrhage.
23. Hydramnios.
24. Hyperemesis gravidarum.
25. Medical Disorder associated with pregnancy e.g.
 - 25.1. Pregnancy with anaemia
 - 25.2. Pregnancy with heart disease
 - 25.3. Pregnancy with diabetes
26. Hypertensive disorders of pregnancy e.g.
 - 26.1. PET
 - 26.2. Eclampsia
 - 26.3. Essential hypertension
27. Obstetric shock.
28. Intra uterine growth retardation and its management.
29. Fetal distress and its management.
30. Fetal Monitoring.
31. Fetal presentations.
32. Breech presentation.
33. Occipito posterior position.
34. Brow presentation.
35. Face presentation.
36. Cord prolapse/compound presentation.
37. Transverse lie/unstable lie.
38. Multiple pregnancy.
39. Puerperium (normal and abnormal).
40. Examination of the new-born baby.
41. Resuscitation of new-born.
42. Minor problems of the new-born.
43. Breast feeding and its importance.
44. Obstetric injuries/ruptured uterus.

45. Haematological disorder of pregnancy e.g - Rh incompatibility

45.1. Thalassemia major/minor

Practical:

Log Book of 20 assisted deliveries.

CONTENT SYLLABUS (PMDU/UHS)

GYNAECOLOGY

The course outline is as follows:

1. Introduction.
2. Anatomy of female
 - a. Genital organs
 - b. Development of female genital organs
3. Puberty and adolescence.
4. Ovulation and its clinical importance.
5. Normal menstruation.
6. Menstrual abnormalities.
7. Gynaecological history taking and examination
8. Amenorrhoea
9. Infertility.
10. Contraception.
11. Ectopic pregnancy.
12. Bleeding in early pregnancy
 - a. Miscarriage
 - b. Ectopic
 - c. Molar Pregnancy
13. Trophoblastic tumours.
14. Vulval lesion.
15. Tumours of cervix.
16. Tumours of uterus.
17. Tumours of ovaries.
18. Menopause, Hormone replacement therapy.
19. Genital prolapse.
20. Pelvic floor injuries.
21. Urogynaecology.
22. Problems of marriage and sex.
23. Vaginal discharges.
24. Infections of female genital tract
 - a. Infections of upper genital tract
 - b. Infections of lower genital tract
25. Endometriosis

Practical:

Log Book of 20 patients of Gynaecology

LEARNING RESOURCES

- 1) Obstetrics by Ten Teachers by Louise C. Kenny & Jenny E Myers. 20th edition, 2017.
- 2) Hacker & Moore's Essentials of Obstetrics and Gynecology by Neville F. Hacker,
Joseph
- 3) C. Gambone, Calvin J, Hobel, 6th ed. 2015.
- 4) Notes on Obstetrics & Gynecology. Stirrat, Mills, Draycott. 5th Ed. 2003.
- 5) Fundamentals of Obstetrics by Arshad Chohan, 2021.
- 6) Online Journals and Reading Materials through HEC Digital Library Facility

DEPARTMENT OF OPHTHALMOLOGY

Details of the course

Name of the module:	Ophthalmology
Level of Students:	3 rd and 4 th -year MBBS
Total No of students:	150 +150
Total No of batches	10+10 (15 students/ batch)
Clinical subjects Coordinator:	Prof. Mian M. Shafique (Ophthalmology)
Student's Coordinator:	Two students, one each from 3 rd and 4 th year

This module will run in parallel with other modules.

Duration of the course

Total of 150 hours will be spread over a period of two years. 54 hours for whole class activity in the form of interactive lectures and seminars. 96 hours for each clinical batch which will work in clinical wards or community hospitals for a period of 8weeks (4days a week for 3 hours daily). One third of time will be allocated in 3rd year while remaining two third in 4th year.

Learning Objectives (knowledge, skills, attitude)

General learning objectives

To enable the undergraduates to acquire important knowledge, learn skills and bring change in behaviour enabling them to:

- a. Identify the important eye ailments in OPD and emergency and treat or refer if required.
- b. Communicate adequately with the patients, their attendants and society with reference to the disease and its treatment.
- c. Apply therapeutic morals and keep the confidentiality of the patient intact.
- d. Understand the ophthalmic public health problems and know how to prevent these.
- e. Comprehend the effect of systemic diseases on eye.

Specific Learning Objectives

At the end of ophthalmology module, the student of fourth year MBBS should be able to

1. Take adequate history of eye diseases for
 - a. Problem of vision, perception of colour & field defects
 - b. Discharging eyes
 - c. Painful conditions of eye
 - d. Double vision
2. Examine the eyes adequately and perform
 - Visual acuity for near and distance
 - Pinhole test
 - Colour vision tests
 - Visual fields test by confrontation method
 - Torch examination of eye and adnexa
 - Regurgitation test to check lacrimal passages
 - Cover tests and Hirschberg test to detect squint
 - Extraocular movements to find any limitation
 - Pupil reflexes to detect RAPD (Marcus Gunn Pupil)
 - Intra-ocular pressure (IOP) digitally
 - Distant direct ophthalmoscopy, direct ophthalmoscopy & retinoscopy
3. Make diagnose of common ophthalmic diseases like sty, chalazion, blepharitis, conjunctivitis including trachoma, ocular allergies and acute or chronic dacryocystitis.
4. Identify complex eye diseases and refer the patient to appropriate places for further treatment like cataract, all types of glaucoma, trauma to eye, strabismus, painless or painful blind eyes.
5. Start early management of acute congestive glaucoma, corneal abrasion or foreign body or ulcers, red eye and white pupil and then refer to designated eye hospital.
6. Instill eye drops properly, stain the cornea with fluorescein dye.
7. Identify common eye instruments like slit lamp, different types of tonometers, direct and indirect ophthalmoscope and retinoscope.

Teaching Methodologies and Learning formats

Multiple teaching and learning formats will be used in this module including

- Interactive lectures
- Tutorials /problem-based learning
- Bedside learning
- Ward rounds → presentation of cases and observations
- OPD → Practical training for basic skills
- Case-based learning in the clinical meetings and discussions
- Community-based learning

- Operation Theatres
 - skills of sterilization to be learned and practiced
 - observations of major procedures,
- Observation of ocular labs (perimetry, Hess charting, keratometry, ultrasound, laser therapy)
- Emergency duties

Contents of the module (Syllabus)

The following is the final list of contents of the module. A special attention will be paid to

- **Eyeball** Essential anatomy, physiology, biochemistry, pharmacology and pathology
- **Adnexa & Orbit:** thyroid eye disease, orbital cellulitis, proptosis and orbital tumors.
- **Lacrimal Apparatus:** Acute and chronic dacryocystitis, tumors of lacrimal sac & gland, Epiphora and lacrimation.
- **Lids:** Congenital Anomalies of Eyelids, Sty (External Hordeolum), Chalazion, Anterior & Posterior Blepharitis, Trichiasis, Distichiasis, Ptosis, Ectropion, Entropion, Molluscum Contagiosum, Herpes Zoster Ophthalmicus, Benign & Malignant Lid Tumors, Principles & Techniques of reconstruction after Eyelid surgery.
- **Conjunctiva:** Papillary & Follicular Conjunctivitis, Acute & Chronic Bacterial Conjunctivitis, Epidemic / Viral Keratoconjunctivitis, Vernal Keratoconjunctivitis, Atopic Keratoconjunctivitis, Conjunctival Degenerations, Chlamydial Ocular Infections (Trachoma / Adult Inclusion Conjunctivitis / Neonatal Chlamydial Conjunctivitis).
- **Cornea:** Anatomy, Physiology & Histology of Cornea, Factors responsible for Corneal Transparency, Congenital Anomalies of Cornea, Bacterial Keratitis, Fungal Keratitis, Viral Keratitis (Herpes Simplex & Herpes Zoster), Lagophthalmic Ulcer, Mooren's Ulcer, Complications of corneal Ulcer, Keratoconus.
- **Sclera:** Scleral discoloration, episcleritis, scleritis.
- **Uveal Tract:** Uveitis, and its differential diagnosis from other causes of the red-eye.
- **Pupil:** Common abnormalities and pathways of reflexes of pupil.
- **Lens:** Cataract classification, etiology, management including visual rehabilitation. Lens subluxation and dislocation
- **Glaucoma:** Structure of angle of eye, the Layers of retina and optic disc, Circulation of Aqueous Humor. Intraocular pressure and its measurement, Definition and the concept of glaucoma, Classification of glaucoma, Congenital Glaucoma (Buphthalmos), Primary Open Angle Glaucoma, Primary Closed Angle Glaucoma, Secondary Glaucoma, Management of glaucoma Investigation, diagnosis, treatment options, Drugs Used in Glaucoma, Glaucoma surgical Procedures, Role of Lasers in Glaucoma management.
- **Retina and Vitreous:** Vitreous detachment and hemorrhage, retinal detachment, hypertensive retinopathy, diabetic retinopathy, central retinal vein occlusion, central retinal artery occlusion, branch retinal vein occlusion, branch retinal artery occlusion, age-related macular degeneration, retinoblastoma and retinitis pigmentosa.
- **Errors of refraction:** Introduction to optical system of normal eye, emmetropia, myopia, hypermetropia, anisometropia, astigmatism, presbyopia, aphakia, pseudophakia, and refractive surgery.
- **Squint:** Anatomy and actions of extraocular muscles, Extraocular movements, Binocular

vision, Classification of strabismus, Esotropia (Accommodative, Non-accommodative), Exotropia, Intermittent, Constant, Pseudostabismus, Paralytic squints 3rd N Palsy, 4th N Palsy, 6th N Palsy, Management of strabismus, Surgical Procedures for strabismus.

- **Neuro-ophthalmology:** Optic neuritis, papilledema, optic atrophy, Visual field defects in the lesions of optic nerve, optic chiasma, and visual cortex. 3rd, 4th, 6th and 7th cranial nerve palsies.
- **Ocular emergencies:** Chemical burns, corneal ulcer, corneal foreign body, acute congestive glaucoma, perforated globe, leucocoria in children, retinal artery and vein occlusion, acute vitreous hemorrhage, rhegmatogenous retinal detachment and papillitis
- **Injuries:** Intra and extraocular foreign bodies, chemical injuries and burns and sympathetic ophthalmitis and blunt and perforating injuries
- **Systemic Diseases:** Vitamin A deficiency, Diabetes, hypertension, collagen vascular disorders and thyroid eye disease.
- **Ophthalmic therapeutics:** Antibiotics, antiviral, antifungal, local anesthetics, antiglaucoma, fluorescein dye, mydriatic- cycloplegic and steroids

Timetable of the module (Alignment of activities with study hours)

Topic	Activity	Year	Time (Hours)
Introduction of faculty and ophthalmology department	Discussion and visit of the ward	3 rd year	2
Anatomy of the eye	Interactive lecture, tutorial with models	3 rd year	3
Physiology of the eye	Interactive lectures Tutorials	3 rd year	3
History Taking General examination of eye	OPD discussion	3 rd year	6
Eyelid diseases & Lid eversion	Lecture Case discussion in the ward, OPD and theatre	3 rd year	6
Conjunctival diseases	Lecture Case discussion in the ward and OPD	3 rd year	6
Corneal diseases Corneal staining Foreign body removal	Lecture Case discussion OPD and theatre	3 rd year	6
Lacrimal Apparatus	Lecture Case discussion OPD and theatre	3 rd year	4
Diseases of Optic nerve Related to pupil reactions	Discussion in the ward /OPD Ocular lab	4 th year	4
Refractive errors	Discussion in the ward & OPD	4 th year	6

Retinoscopy Contact lens, PRK, Lasik			
Visual pathways	Lecture and discussion in the ward & OPD	4 th year	4
Orbit Proptosis, Thyroid eye disease	Discussion in the ward & OPD	4 th year	4
Lens Distant ophthalmoscopy Cataract (examination management & operation)	Lectures Case discussion Bedside and operation theatre Community-based learning	4 th year	10
Glaucoma Tonometry Visual fields Anti-Glaucoma drugs	Lecture OPD and ward discussion theatre	4 th year	10
Uveitis	OPD discussion	4 th year	4
Pupil reactions and examination	Discussion ward/ OPD	4 th year	4
Retina Fundoscopy and management	Lecture and discussion in the ward & OPD	4 th year	6
Squint, types, management, Hess test and cover test	Discussion in the ward/ OPD Ocular lab	4 th year	5
Red eye White pupil Dry eye Wet eye	Problem Based Learning Lecture Discussion in the ward & OPD Ocular lab	4 th year	10
Self-study time			30
Assessment			6
Total			150

The Assessment

Multiple assessment tools will be used during formative and summative assessment as show in the following table.

Type of Assessment	Knowledge	Clinical skills	Attitudes
Formative (Internal) (10% = 20marks) Class test Ward test Log Book	Multiple choice questions (MCQ) Short Answer Questions (SEQ)	Case presentation	Case presentation
Summative (External)			

(90% =180 marks)	45MCQs: each having 1mark	OSPE (14 stations)	Case presentation during OSPE
End of 4 th year examination by UHS as 3 rd professional MBBS	9 SEQs: each having 5marks (90 marks)	including interactive Case Presentation (90 marks)	

Timetable of the module (Alignment of activities with study hours)

Topic	Activity	Year	Time (Hours)
Introduction of faculty and ophthalmology department	Discussion and visit of the ward	3 rd year	2
Anatomy of the eye	Interactive lecture, tutorial with models	3 rd year	3
Physiology of the eye	Interactive lectures Tutorials	3 rd year	3
History Taking General examination of eye	OPD discussion	3 rd year	6
Eyelid diseases & Lid eversion	Lecture Case discussion in the ward, OPD and theatre	3 rd year	6
Conjunctival diseases	Lecture Case discussion in the ward and OPD	3 rd year	6
Corneal diseases Corneal staining Foreign body removal	Lecture Case discussion OPD and theatre	3 rd year	6
Lacrimal Apparatus	Lecture Case discussion OPD and theatre	3 rd year	4
Diseases of Optic nerve Related to pupil reactions	Discussion in the ward /OPD Ocular lab	4 th year	4
Refractive errors			

Retinoscopy Contact lens, PRK, Lasik	Discussion in the ward & OPD	4 th year	6
Visual pathways	Lecture and discussion in the ward & OPD	4 th year	4
Orbit Proptosis, Thyroid eye disease	Discussion in the ward & OPD	4 th year	4
Lens Distant ophthalmoscopy Direct Cataract (examination management & operation)	Lectures Case discussion Bedside and operation theatre Community-based learning	4 th year	10
Glaucoma Tonometry Visual fields Anti-Glaucoma drugs	Lecture OPD and ward discussion theatre	4 th year	10
Uveitis	OPD discussion	4 th year	4
Pupil reactions and examination	Discussion ward/ OPD	4 th year	4
Retina Fundoscopy and management	Lecture and discussion in the ward & OPD	4 th year	6
Squint, types, management, Hess test and cover test	Discussion in the ward/ OPD Ocular lab	4 th year	5
Red eye White pupil Dry eye Wet eye	Problem Based Learning Lecture Discussion in the ward & OPD Ocular lab	4 th year	10
Self-study time			30
Assessment			6
Total			150

Learning resources/ facilities

1. Parson diseases of Eye. Butterworth-Heinemann;
2. Clinical Ophthalmology by M. S Jatoi, Farooq Kitab Ghar, Urdu Bazar, Karachi.
3. Clinical Ophthalmology by M. Saleem Akhtar, National Book Foundation, Lahore
4. Video tapes of clinical skills and surgical procedure will be made available in IT library.

5. Skills lab will provide the simulated learning experience the basic skills and procedures
6. Computer and Internet resources to gather the latest information.
7. The students will be provided many educational facilities like study room equipped with multimedia facilities and internet connection throughout the college campus.

DEPARTMENT OF OTORHINOLARYNGOLOGY

Duration of the course

Total of 150 hours will be spread over a period of two years. 54 hours for whole class activity in the form of interactive lectures and seminars. 96 hours for each clinical batch this will work in clinical wards or community hospitals for a period of 8 weeks (4 days a week for 3 hours daily).

3. Learning outcomes(knowledge, skills, attitude)

General learning objectives

To enable the undergraduates to acquire important knowledge, learn skills and bring change in behaviour enabling them to:

- f. Pick the important ENT ailments in OPD and emergency and treat them or refer if required.
- g. Communicate adequately with the patients, their attendants and society with reference to the disease and its treatment.
- h. Apply therapeutic morals and keep the confidentiality of the patient intact.
- i. Understand the ENT public health problems and know how to prevent these.
- j. Know the effect of systemic diseases on Ear, Nose and Throat.

Specific Learning Objectives

Towards the end of ENT module, the student of fourth year MBBS should be capable to

8. Take adequate history of ear nose & throat diseases.
9. Examine the ear nose & throat adequately

4. Contents of the module (Syllabus)

COURSE CONTENTS9+

NOSE:

- Anatomy and physiology
- History taking and examination
- Diseases of external nose
- Congenital lesions, choanal atresia, meningocoele, encephalocoele, trauma, cut nose, fractures, external deformities.
- Diseases of septum

- Epistaxis, DNS, Haematoma, Septal Abscess, Perforation
- Rhinitis Allergic, Atrophic, Hyper-trophic
- Foreign bodies
- V.M.R.
- Polyps; Mucous Ethmoidal, Antrochoanal
- Bleeding polyps
- Foreign body nose
- Rhinolith
- Maggots
- Sinusitis- Acute sinusitis, Chronic sinusitis, complications, Fungal infection of nose and paranasal sinuses
- CSF rhinorrhea
- Tumors- Basal cell carcinoma, Squamous cell carcinoma, Pappiloma, Osteoma
- Headache and its ENT causes

ORAL CAVITY & PHARYNX

- Anatomy and physiology
- History and examination

ORAL CAVITY & PHARYNX: Traumatic, Aphthus, Vincents angina, Agranulocytic, Tuberculous, Malignant ulcers, Thrush, Leukoplakia Behcet's disease and Ulcerative lesions of oral cavity

Acute tonsillitis chronic tonsillitis Peritonsillitis and abscess, Diphtheria, Differential diagnosis of white patch on the tonsil

- Tonsil / oral cavity
- Tumours of tonsil
- Retro-pharyngeal abscess
- Pharyngeal abscess acute/chronic
- Parapharyngeal abscess
- Sleep apnea syndrome
- AIDS
- Ludwig's angina
- Mumps
- Parotitis
- Hypertrophic adenoids
- Nasopharyngeal angiofibroma
- Lymphoma
- Squamous cell carcinoma
- Cleft palate

- Plummer Vinson Syndrome
- Post cricoid tumour
- Pharyngeal pouch

LARYNX

- Anatomy
- Physiology
- History Examination
- Glottic-subglottic stenosis
- Laryngocoele
- Laryngomalacia
- Laryngeal web
- Trauma
- Foreign Body & Infections of Larynx Supraglottis
- Acute laryngitis
- Diphtheria
- Chronic specific laryngitis
- Tuberculosis
- Syphilis
- Leprosy
- Non-specific chronic laryngitis
- Vocal nodules
- Vocal cord paralysis
- Functional Aphonia
- Tumours
- Papilloma larynx
- Polyps
- Carcinoma larynx TNM classification
- Tracheostomy; Indications, Contra indications, Complications, Operation steps and Post op care

EAR

- Anatomy and physiology
- History and examination
- Tuning fork tests. Pure tone audiometry / impedance audiometry
- Pain in the ear
- **External ear:**
- Perichondritis
- Trauma to pinna / Haematoma
- Pre auricular sinus
- Wax ear
- Foreign body ear
- Hyperostosis
- Neoplasia
- Boil ear
- Fungus
- Acute diffuse otitis externa
- Malignant otitis externa
- Myringitis bullosa
- Traumatic rupture
- **Middle ear / Inner ear**
- Eustachian tube dysfunction
- Otitis media with effusion
- Acute otitis media
- Traumatic perforation of tympanic membrane.
- Chronic otitis media i. Tubo tympanic ii. Mucosal disease iii. Attico antral
- Tuberculous otitis media
- Acute necrotizing otitis media
- Complications of otitis media
- Ototoxicity, Acoustic trauma
- Otosclerosis
- Vertigo, tinnitus
- Meniere's disease
- Facial nerve paralysis

- Sensory neural hearing loss
- Acoustic neuroma
-
- Deafness; assessment & management (medical, surgical, hearing aids and cochlear implant)

HEAD & NECK

- Thyroglossal cyst / sinus
- Pre auricular cyst / sinus
- D/D of mass neck
- Diseases of salivary glands

INSTRUMENTS

- Myringotomy instruments
- Mastoidectomy instruments
- Myringoplasty instruments
- Walsham's forceps
- Ashe's forceps
- Trocar and Cannula
- Nasal Specula
- Freer Elevator
- Suction Tube (Yankeur's and nasal)
- Luc's Forceps
- Tilley Nasal Dressing Forceps
- Tilley heckle forceps
- Eustachian Catheter
- Endotracheal tube, cuffed, non-cuffed
- Tracheostomy tubes
- Tracheal dilator
- Endoscopes
- Laryngoscopes
- Bronchoscopes
- Oesophagoscopes
- Nasopharyngoscope (Rigid/flexible)
- Endoscopic forceps and suction catheters
- Telescopes
- Adenoid curette
- Boyle Davis mouth gag
- Tonsil holding forceps
- Tonsillar artery forceps
- Tonsil snare
- Knot pusher

PRACTICAL SKILLS:

By the end of the clerkship in the department of ENT, the student should be able to:

1. Obtain an appropriate history.
2. Perform a complete regional examination
3. Identify common E.N.T. Head & Neck problems for a given patient and outline appropriate management plans.
4. Identify problems needing referral to an Otolaryngologist.

General Skills

The students should be able to:

1. Demonstrate the use of the head light for adequate illumination of the nasal cavities
2. Examine the oropharynx and the neck
3. Examine larynx by indirect laryngoscopy
4. Examination of postnasal space by posterior rhinoscopy.

SPECIAL SKILLS

1. Use the tongue blade to aid inspection of the oral / cavity.
2. Use the finger palpation examination of the oral cavity and tongue
3. Palpate the neck to assess the lymph-nodes and salivary glands in the neck.
4. Examination of cranial nerves.
5. Identify structures (of the neck, sinuses and ear) on X-ray (MRI, CT Scan)
6. Demonstrate the appropriate use of nasal speculum
7. Demonstrate the use of Otoscope to aid in examination of the external auditory canal and the tympanic membrane.
8. Demonstrate the use of tuning fork and interpret the findings.
9. Interpret pure tone audiometry.

SKILLS LAB

- Airway management, E.T.T intubation, Cricothyrotomy and Tracheostomy.

Observing the Following Operations

- Abscess incision drainage / Haematoma
- Reduction of fracture nose
- Septal correction surgery
- Antral wash out
- Caldwell Luc's operation
- Nasal packing (anterior and posterior)
- Functional endoscopic sinus surgery
- Tracheostomy
- Tonsillectomy
- Adenoidectomy
- Management of obstructed airway
- Foreign body in trachea bronchial tree and larynx
- Surgeries for nasal polyps
- Mastoidectomy

Timetable of the module (Alignment of activities with study hours)

Topic	Activity	Year	Time (Hours)
Introduction of faculty and ENT department	Discussion and visit of the ward	3 rd year	2
Anatomy and physiology of the ear	Interactive lecture, tutorial with models	3 rd year	3
Symptomatology of ear diseases General examination of ear	Interactive lectures Tutorials OPD discussion	3 rd year	3
Anatomy and physiology of the nose and paranasal sinuses	Lecture interactive sessions	3 rd year	6
Symptomatology of sinonasal region	Lecture Case discussion in the ward and OPD	3 rd year	6
Anatomy and physiology of oral cavity and oropharynx	Lecture	3 rd year	6
Symptomatology of diseases of oral cavity and oropharynx	Lecture Case discussion OPD and theatre	3 rd year	4
Anatomy and physiology of larynx	Lecture	3 rd year	4

Diseases of larynx	Lecture Case discussion OPD and theatre	3 rd year	2
External ear diseases	Lectures Case discussion Bedside and operation theatre Community-based learning	4 th year	4
Middle ear diseases	Lecture OPD and ward discussion theatre	4 th year	6
Inner ear diseases	OPD discussion	4 th year	4

Larynx laryngeal diseases congenital	Discussion ward/ OPD	4 th year	4
Acquired laryngeal diseases	Lecture and discussion in the ward & OPD	4 th year	4
Laryngeal tumours	Lecture and discussion in the ward & OPD	4 th year	5
Oral cavity lesions	Discussion in the ward/ OPD Ocular lab	4 th year	2
Pharyngeal diseases	Discussion in the ward /OPD Ocular lab	4 th year	4
Pharyngeal tumours	Lecture discussion in the ward & OPD	4 th year	8
Nose and paranasal sinuses congenital	Discussion in the ward & OPD	4 th year	3
Acquired sinonasal diseases	Discussion in the ward & OPD	4 th year	8
Sinonasal tumours	Lecture and discussion in the ward & OPD	4 th year	4
Miscellaneous	Problem Based Learning Lecture Discussion in the ward & OPD	4 th year	10
ENT Emergencies	Emergency department PBL tutorial Discussion on patients	4 th year	10
Self-study time			30
Assessment			6
Total			150

Learning Resources

8. Text book of ENT by Logan Turner. Latest edition.
9. Diseases of ENT by Dhingra. Latest edition.
10. Text book of ENT By Masud.
11. Oxford Hand book of ENT by Prescott.
12. Online journals and Reading materials through HEC Digital library Facilities.
13. Video tapes of clinical skills and surgical procedure are available in IT library.
14. Skills lab will provide the simulated learning experience of basic skills and procedures
15. Computer and Internet resources to gather the latest information.
16. The students are provided with many educational facilities like study room equipped with multimedia facilities and internet connection throughout the college campus

DEPARTMENT OF GENERAL MEDICINE

LEARNING OBJECTIVES (*knowledge, skills, attitude*)

- to equip the students with specific knowledge, essential skills and appropriate attitude towards the human body
- to become problem solvers, dealing effectively with familiar and unfamiliar problems
- to become lifelong learners
- to direct their own learning and evaluate this activity
- to be able to reason critically and make justifiable decisions regarding patient management
- to practice evidence-based medicine
- to always ensure patient safety
- to ensure compliance with the legal system as it impacts health care and the PM&DC regulations
- to adopt a multidisciplinary approach for health promoting interventions
- Medical graduates should be able to demonstrate professional values of self and professional accountability, honesty, probity, and ethics
- Medical and dental graduates are expected to demonstrate exemplary professional conduct
- to be able to understand the pathogenesis of specific diseases
- to be able to take a thorough focused history and identify the patient's risk factors related to the disease process
- to be able to perform a physical examination on a patient, to diagnose specific diseases and rule out other diseases
- to formulate a provisional diagnosis with justification, and the likely differential diagnoses
- to be able to select appropriate hematological, biochemical and microbiological investigations and interpret their reports to confirm the diagnosis
- to be able to select specific radiological investigations for specific diseases
- to be able to apply evidence-based medicine concepts for the medical treatment of different diseases
- to be able to write prescriptions in appropriate format according to the disease

COURSE TO BE STUDIED (*syllabus*)

The course outline is as follows:

During three years the students will be taught all these topics.

By the end of five years, medical students should be able to identify and discuss the common causes of common clinical presentations. Causes in detail can be discussed under various other headings.

General Medicine
Fever
Edema

Headache
Drowsiness and unconsciousness
Clubbing
Cough
Sputum and hemoptysis
Chest pain.
Dyspnea
Shock
Painful and difficult swallowing
Anorexia, nausea and vomiting
Abdominal pain
Diarrhea and constipation
Urination abnormalities
High colored urine
Cachexia
o Involuntary movements
o Seizures
o Paresis and paralysis
o Numbness and paresthesia
Weakness and lassitude
o Dizziness and vertigo
o Joint pains
Nutrition (re-enforcement)
Geriatrics
End-of-Life Care
Preventive aspects
Ethical problems
Communication Skills
GASTROENTEROLOGY
Oral Cavity Presentations:
o Aphthous Ulcers*6, Pigmentation (Addison's), Gingivitis, Glossitis* (Candida, Plummer-Winson Syndrome, Vitamin B2 and folate deficiency).
Nausea/Vomiting
o Hepatitis**, Gastro-enteritis**, Bacterial food poisoning, Acid peptic disease**
Indigestion/Flatulence
o Diet, Irritable Bowel Syndrome and Gastroparesis
Dysphagia**
o Of Solids: Carcinoma Esophagus (with cachexia)* and Achalasia*.
o Of Liquids: Psychogenic and Neuro-Muscular Disorders (Dementia, Bulbar Palsy and Scleroderma)
Heartburn and/or Epigastric pain
o Gastro Esophageal Reflux Disease**, Peptic ulcer and Gastritis**.
Diarrhea
o Acute Diarrhea due to Acute Gastro-enteritis: Viral**, Shigellosis**, Salmonellosis**, Traveler's diarrhea**

o Chronic Diarrhea: Amebiasis**, Giardiasis*, Malabsorption syndromes like Celiac Disease* and Tropical Sprue
o With Haematochezia Inflammatory bowel diseases: Ulcerative colitis* and Crohn's Disease*
o Irritable bowel syndrome*.
Constipation*.
o Irritable Bowel Syndrome, Diet and sedentary life style, Hypothyroidism, Carcinoma descending colon
Ascites**.
o Chronic Liver Disease**, Malignancy*, Abdominal tuberculosis**.
Jaundice**.
o Congenital hyperbilirubinemia (Gilbert Syndrome and Dubin Johnson Syndrome)
o Wilson's Disease
o Haemolytic: Malaria, Auto-immune, Hypersplenism
o Differentiate from Obstructive (Re-enforcement) *: Gall Stones, Carcinoma Pancreas, Cholangitis, Obstructive phase of Hepatitis
o Hepatic**: Viral** (acute and chronic), Toxic and Drugs).
Haematemesis and / or Melena**.
o Esophageal varices*, Mallory Weiss Syndrome, Carcinoma Stomach, Cirrhosis of Liver** and Bleeding peptic ulcer**.
Bleeding per rectum*.
o Bacillary dysentery, Inflammatory Bowel Disease, Hemorrhoids*, and Amoebic dysentery**.
Abdominal Pain
o Acid peptic Disease**, Irritable Bowel Syndrome*, Carcinoma stomach, Pancreatitis* and Porphyria
Abdominal Mass: Visceromegaly
o Liver: Hepatitis**, Liver abscess*, Hydatid Cyst, Congested Liver*, and Carcinoma (Primary and Secondary)
o Spleen: Portal Hypertension, Chronic Malaria, Chronic Myeloid Leukemia, and Myelofibrosis
o Splenomegaly with fever**: Malaria**, Typhoid**, Infective* endocarditis and Miliary tuberculosis*, Visceral Leishmaniasis,
o Kidney (see below)
o Abdominal Aneurysm
Altered Mentation: Hepatic Encephalopathy** and other causes of altered mentation.
o Drugs Contraindicated in Liver Diseases*.
KIDNEY AND GENITOURINARY SYSTEM
Lumbar pain**.
o Acute pyelonephritis**, Acute papillary necrosis, Renal Infarction, Perinephric abscess (Surgery) * and Urolithiasis (Surgery).
Oliguria/Anuria: Acute Kidney Injury**:
o Nephritides**, Acute Tubular Necrosis**, Drug-induced* (analgesic), Hypersensitivity nephropathy*, Contrast Induced* and (brief) Haemolytic-uremic syndrome

Polyuria / nocturia
o Diabetes mellitus**, Diabetes insipidus, Hypercalcaemia**,
o Chronic Kidney Disease: Glomerulopathies**, Nephrotic Syndrome**, Hyperuricemia, Drug-induced and Hemolytic uremic syndrome (brief)
o Psychogenic*.
Dysuria*: With and without frequency of Micturition (Urinary Tract infection) **
Hematuria with Dysuria*.
o Cystic infection of the bladder**, Urethritis and Urolithiasis
o Painless Hematuria*: Renal Tuberculosis*, Renal Cell Carcinoma* and Bladder carcinoma
Urinary incontinence
o Urge Incontinence (Urinary infection* and Bladder neck problems) and Stress
Urinary retention
o Prostatic Enlargement* and Neurogenic bladder
Impotence
o Diabetes mellitus and Psychogenic
Renal glycosuria*.
RESPIRATORY SYSTEM
Shortness of Breath
o Episodic: Bronchial Asthma**
o Acute: Pneumothorax**, Pulmonary Thrombo-embolism** / Acute Cor Pulmonale, Adult respiratory distress syndrome, Acute respiratory failure* (Type I and II) and Mechanical ventilation
o Chronic: Chronic obstructive airway diseases**, Pleural Effusion**, Environmental and Occupational lung diseases (in brief: Asbestosis, Silicosis, Bagassosis, Byssinosis and Pneumoconiosis), Hypersensitivity pneumonitis and Interstitial lung disease.
Fever with Cough
o Upper respiratory tract infection**
o Lower respiratory tract infection: Acute and chronic Bronchitis**
o Pneumonias**: Community acquired, Nosocomial, Lobar and Bronchopneumonia.
Cough with Sputum: Bronchiectasis* Hemoptysis: Carcinoma lung* and Tuberculosis**
Respiratory Distress
o Type-I Respiratory Failure: Pneumonia**, Pulmonary Edema** and Pulmonary Embolism **
o Type-II Respiratory Failure: Chronic Obstructive Pulmonary Disease (COPD) **
CARDIOVASCULAR SYSTEM
Fever with Murmur*
Rheumatic fever** and Infective endocarditis**
Shortness of breath with Murmur
Mitral, Aortic and Pulmonary valve diseases
Palpitations
Sinus tachycardia*, Paroxysmal Supraventricular Tachycardia**, Acute atrial Fibrillation and atrial flutter**, and Premature atrial and ventricular contractions**
Chest Pain**
Angina**, Myocardial infarction**, Constrictive pericarditis, and Pericardial effusion

Shortness of breath*
Orthopnea and/or Paroxysmal Nocturnal Dyspnea**, Left Ventricular Failure**, Congestive Cardiac Failure**, Cor pulmonale and Congenital heart diseases (brief): atrial septal defect, patent ductus arteriosus and ventricular septal defect
Hypertension**
Atherosclerosis/Arteriosclerosis** and Lipid Disorders**
Secondary Hypertension*: Renal Causes* (Polycystic Kidney, Renal Artery Stenosis, Renal Parenchymal Diseases) and Endocrine Disorders** (Gigantism, Acromegaly, Cushings, Hyperthyroidism and Pheochromocytoma)
Postural Hypotension*.
Autonomic neuropathy (Diabetes mellitus) and Drug-induced (Antihypertensives, Loop diuretics* and Nitrates)
Claudication: Peripheral vascular disease and Ischemia
Shock**: Arrhythmias (ventricular tachycardia, fibrillation) and asystole.
Syncope*: Arrhythmias, Vasovagal attack and Heat syncope
CENTRAL NERVOUS SYSTEM
Headache**.
o Acute Severe: Sinusitis** and Subarachnoid and Intra-cerebral Hemorrhage**.
o Periodic: Refractive errors, Migraine* and Tension Headaches*
o Progressive: Space-occupying lesion
o With Fever**: Meningitis** (Bacterial, Tuberculosis and Viral), Encephalitis** and Brain abscess.
o Nuchal headaches/Neck pain: Muscle spasm (Tension, Postural) and Cervical spondylosis*.
Facial Pain: Trigeminal neuralgia
Squint: Cranial nerves III, IV and VI (Cavernous sinus thrombosis)
Intellectual Impairment
Impaired Memory and Dementia*
Confusional states/Delirium/Encephalopathy**: Substance abuse, Toxins and Poisons
Paralysis*.
Hemiplegia/hemiparesis/monoplegia/quadruplegia**: Thrombotic,
Hemorrhagic and Embolic
Paraplegia/paraparesis/quadruplegia*: Spinal cord compression, Secondaries in the spine, Transverse Myelitis*, Tuberculous spine*, Syringomyelia and Syringobulbia
Focal Neurological Deficit: Multiple sclerosis, Space occupying lesion and Mononeuritis multiplex
Facial Weakness: Bell's Palsy**
o Ptosis: Myasthenia Gravis, Horner's Syndrome and III nerve palsy
o Transient Ischemic Attack**
Speech disturbances
Hypertonia: Myotonia Dystrophica and Parkinsonism *
Hypotonia and muscle wasting: Lower motor neuron disease,*
Muscle cramps: Metabolic, Overexertion and Idiopathic
Movement Disorders:
o Hyperkinesia: Tremors* (Hyperthyroidism**, Anxiety*, Druginduced, Parkinsonism, Cerebellar*)

o Fasciculations: Motor neuron disease and Myokymia,
o Others: Athetosis, Chorea, Hemiballismus, Ballismus, Myoclonus and Carpopedal Spasm (tetany)*
o Hypokinesia: Parkinson"s Disease and Drug induced
o Gait abnormalities:
Ataxic: Cerebellar disorder*
Shuffling gait: Parkinsonism*
Scissor Gait: Cerebral palsy
Lurching gait: Post Cerebro-vascular accidents
Waddling gait: Proximal myopathy (Thyroid disease, Cushing"s disease, Vitamin deficiency, steroids
Convulsions/Fits**: Tetanus, Epilepsy*, Space-occupying lesion, Head injury and Cerebro-vascular accidents
Coma/ Stupor / drowsiness**: Metabolic**, Trauma, Infection** (Meningitis and Encephalitis), Poisoning, Substance abuse (alcohol), Toxins and Cerebrovascular accidents
Dizziness: Malignant Hypertension and Anxiety
Vertigo: Benign Positional Vertigo*, Meniere"s disease, Labyrinthitis, Upper Respiratory Tract Infections and Vertebro-basilar insufficiency
Congenital Deafness (ENT)
Blindness / Blurring of Vision:
Occipital Infarction /Hemorrhage, Head injury / Traumatic, Visual
Field Defects (pituitary lesions), Malignant hypertension, Transient mono-ocular blindness (Amaurosis fugax), Multiple sclerosis (associated with more deficits), Snake-bite (neurotoxins) and Druginduced
Paraesthesias: Polyneuropathy / Peripheral neuropathies
o Hypoesthesia: Diabetes mellitus**, Vitamin deficiencies (B6 and B12) *, Mono neuritis multiplex*, and Drug induced (INH) *
o Hyperesthesia: Diabetic Burning feet syndrome and Restless leg syndrome
Muscular Weakness:
o Acute: Periodic Paralysis and Guillain Barre Syndrome*
o Chronic: Toxic/ Drug Induced, Hypothyroidism and Hyperthyroidism, Vitamin D deficiency*, Motor-neuron disease
o Myasthenia Gravis.
MUSCULOSKELETAL SYSTEM
Joint pain and/or Joint swelling:
o Monoarthritis* or Polyarthritis*
o Large Joint involvement: Osteoarthritis, Septic arthritis*, Haemarthrosis and polyarthritis migrans* (Rheumatic fever)
o Small joint involvement (Inflammatory): Rheumatoid Arthritis*, Systemic Lupus Erythematosus* and Gout*
Easy Fractures: Osteoporosis*
Bone Pain:
Osteomalacia*, Osteomyelitis, Hyperparathyroidism, Malignancy (Multiple Myeloma, Osteosarcoma, Secondaries in the bone and Leukemias)
Neck Pain: Cervical spondylosis* and Tension

Dorsal Pain: Tuberculosis*
Low back pain: Sciatica (Herniated disc) *, Inflammatory (Ankylosing spondylitis and Sacro-iliitis), Secondaries, Lumbar spondylosis,
Mechanical/postural, Vertebral Collapse (Tuberculosis and Osteoporosis)
Claudication: Spinal stenosis**
Increased skin elasticity and hypermobility of joints: Ehler Danlos syndrome and Marfan's Syndrome
Muscle stiffness and pain: Depression, Anti-psychotic drugs and Fibromyalgia
BLOOD
Pallor: Anaemias.
Microcytic Hypochromic (Iron deficiency)**: Increased Loss and Decreased uptake (Malabsorption, Tuberculous and Hookworms)
Macrocytic Megaloblastic** (B-12 deficiency and Folic acid deficiency),
Normocytic normochromic*: Anemia of chronic inflammation, Malignancies and Renal failure
Hemolytic anemia*: Hereditary (Thalassemia*, Sickle cell anemia,
Hereditary spherocytosis), Acquired (Blood Transfusion
incompatibility, Autoimmune and Valve replacement)
Intra-corpuscular: G6P Deficiency, Malaria, Sickle cell syndromes
(brief) and Thalassemias
Extra-corpuscular Intravascular
o Aplastic anemia: Myelofibrosis and Drug-induced
Hepatosplenomegaly (Myeloproliferative diseases).
With pallor: Chronic myeloid leukemia and Kala Azar
Without pallor: Polycythemia rubra vera, Essential thrombocytosis
Pallor with Lymphadenopathy and/or lassitude
Leukemias**: Acute and Chronic and
Lymphomas**: Non-Hodgkin`s and Hodgkin`s.
Blood groups and blood transfusion**.
Fever with lymphadenopathy: Infectious mononucleosis
Bleeding and / purpura
Clotting Disorders: Decreased production and increased destruction
o Von Willebrand`s disease,
o Disseminated intravascular coagulation (DIC)
o Hemophilia
o Vitamin K deficiency
o Anticoagulant Therapy: Injectable and oral including anti-platelet agents
Bleeding Disorders: Epistaxis (Hypertension), Thrombocytopenia
(Immune/ Idiopathic and Acquired Thrombocytopenic purpura),
Vessel wall disorders, Thrombotic Dysfunction and Drug-induced
bleeding (Polypharmacy).
METABOLIC AND ENDOCRINAL DISORDERS
Generalized Pigmentation
Endocrinal: Addison`s Disease, with Diabetes Mellitus
(Haemochromatosis in brief)
Drug-induced: Chloroquine, Heavy Metals and Chemotherapy

Polyuria and Polydipsia: Diabetes mellitus*** and hyperglycemic states**.
Growth Abnormalities:
Tall stature: Gigantism and Acromegaly
Short Stature: Hypothyroidism**, Obesity: Cushing's syndrome and Hypothyroidism**
Infertility: Hypogonadism, Primary Ovarian failure and Sheehan's Syndrome
INFECTIOUS DISEASES · Common infections in the organ-systems listed above, · With emphasis on those common in Pakistan: Tuberculosis, Malaria, Typhoid, Dengue, Pneumonias, Meningitides and encephalitides, Infectious mononucleosis and · Those of global importance

TABLE OF SPECIFICATION FOR MEDICINE EXAM

Medicine paper I MCQs table of specifications

S.NO	TOPIC	MCQs
1	CARDIOVASCULARSYSTEM	07
2	PULMONARY MEDICINE	07
3	CENTRAL NERVOUS SYSTEM	07
4	GASTROINTESTINAL SYSTEM	07
5	LIVER,PANCREAS & GALL BLADDER	06
6	BLOOD	05
7	RHEUMATOLOGY	06

Medicine paper I SEQs table of specifications

S.NO	TOPIC	SEQs
1	CARDIOVASCULARSYSTEM	02
2	PULMONARY MEDICINE	01
3	CENTRAL NERVOUS SYSTEM	01
4	GASTROINTESTINAL SYSTEM	02
5	LIVER, PANCREAS & GALL BLADDER	01
6	BLOOD	01
7	RHEUMATOLOGY	01

Medicine paper II MCQ table of specifications

S.NO	TOPIC	MCQs
1	ENDOCRINES Thyroid Diabetes Adrenals Others	05(Break up is as follows) 01 01 01 02
2	RENAL/ACID BASE/WATER & ELECTROLYTES METABOLISM	10
3	INFECTIONS/TROPICAL DISEASES	07
4	NEURO-PSYCHIATRY	10
5	DERMATOLOGY	06
6	NUTRITION,DATA/PHOTO	02

Medicine paper II SEQs table of specifications

S.NO	TOPIC	SEQs
1	ENDOCRINES	02
2	RENAL/ACID BASE/WATER & ELECTROLYTES METABOLISM	02
3	INFECTIONS/TROPICAL DISEASES	02
4	NEURO-PSYCHIATRY	02
5	DERMATOLOGY	01
	TOTAL	09

LEARNING RESOURCES***Recommended books***

- Davidson's Principles and Practices of Medicine 24th Edition.
- Kumar and Clark's Clinical Medicine 10th Edition
- Essentials of Clinical Medicine by Wasim Amer 1st Edition
- Current medical diagnosis and therapeutics
- Hutchison's clinical methods 25th Edition

Online Journals and Reading Materials through HEC Digital Library Facility.

DEPARTMENT OF DERMATOLOGY

LEARNING OBJECTIVES (knowledge, skills, attitude)

- 20) to equip the students with specific knowledge, essential skills and appropriate attitude towards the human body
- 21) to become problem solvers, dealing effectively with familiar and unfamiliar problems
- 22) to become lifelong learners
- 23) to direct their own learning and evaluate this activity
- 24) to be able to reason critically and make justifiable decisions regarding patient management
- 25) to practice evidence-based medicine
- 26) to always ensure patient safety
- 27) to ensure compliance with the legal system as it impacts health care and the PM&DC regulations
- 28) to adopt a multidisciplinary approach for health promoting interventions
- 29) Medical graduates should be able to demonstrate professional values of self and professional accountability, honesty, probity, and ethics
- 30) Medical and dental graduates are expected to demonstrate exemplary professional conduct
- 31) to be able to understand the pathogenesis of specific diseases
- 32) to be able to take a thorough focused history and identify the patient's risk factors related to the disease process
- 33) to be able to perform a physical examination on a patient, to diagnose specific diseases and rule out other diseases
- 34) to formulate a provisional diagnosis with justification, and the likely differential diagnoses
- 35) to be able to select appropriate hematological, biochemical and microbiological investigations and interpret their reports to confirm the diagnosis
- 36) to be able to select specific radiological investigations for specific diseases
- 37) to be able to apply evidence-based medicine concepts for the medical treatment of different diseases
- 38) to be able to write prescriptions in appropriate format according to the disease

COURSE TO BE STUDIED (syllabus)

The course outline is as follows:

The students will be taught all these topics.

By the end of final year, medical students should be able to identify and discuss the common causes of common clinical presentations. Causes in detail can be discussed under various other headings.

Introduction and Basics of Dermatology
Introduction and History taking
Anatomy and Physiology of Skin
Basic skin lesions

Itchy Dermatoses
Scabies
Pediculosis
Urticaria
Eczemas
Seborrheic dermatitis
Contact dermatitis
Papulosquamous disorders
Psoriasis
Erythroderma
Lichen planus
Disorders of sebaceous glands
Acne vulgaris
Rosacea
Bullous disorders
Pemphigus
Pemphigoid
Dermatitis herpetiformis
Erythema multiforme
SJS/TEN
Infections
Bacterial infections (Staphylococcal/Streptococcal)
Fungal infections
Viral infections
Leishmaniasis
Cutaneous Tuberculosis
Leprosy
Skin and cutaneous manifestations of systemic disorders
Systemic lupus erythematosus
Systemic sclerosis
Dermatomyositis
Diabetes
Hair disorders
Alopecia
Telogen effluvium
Pigmentary disorders
Vitiligo
Melasma

Cutaneous Malignancies
Squamous cell carcinoma
Basal cell carcinoma
Malignant melanoma

Recommended books

- 1) ABC of Dermatology by Prof.Tahir Saeed Haroon.
- 2) Davidson's Principles and Practices of Medicine.
- 3) Kumar and Clark's Clinical medicine.
- 4) Fitzpatrick,s Colour Atlas and synopsis of Dermatology.

DEPARTMENT OF PSYCHIATRY AND BEHAVIORAL SCIENCES

TARGET AUDIENCE

3rd year MBBS students

LEARNING OBJECTIVES (*knowledge, skills, attitude*)

- 1) to equip the students with specific knowledge, essential skills and appropriate attitude towards the human body & mind
- 2) to become problem solvers, dealing effectively with familiar and unfamiliar problems
- 3) to become lifelong learners
- 4) to direct their own learning and evaluate this activity
- 5) to be able to reason critically and make justifiable decisions regarding patient management
- 6) to practice evidence-based medicine
- 7) to always ensure patient safety
- 8) to ensure compliance with the legal system as it impacts health care and the PM&DC regulations
- 9) to adopt a multidisciplinary approach for health promoting interventions
- 10) Medical graduates should be able to demonstrate professional values of self and professional accountability, honesty, probity, and ethics
- 11) Medical and dental graduates are expected to demonstrate exemplary professional conduct
- 12) to be able to understand the pathogenesis of specific diseases
- 13) to be able to take a thorough focused history and identify the patient's risk factors related to the disease process
- 14) to be able to perform a physical examination on a patient, to diagnose specific diseases and rule out other diseases
- 15) to formulate a provisional diagnosis with justification, and the likely differential diagnoses
- 16) to be able to select appropriate hematological, biochemical and microbiological investigations and interpret their reports to confirm the diagnosis
- 17) to be able to select specific radiological investigations for specific diseases
- 18) to be able to apply evidence-based medicine concepts for the medical treatment of different diseases
- 19) to be able to write prescriptions in appropriate format according to the disease

COURSE TO BE STUDIED (syllabus):

COURSE OUTLINES:

- Introduction to Behavioral Sciences
- Bio Psycho Social Model of health & Disease
- Non Pharmacological interventions (NPIS) in clinical practice
- Communication Skills
- Counseling
- Informational Care

- Handling Difficult Patients & their families
- Breaking bad news
- Crisis Intervention and Disaster Management
- Conflict Resolution
- Empathy
- Medical Ethics & professionalism
- Doctor-patient relationship
- Right & Responsibilities of Patients & Doctors
- Psychological reactions in doctor-patient relationship
- Professionalism in health care
- Psychology in medical practice
- Principles of Psychology
- Learning
- Metacognition
- Memory
- Perception
- Thinking
- Emotions
- Motivation
- Intelligence
- Personality Development
- Neurological basis of Behavior
- Sociology & anthropology
- Psychosocial aspects of health & disease
- Psychosocial Assessment
- Psychosocial issues in special hospital settings
- Psychosocial peculiarities of Dentistry
- Common Psychiatric Disorders in General health settings
- Psychosocial Aspects of gender & Sexuality
- Psychosocial Aspects of pain
- Psychosocial Aspects of aging
- Psychosocial Aspects of death & Dying
- Psychosocial Aspects of Terrorism
- Psycho trauma
- Stress & its management

Teaching & Learning Methodologies

CLINICAL TRAINING:

Clinical Rotation in Behavioral Sciences & Psychiatry Department

Important Topics to Be Discussed:

Bio psychosocial model
 Communication skills
 Breaking Bad News
 Confidentiality issues

Consent
 Common ethical dilemmas
 Sleep hygiene
 Personality development
 Stress management
 Psychosocial Assessment
 Health belief Model
 Common Psychiatric Disorders in General Health settings

ALIGNMENT OF EDUCATION WITH STUDY HOURS (3rd year MBBS)

Sr no	Topic	Teacher	Lecture	Lecture hours
1	Introduction to Behavioral Sciences Communication Skills Empathy	Prof.Dr. Khalid Umer Gill	1	45 mints
2	Counseling Informational Care Breaking bad news Crisis Intervention and Disaster Management Conflict Resolution	Prof.Dr. Khalid Umer Gill	1	45 mints
3	Medical Ethics Doctor-patient relationship Right & Responsibilities of Patients & Doctors Professionalism in health care	Dr. Syed Faraz (assistant Professor)	1	45 minutes
4	Psychology in medical practice Neurological basis of Behavior Sociology & anthropology	Dr. Syed Faraz (assistant Professor)	1	45 minutes
5	Psychosocial aspects of health & disease Psychosocial Aspects of pain Psychosocial Assessment	Dr. Syed Faraz (assistant Professor)	1	45 minutes
6	Psychosocial issues in special hospital settings Psychosocial peculiarities of Dentistry Psychosocial Aspects of Alternative Medicine	Dr. Syed Faraz (assistant Professor)	1	45 minutes
7	Common Psychiatric Disorders in General Health Settings Stress & its management	Prof.Dr. Khalid Umer Gill	1	45 minutes

8	Psychosocial Aspects of Gender & Sexuality Management	Prof.Dr. Khalid Umer Gill	1	45 minutes
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LEARNING RESOURCES

Recommended books

- Hand book of Behavioral Sciences for Medical & Dental students Mowadat H. Rana.
- Online Journals and Reading Materials through HEC Digital Library Facility.

DEPARTMENT OF PEDIATRICS

LEARNING OBJECTIVES (*knowledge, skills, attitude*)

1. To equip the students with specific knowledge, essential skills and appropriate attitude towards the human body
2. To become problem solvers, dealing effectively with familiar and unfamiliar problems
3. To become lifelong learners
4. To direct their own learning and evaluate this activity
5. To be able to reason critically and make justifiable decisions regarding patient management
6. To practice evidence-based medicine
7. To always ensure patient safety
8. To ensure compliance with the legal system as it impacts health care and the PM&DC regulations
9. To adopt a multidisciplinary approach for health promoting interventions
10. Medical graduates should be able to demonstrate professional values of self and professional accountability, honesty, probity, and ethics
11. Medical and dental graduates are expected to demonstrate exemplary professional conduct
12. To be able to understand the pathogenesis of specific diseases
13. To be able to take a focused history and identify the patient's risk factors related to the disease process
14. To be able to perform a physical examination on a patient, to diagnose specific Paediatric diseases and differentiate from other systems
15. To formulate a provisional diagnosis with justification, and the likely differential diagnoses
16. To be able to select appropriate biochemical investigations and interpret their reports to confirm the diagnosis
17. To be able to select specific radiological investigations for specific diseases
18. To be able to apply evidence-based medicine concepts for the medical treatment of different diseases
19. To be able to describe the required procedures for different diseases

COURSE TO BE STUDIED /SYLLABUS (UHS)

The course outline is as follows:

COURSE CONTENT

List of suggested topics for teaching the undergraduates is given below, however the individual faculties can alter/add topics as per their discretion in respective institution:

- Common Problems of children in Pakistan and statistics of Pakistani Children.
- Clinical Methods in Paediatrics.
- Nutrition (Breast feeding, infant feeding, Weaning) and Nutritional Disorders: (PCM, Rickets, Vitamin A Deficiency, iodine deficiency, Iron Deficiency).
- Growth and Development.
- Common Paediatric infections: Measles, tetanus, polio, diphtheria, whooping cough, AIDS, Malaria, Enteric Fever, Tuberculosis, Chicken pox, Common Skin infections.
- Expanded Programme of Immunization (EPI). Newer vaccines.
- Diarrheal diseases.
- Acute Respiratory Infections (ARI).
- IMNCI (Integrated Management of Neonatal & Childhood Illness).
- Neonatology: Resuscitation of new born, care of normal new-born, birth asphyxia, premature and low birth weight babies, Neonatal Jaundice, Neonatal sepsis, Neonatal fits, Respiratory distress of new born, Common skin conditions of neonates; Pyloric stenosis, Myelo-meningocele, Hydrocephalus, common congenital abnormalities and Birth trauma.
- Neurology: Meningitis, febrile, convulsions, epilepsy, Cerebral Palsy, mental handicap, Cerebral Malaria, Encephalitis.
- Cardiology: Congenital heart diseases [VSD, PDA, TOF, ASD], Rheumatic fever. Congestive cardiac failure, Clinical assessment of a cyanotic neonate/infant.
- Haematology: Anaemias, Thalassemia, Leukemias, Bleeding disorders.
- Nephrology: Nephrotic syndrome, Urinary tract infections, Acute Glomerulonephritis.
- Endocrinology: Hypothyroidism, short stature, Diabetes.
- Pulmonology: Croup, Asthma, Tuberculosis, Pneumonias, Pleural effusions

- Gastroenterology: Abdominal pain, Malabsorption, Hepatitis, cirrhosis, Acute liver failure, Diarrhoea [acute/chronic] Dysentery, Worm infestations, Giardia, amoebiasis Rectal Polyp.

- Genetics: Patterns of inheritance, Down's syndrome.

- Social Paediatrics: Right of child, child abuse, Enuresis, encopresis, Hyperactivity, Dyslexia, Attention Deficit disorder.

- Miscellaneous: Poisoning, prevention of home accidents, behavioural disorders.

- Paediatric Surgery: Hernia, Intussusception, Intestinal obstruction, Talipes, congenital Dislocation of Hip, Vesico ureteral reflux.

SKILLS:

1. Students will demonstrate his ability to obtain a relevant clinical history from a parent or an older child.

2. Student will demonstrate his ability to perform adequate clinical examination of a child of any age (including newborn).

3. Student will be able to interpret clinical and laboratory data to arrive at a diagnosis.

4. Student will be able to advise appropriate nutritional measures for healthy and sick children (Breast feeding, avoidance of bottle, proper weaning)

5. Student will be able to counsel the parents on health promotive and disease preventive strategies for the child e.g. immunization procedures; hand washing)

6. Student will be able to recognize and manage common health problems of children.

7. Student will recognize the danger signs of disease in children and be able to appropriately refer children with severe disease to appropriate specialists/hospitals.

8. Student will demonstrate his ability to perform essential clinical procedures relevant to children e.g.

- Resuscitation of newborn.
- Basic cardio-pulmonary resuscitation.
- Anthropometric measurements.
- Measuring blood pressure
- Starting intravenous lines/ draw blood sample
- Administration of oxygen therapy
- Giving nebulizer therapy [bronchodilator
- Use of growth chart

OBSERVE THE FOLLOWING SKILLS:

1. Lumbar puncture

2. Bone marrow aspiration

3. Supra pubic puncture
4. Subdural tap
5. Thoracentesis
6. Pericardiocentesis
7. Liver biopsy
8. Renal biopsy
9. Observe passing of catheter
10. Observe pericardial tap

LEARNING RESOURCES

Recommended books

- 5) Basic of Paediatrics latest edition by Pervaiz Akbar Khan
- 6) Textbook of Paediatrics revised latest edition by Pakistan Paediatric Association
- 7) Bedside Techniques Methods of Clinical Examination latest edition
- 8) Hutchison's Paediatrics latest edition by Krishna M Goel, Devendra K Gupta
- 9) Clinical Skills for Undergraduates by Abdul Majeed Ch. and Aamer Zaman Khan
- 10) Online Journals and Reading Materials through HEC Digital Library Facility.

Technologies to be used

- 1) Textbooks are the most important part of student learning for this subject
- 2) Hands-on activities and practical sessions to enhance the learning.
- 3) Skills lab will be used for simulated learning of the basic skills related to the gastrointestinal system
- 4) Videos from different web portals to familiarize the students with the procedures and protocols.
- 5) Computer and Internet resources are essential to gather the latest information about a specific disease.

DEPARTMENT OF UROLOGY

LEARNING OBJECTIVES (knowledge, skills, attitude)

By the end of this urology ward rotation the students should be able

- 1) to acquire specific knowledge, essential skills and appropriate attitude towards the human body
- 2) to become problem solvers, dealing effectively with familiar and unfamiliar problems
- 3) to become lifelong learners
- 4) to direct their own learning and evaluate this activity
- 5) to be able to reason critically and make justifiable decisions regarding patient management
- 6) to practice evidence-based medicine
- 7) to always ensure patient safety
- 8) to ensure compliance with the legal system as it impacts health care and the PM&DC regulations
- 9) to adopt a multidisciplinary approach for health promoting interventions
- 10) Medical graduates should be able to demonstrate professional values of self and professional accountability, honesty, and ethics
- 11) Medical and dental graduates are expected to demonstrate exemplary professional conduct
- 12) to be able to understand the pathogenesis of specific diseases
- 13) to be able to take a focused history and identify the patient's risk factors related to the disease process
- 14) to be able to perform a physical examination on a patient, to diagnose specific urological diseases and differentiate from other systems
- 15) to formulate a provisional diagnosis with justification, and the likely differential diagnoses
- 16) to be able to select appropriate biochemical investigations and interpret their reports to confirm the diagnosis
- 17) to be able to select specific radiological investigations for specific diseases
- 18) to be able to apply evidence-based medicine concepts for the medical treatment of different diseases
- 19) to be able to describe the required urological procedures for different diseases

LECTURE PLAN DETAIL

LECT. NO.	PROPOSED TIMELINE	CHAPTER	TOPICS
1	Week 1	Introduction to Urology	Brief history of Urology
2	Week 2	Anatomy of kidney, ureter, bladder, prostate, testis	- Anatomy of kidney - Anatomy of ureter - Anatomy of bladder and function of bladder - Anatomy of testis - Anatomy of prostate
3	Week 3	Symptoms in urology	- Symptoms of kidney disorders - S/O Ureter disorders - S/O Bladder disorders - Testicular symptoms - Prostate symptoms
4	Week 4	Urolithiasis	- Pathogenesis - Diagnosis - Treatment
5	Week 5	Prostate enlargement	- International Prostate Symptoms Score - Diagnosis - Treatment options – medical and surgical - New modalities
6	Week 6	Prostate enlargement	- International Prostate Symptoms Score - Diagnosis - Treatment options – medical and surgical - New modalities
7	Week 8	CA – Prostate	- Classical presentation - Diagnosis - Treatment for local tumor in locally advanced metastasis - Follow up
8	Week 9	CA - Urinary Bladder	- Diagnosis - Tumor markers - Treatment - Follow up
9	Week 10	CA - Urinary Bladder	- Benign / malignant - Diagnosis

			• Treatment • Follow up
10	Week 11	CA-Testis	• Classification • Grading • Management
11	Week 12	Renal Tumors	• Classification • Grading • Management
12	Week 14	Urinary Bladder Trauma	• Classification • Grading • Management
13	Week 19	Renal Trauma	• Symptoms/presentation • Diagnosis • Management • Complications
14	Week 20	Penile Trauma	• Presentation • Diagnosis • Management • Complications
15	Week 21	Testicular Trauma	• Presentation • Diagnosis • Management • Complications
16	Week 22	Testicular Torsion	• Classification • GFR measurement • management
17	Week 24	Varicocele	• Presentation • Diagnosis • Management • Complications
18	Week 25	Vascular Access	• Classification • Diagnosis • Treatment
19	Week 26	Infertility	• Classification • Diagnosis • Treatment • Management
20	Week 27	Renal Failure	• Grading • Diagnosis • Management • Follow up
21	Week 28	Renal Transplant	• Introduction • Indications • Contra indications

			• Complications
22	Week 30	Erectile Dysfunction	• Definition • Classification • Procedure • Complication
23	Week 31	Hypospadiasis	• Symptoms/presentation • Diagnosis • Management • Follow up
24	Week 32	PUJ Obstruction	• Diagnosis • Management
25	Week 33	VUR	• Diagnosis • Management
26	Week 34	ESWL	• Diagnosis • Management
27	Week 35	Urethral Trauma	• Classification • Diagnosis • Management
28	Week 36	Urethral Trauma	• Diagnosis • Management

CLINICAL BATCH PLAN

Week 1	• Introduction of urology • Urology history taking • Urological examination • Introduction of urological investigations
Week 2	• Anatomy and physiology of prostate gland • Presentation of prostatic enlargement • Examination of prostate (DRE) • How to investigate a patient of prostatic enlargement • What are different treatment options (medical/surgery) • Follow up protocol
Week 3	• Introduction of urolithiasis • different presentation of renal,ureteric,and urinary bladder stones • Investigations related to urolithiasis • Treatment options for different stones • Stone prevention protocol
Week 4	• UTI • Classification (Simple/complicated) • Non specific and specific (genitourinary TB etc.)

	• Sexual transmitted infections (STI) • UTI in pregnancy
Week 5	• Presentation on U bladder tumor • Examination of a patient with u bladder tumor • Investigations of u bladder tumor • Superficial and deep bladder tumors • Treatment of superficial and deep bladder tumor
Week 6	• Urological Emergencies (urethral trauma, Testicular torsion) • Urological X Rays (IVU, Retrograde urethrogram) • Urological instruments (Boujies, Supra pubic trocar) • Urological Gadgets (GJ stent, Ureteric stents, Guide wires)

DEPARTMENT OF RADIOLOGY

Learning Outcomes of Subject

By the end of this academic session the students should be able,

- 1) Select/advise the required radiological examination correctly
- 2) Identify gross abnormalities in the films
- 3) List indications and advantages of modern techniques
- 4) Recognize major abdominal viscera and their imaging characters.

COURSE CONTENT

Topic	Sub topics
Chest X-ray	To understand ☐ Basic anatomy and interpretation ☐ Understanding different diseases including Pneumothorax, Pneumonia, effusion, Cardiomegaly
Chest X-ray	To understand ☐ Different disease including pulmonary edema, fractures, surgical emphysema, neoplastic Diseases & chronic inflammatory disease
Abdomen x-ray	To understand ☐ Normal anatomy and projections of abdomen, renal & urinary tract stones, gall stones and other calcifications, free gas under diaphragm, (perforation)
Spine X-ray	To understand

	Normal anatomy and projections, disc space reduction, vertebral collapse
Barium Meal and with double contrast (where applicable)	To understand ☐ Normal anatomy and various projections, gastric outlet obstruction, stomach mass/filling defect, colonic defects , stricture, Ulcerative colitis
Intravenous Urogram	To understand ☐ Basic interpretation & hydronephrosis and renal masses interpretation.
Micturating Cystourethrogram	To understand ☐ Basic interpretation & reflux pathologies
Cholecystogram	To understand ☐ Basic interpretation & gall bladder diseases and stones
CT / MRI	To Understand the ☐ Be able to interpret the report

Learning Resources

- a. Aids to Radiological Differential Diagnosis by Chapman S. and Nakielny R. 4th ed. Elsevier Science Limited; 2003.
- b. Online journal through LMDC library.

DEPARTMENT OF ANAESTHESIA

TARGET AUDIENCE

03rd - 5th year MBBS students

LEARNING OBJECTIVES (*knowledge, skills, attitude*)

- 1) to equip the students with specific knowledge, essential skills and appropriate attitude towards the specialty of anaesthesia
- 2) to become problem solvers, dealing effectively with familiar and unfamiliar problems
- 3) to become lifelong learners
- 4) to direct their own learning and evaluate this activity
- 5) to be able to reason critically and make justifiable decisions regarding patient management
- 6) to practice evidence-based medicine
- 7) to always ensure patient safety
- 8) to ensure compliance with the legal system as it impacts health care and the PM&DC regulations
- 9) to adopt a multidisciplinary approach for health promoting interventions
- 10) Medical graduates should be able to demonstrate professional values of self and professional accountability, honesty, probity, and ethics
- 11) Medical graduates are expected to demonstrate exemplary professional conduct
- 12) to be able to determine the risk stratification of Anaesthesia regarding various surgeries

- 13) to be able to select appropriate hematological, biochemical and microbiological investigations and interpret their reports for risk stratification for anesthesia
- 14) to be able to select specific radiological investigations for specific diseases
- 15) to be able to apply perioperative concepts for optimization
- 16) to be able to write perioperative plan in appropriate format
- 17) to keep patients pain free preoperatively
- 18) management of indoor & outdoor pain

Syllabus

The course outline is as follows:

The students will be taught all these topics.

Introduction and Basics of Anaesthesia
Introduction and History taking
Anatomy and Physiology of various system
Basic resuscitation technique
Airway Management
Cardiac Concerns
Hypertension

CCF
Pacemaker / IHD
Valvular heart disease
Respiratory Concerns
Asthma
COPD
Tuberculosis
Lung pathologies
Renal Concerns
AKI
CKD
Renal Failure
Hematologic
Hemophilia's
Transfusion reaction
Blood loss calculation
IV Fluids
Infections
Bacterial infections (Staphylococcal/Streptococcal)
Fungal infections
Sterilization
Hepatitis B,C , HIV
PPE
Pain Management
Acute Pain Management
Chronic Pain Management
Multimodal Pain Management

MANDATORY CLINICAL SKILLS REQUIRED FOR MBBS EXAM
UHS GUIDELINES

University of Health Sciences – For World Class Professionals (uhs.edu.pk)

- 1. Blood Pressure Measurement**
- 2. Blood Sampling**
- 3. Injections**
- 4. Aseptic measures**
- 5. Venous cut down**
- 6. Foley's catheterization**
- 7. Structures and Knots**
- 8. Basic Life Support & ASLT**
- 9. Lumber Puncture**
- 10. Venous Cannulation**
- 11. POP & Bandages**
- 12. FNAC**
- 13. Episiotomy**
- 14. Normal and Instrumental delivery**
- 15. Breech delivery**
- 16. Tracheotomy**
- 17. Endotracheal intubation**
- 18. True Cut Biopsy**

STUDENT ELECTIVES

At Lahore Medical and Dental College, 4th and 5th yr MBBS students are encouraged to go for electives as this will give them a chance to experience clinical teaching in an environment which is different from their own. Usually students adopt for two electives one in 4th yr and other in 5th yr. Students apply on their own although facilitation and guidance is provided by the Students' section for correspondence and character certificates.

Students have the option to apply for both local (national) or international elective programmes. They compete on merit with students from other colleges and countries for selection.

Recently the college has signed an MOU with green book hospitals in USA to facilitate LMDC students for US electives.

LMDC has also applied for VSLO programme for international medical graduates to provide facilitation in USA electives. The institute is waiting for its final approval.

Details of Electives can also be found on college website under international affiliations.

ACADEMIC CALENDAR

Following national / Local holiday are observed

- | | | | |
|-----|--|---|------------------------------|
| 1. | 24 th December to 31 st December | - | Winter Vacation |
| 2. | 5 th February | - | Kashmir Day |
| 3. | 1 st Week of March | - | Annual Sports |
| 4. | 23 rd March | - | Pakistan Day |
| 5. | 1 st May | - | Labor Day |
| 6. | 1 st June, to 30 th June | - | Summer Vacation |
| 7. | Subject to moon sighting | - | Eid ul Fitr |
| 8. | Subject to moon sighting | - | Eid ul Azha |
| 9. | 14 th August | - | Independence Day of Pakistan |
| 10. | Subject to moon sighting | - | Aushura Muharram |
| 11. | 9 th November | - | Iqbal Day |
| 12. | Subject to moon sighting | - | Eid Milad un Nabi |

STUDENTS TEAM BUILDING AND LEADERSHIP SKILLS

To instill team building and leadership skills, LMDC have the following clubs and societies. These are student led societies. A faculty member is nominated to oversee and facilitate the working of the society

CO-CURRICULAR AND EXTRACURRICULAR ACTIVITIES

STUDENT SOCIETIES	STUDENTS CLUBS
Research society	Cricket Club
Med-connect society	Football Club
Anti-smoking society	Badminton Club
Green Health society	Table Tennis
Blood Donation society	Athletics
Musical society	Basket ball
Painting and Handicraft society	Chess
Photographic society	Snooker
Social work society	Gaming
Patient welfare society	Volleyball
Clinical Ethics society	