

STUDENTS GUIDE BOOK

**FIRST PROFESSIONAL MBBS
(SEMESTER – I & II) BATCH 2018-19
(ACADEMIC SESSION 2018-19)**



INDUS MEDICAL COLLEGE

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MESSAGE

It is a great pleasure and honor for me to write this message for the 1st and 2nd Semester students of Indus Medical College, Tando Muhammad Khan. To run an institution of this magnitude is itself a tribute to the founding members, Professionals, Investors and citizens of Tando Muhammad Khan. The credit goes to the vision of Prof. Dr. Jan



Mohammed A. Memon, Chief Executive Officer of Indus Medical College who is a visionary Medical Educationist. This institution has opened the doors of Quality Medical Education for the bright youngsters of the area to become doctors and serve the community but has become a hub of patient care of the poor, disadvantaged and rural community of the area in a short span of time.

Indus Medical College faculty stands committed with the vision statement of the institution:

“To prepare competent graduate doctors in the field of medicine who are able to serve the population locally & globally using evidence based practices with utmost professionalism”

Remember dear students today's medical education is imparted as an active learning process where teacher is guide by side who ignites a flame of light in the learners to not only seek the knowledge, learn the skills but become a life long learner demonstrating a humane and professional behavior to the teachers, colleagues and ailing community.

I wish the upcoming doctors a warm welcome and assure them the endeavors of faculty to impart them quality medical education to become a seven star doctor to serve the community.

Prof. Dr. Muhammad Akbar Nizamani

MBBS, DCH, FCPS

Principal, Indus Medical College
Chairman, Department of Paediatrics and
Director Medical Education, Indus Medical College
Tando Muhammad Khan

ACADEMIC CALENDER

BATCH 2018-19

FIRST PROFESSIONAL MBBS

FIRST SEMESTER

Orientation Day	10 th December 2018
Classes will start from	11 th December 2018
Classes will End on	30 th March 2019
Preparation leaves	1 st to 14 th April 2019
Theory + OSPE Examination	15 th April to 11 th May 2019
Summer Vacation + Eid-ul-Fiter	12 th May to 16 th June 2019

SECOND SEMESTER

Classes will start from	17 th June 2019
Classes will End on	05 th October 2019
Preparation leaves	6 th to 20 th October 2019
Theory + OSPE Examination	21 st Oct to 23 rd Nov 2019
Semester Break	24 th Nov to 8 th Dec 2019

THE THIRD SEMESTER CLASSES WILL START FROM: 9TH DECEMBER 2019

WEEKLY TIME TABLE

FIRST PROFESSIONAL MBBS - 1ST & 2ND SEMESTER

BATCH 2018-19

TIME	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
08:30 am To 09:30 am	ANATOMY DISCUSSION Dr. Sanam / Dr. Saima	ANATOMY DISCUSSION Dr. Sanam / Dr. Saima	ANATOMY PBL Prof. Abdul Latif Jokhio Dr. Sanam / Dr. Saima / Dr. Hina Mawani	BIOCHEMISTRY LECTURE Prof. Shah Muhammad Mahesar	COMMUNITY MEDICINE Dr. Ghulam Nabi Memon
09:30 am To 10:30 am			BIOCHEMISTRY LECTURE Dr. Ali Akbar Shah	PHYSIOLOGY LECTURE Dr. Ghulam Nabi Pathan	PHYSIOLOGY LECTURE Dr. Ghulam Nabi Pathan
10:30 am To 11:30 am	PHYSIOLOGY LECTURE Dr. Ghulam Nabi Pathan	PHYSIOLOGY PBL / DISCUSSION Dr. Kavita Bai	ANATOMY LECTURE Prof. Abdul Latif Jokhio	BIOCHEMISTRY LECTURE Dr. Ali Akber Shah	ANATOMY LECTURE Dr. Hina Mawani
11:30 am To 12:30 pm	ANATOMY LECTURE Dr. Hina Mawani	PRACTICALS Biochemistry: Group A Dr. Adil / Dr. Bilques Histology: Group B Dr. Shahida Physiology: Group C Dr. Salma / Dr. Muhammad Hussain	PRACTICALS Histology: Group A Dr. Shahida Physiology: Group B Dr. Salma Mumtaz / Dr. Muhammad Ismail Biochemistry: Group C Dr. Adil / Dr. Bilques	PRACTICALS Physiology: Group A Dr. Muhammad Hussain / Dr. Muhammad Ismail Biochemistry: Group B Histology: Group C Dr. Shahida	ENGLISH CLASS Dr. Nayab Magsi
					I.T CLASS
12:30 To 01:00 - PRAYER/LUNCH BREAK					
01:00 pm To 02:00 pm	BIOCHEMISTRY LECTURE Prof. Shah Muhammad Mahesar	ANATOMY LECTURE Prof. Abdul Latif Jokhio	ANATOMY LECTURE Dr. Hina Mawani	PHYSIOLOGY LECTURE Prof. Ghulam Murtaza Kaka	PHYSIOLOGY LECTURE Prof. Mumtaz Ali Memon
02:00 pm To 03:00 pm	PHYSIOLOGY LECTURE Prof. Ghulam Murtaza Kaka	BIOCHEMISTRY LECTURE Dr. Dost Muhammad	ANATOMY DISCUSSION Dr. Sanam / Dr. Saima	ANATOMY LECTURE Prof. Abdul Latif Jokhio	BEHAVIORAL SCIENCE Prof. Jamil Hussain

VENUE: LEVEL 01 LECTURE HALL

TEACHING HOURS PER SEMESTER

ANATOMY

Lectures (Embryology)	3x1 hours/week x 16 weeks =48 Hours
Demonstrations (Gross Anatomy)	5x2 hours/week x 16 weeks =160 Hours
Practical's (Histology)	1x2 hours/week x 16 weeks =32 Hours
PBL	1x2 hours/week x 04 weeks =08 Hours

TOTAL=

248 Hours

PHYSIOLOGY

Lectures	3x1 hours/week x 16 weeks =48 Hours
Practical's	1x2 hours/week x 16 weeks =32 Hours
PBL	1x2 hours/week x 04 weeks =08 Hours

TOTAL=

88 Hours

BIOCHEMISTRY

Lectures	3x1 hours/week x 16 weeks =48 Hours
Practical's	1x2 hours/week x 16 weeks =32 Hours
PBL	1x2 hours/week x 04 weeks =08 Hours

TOTAL=

88 Hours

COMMUNITY MEDICINE

Lectures $1 \times 1 \text{ hours / week} \times 5 \text{ weeks} = 05 \text{ hours}$

BIOMEDICAL ETHICS/BEHAVIORAL SCIENCES/RESEARCH

Lectures $1 \times 1 \text{ hours/week} \times 3 \text{ weeks} = 03 \text{ hours}$

Applied Lectures $1 \times 1 \text{ hours/week} \times 8 \text{ weeks} = 08 \text{ hours}$

INFORMATION TECHNOLOGY

Lectures $1 \times 1 \text{ hours/week} \times 16 \text{ weeks} = 16 \text{ hours}$

Practical's $1 \times 1 \text{ hours/week} \times 16 \text{ weeks} = 16 \text{ hours}$

SKILL LAB

Practical's $1 \times 2 \text{ hours/week} \times 4 \text{ weeks} = 08 \text{ hours}$

TOTAL=

56 hours

Self-Directed Learning/Assignments 15 hours/ Subject/ Per Semester = 45 Hours

DEPARTMENT OF ANATOMY

S. NO.	TEACHING FACULTY	DESIGNATION
1.	Prof. Dr. Abdul Ghaffar Ansari	Professor
2.	Prof. Dr. Abdul Latif Jokhio	Professor
3.	Dr. Shazia Begum Shahani	Associate Professor
4.	Dr. Hina Mawani	Associate Professor
5.	Dr. Syed Mehfooz Ali Shah	Lecturer
6.	Dr. Hassan Mujtaba	Lecturer
7.	Dr. Roheena Noman	Lecturer
8.	Dr. Saima Shaikh	Lecturer
9.	Dr. Sanam Habib	Lecturer
10.	Dr. Shahida Hingoro	Lecturer

MBBS COURSE CONTENTS OF ANATOMY

FIRST SEMESTER

Gross Anatomy: Lower Limb

Prof. Dr. Abdul Latif Jokhio, (Lectures)

Dr. Sanam Habib & Dr. Saima Shaikh (Small Group Teaching)

LEC #	GENERAL ANATOMY
1.	Introduction to the subject of Anatomy, different branches of Anatomy
2.	Four Basic Tissue Of The Body (Epithelium, Connective Tissue, Muscular Tissue, & Nervous Tissue)
3.	Anatomical Position Of Human Body & Various Imaginary Planes
4.	Terms of Positions and Movements
5.	Classification Of Bones
6.	Classification Of Cartilage
7.	Classification Of Joints With Structure And Classification
8.	Muscular Tissue
9.	Vascular System (Blood Vessels & Lymphatic Vessels)
10.	Nervous Tissue: General Introduction Of Nervous Tissue
11.	Skin, Superficial Fascia & Deep Fascia
UNIT- I	
12.	Organization Of The Lower Limb & Pelvic Girdle
13.	The Front Of The Thigh And Related Parts Of Femur And Hip Bone, Femoral Triangle
14.	The Medical Compartment Of The Thigh And Related Parts Of Femur And Hip Bone, Adductor Canal
15.	The Gluteal Region And Related Parts Of Femur And Hip Bone, Greater And Lesser Sciatic Canal
16.	The Back Of The Thigh And Related Parts Of Femur And Hip Bone, Arterial Anastomosis (Cruciate, Trochanteric And Longitudinal)
17.	popliteal fossa
18.	Hip joint
19.	Introduction Of The Leg & Foot, Related Parts Of Tibia And Fibula, Articulated Foot
20.	The Front / Extensor {Anterior} Compartment Of The Leg (Related Parts Of Tibia & Fibula)

21.	The Lateral / Peroneal Compartment Of The Leg (Related Parts Of Tibia & Fibula)
22.	The Dorsum Of The Foot
23.	The Back / Flexor (Posterior) Compartment Of The Leg (Related Parts Of Tibia & Fibula)
24.	Knee Joint
25.	Sole Of The Foot (Planter Apponeurosis)
26.	Layers Of The Sole Of The Foot
27.	Proximal And Distal Tibiofibular Joints, Ankle Joint
28.	Subtalar Joint And Other Joints Of The Foot
29.	Arches Of The Foot And Their Significance
UNIT- II	

GENERAL EMBRYOLOGY

Associate Professor Prof. Dr. Hina Mawani (Lectures)

LEC #	GENERAL EMBRYOLOGY
1.	Introduction To Embryology & Cell Division (Mitosis & Meiosis)
2.	Gametogenesis (Oogenesis)
3.	Gametogenesis (Spermatogenesis)
4.	Clinical Correlates-Birth Defects Chromosomal And Numerical Abnormalities
5.	First Week Of Development
6.	Ovarian Cycle, Ovulation-Clinical Correlates
7.	Fertilization
8.	Cleavage-Blastocyst Formation & Uterus At The Time Of Implantation
9.	Second Week Of Development (Bilaminar Germ Disc)
10.	Third Week Of Development (Trilaminar Germ Disc)
11.	Third To Eighth Weeks(Embryonic Period)
12.	Derivatives Of The Three Germinal Layers (Ectoderm, Mesoderm & Endoderm)
13.	Clinical Correlates
14.	External Appearance During The Second Month
UNIT- I	
15.	Third Month Of Birth: The Fetus And Placenta
16.	Fetal Period Development Of The Fetus Monthly Changes

17.	Time Of Birth Clinical Correlates- Low Birth Weight
18.	Fetal Membranes And Placentadeciudua
19.	Changes In Trophobalst, Chorionfrondosum Clinical Correlates- Preeclampsia
20.	Structure Of The Placenta, Full Term Placenta, The Placental Barrier
21.	Circulation And Functions Of Placenta, Clinical Correlates
22.	Amnion And Umbilical Cord And Its Abnormalities
23.	Amniotic Fluid And Its Clinical Correlates
24.	Fetal Membranes In Twins & Clinical Correlates
25.	Parturition (Birth)
26.	Birth Defects And Prenatal Diagnosis
27.	Birth Defects- Types Of Abnormalities
28.	Environmental Factors
29.	Principles Of Teratology, Prenatal Diagnosis, Fetal Therapy
UNIT- II	

HISTOLOGY PRACTICALS (IN GROUPS)

Dr. Shahida Hingoro

PR #	TOPICS
1.	Introduction + Microscope
2.	Slide Preparation
3.	Artifacts
4.	Cell: Introduction
5.	Cell Membrane
6.	Cell Organelles
7.	Introduction Of Epithelial Cells: Simple Epithelium
8.	Stratified Epithelium
9.	Membrane Specializations / Cell junctions
10.	Glandular Epithelium (Exocrine glands)
UNIT- I	
11.	Connective Tissue: Introduction, Classification
12.	Connective Tissue: Cell and Fibres
13.	Connective Tissue: Ground Substance (Composition and Chemistry)

14.	Basement Membrane
15.	Muscle: Introduction + Skeletal Muscle
16.	Muscle: Smooth and Cardiac Muscles
17.	Bone
18.	Cartilage
19.	Structure Of Neuron And Peripheral Nerve
UNIT- II	

SECOND SEMESTER

Gross Anatomy: Thorax + Upper Limb

Prof. Dr. Abdul Latif Jokhio, (Lectures)

Dr. Sanam Habib & Dr. Saima Shaikh, (Small Group Teaching)

LEC #	GROSS ANATOMY
1.	Introduction To Thorax, Structure Of Thoracic Wall
2.	Sternum, Costal Cartilages, Ribs
3.	Thoracic Vertebra And Related Joints
4.	Intercostals Spaces, Muscles, Nerves And Arteries
5.	INTERNAL THORACIC ARTERY. THORACIC OUTLET SYNDROME & SUPRAPLEURAL MEMBRANE
6.	Introduction of Diaphragm
7.	Openings And Functions Of Diaphragm, Mechanism Of Respiration
8.	Mediastinum (Division)
9.	Contents Of Anterior And Superior Mediastinum
10.	Contents Of Posterior Mediastinum (Thoracic Duct, Azygous Veins & Esophagus)
11.	Contents Of Posterior Mediastinum (Nerves & Sympathetic Chain)
12.	Pleurae With Its Nerve Supply
13.	Lungs
14.	Middle Mediastinum: Pericardium
15.	Heart (Overview + General Description)
16.	Heart (Arterial Supply + Venous Drainage)
17.	Cardiac Plexus
18.	Brief Account Of Thoracic Part Of Sympathetic Trunk

<u>GROSS ANATOMY: UPPER LIMB</u>	
19.	Introduction Of Upper Limb
20.	Clavicle And Applied Anatomy
21.	Scapula And Related Parts Of Humerus Applied Anatomy
22.	Pectoral Region: Skin + Muscles
23.	Axilla: Walls Of Axilla, Clavipectoral Fascia
24.	Contents Of Axilla: Axillary Artery, Vein & Lymph Nodes
25.	Contents Of Axilla: Branchial Plexus & Clinical Notes
26.	Dissection Of Back / Scapular Region: Skin & Muscles
27.	Dissection Of Back / Scapular Region: Skin & Muscles
28.	Muscles Of Rotator Cuff And Other Shoulder Muscles
29.	Breast: Detail Description & Clinical Notes
30.	Sternoclavicular & Acromioclavicular Joints
UNIT – I TEST	
31.	The Upper Arm (Introduction) With Cutaneous Supply + Superficial Blood & Drainage & Lymphatic's
32.	Humerus Bone- Applied Anatomy
33.	Muscles Of Front Of Arm + Its Nerve Supply And Blood Supply
34.	Muscles Of Front Of Back Of Arm (Neurovascular Bundles)
35.	The Cubital Fossa + Contents
36.	Shoulder Joint And Its Clinical
37.	Radius Bone , Interseous Membrane With Clinical Aspects
38.	Ulna Bone With Clinical Aspects
39.	Introduction Of Foream Including Flexor Retinaculum
40.	Anterior Or Flexor Compartment Of Foream – Muscles
41.	Neurovascular Bundles Of Anterior Compartment Of Foream + Clinical Aspects
42.	Posterior Or Extensor Compartment Of Foream – Muscles , Extensor Retinaculum, Synovial Sheath
43.	Neurovascular Bundles Of Posterior Compartment Of Foream + Clinical Aspects
44.	Elbow joint
45.	Articulated Hand (Bones Of Hand) Wrist Joint + Applied Anatomy
46.	Palm Of The Hand Skin, Palmar Aponeuosis, Cutaneous Supply + Clinical Notes
47.	Small Muscles Of Hand (Palm) – Lumbrical & Interosseii + Clinical Notes

48.	Arterial & Venous Supply Of Palm + Lymphatic Drainage
49.	Nerves of Palm + Applied Anatomy
50.	Fascial Spaces Of Palm + Clinical Notes
51.	Introduction Of Dorsum Of Hand- Skin + Dorsal Venous Arch + Long Extensor Tendons (Insertion), Cutaneous Supply
52.	Small Joints Of Hand And Fingers, Types Of Grips
UNIT-II TEST	

GENERAL EMBRYOLOGY

Associate Professor Prof. Dr. Hina Mawani (Lectures)

LEC #	TOPICS
<u>EMBRYOLOGY</u>	
1.	<u>BODY CAVITIES</u> - Formation Of The Intra Embryonic Cavity- Clinical Correlates
2.	Formation of diaphragm – clinical correlates
3.	<u>DEVELOPMENT OF RESPIRATORY SYSTEM</u> - Formation of Lung Bud- Clinical Correlates
4.	Larynx , Trachea Bronchi
5.	Lungs + Maturation – Clinical Correlates
6.	<u>DEVELOPMENT OF CARDIOVASCULAR SYSTEM</u> - Establishment of the cardiogenic field, formation and position of the heart tube
7.	Formation Of The Cardiac Loop, Development Of The Sinus Venosus
8.	Formation Of The Cardiac Septa, Septum Formation In The Common Atrium
9.	Septum Formation In The Atrioventricular Canal
10.	Clinical Correlates- Heart Defects
11.	Septum Formation In The Truncusarteriosis And Conuscordis
12.	Septum Formation In The Ventricles
13.	Clinical Correlates- Heart Defects
14.	Formation Of Conductive System Of The Heart
15.	<u>VASCULAR DEVELOPMENT</u> - Arterial system, Aortic arches
16.	Vitelline, Umbilical Arteries , Coronary Arteries
17.	Clinical Correlates- Arterial System Defects
18.	<u>VENOUS SYSTEM</u> - Vitelline, Umbilical and cardinal veins
19.	Clinical Correlates – Venous System Defects

20.	<u>CIRCULATION BEFORE AND AFTER BIRTH</u> - Fetal Circulation, Circulatory Changes At Birth
UNIT-I TEST	
21.	<u>SKELETAL SYSTEM</u> - Introduction Development of Skull Neurocranium
22.	Viscerocranium Clinical Correlates
23.	Limb Growth And Development
24.	Clinical Correlates
25.	Vertebrae And The Vertebral Column
26.	Clinical Correlates- Ribs And Sternum
27.	<u>MUSCULAR SYSTEM</u> - Introduction Striated Skeletal Musculature Patterning Of Muscle Derivatives Of Precursor Muscle Cells
28.	Head And Limb Musculature
29.	Cardiac And Smooth Muscle
UNIT- II TEST	

HISTOLOGY PRACTICALS (IN GROUPS)

Dr. Shahida Hingoro

PR #	TOPICS
1.	Circulatory System – Introduction – Heart
2.	The Arterial System – Arteries
3.	The Microcirculation – Capillaries
4.	The Venous System – Veins
5.	Respiratory System – introduction
6.	Trachea
7.	Bronchi – Primary, Tertiary Bronchiole
8.	Lungs – Alveoli
UNIT - II	
9.	SKIN- Skin Architecture Introduction of Skin & its layers
10.	Epidermis, cells of Epidermis, Dermis
11.	Skin Appendages
12.	Immune System- Introduction
13.	Lymphoid tissue- Lymph node
14.	Thymus
15.	Tonsils
16.	Spleen

DEPARTMENT OF PHYSIOLOGY

S. NO.	TEACHING FACULTY	DESIGNATION
1.	Prof. Dr. Mumtaz Ali Memon	Professor
2.	Prof. Dr. Ghulam Murtaza Kaka	Professor
3.	Dr. Ghulam Nabi Pathan	Assistant Professor
4.	Dr. Kavita Bai	Assistant Professor
5.	Dr. Salma Mumtaz	Lecturer
6.	Dr. Fariha Lateef	Lecturer
7.	Dr. Ghulam Sarwar	Lecturer
8.	Dr. Muhammad Hussain	Lecturer
9.	Dr. Muhammad Ismail Soomro	Lecturer

**SYLLABUS OF PHYSIOLOGY AS PER LIAQUAT UNIVERSITY OF MEDICAL
& HEALTH SCIENCES PROTOCOL**

SUBJECT: PHYSIOLOGY

FIRST SEMESTER MBBS

UNIT: I

CHAPTER: INTRODUCTION TO PHYSIOLOGY AND GENERAL PHYSIOLOGY

1. Prof. Dr. Mumtaz Ali Memon,
2. Prof. Dr. Ghulam Murtaza Kaka
3. Dr. Ghulam Nabi Pathan
4. Dr. Kavita Bai
5. Dr. Ghulam Sarwar
6. Dr. Salma Mumtaz
7. Dr. Muhammad Ismail Soomro
8. Dr. Muhammad Hussain Notkani
9. Dr. Fariha Latif

LEC. #	TOPICS
1.	Functional Organization Of The Body
2.	Body Fluids(ECF & ICF)
3.	Internal Environment And Homeostasis
4.	Control System Of The Body

CHAPTER: CELL

LEC. #	TOPICS
1.	Introduction To Human Cell
2.	Cell Membrane And Its Functions
3.	Cytoplasm And Its Organelles
4.	Function Of Cell Organelles. Mitochondria & ER
5.	Function Of Cell Organelles. Golgi Apparatus, Lysosomes And Peroxisomes
6.	Function Of Cell Organelles Secretory Vesicles Centrosomes And Cytoskeleton
7.	Nucleus And Its Functions -I
8.	Nucleus And Its Functions -II

CHAPTER: TRANSPORT ACROSS CELL MEMBRANE

LEC. #	TOPICS
1.	Transport Through Cell Membrane & Its Types
2.	Passive Transport
3.	Active transport

CHAPTER: BLOOD I

LEC. #	TOPICS
1.	Introduction And Composition Of Blood
2.	Functions Of Blood
3.	Plasma Proteins And Their Functions
4.	Morphology And Functions Of Red Blood Cells
5.	Erythropoiesis Its Regulation
6.	Hemoglobin Its Synthesis And Functions
7.	Anemia And Polcythemia
8.	Types of WBCs
9.	Functions of WBCs
10.	Monocyte-Macrophage System, Leukopenia & Leukemia
UNIT - I TEST	

UNIT: II**CHAPTER: BLOOD II**

LEC. #	TOPICS
1.	Immunity And Its Types
2.	Innate Immunity
3.	Acquired Immunity
4.	Immune Tolerance And Autoimmunity
5.	Active And Passive Immunity And Immunization
6.	Allergy And Hypersensitivity
7.	Blood Types, O-A-B Blood Types
8.	RH Blood Types And Erythroblastosis Fetalis
9.	Transfusion Reaction

10.	Platelets And Their Functions
11.	Hemostasis, Vascular Spasm And Platelet Plug Formation
12.	Mechanism Of Blood Coagulation
13.	Conditions That Cause Excessive Bleeding In Human Beings
14.	Thromboembolism And Anticoagulants

CHAPTER: MEMBRANE POTENTIAL: NERVE AND MUSCLE PHYSIOLOGY

LEC. #	TOPICS
1.	Membrane Potential & Resting Membrane Potential
2.	Action Potential
3.	Introduction To Muscle Physiology And Types Of Muscles
4.	Physiologic Anatomy Of Skeletal Muscle
5.	General And Molecular Mechanism Of Skeletal Muscle Contraction
6.	Neuromuscular Transmission And Myasthenia Gravis
7.	Contraction Of The Smooth Muscles
8.	Revision

PRACTICAL TOPICS

UNIT I

Dr. Ghulam Sarwar & Dr. Salma Mumtaz

PR #	TOPICS
1.	Introduction Of Microscope
2.	Sterilization, Types And Methods
3.	How To Take Venous Blood Sample
4.	Introduction To Blood
5.	Preparation of blood film and identification of different blood cells
6.	Differential Leukocyte Count (DLC)
7.	Determination Of Hemoglobin Percentage
8.	Determination Of Erythrocyte Sedimentation Rate (ESR)

UNIT-II

1.	Determination Of Blood Groups
2.	Determination Of Bleeding & Clotting Time (B.T & C.T)
3.	Introduction To Nerve Muscle Physiology
4.	Introduction To Power Lab
5.	To Record The Simple Muscle Twitch(SMT)
6.	To Record Phenomenon Of Muscle Fatigue
7.	Nerve Conduction Velocity
8.	To Record EMG In Normal Individual

SECOND SEMESTER

UNIT: I

CHAPTER: CARDIOVASCULAR SYSTEM (HEART)

1. Prof. Dr. Mumtaz Ali Memon,
2. Prof. Dr. Ghulam Murtaza Kaka
3. Dr. Ghulam Nabi Pathan
4. Dr. Kavita Bai
5. Dr. Ghulam Sarwar
6. Dr. Salma Mumtaz
7. Dr. Muhammad Ismail Soomro
8. Dr. Muhammad Hussain Notkani
9. Dr. Fariha Latif

LEC. #	TOPICS
1.	Overview Of CVS *Heart Valves And Their Functions *Circulation Of Blood Within The Heart
2.	Properties Of Cardiac Muscle +Vascular Smooth Muscle & Endothelial Cells
3.	Excitatory& Conductive System Of The Heart
4.	Effect Of ANS On Excitatory & Conductive System
5.	Cardiac Cycle - I
6.	Cardiac Cycle - II
7.	Characteristics Of Normal ECG
8.	Common Cardiac Arrhythmias (Heart Block, Fibrillation & Cardiac Arrest) & Their ECG Interpretation

9.	Common Cardiac Arrhythmias (Heart Block, Fibrillation & Cardiac Arrest) & Their ECG Interpretation
10.	Regulation Of Heart Pumping Intrinsic Regulation (Frank Starling Mechanism)

CHAPTER: RESPIRATION

LEC. #	TOPICS
1.	Overview Of The Respiratory System
2.	Mechanism Of Pulmonary Ventilation
3.	Lung Compliance And Surfactant
4.	Pulmonary Volumes And Capacities
5.	Alveolar Ventilation And Dead Space
6.	Functions Of Respiratory Passages, Cough And Sneeze Reflexes
7.	Pulmonary Circulation, Pulmonary Edema And Pleural Effusion
8.	Respiratory Membrane And Gas Exchange In The Lungs
9.	Transport Of Oxygen In Blood *Oxygen HB Dissociation Curve
10.	Transport of CO ₂ In Blood *Gas Exchange Between Blood And Body Cells
11.	Respiratory Center And Nervous Regulation Of Respiration
12.	Chemical Control Of Respiration

UNIT: II

CHAPTER: CARDIOVASCULAR SYSTEM (CIRCULATION)

LEC. #	TOPICS
1.	Overview Of Circulation *Interrelationship Among Pressure, Flow And Resistance
2.	Veins And Their Function
3.	Fluid Exchange At Capillary Level And Functions Of Lymphatics
4.	Arterial Pressure & Regulation Of Arterial Pressure
5.	Baro-Receptor Feedback Regulation BP
6.	Renin-Angiotensin System In Regulation BP
7.	Physiology Of Circulatory Shock
8.	SV+ Cardiac Output And Venous Return

CHAPTER: RESPIRATION

LEC. #	TOPICS
1.	Regulation Of Respiration During Exercise, Periodic Breathing
2.	Pathophysiology Of Common Lung Diseases
3.	Hypoxia And Oxygen Therapy
4.	Respiratory Changes Associated With High-Altitude

PRACTICAL TOPICS

POWER LAB

Dr. Ghulam Sarwar Dr. Salma Mumtaz

PR #	TOPICS
1.	To Record The Effect Of Respiration During Sitting, Standing And After Exercise - I
2.	To Record The Effect Of Respiration During Sitting, Standing And After Exercise - II
3.	To Record The Effect Of Respiration During Coughing And Deglutition - I
4.	To Record The Effect Of Respiration During Coughing And Deglutition - II
5.	To Record The Lung Volume And Capacities In A Normal Healthy Adult
6.	To Record Effect Of Mental Stress On Respiration
7.	To Record The Pulse Rate At Rest
8.	To Record The Pulse Rate After Exercise

LABORATORY

1.	To Record The Blood Pressure Of A Subject During Sitting And Standing
2.	To Record The Blood Pressure Of A Subject After Exercise
3.	To Record The ECG Of Person - I
4.	To Record The ECG Of Person - II
5.	To Auscultation Of Heart Sound
6.	CPR On Dummies
7.	Revision

DEPARTMENT OF BIOCHEMISTRY

S. NO.	TEACHING FACULTY	DESIGNATION
1.	Prof. Dr. Shah Muhammad Mahesar	Professor
2.	Dr. Ali Akbar Shah	Associate Professor
3.	Dr. Dost Muhammad Kalhoro	Assistant Professor
4.	Dr. Tufail Ahmed	Demonstrator
5.	Dr. Bilqees Memon	Demonstrator
6.	Dr. Kiran Waheed	Demonstrator
7.	Dr. Sana Mahesar	Demonstrator
8.	Ms. Saad-U-Nissa Mahesar	Senior Lab Technician

DISTRIBUTION OF TOPICS OF SYLLABUS

1ST PROFESSIONAL MBBS PART-I

FIRST SEMESTER

(THREE LECTURES/WEEK)

TEACHERS: PROF DR.SHAH MUHAMMAD MAHESAR

PROF. DR.MUHAMMAD ALI MEMON, ASSIST PROF. DR.ALI AKBER SHAH,

UNIT- I

CHAPTER: CELL AND BIOPHYSICS AND BODY FLUIDS

LEC. #	TOPICS
1.	Chemical Composition Of Cell
2.	Subcellular Organelles And Cell Structures
3.	Importance Of Water
4.	Biochemical Composition Of Nutrients
5.	Properties Of Water
6.	Ionization Of Water, Weak Acids & Bases
7.	Dissociation Constant And Titration Curve Weak Acids. The Concept of PK Value
8.	PH,PH Metry, And Indicators
9.	Buffers And Their Mechanism Of Action, Henderson-Hasselbech Equation
10.	Types Of Particles, Solution Separation Of Colloidal Particles, Adsorption
11.	Importance Of Selective Permeable Members, Osmosis
12.	Biochemistry Of Membrane Transport, Mechanism Of Active Transport
13.	Passive Transport. Simple & Facilitated Diffusion
14.	Structure and Functions Of Lipid Bilayer

CHAPTER: CHEMISTRY OF CARBOHYDRATES

LEC #	TOPICS
15.	Introduction, Biochemical Functions And Classification Of Carbohydrate
16.	Structure And Functions Of Monosaccharides And Their Derivate
17.	Structure And Functions Of Monosaccharides And Their Derivatives
18.	Isomersim
19.	Isomersim
20.	Chemical Properties And Reaction Of Monosacchrides
21.	Chemical Properties And Reaction Of Monosacchrides
22.	Disaccharides, Oligosaccharides, Their Combination With Other Macromolecules. Functions And Biomedical Importance
23.	Polysaccharides, Homopolysaccharides
24.	Heteropolysaccharides
25.	Glycosaminoglycans And Peteoglycans
UNIT-I TEST	

CHAPTER: CHEMISTRY OF PROTIENS

LEC#	TOPICS
1.	Introduction to Proteins (Overview; Definition: Importance)
2.	Amino Acids (Chemistry: Classification; Isomers; Signature)
3.	Classification of Proteins (Simple Proteins)
4.	Classification of Proteins (Compound Proteins)
5.	Classification of Proteins (Derived Proteins)
6.	Structural Orangnization of Proteins
7.	Properties of Proteins
8.	Functions of Proteins
9.	Plasma Proteins (Chemistry and Functions)
10.	Plasma Proteins (Chemistry and Functions)
11.	Immunoglobulins (Chemistry and Functions)

CHAPTER: NUCLEOTIDES AND NUCLEIC ACIDS

LEC#	TOPICS
1.	Chemistry And Structure Of Nucleosides And Nucleotides And Their Biochemical Role
2.	Derivatives Of Nucleotides
3.	Role Of Nucleic Acids In Genetics
4.	Structure And Types Of DNA And Distribution Of Genes
5.	Structure, Types And Functions Of RNA
6.	Structure , Types, And Functions Of RNA

CHAPTER: PROPHYRINS AND HEMOGLOBINS

LEC#	TOPICS
1.	Normal Hemoglobin Its Structure, Functions And Types
2.	Abnormal Hemoglobins (Hemoglobinopathies)
3.	Chemistry And Synthesis Of Porphyrins And Its Disorders (Porphyrias)
4.	Oxygen Binding Capacity Of Hemoglobin, Factors Affecting And Regulating The Binding Capacity Of Hemoglobin
5.	Degradation Of Heme Bile Pigments: Formation, Types Transport And Excretion
6.	Hyperbillirubinemia (Jaundice)
UNIT-II TEST	

FIRST SEMESTER

(THREE PRACTICALS/WEEK)

CONCERNED TEACHERS/ LABORATORY STAFF
Dr. Shahzad Ali Jiskani
Dr. Shafia Memon
Ms. Saad-U-Nissa Mahesar
Mr. Zameer Khan

LAB #	TOPICS
1.	General Introduction Of Biochemistry And How To Use Laboratory Wares
2.	Names Of Chemicals And Reagents
3.	Study & Preparation Of Solution And Reagents
4.	Introduction Of Carbohydrates
5.	Detection Of Unknown Carbohydrates (Molisch's Test, Iodine Test Benedict's Test)
6.	Detection Of Unknown Carbohydrates (Saliwanoff's Barfoed And Osazone
7.	Practical Test of Carbohydrates
8.	Introduction of Proteins
9.	General Test Protein
10.	Precipitation Test Of Protein
11.	Separation Test Of Protein
12.	Practical Test Of Protein
13.	Tutorial Classes/General Discussion From The Practicals Covered; Carbohydrate & Proteins
14.	Completion Of Journals
15.	Practical's Test From All Performed Practical
16.	Getting It Signed By The Concerned Teachers

SECOND SEMESTER

(THREE LECTURES/WEEK)

TEACHERS: PROF DR.SHAH MUHAMMAD MAHESAR

**ASSOCIATE PROF. DR. ALI AKBER SHAH, ASSISTANT PROF. DR. DOST
MUHAMMAD KALHORO**

UNIT: I

CHAPTER: LIPIDS & BIOLOGICAL MEMBRANES

LEC. #	TOPICS
1.	Introduction to Lipids
2.	Biochemical Importance & Functions of Lipids
3.	Fatty acids (Chemistry; Classification; Isomers; Significance)
4.	Classification of Lipids (Simple Lipids)
5.	Classification of Lipids (Compound Lipids)
6.	Classification of Lipids (Derived Lipids)
7.	Cholesterol (Structure and Functions)
8.	Eicosanoids (Structure, Classifications, Functions)
9.	Properties of Lipids
10.	Identification of Fats and Oils
11.	Biochemistry of Cell Membranes (Structure and Function)
12.	Revision

CHAPTER: ENZYMES

LEC. #	TOICS
1.	Introduction, Mechanism Of Catalysis
2.	Chemistry And Structure Of Enzyme & Co – Enzymes
3.	Mechanism Of Enzyme Action
4.	Classification Of Enzymes
5.	Classification Of Enzymes
6.	Properties
7.	Factors Affecting Enzyme Activity
8.	Factors Affecting Enzyme Activity
9.	Enzyme Kinetics

10.	enzyme inhibitors
11.	Diagnostic Role Of Enzymes And Isoenzymes
12.	Revision
UNIT-I TEST	

LEC#	TOPICS
1.	Introduction to Vitamins (Overview: Definition; Importance)
2.	Classification of Vitamins: Fat – soluble Vitamins – Vitamin – A
3.	Vitamin – D
4.	Vitamin – E & Vitamin – K
5.	Water – Soluble Vitamins – Vitamin – C
6.	Vitamin – B Complex – I
7.	Vitamin – B Complex – II
8.	Vitamin – B Complex – III
9.	Vitamin – B Complex – IV
10.	Revision
11.	Revision

UNIT - II

CHAPTER: VITAMINS

CHAPTER: MINERALS & TRACE ELEMENTS

LEC#	TOPICS
1.	Introduction to Mineral Metabolism: Classification of Minerals
2.	Macromolecules (Na, K)
3.	Macromolecules (Ca, PO ₄ , Cl)
4.	Microminerals (Fe, Zn)
5.	Micromolecules (Cu, Mg, Se)
6.	Dehydration
7.	Revision

CHAPTER: NUTRITION

LEC#	TOPICS
1.	Caloric Requirements Of The Body, Balance Diet
2.	Basal Metabolic Rate (BMR), Respiratory Quotient (RQ)
3.	Protein Energy Malnutrition, Marasmus, Kwashiorkor
4.	Composition And Nutritive Value Of Some Importance Foods Etc
5.	Role of Dietary Fibers
6.	Revision
UNIT - II TEST	

SECOND SEMESTER

(THREE PRACTICALS/WEEK)

CONCERNED TEACHERS/ LABORATORY STAFF
Dr. Shahzad Ali Jiskani
Dr. Shafia Memon
Ms. Saad-U-Nissa Mahesar
Mr. Zameer Khan

LAB #	TOPICS
1.	Introduction Of Lipids; & It's Application In Medicine Practical Point Of View
2.	Scheme To Study The Properties Of Lipid Qualitatively
3.	Practical Performance Of Lipids
4.	Introduction Of Normal Constituents Of Fasting Urine
5.	Introduction Of Abnormal Constituents Of Urine
6.	Scheme For The Detection Of Normal Constituents Of Urine (Demonstration)
7.	Practical Performance Of Normal Constituents Of Urine
8.	Practical Performance Of Abnormal Constituents Of Urine
9.	Introduction & composition of milk, comparison of cow's milk with human milk. Scheme for the analysis of milk constituents
10.	Detection Of Carbohydrate And Protein In Milk (Demonstration & Practical) Qualitatively
11.	Detection Of Lipid And Minerals In The Milk (Demonstration & Practical)
12.	BCQs Test And Practical Performance Test Of Milk
13.	BCQs Test And Practical Performance Test Out Of Whole Course Of Practical's
14.	Revision

TAGGED SUBJECTS

SUBJECT: COMMUNITY MEDICINE (5 LECTURES)

FIRST SEMESTER

Teacher's Name: Dr. Ghulam Nabi Memon

LEC#	TOPICS
1.	Introduction Of Community Medicine
2.	Concept Of Health, Disease And Its Dimensions
3.	Health Care Delivery System Of Pakistan
4.	FUNDAMENTALS OF EPIDEMIOLOGY
5.	Introduction to IMNCI

SECOND SEMESTER

Teacher's Name: Dr Khalil Ur Rehman Kazi

LEC#	TOPICS
1.	Macro-Nutrients (Carbohydrates & Diseases Related To Carbohydrates)
2.	Protein Energy Malnutrition
3.	Primary Health Care
4.	Introduction to Air & Ventilation
5.	Air Pollution & Its Effects On Health

SUBJECT: BIOMEDICAL ETHICS

(2LECTURES/CLASSES IN FIRST SEMESTER)

Teacher's Name: Dr. Inayatullah Memon

LEC#	TOPICS
1.	Introduction to Biomedical Ethics
2.	Physician- Patient Relationship

SUBJECT: BEHAVIORAL SCIENCES

(2 LECTURES/CLASSES IN SECOND SEMESTER)

Teacher's Name: Prof. Dr. S. Jamil Hussain

TOPICS	1. What are behavioral sciences? Traditional verses holistic medicine. Bio-psycho-social (BPS) model of healthcare. Link of health with behavioral sciences in health. Correlation of brain & mind with behavioral sciences.
	2. Definition of attention & concentration. Factors affecting them. Memory, stages, types & methods of improving memory. Cognition, level of cognition. Meta cognition.
	3. Principles of learning, modern methods & styles of learning, cognition theories of learning & their use in enhancement of learning.
	4. Motivation & types of motivation.

SUBJECT RESEARCH

(1 LECTURE/CLASS EACH IN FIRST & SECOND SEMESTER)

SUBJECT APPLIED

(8 LECTURES/CLASSES EACH IN FIRST & SECOND SEMESTER)

-  4 CLASSES BY MEDICINE FACULTY
-  4 CLASSES BY SURGERY FACULTY

SUBJECT: INFORMATION TECHNOLOGY (IT) FIRST SEMESTER

Teacher's Name: Eng. Danish Hafeez Memon

COMPUTER BASICS

-  Introduction to Information Technology (IT)
-  Microcomputer Advancement and Mobile Computing

COMPUTER FUNDAMENTALS

-  Computer system and its parts

HARDWARE (COMPUTER PARTS)

-  Central Processing Unit CPU
-  Storage
-  Memory
-  I/O devices

SOFTWARE

-  Graphical user interfaces & command line interfaces
-  Types of software

OPERATING SYSTEM

- + Essential of Windows operating system
- + Working with files and folders

INTERNET AND BASIC SEARCH TECHNIQUES

- + Internet concepts
- + Uses of internet
- + Search engine & Basic Search

MS-OFFICE:MS-WORD

- + MS Word screen & Tabs
- + Text, Characters and paragraphs
- + Formatting pages
- + Tables, graphics
- + Word Art and Charts

MS-POWER POINT

- + Working with slides
- + Custom animation
- + Slide transition
- + Graphics
- + Saving & printing

SECOND SEMESTER

Teacher's name: Eng. Danish Hafeez Memon

INTERNET PRODUCTIVITY PACKAGE

- + Introduction of LUMHS Website
- + Intranet & Extranet
- + Personal E-Mail on LUMHS Domain

PERSONAL ASSISTANCE PACKAGE (GOOGLE APPS & OFFICE 365)

- + Electronic Mail Basics
- + Calendar and Scheduling
- + Managing Contacts
- + Tasks
- + Instant Messaging

E-LEARNING

- + Introduction and Importance of E-Learning
- + Introduction of Distance Learning Programs
- + DFHC Model
- + OCW Coursera

SUBJECT: SURGICAL SKILLS (SKILL LAB)

Lab Incharge/Teacher: Dr. Ammara Mahesar

S.NO	FIRST SEMESTER	S.NO	SECOND SEMESTER
1.	Orientation about skill lab	1.	Hand washing(Scrubbing)
2.	Use of stethoscope	2.	Temperature recording
3.	Peripheral pulse examination	3.	BP Monitoring
4.	Evaluation	4.	Evaluation

TABLE OF SPECIFICATION**FIRST SEMESTER**

ANATOMY				
	BCQ's		SHORT ESSAY	
	Q,s	%	Q,s	%
Gross Anatomy (Lower Limb)	17	48.5	3	43
General Anatomy	04	11.5	1	14
General Embryology	07	20	1	14
General Histology	07	20	2	29
Total	35	100	7	100
Tagged Subject (Biomedical Ethics)	--	--	1	--
Total Marks %	70%		30%	
PHYSIOLOGY				
	BCQ's		SHORT ESSAY	
	Q,s	%	Q,s	%
Total	35	100	7	
Tagged Subject (Information Technology)	--	--	1	
Total Marks %	70%		30%	
BIOCHEMISTRY				
	BCQ's		SHORT ESSAY	
	Q,s	%	Q,s	%
	33	95	7	
Tagged Subjects (Community Medicine)	02	05	1	
Total	35	100	--	
Total Marks %	70%		30%	

SECOND SEMESTER

ANATOMY				
	BCQ's		SHORT ESSAY	
	Q,s	%	Q,s	%
Gross Anatomy (Upper Limb)	12	34	2	29
Gross Anatomy (Thorax)	09	26	2	29
General Embryology	03	08	1	14
Systemic Embryology	04	12	1	14
Histology	07	20	1	14
Total	35	100	7	100
Tagged Subject (Behavioral Sciences)	--	--	1	--
Total Marks %	70%		30%	
PHYSIOLOGY				
	BCQ's		SHORT ESSAY	
	Q,s	%	Q,s	%
Total	35	100	7	
Tagged Subject (Information Technology)	--	--	1	
Total Marks %	70%		30%	
BIOCHEMISTRY				
	BCQ's		SHORT ESSAY	
	Q,s	%	Q,s	%
	33	95	7	
Tagged Subjects (Community Medicine)	02	05	1	
Total	35	100	--	
Total Marks %	70%		30%	



Followed By OSPE Examination



Marks Distribution In Each Subject Will Be As Below

ANATOMY+PHYSIOLOGY+BIOCHEMISTRY	
DESCRIPTION	MARKS
Attendance	10
Internal Evaluation + Journal	10
OSPE	80
TOTAL MARKS	100

NOTE

- + In case of lecture is not delivered it will be covered as an extra lecture with other topic
- + All the groups will be taught the same topics by separate group teacher
- + After eight weeks there will be a unit test in all three subjects separately
- + Comprising of a theory paper BCQ'S and short essay
- + Followed by VIVA VOCE/OSPE Examination
- + After sixteen weeks and two weeks preparation leave there will be semester examination in all three subjects separately+ three tagged subjects
- + Comprising of a theory paper 35-BCQ's and 6/8 Short Essay Questions

BOOKS RECOMMENDED

ANATOMY

- + Clinical Anatomy by Richard S Snell. Cunningham's Manual of Anatomy
- + Wheatears Histology, Langman's Embryology, Keith L. Moore Embryology

PHYSIOLOGY:

- + Text book of Physiology by Guyton & Hall. Review of physiology by Ganong
- + Physiology Journal For Practical

BIOCHEMISTRY:

- + Harper's Illustrated Biochemistry By Robert K Murray.
- + Text book of Medical Biochemistry By Chatterjee.
- + Lippincott's Illustrated Review biochemistry By Champe.
- + Principles of Biochemistry By Lehninger.

TEXT BOOK OF BIOCHEMISTRY WITH CLINICAL CORRELATIONS BY DEVIN TM.