

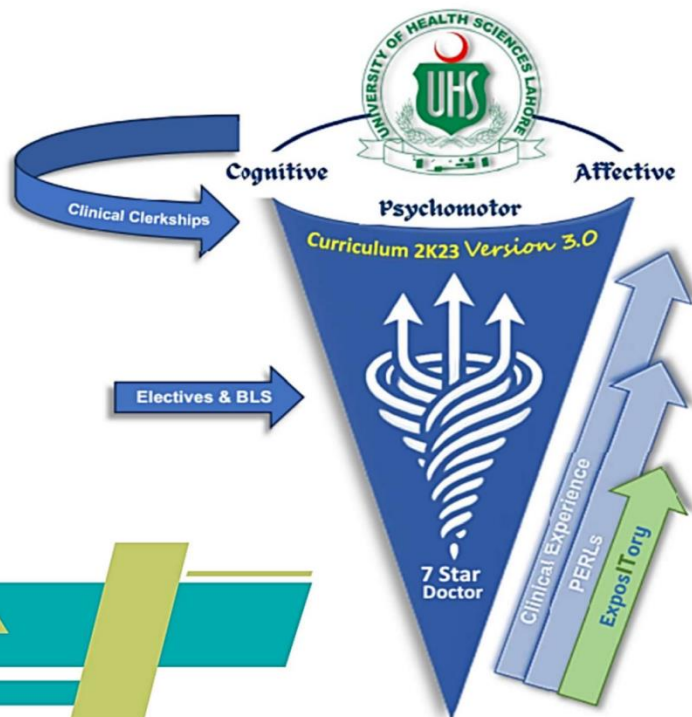




# Modular Integrated Curriculum 2K23

*version 3.0*

## BLOCK-01





# **Block-1**

## **Study Guide 2026**

**1<sup>st</sup> Year MBBS**

**ISLAM MEDICAL COLLEGE**

**Sialkot–Pakistan**

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## BLOCK LEAD DETAILS

I am Dr. Umber Naeem Rathore, currently serving as Assistant Professor in the Department of Biochemistry at Islam Medical College.

I did my MBBS from FJMU Lahore, completed my House Job from Sir Ganga Ram Hospital Lahore. I completed my M-Phil in Biochemistry from Postgraduate Medical Institute (PGMI) and hold a Master of Public Health (MPH) from Glasgow Caledonian University, UK. I have worked in Biochemistry Department of Shalamar Medical and Dental College, Lahore; Fatima Jinnah Medical University, Lahore (FJMU) and Islam Medical and Dental College, Sialkot. Currently, I am performing as Block-I Lead for 1st Year MBBS (Session 2026), overseeing academic coordination and student facilitation for the block.

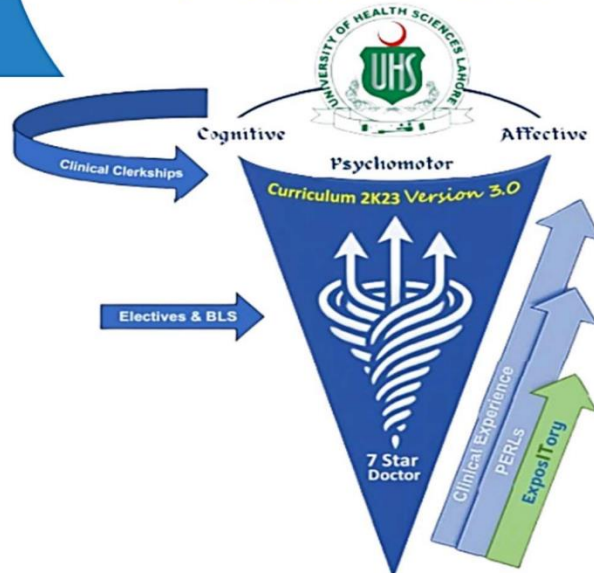
I am available for meetings in the Department of Biochemistry, Academic Block 1, from 08:00 to 15:00 hours on weekdays. I may also be contacted via email at **umber.naeem18@gmail.com** for academic correspondence or appointments.

**BLOCK 1**  
**Foundation -1 and H and L-1**  
**Study Guide**



# MODULE-01 FOUNDATION-1

## Modular Integrated Curriculum 2K23 *version 3.0*



## MODULE RATIONALE

Tomorrow's doctor is required to acquire competencies, which could align his knowledge base and skill set for his professional practices. The foundation of knowledge needs to commence from 'The Cell'. The cell is a structural and functional unit of life and has a role in normal homeostasis ensuring appropriate cellular functions. Hence, this module has been designed to introduce a blend of molecular, genetic, anatomical, physiological, and psychosocial information essential for developing a perspective on the function of the human body in health and disease. Besides, an initial orientation to pharmacology and pathology subject has been provided so that students are able to use this information in the coming modules.

## MODULE OUTCOMES

- Describe the microscopic features of nerve cells, muscle cells, general features of epithelia of the body.
- Appraise the functional characteristics of various components of cell membrane and organelles of cell.
- Differentiate between the dynamics of various transport mechanisms along the cell membrane.
- Compare the functional differences between RBCs, WBCs and blood groups.
- Explain the significance of homeostatic mechanisms in keeping body's internal environment nearly constant.
- Appraise the formation and functions of autonomic nervous system.
- Correlate the structural design of each organ to its function.
- Acquire information about the different fascial planes in the different regions of the body & their surgical importance.
- Use descriptive anatomical terms of position to describe the different body structures in relation to each other.
- Describe the movements of body using proper anatomical terms of movement.
- Describe and demonstrate the various bony landmarks.
- Describe the types of joints and correlate them to the mechanisms of movement.
- Classify the bone, joints and muscles based on the structure, function, phylogenetic origin.
- Describe the structures associated with muscles and explain their functional correlations.
- Classify and describe the cardiovascular system and correlate it functionally.
- Amplify the anatomical basis for radiological, cross-sectional, anatomy.
- Correlate clinicopathologically the apoptosis in health & diseases.

## THEMES

- Cell structure
- Cell transport and signaling
- Cell chemistry
- Homeostasis and blood
- Autonomic nervous system
- Body movement
- Muscles
- Growth and development

### IMPLEMENTATION TORs

- The time calculation for completion of modules and blocks is based on 35 hours per week. Total hours of teaching, learning and formative/summative internal assessment to be completed in a year are 1200.
- The hours mentioned within each module are the mandatory minimum required. The rest of the hours are left to the discretion of the institution that can be used in teaching, learning and assessment as per decision of the institutional academic council.
- The content and the intended learning outcomes written are mandatory, to be taught, at the level required, as the end year assessment will be based on these.
- However, the level of cognition can be kept at a higher level by the institution.
- The Table of Specifications provided will be used for the three papers of the first professional examination. The same table of specifications should be used for the respective three block exams for internal assessment.



## THEORY

### DAY-01

| CODE     | SPECIFIC LEARNING OUTCOMES                                                                                                                                                                                                                                                                                                | TOTAL HOURS = 01+02+04 |                                                               |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---------------------------------------------------------------|
|          |                                                                                                                                                                                                                                                                                                                           | DISCIPLINE             | TOPIC                                                         |
| F-Or-001 | <p>Analyze the societal expectations, impact and role of physicians.</p> <p>Meet with doctors in various leadership roles to gain insights into the multifaceted responsibilities in the medical field.</p> <p>Define and explain the concept of a "Seven-Star Doctor."</p>                                               | Foundation orientation | Understanding the Medical Profession and the Physician's Role |
| F-Or-002 | <p>Comprehend the values and mission of the institution.</p> <p>Familiarize themselves with the college campus, its facilities (educational psychologist, career counseling, and research department etc.), faculty, and administrative framework.</p> <p>Comprehend the medical facilities available to the student.</p> | Foundation orientation | Exploring the Academic Environment                            |

| F-Or-003      | <p>Examine and differentiate various teaching methodologies, assessing their applicability and effectiveness.</p> <p>Develop and maintain professional portfolios and logbooks to reflect on their educational progression.</p> <p>Understand the assessment strategies of the program, considering their types and influence on learning.</p> <p>Practice the PBL (Problem Based Learning) mock to understand its process, including problem identification, teamwork, research, and presentation skills.</p> | Foundation orientation | Acquainting with the MBBS Program               |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------------------------------|
| <b>DAY-02</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                        |                                                 |
| CODE          | SPECIFIC LEARNING OUTCOMES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | TOTAL HOURS = 02+05    |                                                 |
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | DISCIPLINE             | TOPIC                                           |
| F-Or-004      | <p>Describe and understand the structure of Pakistan's Healthcare System (primary, secondary, and tertiary), recognizing the roles of different sectors and key health policies.</p> <p>Identify and comprehend cultural and ethical aspects unique to the Pakistani Healthcare context.</p> <p>Describe the principles of family practice within the Healthcare System.</p>                                                                                                                                   | Foundation orientation | Delving into the Healthcare System and Delivery |

| F-Or-005      | <p>Use the IT and library facilities such as eBooks', Year planners, access to scientific journals etc.</p> <p>Effectively use the university's learning management system and other online educational tools.</p> <p>Demonstrate proficiency in essential academic software tools such as Microsoft office such as (word, spreadsheets, and presentation software.</p> <p>Recognize and adhere to ethical practices in the use of digital resources, focusing on digital literacy and academic integrity.</p> | Foundation orientation | Integrating Information Technology in Learning |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------------------------------------|
| <b>DAY-03</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                        |                                                |
| CODE          | SPECIFIC LEARNING OUTCOMES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | TOTAL HOURS = 05+04    |                                                |
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | DISCIPLINE             | TOPIC                                          |
| F-Or-006      | <p>Articulate the structure and requirements of their MBBS program, including core and elective subjects.</p> <p>Understand the significance of interdisciplinary studies and the interconnection of various courses.</p> <p>Identify opportunities for experiential learning, research, and career advancement within the curriculum.</p>                                                                                                                                                                     | Foundation orientation | Understanding the Curriculum Structure         |
| F-Or-007      | <p>Apply various metacognition strategies for learning.</p> <p>Apply digital tools effectively to organize and synthesize information for their academic projects.</p> <p>Create a personal action plan integrating stress management techniques and personal development strategies to enhance their academic and personal life.</p>                                                                                                                                                                          | Foundation orientation | Self-Directed Learning                         |

| NORMAL STRUCTURE |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                  |                                 |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------------------|
| THEORY           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                  |                                 |
| CODE             | GROSS ANATOMY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | TOTAL HOURS = 15 |                                 |
|                  | SPECIFIC LEARNING OUTCOMES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | DISCIPLINE       | TOPIC                           |
| F-A-001          | <p>Briefly describe the applied branches of anatomy</p> <p>Describe the "Anatomical Position"</p> <p>Describe the anatomical planes of body.</p> <p>Describe the terms of relationship, commonly used in Anatomy.</p> <p>Describe the anatomical terms used specifically for Limbs.</p> <p>Describe the terms related to movements.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | General Anatomy  | Introduction to General Anatomy |
| F-A-002          | <p>Describe, identify, and exemplify the general morphological features of bones. Describe the developmental classification of bones.</p> <p>Describe the regional classification of bones.</p> <p>Describe the morphological classification of bones.</p> <p>Describe and exemplify Sesamoid, Pneumatic, Wormian and Heterotopic bones.</p> <p>Describe the general features of adult typical long bone.</p> <p>Describe the types of epiphyses</p> <p>Discuss the general concept of ossification (primary and secondary centers and rule of ossification)</p> <p>Describe the relationship of growing end of bones with the direction of nutrient foramen</p> <p>Describe the blood supply of various types of bones</p> <p>Describe the salient features of common types of fractures and basic concept of healing of fracture.</p> | General Anatomy  | Bones (Osteology)               |
| F-A-003          | Describe the general features of cartilage and its importance in gross anatomy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | General Anatomy  | Cartilage (Chondrology)         |
|                  | Describe the subtypes and gross features of Hyaline, elastic and fibro Cartilage. Differentiate the three types of cartilages                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                  |                                 |

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                 |                         |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------|
| F-A-004 | <p>Describe and exemplify the structural classification of Joints (synovial, cartilaginous &amp; fibrous) along with their sub-classification.</p> <p>Describe the components and characteristic features of a Synovial Joints. Describe the blood supply, innervation of Synovial Joints, cartilaginous joints, and fibrous joints. List the factors stabilizing a synovial joint. Define common joint injuries and diseases</p>                                                                                                                                  | General Anatomy | Joints (Arthrology)     |
| F-A-005 | <p>Describe the structure and function of Skin on the basis of its two layers; Epidermis and Dermis</p> <p>Describe the structure of Hair as an appendage of skin.</p> <p>Describe the structure of Nail as an appendage of skin.</p> <p>Describe the structure of Sweat and Sebaceous Glands</p> <p>Describe the structure and function of Superficial Fascia</p> <p>Describe the structure, function, and modifications of Deep Fascia</p> <p>Describe important clinical correlates of skin (skin infections, sebaceous cyst, skin burns and skin grafting)</p> | General Anatomy | Integumentary System    |
| F-A-006 | <p>Classify and describe Muscle Tissue based on Structure, Function and Development</p> <p>Describe Somatic and Visceral Muscles</p> <p>Describe and differentiate the Red and White Variety of Skeletal Muscles</p>                                                                                                                                                                                                                                                                                                                                               | General Anatomy | Muscle Tissue (Myology) |
|         | <p>Classify and describe the skeletal muscles based on architecture.</p> <p>Classify skeletal muscle based on action.</p> <p>Describe the parts of a skeletal muscle.</p> <p>Describe and differentiate the basic organization of innervation to skeletal, smooth, and cardiac muscle.</p> <p>Describe the structure of Synovial Bursae</p> <p>Comprehend the meaning of Hypertrophy, Hemiplegia, quadriplegia, paraplegia, hemiparesis</p>                                                                                                                        | General Anatomy |                         |

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                 |                             |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------------------|
| F-A-007 | <p>Classify the types of blood circulation. Classify and exemplify various types of blood vessels.</p> <p>Describe and exemplify various types of anastomoses.</p> <p>Explain the importance of End Arteries</p> <p>Describe the general organization of Lymphatic Circulation</p> <p>Define the terms: Lymphoid Tissue, Tissue Fluid, Lymphatic, Capillaries, Lymph and Lymphatic Vessels</p> <p>Define the terms; Lymphangitis, Lymphadenitis.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | General Anatomy | Vascular System (Angiology) |
| F-A-008 | <p>Define neuron.</p> <p>Describe the anatomical structure of a neuron.</p> <p>Classify neurons based on morphology with examples.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | General Anatomy | Nervous Tissue (Neurology)  |
|         | <p>Classify neurons based on function. Describe the components of the central nervous system.</p> <p>Describe the components of the peripheral nervous system.</p> <p>Name the supporting cells (neuroglia) of the central nervous system.</p> <p>Describe the structure and functions of the neuroglia of the central nervous system.</p> <p>Enumerate the supporting cells (neuroglia) of the peripheral nervous system.</p> <p>Describe the structure and functions of the neuroglia of the peripheral nervous system.</p> <p>Enlist the cranial nerves I to XII</p> <p>Describe the types of nerve fibers carried by and distribution of the cranial nerves.</p> <p>Describe the formation, types of modalities carried by, and distribution of the spinal nerves.</p> <p>Explain Dermatome (s)</p> <p>Explain Myotome (s)</p> <p>Describe the formation of Plexuses. Differentiate between Somatic and Visceral nervous system.</p> <p>Define Receptors</p> <p>Describe the functions of receptors.</p> | General Anatomy |                             |

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                           |                                             |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------------------------|
|         | Classify sensory receptors based on modality (with location)<br>Define Effectors<br>Describe the functions of effectors.<br>Describe ANS (Autonomic Nervous System) and differentiate between sympathetic and parasympathetic nervous system                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |                                             |
| F-A-009 | Identify displacement of fracture segments of the bone<br>Identify dislocation of joints                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Integrate with Radiology  | Imaging in Anatomy                          |
| CODE    | <b>EMBRYOLOGY &amp; POST-NATAL DEVELOPMENT</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>TOTAL HOURS = 25</b>   |                                             |
|         | <b>SPECIFIC LEARNING OUTCOMES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>DISCIPLINE</b>         | <b>TOPIC</b>                                |
| F-A-010 | Define Chromosome Theory of inheritance<br>Enlist different stages of Mitosis and Meiosis<br>Compare and contrast Mitosis and Meiosis<br>Enlist the numerical chromosomal anomalies<br>Describe the anatomical basis for numerical chromosomal abnormalities. Describe the clinical presentation of numerical chromosomal abnormalities & justify them embryologically<br>Describe the clinical presentation of structural chromosomal abnormalities and justify them embryologically.<br>Describe the embryological basis for mosaicism<br>Describe the embryological basis for teratoma<br>Describe Concept of Gene Mutation. Enlist common diagnostic techniques for identifying genetic abnormalities. | Embryology                | Cell division and Chromosomal abnormalities |
| F-A-011 | Describe the Process of spermatogenesis and spermiogenesis<br>Describe the embryological basis for Abnormal gametes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Embryology                | Gametogenesis Spermatogenesis               |
| F-A-012 | Describe the Prenatal and postnatal maturation of oocyte                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Integrate with Gynecology | Gametogenesis Oogenesis                     |

|         |                                                                                                                                                                                                                                                                                                                          |                              |                                                         |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------|
| F-A-013 | Describe the significance of arrested development of oocyte                                                                                                                                                                                                                                                              | Embryology                   | Gametogenesis<br>Oogenesis                              |
| F-A-014 | Compare and contrast oogenesis and spermatogenesis                                                                                                                                                                                                                                                                       |                              | Gametogenesis                                           |
| F-A-015 | Describe the hormonal control of female reproductive cycles<br>Enumerate and describe the steps of the ovarian cycle<br>Describe the process of ovulation<br>Describe the formation, function and fate of corpus luteum<br>Define Mittelschmerz pain<br>Define menstrual cycle<br>Describe the phases of menstrual cycle | Integrate with<br>Gynecology | Female<br>Reproductive<br>Cycle                         |
| F-A-016 | Describe the transportation of Oocyte                                                                                                                                                                                                                                                                                    | Embryology                   | Transportation of gametes                               |
| F-A-017 | Describe Capacitation & Acrosomal Reaction<br>Define fertilization<br>Describe the phases of fertilization Draw and label a diagram illustrating the phases of fertilization<br>Enumerate and describe the results of fertilization                                                                                      |                              | Fertilization                                           |
| F-A-018 | Define contraception<br>Explain the mechanisms of following contraceptive techniques:<br>1. Barrier methods<br>2. Hormonal methods<br>3. Intrauterine device (IUD)<br>4. Emergency contraceptive pills (ECPs)<br>5. Male and female sterilization                                                                        | Integrate with<br>physiology | Contraception                                           |
| F-A-019 | Describe the anatomical and physiological basis of male and female infertility<br>Define assisted reproductive techniques Describe the mechanisms of In vitro fertilization (IVF) & embryo transfer<br>Explain the correlation of multiple births with assisted reproductive techniques                                  | Integrate with<br>Gynecology | Infertility &<br>assisted<br>reproductive<br>techniques |

|         |                                                                                                                                                                                                                                                                                                                                                           |                                          |                                    |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------------------------------------|
| F-A-020 | Describe the process of cleavage of embryo and blastocyst formation<br>Describe the origin and uses of embryonic stem cells and the techniques of obtaining these cells from the embryo (reproductive cloning & therapeutic cloning)<br>Explain the embryological basis of spontaneous abortion.                                                          | Embryology                               | Cleavage, blastocyst formation     |
|         | Compare and contrast the villi.                                                                                                                                                                                                                                                                                                                           | Integrate with Gynaecology               |                                    |
|         | Describe the process of Compaction.<br>Describe the Formation of morula (division into inner and outer cell mass)                                                                                                                                                                                                                                         | Embryology                               |                                    |
| F-A-021 | Describe the Uterus at the time of implantation (decidua reaction)<br>Illustrate the concept of Implantation.<br>Describe the Abnormal implantation/ extra uterine implantations.<br>Define the Molar pregnancy.<br>Describe the formation of amniotic cavity, embryonic disc, and umbilical vesicle Describe the formation of chorionic sac.             | Embryology                               | Implantation Week 2 of Development |
| F-A-022 | Describe the Establishment of uteroplacental circulation.                                                                                                                                                                                                                                                                                                 |                                          | Utero-Placental circulation        |
| F-A-023 | Describe the Formation & fate of primitive streak.<br>Draw a concept map highlighting the sequence of events responsible for transformation of bilaminar germ disc into trilaminar germ disc.<br>Describe the embryology behind sacrococcygeal teratoma and justify its clinical picture.<br>Describe the molecular factors responsible for gastrulation. | Embryology<br>Integrate with Gynaecology | Gastrulation                       |
| F-A-024 | Describe the Invagination and movement of prenotochordal cells<br>Describe the Notochordal plate formation Describe the Neuroenteric canal formation                                                                                                                                                                                                      | Embryology                               | Formation of notochord             |

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                            |                          |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------------------------|
|         | <p>Describe the fate of the notochord</p> <p>Describe the Establishment of body axis</p> <p>Draw and label the fate map establishment</p> <p>Describe the Fate map establishment</p> <p>Describe the molecular basis for notochord formation</p>                                                                                                                                                                                                                                                                              |                            |                          |
|         | <p>Describe the role of notochord as an inducer</p> <p>Describe the embryological basis for situs inversus, Sirenomelia, holoprosencephaly</p> <p>Describe the development of trophoblast and chorionic villi during 3rd week of development</p>                                                                                                                                                                                                                                                                              |                            |                          |
| F-A-025 | <p>Describe the Formation of neural tube from neural plate.</p> <p>Justify embryologically the clinical picture seen in various neural tube defects</p> <p>Describe the process of Migration of neural crest cells</p> <p>Enlist the Derivatives of neural tube and describe the fate of each</p> <p>Enlist the Derivatives of neural crest cells</p> <p>Enlist the ectodermal derivatives</p> <p>Describe the molecular and genetic factors for the process of neurulation</p> <p>Describe important Neural tube defects</p> | Embryology                 | Derivatives of ectoderm  |
| F-A-026 | <p>Describe the Differentiation of mesoderm into its constituting components</p> <p>Describe the Somite formation and its fate Describe the Estimation of age by somites Describe the formation of intra-embryonic coelom</p>                                                                                                                                                                                                                                                                                                 | Integrate with pediatrics  | Mesodermal derivatives   |
| F-A-027 | <p>Describe the processes of vasculogenesis &amp; angiogenesis</p> <p>Explain the features of primordial cardiovascular system</p> <p>Describe the anatomical justification for Capillary hemangiomas</p>                                                                                                                                                                                                                                                                                                                     | Integrate with Cardiology  | Early development of CVS |
| F-A-028 | Describe the Cephalo-caudal folding                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Integrate with Gynaecology | Folding of embryo        |

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                        |                                       |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|---------------------------------------|
|         | Describe the Lateral folding                                                                                                                                                                                                                                                                                                                                                                                                                         |                                        |                                       |
| F-A-029 | Enlist the derivatives of germ layers<br>Enlist and Describe the Derivatives of intermediate and lateral plate mesoderm Enlist & Describe the Derivatives of endoderm                                                                                                                                                                                                                                                                                | Embryology                             | Germ layer derivatives                |
|         | Enlist & describe the derivatives of ectoderm                                                                                                                                                                                                                                                                                                                                                                                                        | Integrate with Gynaecology/ Pediatrics |                                       |
|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Embryology                             |                                       |
| F-A-030 | Enlist the characteristic features of the embryo during 2nd month<br>Describe the criteria for estimating the developmental staging in human embryos Explain the estimation of gestational & embryonic age                                                                                                                                                                                                                                           |                                        | Folding of Embryo<br>Embryonic period |
| F-A-031 | Explain the measurement and characteristics of fetus/Key events during Embryonic Period.<br>Describe the Overview of External appearance of fetus during fetal period. Enlist developmental horizons during fetal life event.<br>Describe Viability of fetuses and low birth weight babies<br>Explain the factors influencing fetal growth<br>Describe the clinical problems encountered by babies born with IUGR (Intra Uterine Growth Restriction) |                                        | Fetal Period                          |
| F-A-032 | Tabulate the criteria for estimating fertilization age during the fetal period<br>Describe the procedures for assessing fetal status<br>Describe the clinical picture of IUGR & factors resulting in IUGR (Intra Uterine Growth Restriction)<br>Define Pre-eclampsia                                                                                                                                                                                 | Integrate with Gynaecology             | Fetal Status                          |
| F-A-033 | List the fetal membranes                                                                                                                                                                                                                                                                                                                                                                                                                             | Integrate with                         | Placenta                              |

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                           |                      |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------|
|         | <p>Describe the macroscopic &amp; microscopic features of Decidua</p> <p>Enlist the various parts of decidua Functionally correlate the parts of the decidua with its structure</p> <p>Describe the Changes in the trophoblast leading to the development of placenta Describe the Structure (macroscopic &amp; microscopic) of placenta</p>                                                                                                                                                                                                                                                                                                                       | Gynaecology               |                      |
|         | <p>Enlist &amp; correlate the Functions of placenta with its structure</p> <p>Describe the Microscopic anatomy of Placental membrane</p> <p>Describe the Placental circulation (fetal &amp; maternal)</p> <p>Embryologically justify the hemolytic disease of the neonate (Erythroblastosis fetalis)</p> <p>Describe the functions of placenta</p>                                                                                                                                                                                                                                                                                                                 |                           |                      |
| F-A-034 | <p>Describe the Formation &amp; fate of Umbilical cord</p> <p>Describe the Cord abnormalities</p> <p>Justify embryologically the clinical features observed in Absence of umbilical artery</p> <p>Describe the formation and circulation of Amniotic fluid</p> <p>Describe the Procedure of diagnostic amniocentesis</p> <p>Explain the significance of amniotic fluid</p> <p>Describe the factors responsible for Polyhydramnios and oligohydramnios</p> <p>Describe the consequences of oligohydramnios and polyhydramnios Define Amniotic Bands</p> <p>Explain the formation and fate of umbilical vesicle (yolk sac) Define Physiological Umbilical Hernia</p> | Integrate with Gynecology | Fetal membranes      |
| F-A-035 | <p>Describe the development of Dizygotic twins</p> <p>Describe the development of Monozygotic twins</p> <p>Describe the fetal membranes in twin pregnancy</p> <p>Describe Fetus Papyraceous</p> <p>Explain the zygosity of the twins</p>                                                                                                                                                                                                                                                                                                                                                                                                                           | Embryology                | Multiple pregnancies |

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                  |                                      |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------------------|
|         | Describe the characteristics of various types of conjoined monozygotic twins                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |                                      |
| F-A-036 | Define preterm Birth<br>Describe parturition & three stages of Labor.<br>Describe the Various methods of prenatal diagnosis<br>Describe the Fetal therapy<br>Describe Maternal serum Screening<br>Corelate levels of Alpha fetoprotein levels and fetal anomalies<br>Describe stem cell transplantation and gene therapy                                                                                                                                                                                                                                                                  |                  | Prenatal diagnosis and fetal therapy |
| F-A-037 | Define teratology and causes of birth defects<br>Define genomic imprinting<br>Define human disorders associated with genetic mutations<br>Describe birth defects caused by genetic factors: numerical and structural anomalies<br>Define and enlist the teratogens<br>Describe the role of following in causing teratogenicity in humans:<br>1. Drugs<br>2. Environmental agents<br>3. Chemicals & heavy metals<br>4. Infectious agents<br>5. Radiation<br>6. Hormones<br>7. Maternal diseases<br>Describe the basis for male-mediated teratogens<br>Describe prevention of birth defects |                  | Teratogenicity                       |
| CODE    | MICROSCOPIC ANATOMY (HISTOLOGY AND PATHOLOGY)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | TOTAL HOURS = 08 |                                      |
|         | SPECIFIC LEARNING OBJECTIVES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | DISCIPLINE       | TOPIC                                |

|         |                                                                                                                                                                                                                                                                                                                               |                                 |                                                                |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|----------------------------------------------------------------|
| F-A-038 | Describe different types of microscopies      Describe<br>Staining methods and their significance                                                                                                                                                                                                                             | Basic technique<br>in Histology | Introduction to<br>microscopy &<br>Basic staining<br>technique |
| F-A-039 | Describe the electron microscopic structure and fluid<br>mosaic model of plasma membrane<br>Draw the fluid mosaic model of plasma membrane<br>Describe the structure of glycocalyx coat and lipid raft<br>and correlate it with function<br>Describe different types of membrane<br>proteins and their functions              | Basic Histology                 | Cell membrane                                                  |
|         | Explain different modes of transport across the cell<br>membrane                                                                                                                                                                                                                                                              |                                 |                                                                |
| F-A-040 | List the membranous and non-<br>membranous cellular organelles<br>Describe the structure of the following cellular<br>organelles and correlate with their function:<br>1. Ribosomes<br>2. Endoplasmic reticulum (rough & smooth)<br>3. Golgi apparatus<br>4. Lysosomes<br>5. Proteasomes<br>6. Mitochondria<br>7. Peroxisomes | Integrate with<br>Pathology     | Cell organelles                                                |
|         | Describe the structural components of cytoskeleton,<br>and correlate them with their functions<br>Explain the histological basis of immotile cilia<br>syndrome                                                                                                                                                                |                                 |                                                                |
|         | Describe the histological features of cytoplasmic<br>inclusions                                                                                                                                                                                                                                                               | Integrate with<br>Pathology     |                                                                |
|         | Describe the structure of nuclear envelope and nuclear<br>pores                                                                                                                                                                                                                                                               | Integrate with<br>Physiology    |                                                                |
| F-A-041 | Describe the structure of chromatin<br>Describe the structure of chromosome<br>Describe the structure of nucleolus                                                                                                                                                                                                            | Histology                       | Cell nucleus                                                   |

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                    |                   |
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|         | <p>Describe the structure and types of DNA (Deoxy Ribonucleic Acid) and RNA (Ribonucleic Acid)</p> <p>Describe the histological basis for apoptosis and necrosis</p>                                                                                                                                                                                                                                                                                                                                  |                                    |                   |
|         | <p>Describe structure of different types of cell junctions</p> <p>Describe the cell cycle &amp; cell division</p> <p>Define important clinicopathological terms:<br/>Atresia, Hypertrophy, Atrophy, Hyperplasia, Metaplasia, Anaplasia, Neoplasia, Inflammation, Metastasis</p>                                                                                                                                                                                                                       | <p>Integrate with Pathology</p>    |                   |
| F-A-042 | <p>Describe the histological structure and function of basement membrane (light and electron)</p> <p>Draw and label a diagram illustrating the electron microscopic structure of basement membrane</p> <p>Describe the basal surface modifications of epithelia</p> <p>Describe the electron microscopic structure and functions of intercellular junctions (lateral surface modifications) and give their locations</p> <p>Describe the Biochemical composition of the basolateral modifications</p> | <p>Histology</p>                   | <p>Epithelium</p> |
|         | <p>Describe the electron microscopic structure &amp; functions of the following apical cell surface specializations:</p> <ul style="list-style-type: none"><li>1. Microvilli</li><li>2. Stereocilia</li><li>3. Cilia</li></ul>                                                                                                                                                                                                                                                                        | <p>Integrate with Biochemistry</p> |                   |
|         | <p>Classify and exemplify the epithelia with their histological structure, locations and functions</p>                                                                                                                                                                                                                                                                                                                                                                                                | <p>Integrate with Pathology</p>    |                   |
|         | <p>Describe the structure of exocrine glands Explain the mechanism of transport across the epithelia</p> <p>Describe the classification of exocrine glands on the basis of:</p> <ul style="list-style-type: none"><li>1. Shape of secretory portions and ducts</li><li>2. Mode of secretion</li><li>3. Type of secretion</li></ul>                                                                                                                                                                    | <p>Histology</p>                   |                   |

|                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                       |                                         |                   |
|---------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-------------------|
| F-A-043                                                                                                 | Describe the composition and list the constituents of connective tissue Classify the connective tissue with examples<br><br>Describe the composition of ground substance of connective tissue<br><br>Describe the composition, distribution, and function of glycosaminoglycans in connective tissue<br><br>Describe connective tissue fibers, cells. Define Fibrosis | Histology                               | Connective tissue |
|                                                                                                         | Describe the structure, distribution, and functions of the cells of macrophage mononuclear phagocytic system                                                                                                                                                                                                                                                          | Integrate with Biochemistry/ Physiology |                   |
|                                                                                                         | Describe the role of macrophages in innate immunity & formation of foreign body Giant cell<br><br>Describe the structure & functions of Mast cells. Role of Mast cells in immediate hypersensitivity reactions.<br><br>Describe structure of Plasma cells and their role in antibody formation.                                                                       |                                         |                   |
|                                                                                                         | Describe the types of adipose tissue (white & brown), their histogenesis, locations and function                                                                                                                                                                                                                                                                      |                                         |                   |
|                                                                                                         | Describe lipid storage and mobilization in and from adipocytes and compare the brown and white adipose tissue                                                                                                                                                                                                                                                         | Integrate with Pathology                |                   |
| <div>PRACTICAL</div> |                                                                                                                                                                                                                                                                                                                                                                       |                                         |                   |
| CODE                                                                                                    | ANATOMY                                                                                                                                                                                                                                                                                                                                                               | TOTAL HOURS = 03                        |                   |
|                                                                                                         | SPECIFIC LEARNING OBJECTIVES                                                                                                                                                                                                                                                                                                                                          | DISCIPLINE                              | TOPIC             |
| F-A-044                                                                                                 | Demonstrate the anatomical terms of position and movement, in particular on limbs.                                                                                                                                                                                                                                                                                    | Anatomy                                 | Osteology         |

|             |                                                                                                                                                                                                                                                                                                                |                         |                                                                     |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------------------------------------------------------|
|             | <p>Demonstrate various anatomical movements of body</p> <p>Identify various elevations and anatomical landmarks on bones.</p> <p>Identify and interpret normal radiographs of various body regions</p> <p>Identify and interpret joint dislocations and displaced fracture bone segments radiographically.</p> |                         | <p>Imaging and cross-sectional</p> <p>Anatomy</p> <p>Arthrology</p> |
| <b>CODE</b> | <b>EMBRYOLOGY</b>                                                                                                                                                                                                                                                                                              | <b>TOTAL HOURS = 05</b> |                                                                     |
|             | <b>SPECIFIC LEARNING OBJECTIVES</b>                                                                                                                                                                                                                                                                            | <b>DISCIPLINE</b>       | <b>TOPIC</b>                                                        |
| F-A-045     | Calculate fertilization age, gestational age, embryonic/fetal age and expected date of delivery.                                                                                                                                                                                                               | Anatomy                 | Embryology                                                          |
|             | On models, charts, aborted embryos and fetal specimens, identify the:                                                                                                                                                                                                                                          |                         |                                                                     |
|             | Events of embryonic period, i.e., cleavage, morula and blastula formation, yolk sac, amniotic cavity, connecting stalk, placenta and its positional and                                                                                                                                                        |                         |                                                                     |
|             | implantational variations, umbilical cord and its contents.                                                                                                                                                                                                                                                    |                         |                                                                     |
|             | Gastrulation (notochord & primitive streak, three germ layers and their parts/derivatives), angiogenesis, neurulation, somites and embryonic age determination based on it, chorionic villi (primary, secondary & tertiary), developmental defects (sacroccygeal teratoma, neural tube defects)                |                         |                                                                     |
|             | Placenta and it's positional & Implantational variations, umbilical cord and its contents                                                                                                                                                                                                                      |                         |                                                                     |
|             | Fetal features during fetal period. Determine age of fetus based on these features.                                                                                                                                                                                                                            |                         |                                                                     |
|             | Describe the USG (Ultrasonography) report for the:                                                                                                                                                                                                                                                             |                         |                                                                     |
|             | Fetal features, fetal age estimation, placental attachment with variations, fetal membranes and multiple pregnancies                                                                                                                                                                                           |                         |                                                                     |

|  |                                                                                                                                                                |  |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  | Gastrulation (notochord & primitive streak, three germ layers and their parts/derivatives), angiogenesis, neurulation, somites and embryonic age determination |  |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                         |                     |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------|
|             | <p>based on it, chorionic villi (primary, secondary &amp; tertiary), developmental defects (sacroccygeal teratoma, neural tube defects) fetal features during fetal period. Determine age of fetus based on these features.</p> <p>Describe the USG (Ultrasonography) report for the:<br/>Fetal features, fetal age estimation, placental attachment with variations, fetal membranes and multiple pregnancies</p>                                                                        |                         |                     |
| <b>CODE</b> | <b>HISTOLOGY</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>TOTAL HOURS = 14</b> |                     |
|             | <b>SPECIFIC LEARNING OBJECTIVES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>DISCIPLINE</b>       | <b>TOPIC</b>        |
| F-A-046     | Describe different types of staining techniques and their significance with special emphasis on H&E (Hematoxylin and Eosin) staining                                                                                                                                                                                                                                                                                                                                                      | Microscopic Anatomy     | Staining techniques |
| F-A-047     | Enlist important features of different parts of light microscope                                                                                                                                                                                                                                                                                                                                                                                                                          |                         | Microscope          |
| F-A-048     | Identify and draw & label different cell shapes under the microscope                                                                                                                                                                                                                                                                                                                                                                                                                      |                         | Cell shape          |
| F-A-049     | <p>Identify under light microscope and Draw &amp; Label the following types of epithelia:</p> <ol style="list-style-type: none"> <li>1. Simple squamous</li> <li>2. Simple cuboidal</li> <li>3. Simple columnar (ciliated &amp; non-ciliated)</li> <li>4. Pseudostratified columnar (ciliated &amp; non-ciliated)</li> <li>5. Stratified squamous (keratinized &amp; non keratinized)</li> <li>6. Stratified cuboidal</li> <li>7. Stratified columnar</li> <li>8. Transitional</li> </ol> |                         | Epithelium          |
| F-A-050     | Identify under light microscope and Draw & Label serous & mucous secreting glands under light microscope                                                                                                                                                                                                                                                                                                                                                                                  | Microscopic Anatomy     | Epithelium          |

|                        |                                                                                                                                                                                                                                                                                                                   |                         |                   |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------|
| F-A-051                | Identify under light microscope and Draw & Label the various types of connective tissue                                                                                                                                                                                                                           |                         | Connective tissue |
| <b>NORMAL FUNCTION</b> |                                                                                                                                                                                                                                                                                                                   |                         |                   |
| <b>THEORY</b>          |                                                                                                                                                                                                                                                                                                                   |                         |                   |
| <b>CODE</b>            | <b>MEDICAL PHYSIOLOGY</b>                                                                                                                                                                                                                                                                                         | <b>TOTAL HOURS = 40</b> |                   |
|                        | <b>SPECIFIC LEARNING OBJECTIVES</b>                                                                                                                                                                                                                                                                               | <b>DISCIPLINE</b>       | <b>TOPIC</b>      |
| F-P-001                | Define Homeostasis<br>Explain control system of body by giving examples<br>Differentiate between Extracellular and Intracellular Fluids<br>Explain the positive and negative feedback mechanisms with examples<br>Explain the significance of feed forward/ adaptive control/delayed negative feedback mechanisms | Medical Physiology      | Cell Biology      |
|                        | Define normal body temperature, mechanism of heat production and heat loss<br>Describe regulation of body temperature (role of hypothalamus)<br>Explain abnormalities of body temperature regulation                                                                                                              |                         |                   |
|                        | Explain the structure of cell membrane<br>Enlist the types of cell membrane proteins<br>Enumerate the functions of membrane proteins<br>Define and enumerate the functions of cell Glycocalyx                                                                                                                     |                         |                   |

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |       |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------|
|         | <p>Enlist membranous and non-membranous organelles</p> <p>Enlist the self-replicative organelles</p> <p>Differentiate between the functions of smooth and rough endoplasmic reticulum</p> <p>Explain the functions of Golgi apparatus</p> <p>Enlist the enzymes of lysosomes</p> <p>Explain the functions of lysosomes</p> <p>Enlist the enzymes of peroxisomes</p> <p>Explain the functions of peroxisomes</p> <p>Enumerate the components and functions of cytoskeleton</p> <p>Define and enlist types of endocytosis</p> <p>Explain the mechanism of pinocytosis</p> <p>Classify different transport mechanisms</p> <p>Compare the composition of Na (Sodium), K (Potassium) and Cl (Chloride) in extracellular and intracellular fluid</p> |  |       |
|         | <p>Define and enlist different types of diffusion Explain the process of facilitated diffusion with the aid of diagram</p> <p>Define and classify different types of active transport</p> <p>Describe primary and secondary active transport with examples</p> <p>Explain voltage and ligand gated channels with examples</p> <p>Name Na, K channel Blockers.</p> <p>Discuss functions and significance of Na/K ATPase pump.</p>                                                                                                                                                                                                                                                                                                               |  |       |
| F-P-002 | <p>Enumerate the functions of blood</p> <p>Explain the composition of blood</p> <p>Enumerate the plasma proteins</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | Blood |
|         | <p>Discuss functions of plasma proteins</p> <p>Describe the pathophysiology of edema</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |       |

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                 |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|
| F-P-003 | <p>Discuss the characteristics of red blood cells</p> <p>Explain different types of Bone marrows Enumerate the different sites of erythropoiesis at different ages</p> <p>Explain the stages of erythropoiesis</p> <p>Enumerate factors that regulate erythropoiesis Discuss the site and role of erythropoietin in red blood cell production</p> <p>Explain the significance of vitamin B12 and folic acid in maturation of red blood cell</p> | Medical Physiology | Red Blood Cells |
| F-P-004 | <p>Enumerate the types of normal hemoglobin in different ages of life</p> <p>Explain the role of Iron in Hemoglobin formation.</p> <p>Define blood indices, give their normal values &amp; enumerate the conditions in which these values are disturbed</p> <p>Enlist the abnormal types of hemoglobin</p>                                                                                                                                      | Medical Physiology | Hemoglobin      |
| F-P-005 | <p>Enumerate the types of white blood cells</p> <p>Describe the characteristics and functions of Neutrophils</p> <p>Explain the process of defense against invading agent by neutrophils</p> <p>Define leukocytosis and leukopenia</p> <p>Explain the effects of leukemia on body</p> <p>Explain the process of defense against invading agent by macrophages</p> <p>Discuss different lines of defense during inflammation</p>                 | Medical            | White Blood     |

|         |                                                                                                                                                                                                                                                                                                                                                                                                                   |                    |             |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------|
|         | <p>Explain the functions of neutrophils and macrophages in spread of inflammation (walling off effect)</p> <p>Define the Reticuloendothelial system</p> <p>Enlist the different components of Reticuloendothelial system</p> <p>Explain the characteristics and functions of basophils</p> <p>Explain the characteristics and functions of eosinophils and enlist conditions in which these cells are raised.</p> | Physiology         | Cells       |
| F-P-006 | <p>Enumerate different blood group types.</p> <p>Explain the basis of ABO and Rh blood system</p> <p>Explain the Landsteiner law</p>                                                                                                                                                                                                                                                                              | Medical Physiology | Blood Types |

# PRACTICAL

| CODE    | PHYSIOLOGY                                                                                                                                                                                                                                                                                                               | TOTAL HOURS = 12             |                          |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------|
|         | SPECIFIC LEARNING OBJECTIVES                                                                                                                                                                                                                                                                                             | DISCIPLINE                   | TOPIC                    |
| F-P-007 | Explain laboratory/clinical procedure to the subject.<br>Obtain verbal consent from subject before starting a procedure. Reassure the subject after the procedure.                                                                                                                                                       | Medical Physiology           | Consent                  |
| F-P-008 | Determine Erythrocyte Sedimentation Rate and packed cell volume                                                                                                                                                                                                                                                          |                              | RBCs (Red Blood Cells)   |
| F-P-009 | Determination of blood group                                                                                                                                                                                                                                                                                             |                              | Blood Group              |
| F-P-010 | Identify various types of WBCs in a prepared DLC (Differential Leukocyte Count)                                                                                                                                                                                                                                          |                              | WBCs (White Blood Cells) |
| THEORY  |                                                                                                                                                                                                                                                                                                                          |                              |                          |
| CODE    | MEDICAL BIOCHEMISTRY                                                                                                                                                                                                                                                                                                     | TOTAL HOURS = 36             |                          |
|         | SPECIFIC LEARNING OBJECTIVES                                                                                                                                                                                                                                                                                             | DISCIPLINE                   | TOPIC                    |
| F-B-001 | Explain the concept of organization of cells to tissue, tissues to organ, organs to system.<br>Differentiate between the eukaryotic and prokaryotic cells.                                                                                                                                                               | Biochemistry<br>Cell Biology | Structure of cell        |
| F-B-002 | Describe the composition and structure of cell on biochemical basis and justify it as fluid mosaic model.<br>Describe the structure and function of cell membrane with particular reference to the role of<br>1. Lipids<br>2. Carbohydrates<br>3. Proteins<br>Explain why the cell membrane is called fluid mosaic model |                              | Cell Membrane            |
| F-B-003 | Discuss the various ways of cell-to-cell communication and to the environment.                                                                                                                                                                                                                                           |                              | Signal transduction      |

|         |                                                                                                                                                                                                                                                                 |                              |                                     |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------|
|         | Describe cell to cell communications. Cell signaling pathways (only G protein signaling I e. Gs, Gi and Gq)<br>Describe cell to cell adhesion.                                                                                                                  |                              |                                     |
| F-B-004 | Explain the biochemical markers and importance of subcellular organelles and their inherited disorders especially:<br>1. I cell disease<br>2. Refsum disease<br>3. Parkinsonism<br>4. Progeria                                                                  |                              | Subcellular organelles              |
| F-B-005 | Describe the chemistry of purines and pyrimidines and their linkage in nucleic acid synthesis.                                                                                                                                                                  |                              | Chemistry of purine and pyrimidines |
| F-B-006 | Discuss the organization of DNA with special reference to Watson and crick model, composition, structure, role of Pairing<br>Describe the structural forms of DNA                                                                                               |                              | DNA (Deoxy Ribonucleic Acid)        |
| F-B-007 | Discuss the structure of different types of RNAs with special reference to composition, linkage, functions of RNA, micro-RNA<br>Illustrate the structure and functions of various types of RNAs<br>Describe the functions of various small RNAs present in cell | Biochemistry<br>Cell Biology | RNA (Ribonucleic Acid)              |
| F-B-008 | Explain the structure and nomenclature of nucleotides, biomedical importance of natural and synthetic analogues                                                                                                                                                 |                              | Nucleotides                         |
| F-B-009 | Explain the higher organization of DNA. Difference between DNA, chromatid and chromosome                                                                                                                                                                        |                              | Chromosome                          |
| F-B-010 | Describe enzymes with reference to:<br>1. Active sites<br>2. Specificity<br>3. Catalytic efficiency<br>4. Cofactor<br>5. Coenzyme<br>6. Holoenzyme                                                                                                              | Biochemistry<br>Cell Biology | Enzymes                             |

|         |                                                                                                                                                                                                                                                                                                                |                              |             |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------|
|         | 7. Apoenzyme<br>8. Prosthetic group<br>9. Zymogens<br>10. Location                                                                                                                                                                                                                                             |                              |             |
|         | Classify enzymes according to the reaction they catalyze and their nomenclature                                                                                                                                                                                                                                |                              |             |
|         | Explain the mechanism of enzyme action from reactants to products (catalysis).                                                                                                                                                                                                                                 |                              |             |
|         | Discuss the effect of various factors on enzymatic activity: <ol style="list-style-type: none"> <li>1. Substrate concentration</li> <li>2. Temperature</li> <li>3. PH</li> <li>4. Enzyme concentration</li> </ol>                                                                                              |                              |             |
|         | Explain the regulation of enzymatic activity (Michaelis Menten and Line weaver Burk's equation).<br>Discuss inhibitors of enzymatic activity (with special reference to $K_m/V_{max}$ ) <ol style="list-style-type: none"> <li>1. Competitive</li> <li>2. Non competitive</li> <li>3. uncompetitive</li> </ol> | Biochemistry<br>Cell Biology |             |
|         | Explain the application of enzyme in clinical diagnosis and therapeutic use                                                                                                                                                                                                                                    |                              |             |
| F-B-011 | Classify amino acids based on polarity, nutritional importance and glucogenic/Ketogenic properties                                                                                                                                                                                                             |                              | Amino acids |
|         | Explain the structure, physical, chemical properties of amino acids and their biomedical importance                                                                                                                                                                                                            |                              |             |

|        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                              |                 |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-----------------|
| F-B-12 | Classify proteins on the basis of functions, solubility and physicochemical properties and their biomedical importance.                                                                                                                                                                                                                                                                                                                                                                            | Biochemistry<br>Cell Biology | Protein         |
|        | Explain the structural levels of proteins <ol style="list-style-type: none"> <li>1. Differentiate between alpha helix and beta pleated protein structures</li> <li>2. Identify bonding at different levels of proteins</li> </ol>                                                                                                                                                                                                                                                                  |                              |                 |
|        | Describe the role of chaperons in protein folding <ol style="list-style-type: none"> <li>1. Interpret disorders related to protein misfolding on basis of given data</li> <li>2. Describe the biochemical basis of Alzheimer's disease/ prion disease</li> </ol>                                                                                                                                                                                                                                   |                              |                 |
| F-B-13 | Classify and explain the bio-chemical role of each class of plasma proteins                                                                                                                                                                                                                                                                                                                                                                                                                        | Biochemistry<br>Cell Biology | Plasma proteins |
| F-B-14 | Explain the structure and biochemical role of immunoglobulins <ol style="list-style-type: none"> <li>1. Describe the production, structure and functions of B cells, plasma cells, and antibodies (IgA, IgD, IgE, IgG, and IgM).</li> <li>2. Discuss the functions of the cytokines (Interleukins (ILs), Tumor Necrosis Factor (TNFs), IFs, Platelet derived growth factor (PDGF), and Platelet activating factor (PAF)).</li> <li>3. Interpret multiple myeloma on basis of given data</li> </ol> |                              | Immunoglobulins |

# PRACTICAL

| CODE    | BIOCHEMISTRY                                                                                                | TOTAL HOURS = 09 |                          |
|---------|-------------------------------------------------------------------------------------------------------------|------------------|--------------------------|
|         | SPECIFIC LEARNING OBJECTIVES                                                                                | DISCIPLINE       | TOPIC                    |
| F-B-015 | Demonstrate the step taken to prevent or rectify the Laboratory Hazards                                     | Biochemistry     | Lab hazards              |
| F-B-016 | Identify the methods of isolation of cell organelles'                                                       |                  | Cell organelles          |
| F-B-017 | Identify the different parts of equipment i.e., centrifuge, Microlab, Electrophoresis, Hot Oven, water bath |                  | Equipment                |
| F-B-018 | Detection of amino acids by paper chromatography                                                            |                  | Chromatography Solutions |
|         | Prepare different types of solution Molar, Molal, Normal and %                                              |                  |                          |

## THEORY

| CODE     | PATHOLOGY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | TOTAL HOURS = 6+6=12 |             |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------|
|          | SPECIFIC LEARNING OBJECTIVES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | DISCIPLINE           | TOPIC       |
| F-Pa-001 | <p>Discuss the significance of pathology.</p> <p>Discuss the causes of cell injury.</p> <p>Identify the types of cell injury. Describe the mechanism of cell injury.</p> <p>Identify the types of cell death.</p> <p>Define necrosis and apoptosis.</p> <p>Describe different types of necrosis.</p> <p>Compare apoptosis with necrosis.</p> <p>Define different types and mechanisms of cellular adaptations (Hypertrophy, Atrophy, Hyperplasia and Metaplasia)</p> <p>Define dysplasia and Neoplasia</p> <p>Discuss the mechanism and types of intracellular accumulations and pathological calcifications</p> | General Pathology    | Cell Injury |

| F-Pa-002                      | Describe the basic structure of bacteria and virus.<br>Enlist medically important microbes causing infectious diseases.<br>Differentiate cell walls of gram positive and gram-negative bacteria.<br>Compare the structure of bacterial cell and virus<br>Discuss the growth curve of bacteria and virus.<br>Enlist steps of viral replication<br>Enlist stages of infectious diseases<br>Enlist stages of bacterial pathogenesis<br>Discuss the determinants of bacterial pathogenesis | General Microbiology | Introduction to Microorganisms |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------------------|
| F-Pa-003                      | Define sterilization and disinfection.<br>Describe the principles of sterilization and disinfection.<br>Describe clinical uses of common disinfectants and their mode of sterilization<br>Discuss physical and chemical agents of sterilization                                                                                                                                                                                                                                        |                      | Sterilization & Disinfection   |
| PHARMACOLOGY AND THERAPEUTICS |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                      |                                |
| THEORY                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                      |                                |
| CODE                          | SPECIFIC LEARNING OBJECTIVES                                                                                                                                                                                                                                                                                                                                                                                                                                                           | TOTAL HOURS = 04     |                                |
|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | DISCIPLINE           | TOPIC                          |
| F-Ph-001                      | Define basic terms of general Pharmacology, drug, pro-drug, placebo, prototype, orphan drug, essential drug, pharmacology, First pass effect, Volume of Distribution, Pharmacokinetics, Absorption, Distribution, Metabolism and Excretion                                                                                                                                                                                                                                             | General Pharmacology | Pharmacokinetics               |
| F-Ph-002                      | Define the following terms: Pharmacodynamics, Receptor, Potency, Efficacy, Affinity, agonist, Partial Agonist, Inverse Agonist, Antagonist                                                                                                                                                                                                                                                                                                                                             | General Pharmacology | Pharmacokinetics               |

|                                                                                                       |                                                                                                                                                                                                               |                                      |                                                 |
|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-------------------------------------------------|
| F-Ph-003                                                                                              | Classify types of autonomic receptor (adrenergic and cholinergic) along with their location, actions and post-receptor mechanism                                                                              |                                      | Autonomic System                                |
| <div>PRACTICAL</div> |                                                                                                                                                                                                               |                                      |                                                 |
| CODE                                                                                                  | PATHOLOGY                                                                                                                                                                                                     | TOTAL HOURS = 02                     |                                                 |
|                                                                                                       | SPECIFIC LEARNING OBJECTIVES                                                                                                                                                                                  | DISCIPLINE                           | TOPIC                                           |
| F-Pa-004                                                                                              | Identify the salient features of: Caseous necrosis(Gross and microscopic Features), Coagulative Necrosis (Gross), Fat necrosis (Microscopic)                                                                  | Pathology                            | Cell Injury                                     |
|                                                                                                       | Identify the salient morphological features of Dystrophic Calcification                                                                                                                                       |                                      |                                                 |
|                                                                                                       | Identify the salient microscopic features of the following: Intestinal metaplasia, Squamous Metaplasia, Hyperplasia                                                                                           |                                      |                                                 |
|                                                                                                       | Identify the salient microscopic and gross features of anthracosis                                                                                                                                            |                                      |                                                 |
| COMMUNITY MEDICINE & PUBLIC HEALTH                                                                    |                                                                                                                                                                                                               |                                      |                                                 |
| THEORY                                                                                                |                                                                                                                                                                                                               |                                      |                                                 |
| CODE                                                                                                  | SPECIFIC LEARNING OBJECTIVES                                                                                                                                                                                  | TOTAL HOURS = 08                     |                                                 |
|                                                                                                       |                                                                                                                                                                                                               | DISCIPLINE                           | TOPIC                                           |
| F-CM-001                                                                                              | Describe the changing concepts and new philosophy of health<br>Explain responsibility for health                                                                                                              | Community Medicine and Public Health | Concept of Health                               |
| F-CM-002                                                                                              | Explain dimensions and determinants of health and their role in achieving positive health<br>Discuss concept of health and wellbeing<br>Describe the Physical quality of Life Index & Human Development Index |                                      | Positive Health Dimensions, Health Determinants |

| F-CM-003                                                                                | Describe the importance of health indicators<br>Classify health indicators<br>Calculate Morbidity and Mortality<br>Describe Disability indicators<br>Compare indicators among countries                                                                                       |                                      | Health indicators            |
|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|------------------------------|
| F-CM-004                                                                                | Conceptualize disease causation and natural history of disease<br>Explain Germ theory & multifactorial causation<br>Describe Epidemiological Triad<br>Discuss Web of disease causation<br>Describe Gradient of infection                                                      | Community Medicine and Public Health | Disease causation            |
| F-CM-005                                                                                | Describe principles of prevention and control on prevalent diseases<br>Explain difference between elimination and eradication<br>Describe disease surveillance, types and cycle<br>Explain Primary, secondary, & tertiary prevention<br>Describe five levels of interventions | Community Medicine and Public Health | Disease Prevention           |
| <b>IMPACT (EPIDEMIOLOGY, SOCIOLOGY/SOCIETY, COMMUNITY MEDICINE &amp; PUBLIC HEALTH)</b> |                                                                                                                                                                                                                                                                               |                                      |                              |
| <b>THEORY</b>                                                                           |                                                                                                                                                                                                                                                                               |                                      |                              |
| CODE                                                                                    | SPECIFIC LEARNING OBJECTIVES                                                                                                                                                                                                                                                  | TOTAL HOURS = 08                     |                              |
|                                                                                         |                                                                                                                                                                                                                                                                               | DISCIPLINE                           | TOPIC                        |
| F-BhS-001                                                                               | Identify the Biological Basis of human behavior and discuss social behavior<br>Describe processes such as neurobiology of memory, emotions, sleep, learning, motivation, sex, arousal, reward and punishment                                                                  |                                      | Biological Basis of Behavior |
| F-BhS-002                                                                               | Identify the burden of mental illness on the person, family and society<br>Describe Intellectual disability, Mental Disorders and Personality Disorders                                                                                                                       |                                      | Psychological Disorders      |

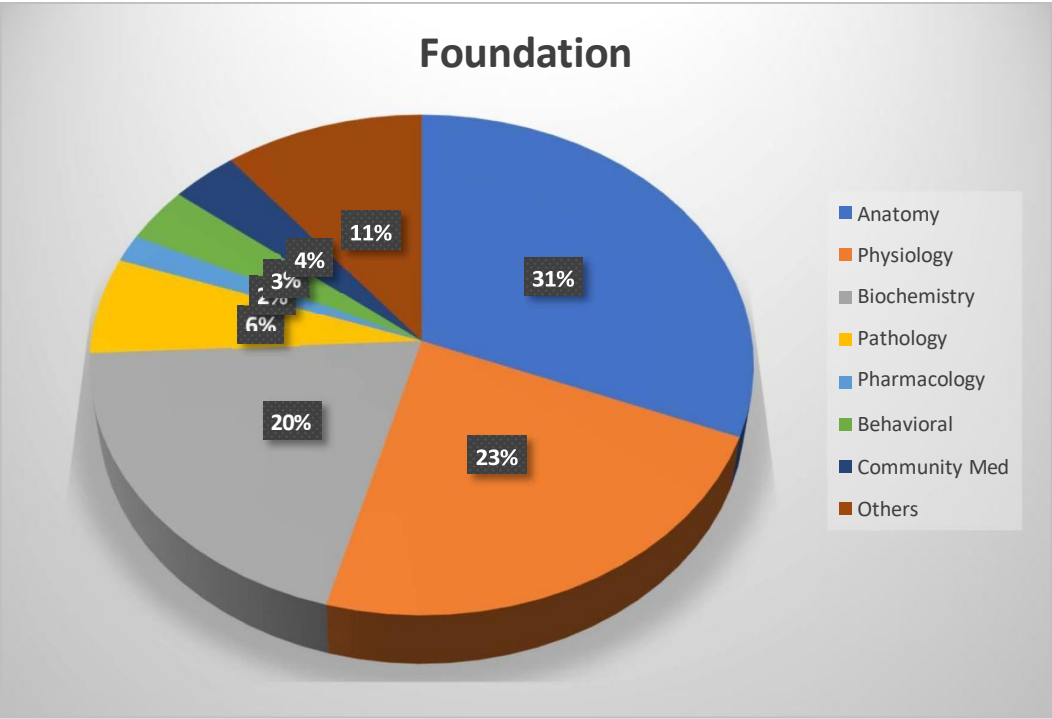
|           |                                                                                                                                                                                                                                                                        |                     |                                                |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|------------------------------------------------|
| F-BhS-003 | Identify the role of psychosocial factors in various illnesses<br>Describe psychosocial aspects of various system diseases such as Cardio-vascular system (CVS), Central Nervous System (CNS), Gastro Intestinal Tract (GIT), Respiration, renal, endocrine and Cancer | Behavioral Sciences | Psychology and Disease                         |
| F-BhS-004 | Identify the behavioral factors associated with pharmacological treatment of diseases<br>Discuss Health belief model, treatment compliance and its psychosocial factors, social factors in drugs prescription and drug resistance                                      |                     | Behavioral Factors & Pharmacological Treatment |
| F-BhS-005 | Identify the rehabilitation work for patients on dialysis and any kind of physical disability                                                                                                                                                                          | Behavioral Sciences | Palliative Care                                |

|           |                                                                                                                                                                                                     |  |        |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------|
|           | Discuss the care requirements in chronic debilitating conditions like Diabetes, Multi-infarcts Dementia, chronic renal disease, limb amputation                                                     |  |        |
| F-BhS-006 | Identify the various physiological effects of stress<br>Explain ANS response to stress,<br>Describe Behavioural manifestations of stress, Stress related multiple sclerosis and autoimmune diseases |  | Stress |

## AGING

### THEORY

| CODE     | SPECIFIC LEARNING OBJECTIVES                                               | TOTAL HOURS = 01                          |                  |
|----------|----------------------------------------------------------------------------|-------------------------------------------|------------------|
|          |                                                                            | DISCIPLINE                                | TOPIC            |
| F-Ag-001 | Discuss telomeres and telomerase and their clinical significance in aging. | Geriatrics<br>Integrate with Biochemistry | Process of Aging |



| Module Weeks | Recommended Minimum Hours |
|--------------|---------------------------|
| 08           | 225                       |





## MODULE-02 HEMATOPOIETIC & LYMPHATIC-1

Modular Integrated  
Curriculum 2K23  
*version 3.0*



## MODULE RATIONALE

"Blood is Life". Unlike any other organ, components of blood and immunity reflect/reveal disease processes in other organs as well. Therefore, studying blood is like opening a book to all aspects of medicine. Hence, this module has been designed to enable students to have a basic understanding about the normal structure, function and biochemistry of blood, immune and Lymphatic systems. Not only that, but students would also learn, when normal physiology and composition of blood and immune system is disturbed, what disorders result in our community. Emphasis has been given to incorporate deranged laboratory findings into the clinical problem solving.

## MODULE OUTCOMES

- Explain the function of all the organs / structures involved in this system and the mechanisms controlling them. (Spleen, lymph nodes, thymus, bone marrow, RBC's, WBCs and platelets
- Explain the etiology and pathogenesis of common blood & lymphatic diseases, particularly those of importance in Pakistan.
- Explain the rationale for the use of common therapeutic agents for the diseases related to Blood and immunity.
- Describe the role of immunity in the body
- Discuss the working & uses of laboratory instruments in diagnostic lab visit
- Relate red cell indices with health and disease
- Recognize ABO/RH blood grouping system
- Describe the role of Reticuloendothelial system in the body
- Describe the events of hemostasis
- Extrapolate the biochemical aspects of plasma proteins
- Discuss the pharmacological treatment of iron deficiency anemia
- Discuss Blood composition and function
- Discuss the role of liver in hemolytic anemia
- Practice history taking of a patient presented with blood disorders

## THEMES

- Red blood cell
- Platelets
- White blood cell

## CLINICAL RELEVANCE

- Aplastic anemia
- Hemolytic anemia
- Blood loss anemia
- Nutritional anemia
- Polycythemia
- Hemoglobinopathies
- Jaundice
- Acute and chronic lymphocytic and myelogenous Leukemia
- Allergy (Type I, Type II & Type III)

### IMPLEMENTATION TORs

- The time calculation for completion of modules and blocks is based on 35 hours per week. Total hours of teaching, learning and formative/summative internal assessment to be completed in a year are 1200.
- The hours mentioned within each module are the mandatory minimum required. The rest of the hours are left to the discretion of the institution that can be used in teaching, learning and assessment as per decision of the institutional academic council.
- The content and the intended learning outcomes written are mandatory, to be taught, at the level required, as the end year assessment will be based on these.
- However, the level of cognition can be kept at a higher level by the institution.
- The Table of Specifications provided will be used for the three papers of the first professional examination. The same table of specifications should be used for the respective three block exams for internal assessment.



| NORMAL STRUCTURE |                                                                                                |                  |                                 |
|------------------|------------------------------------------------------------------------------------------------|------------------|---------------------------------|
| THEORY           |                                                                                                |                  |                                 |
| CODE             | GROSS ANATOMY                                                                                  | TOTAL HOURS = 02 |                                 |
|                  | SPECIFIC LEARNING OUTCOMES                                                                     | DISCIPLINE       | TOPIC                           |
| HL-A-001         | Identify and describe the components of the Hematopoietic & Lymphoid Tissue and their function | Human Anatomy    | Hematopoietic & Lymphoid Tissue |
|                  | Location, coverings, relations of Spleen                                                       |                  |                                 |
|                  | Origin, course branches and distribution of Splenic artery                                     |                  |                                 |
|                  | Venous drainage of Spleen, Portal vein formation, tributaries, and area of drainage.           |                  |                                 |
|                  | Location and relations of Thymus. Age related changes in Thymus                                |                  |                                 |
| CODE             | EMBRYOLOGY & POST-NATAL DEVELOPMENT                                                            | TOTAL HOURS = 01 |                                 |
|                  | SPECIFIC LEARNING OUTCOMES                                                                     | DISCIPLINE       | TOPIC                           |
| HL-A-002         | Intrauterine Development of spleen                                                             | Embryology       | Developmental Anatomy of Spleen |
| NORMAL FUNCTION  |                                                                                                |                  |                                 |
| THEORY           |                                                                                                |                  |                                 |
| CODE             | MEDICAL PHYSIOLOGY                                                                             | TOTAL HOURS = 20 |                                 |
|                  | SPECIFIC LEARNING OBJECTIVES                                                                   | DISCIPLINE       | TOPIC                           |
| HL-P-001         | Define, classify and explain anemia on the basis of morphology and cause                       |                  | Anemia                          |
|                  | Discuss the effects of anemia on the body                                                      |                  |                                 |
| HL-P-002         | Define polycythemia                                                                            |                  | Polycythemia                    |
|                  | Explain types of polycythemias                                                                 |                  |                                 |
|                  | Discuss the effects of polycythemia on the body                                                |                  |                                 |

|          |                                                                                                    |                       |                          |
|----------|----------------------------------------------------------------------------------------------------|-----------------------|--------------------------|
| HL-P-003 | Define hemostasis                                                                                  | Medical<br>Physiology | Hemostasis               |
|          | Describe the mechanisms by which hemostasis is secured                                             |                       |                          |
| HL-P-004 | Discuss the characteristics and functions of platelets                                             |                       | Platelets                |
|          | Explain the mechanism of formation of platelet plug                                                |                       |                          |
| HL-P-005 | Enlist the clotting factors in blood                                                               |                       | Coagulation<br>factors   |
|          | Explain the conversion of Prothrombin to Thrombin & formation of Fibrin Fibers                     |                       |                          |
|          | Explain the Intrinsic & extrinsic clotting pathway.                                                |                       |                          |
|          | Name & explain the mechanism of anticoagulants used in laboratory.                                 |                       |                          |
|          | Explain the factors that prevent intravascular coagulation                                         |                       |                          |
|          | Explain the role of Calcium ions in Intrinsic and Extrinsic pathways                               |                       |                          |
|          | Enlist the vitamin K dependent clotting factors                                                    |                       |                          |
| HL-P-006 | Explain the prothrombin time, International Normalized Ratio (INR), and its clinical significance. |                       |                          |
|          | Enlist and explain the conditions that cause excessive bleeding                                    |                       | Coagulation<br>disorders |
|          | Define thrombocytopenia                                                                            |                       |                          |

|          |                                                                                      |                              |              |
|----------|--------------------------------------------------------------------------------------|------------------------------|--------------|
|          | Enlist the causes and consequences of Thrombocytopenia                               | Integrated with Medicine     |              |
| HL-P-007 | Define immunity                                                                      | Integrated with microbiology | Immunity     |
|          | Classify immunity                                                                    |                              |              |
|          | Explain humoral immunity                                                             |                              |              |
|          | Explain Innate immunity.                                                             |                              |              |
|          | Elaborate cell mediated immunity.                                                    |                              |              |
|          | Describe the structure of antigen and immunoglobulin                                 |                              |              |
|          | Describe the role of Helper T-cells in cell mediated immunity                        |                              |              |
|          | Enlist the types of Immunoglobulins along with their functions                       |                              |              |
|          | Explain the role of memory cells in enhancing antibody response (secondary response) |                              |              |
|          | Describe the mechanism of action of antibodies                                       |                              |              |
|          | Elaborate the complement system.                                                     |                              |              |
| HL-P-008 | Elaborate Immune tolerance                                                           | Integrated with pathology    | Tolerance    |
|          | Explain the process of clone selection during T cell processing                      |                              |              |
|          | Discuss the failure of tolerance mechanism                                           |                              |              |
| HL-P-009 | Discuss immunization.                                                                | Integrate with microbiology  | Immunization |
|          | Define passive Immunity                                                              |                              | Immunization |
|          | Explain features and physiological basis of delayed reaction allergy.                |                              |              |
|          | Explain features and physiological basis of Atopic Allergy                           |                              |              |
|          | Explain features and physiological basis of Anaphylaxis, urticaria and Hay fever.    |                              |              |

|          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                          |                                |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|
| HL-P-010 | Discuss the pathophysiology, features and treatment of ABO and RH incompatibility.<br>Enlist the changes that take place in the stored Blood.                                                                                                                                                                                                                                                                                                                                   | Medical Physiology       | Blood group Incompatibility    |
| HL-P-011 | Discuss the features and complications of mismatched blood transfusion reaction                                                                                                                                                                                                                                                                                                                                                                                                 | Integrate with Pathology | Blood mismatch                 |
|          | Describe the Hazards of blood transfusion.                                                                                                                                                                                                                                                                                                                                                                                                                                      |                          | Transfusion reactions          |
|          | Elaborate the Transplantation of Tissues and Organs                                                                                                                                                                                                                                                                                                                                                                                                                             |                          |                                |
| HL-P-012 | Explain the process of tissue typing                                                                                                                                                                                                                                                                                                                                                                                                                                            | Integrate with pathology | Transplantation of tissues     |
|          | Explain the prevention of Graft Rejection by suppressing immune system                                                                                                                                                                                                                                                                                                                                                                                                          |                          |                                |
| THEORY   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                          |                                |
| CODE     | MEDICAL BIOCHEMISTRY                                                                                                                                                                                                                                                                                                                                                                                                                                                            | TOTAL HOURS = 19         |                                |
|          | SPECIFIC LEARNING OBJECTIVES                                                                                                                                                                                                                                                                                                                                                                                                                                                    | DISCIPLINE               | TOPIC                          |
| HL-B-001 | Explain the steps of synthesis of hemoglobin and interpret Porphyrias on basis of sign symptoms and data.<br>Discuss the biochemical role and types of hemoglobin<br>1. Differentiate Hemoglobin and myoglobin<br>2. Explain oxygen dissociation curve of hemoglobin and myoglobin and factors regulating them<br>3. Interpret Carbon monoxide (CO) toxicity on the basis of sign and symptoms<br>4. Explain the role of 2,3 Bisphosphoglycerate (2,3 BPG) in fetal circulation | Medical Biochemistry     | Hemoglobin and its types/ RBCs |

|          |                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                  |                                             |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|---------------------------------------------|
| HL-B-002 | <p>Discuss haemoglobinopathies and their biochemical and genetic basis with special emphasis on sickle cell anemia, Thalassemia and methemoglobinemia</p> <p>a) Discuss the following types of anemia on the basis of signs and symptoms and laboratory data:</p> <ol style="list-style-type: none"> <li>1. Hypochromic microcytic</li> <li>2. Normochromic microcytic</li> <li>3. Normochromic normocytic</li> <li>4. Macrocytic (megaloblastic)</li> </ol> | Medical Biochemistry<br>Integrate with Pathology | Hemoglobinopathies/<br>RBCs/<br>Homeostasis |
| HL-B-003 | <p>Explain the iron metabolism with mechanism of absorption and factors affecting it.</p> <ol style="list-style-type: none"> <li>1. Interpret Iron deficiency anemia on basis of given data and microscopic findings</li> </ol>                                                                                                                                                                                                                              | Medical Biochemistry<br>Integrate with medicine  | Iron Metabolism/<br>RBCs                    |
|          | <ol style="list-style-type: none"> <li>2. Interpret folic acid and cobalamin in relation to anemias on given data and microscopic findings</li> <li>3. Discuss biochemical role of pyridoxine and vitamin C &amp; K in microcytic anemia</li> </ol>                                                                                                                                                                                                          |                                                  |                                             |
| HL-B-004 | <p>Discuss the degradation of heme in macrophages of reticuloendothelial system</p> <ol style="list-style-type: none"> <li>1. Describe the formation of bile pigments, their types and transport</li> <li>2. Discuss the fate of bilirubin</li> </ol>                                                                                                                                                                                                        | Medical Biochemistry                             | Heme Degradation/<br>RBCs                   |
| HL-B-005 | <p>Discuss hyperbilirubinemias and their biochemical basis</p> <ol style="list-style-type: none"> <li>1. Differentiate types of jaundice on basis of sign/symptoms and data</li> <li>2. Evaluate the genetic basis of jaundice on the basis of lab investigations</li> </ol>                                                                                                                                                                                 |                                                  | Hyperbilirubinemias /<br>RBCs/ Blood Groups |

| HL-B-006                                 | Explain and interpret pedigree of single gene defect i.e. sickle cell anemia (Autosomal recessive) and Beta Thalassemia (X linked recessive) |                             | Genetics                               |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|----------------------------------------|
|                                          |                                                                                                                                              |                             |                                        |
| PATHOPHYSIOLOGY AND PHARMACOTHERAPEUTICS |                                                                                                                                              |                             |                                        |
| THEORY                                   |                                                                                                                                              |                             |                                        |
| CODE                                     | SPECIFIC LEARNING OBJECTIVES                                                                                                                 | TOTAL HOURS = 2+5=07        |                                        |
|                                          |                                                                                                                                              | DISCIPLINE                  | TOPIC                                  |
| HL-Ph-001                                | Describe the oral and parenteral iron preparations including their pharmacokinetics, uses, adverse effects                                   | Pharmacology & Therapeutics | Anemia                                 |
|                                          | Vitamin B12 preparations, Iron Antidotes                                                                                                     |                             |                                        |
| HL-Pa-001                                | Should know the terms: Hematopoietic growth factors, their name, mechanism of actions, uses and adverse effects                              | Pathology                   | Blood Cells, Platelets and Blood Group |
|                                          | Define and classify anemias according to underlying mechanism and Mean Corpuscular Volume/ Mean Corpuscular Hemoglobin (MCV/MCH)             |                             |                                        |
|                                          | Discuss the causes and investigations of iron deficiency anemia and megaloblastic anemia                                                     |                             |                                        |
|                                          | Classify the benign and malignant disorders of WBCs                                                                                          |                             |                                        |
|                                          | Discuss the causes leading to reactive leukocytosis                                                                                          |                             |                                        |
|                                          | Interpretation of anemias on the basis of peripheral blood smear and bone marrow findings                                                    |                             |                                        |

|                               |                                                                                                                                                                                                     |                                      |                                              |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------------------------------|
|                               | Classify bleeding disorders                                                                                                                                                                         |                                      |                                              |
|                               | Discuss first line laboratory investigations for bleeding disorders                                                                                                                                 |                                      |                                              |
|                               | Describe the basic concept of blood grouping and acute hemolytic transfusion reaction                                                                                                               |                                      |                                              |
| DISEASE PREVENTION AND IMPACT |                                                                                                                                                                                                     |                                      |                                              |
| THEORY                        |                                                                                                                                                                                                     |                                      |                                              |
| CODE                          | SPECIFIC LEARNING OBJECTIVES                                                                                                                                                                        | TOTAL HOURS = 05                     |                                              |
|                               |                                                                                                                                                                                                     | DISCIPLINE                           | TOPIC                                        |
| HL-CM-01                      | Describe the nutritional aspects of iron deficiency anemia and psychological aspects of diseases                                                                                                    | Community Medicine and Public Health | Anemia                                       |
| HL-CM-02                      | Enlist most common blood borne diseases in Pakistan<br>Describe the routes of spread of blood borne diseases                                                                                        |                                      | communicable diseases                        |
| HL-CM-03                      | Genetic counseling of parents                                                                                                                                                                       |                                      | Genetic diseases                             |
| HL-BhS-01                     | Psychological Counselling of patients and their families                                                                                                                                            | Behavioral Sciences                  | Counselling, informational care              |
| HL-BhS-02                     | Identify and deal with the various psychosocial aspects of Hematopoietic System disorders (such as Sickel Cell Disease, Hemophilia, and Conditions of the Blood) on Individual, Family and Society. |                                      | Personal, Psychosocial and vocational issues |
| AGING                         |                                                                                                                                                                                                     |                                      |                                              |
| THEORY                        |                                                                                                                                                                                                     |                                      |                                              |
| CODE                          | SPECIFIC LEARNING OBJECTIVES                                                                                                                                                                        | TOTAL HOURS = 01                     |                                              |
|                               |                                                                                                                                                                                                     | DISCIPLINE                           | TOPIC                                        |

|          |                                                                                                               |                           |                              |
|----------|---------------------------------------------------------------------------------------------------------------|---------------------------|------------------------------|
| HL-Ag-01 | Discuss the role of platelets in Platelet-Rich Plasma (PRP) treatment in old age (for skin, hairs and joints) | Biochemistry /Dermatology | Platelet Rich Plasma Therapy |
| HL-Ag-02 | Explain the role of glutathione in skin whitening                                                             |                           | Glutathione                  |

# PRACTICAL

## HISTOLOGY

| CODE     | SPECIFIC LEARNING OBJECTIVES                                                                                                                      | TOTAL HOURS = 02 |                                                      |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------------------------------------------|
|          |                                                                                                                                                   | DISCIPLINE       | TOPIC                                                |
| HL-A-003 | Describe the light microscopic structure of Spleen, thymus, Lymph nodes, tonsils and Mucosa Associated Lymphoid Tissue (MALT) including appendix. | Histology        | Histological features of lymph node, spleen & thymus |

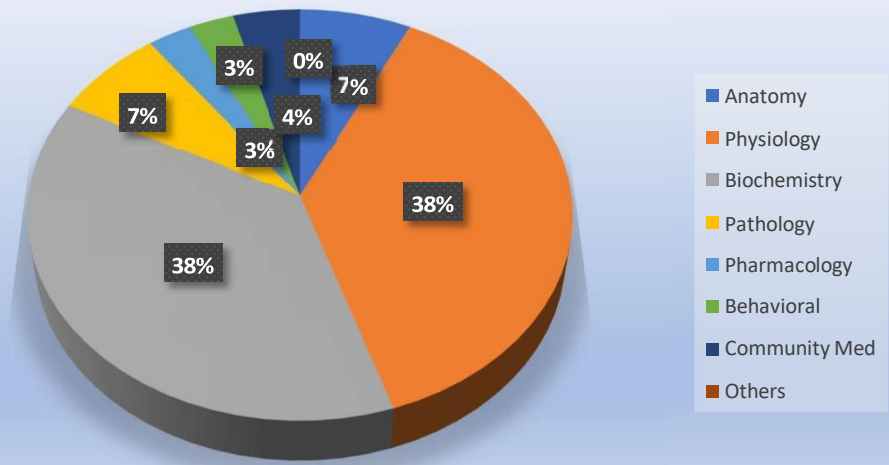
## PHYSIOLOGY

| CODE     | SPECIFIC LEARNING OBJECTIVES                                                                                                 | TOTAL HOURS = 6    |                                             |
|----------|------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------|
|          |                                                                                                                              | DISCIPLINE         | TOPIC                                       |
| HL-P-013 | Interpret the report of Red Blood Cell Count, Hemoglobin concentration, Hematocrit and RBC Indices by Automated Cell Counter | Medical Physiology | Jaundice & Anemias/<br>RBCs/<br>Homeostasis |
|          | Interpret the report of Total Leucocyte Count, Differential Leucocyte Count, & Platelet Count by Automated Cell Counter.     |                    |                                             |
| HL-P-014 | Determine Bleeding Time.<br>Determine Clotting Time.                                                                         |                    | Bleeding/<br>Clotting time                  |

## BIOCHEMISTRY

| CODE     | SPECIFIC LEARNING OBJECTIVES                                                   | TOTAL HOURS = 6      |                    |
|----------|--------------------------------------------------------------------------------|----------------------|--------------------|
|          |                                                                                | DISCIPLINE           | TOPIC              |
| HL-B-007 | Estimate serum bilirubin and interpret types of jaundice on the basis of data. | Medical Biochemistry | Jaundice & Anemias |
|          | Estimate serum ALP level                                                       |                      |                    |
|          | Estimate serum AST level                                                       |                      |                    |
|          | Estimate serum ALT level                                                       |                      |                    |

# Hematopoietic & Lymphatic



| Module Weeks | Recommended Minimum Hours |
|--------------|---------------------------|
| 03           | 69                        |





Islam Medical College, Sialkot  
Block-1: Foundation-1, Module-1, Week-1/8  
1st Year MBBS (2026)



|                         |                                                            |                           |                                                              |                                                                                    |                                                             |                                                                     |                                                           |            |                                                                                                      |                           |                                                                     |                   |                       |         |                   |  |         |                   |
|-------------------------|------------------------------------------------------------|---------------------------|--------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------|------------|------------------------------------------------------------------------------------------------------|---------------------------|---------------------------------------------------------------------|-------------------|-----------------------|---------|-------------------|--|---------|-------------------|
| 1st Year MBBS (2026)    |                                                            |                           |                                                              |                                                                                    |                                                             |                                                                     |                                                           |            |                                                                                                      | 1:00 - 1:30               |                                                                     | 1:30 - 3:00       |                       |         |                   |  |         |                   |
| Day/Date                | 8:30 - 9:20                                                | 9:20-10:10                |                                                              | 10:10 - 11:00                                                                      |                                                             | 11:00-11:50                                                         |                                                           | 11:50-1:00 |                                                                                                      |                           |                                                                     |                   |                       |         |                   |  |         |                   |
| Monday<br>2/2/2026      | Orientation Day + White Coat Ceremony                      |                           |                                                              |                                                                                    |                                                             |                                                                     |                                                           |            |                                                                                                      |                           |                                                                     |                   |                       |         |                   |  |         |                   |
| Tuesday<br><br>2/3/2026 | Practical 8:30-9:30                                        |                           | 9:30-10:10                                                   |                                                                                    | LGIS<br>Physiology<br>Homeostasis<br>Dr. Maham<br>Tahir     | LGIS<br>Biochemistry<br>Cell Biology<br>Prof.Dr. Shahzad<br>Farooq  | SGD                                                       |            |                                                                                                      |                           | B<br>r<br>e<br>a<br>k                                               | (DISSECTION HALL) |                       |         |                   |  |         |                   |
|                         | Introduction to Department                                 | Address by Principal      | Physiology<br>x                                              | Topic<br>Team                                                                      |                                                             |                                                                     | Introduction to Physiology                                |            | LGIS<br>General Anatomy<br>Introduction to GA<br>Planes and Position<br>Dr. Rana Muhammad<br>Zeeshan | Planes and<br>Positions   |                                                                     | SGD               | General Anatomy       |         |                   |  |         |                   |
| Biochemistry<br>y       |                                                            |                           |                                                              |                                                                                    | Topic<br>Team                                               | Structure of cell & cell membrane<br>Dr.Minahil & Dr. Ayesha        |                                                           | Batch A    |                                                                                                      |                           |                                                                     |                   | Batch D               |         |                   |  |         |                   |
|                         | Wednesday<br><br>2/4/2026                                  | Orientation to Department |                                                              | LGIS<br>Embryology<br>Cell Division & Cell<br>cycle<br>Prof. Dr. Naureen<br>Waseem |                                                             | LGIS<br>Physiology<br>Feed Back<br>Mechanisms<br>Dr. Maham<br>Tahir | SGD                                                       |            | LGIS<br>General Anatomy<br>Terms of Movement<br>Dr. Rana Muhammad<br>Zeeshan                         | Terms of<br>Movement<br>1 |                                                                     | Batch A           |                       | Batch D |                   |  |         |                   |
| Physiology<br>y         |                                                            |                           |                                                              |                                                                                    | Topic<br>Team                                               |                                                                     | Homeostasis                                               |            |                                                                                                      |                           |                                                                     |                   | Batch B               |         | Batch E           |  |         |                   |
|                         | Biochemistry<br>x                                          | Topic<br>Team             | Structure of cell & cell membrane<br>Dr.Minahil & Dr. Ayesha |                                                                                    |                                                             | Batch C                                                             | Batch F                                                   |            |                                                                                                      |                           |                                                                     |                   |                       |         |                   |  |         |                   |
| Kashmir Day Holiday     |                                                            |                           |                                                              |                                                                                    |                                                             |                                                                     |                                                           |            |                                                                                                      |                           |                                                                     |                   |                       |         |                   |  |         |                   |
| Thursday<br>2/5/2026    | 8:30 - 9:10                                                |                           | 9:10- 9:50                                                   |                                                                                    | 9:50 - 10:40                                                |                                                                     | 10:40 - 11:20                                             |            | 11:20 - 12:20                                                                                        |                           | 12:20 - 1:00                                                        |                   | 1:00- 1:45            |         | 1:45- 3:00        |  |         |                   |
| Friday<br><br>2/6/2026  | 8:30 - 9:10                                                |                           | 9:10- 9:50                                                   |                                                                                    | 9:50 - 10:40                                                |                                                                     | 10:40 - 11:20                                             |            | 11:20 - 12:20                                                                                        |                           | 12:20 - 1:00                                                        |                   | 1:00- 1:45            |         | (DISSECTION HALL) |  |         |                   |
|                         | LGIS<br>Pathology<br>Introduction to Pathology<br>Dr. Faiz |                           | LGIS<br>PERLs<br>Orientation<br>Dr Shahneel                  |                                                                                    | LGIS<br>Embryology<br>Spermatogenesis<br>Dr. Aaqiba Rasheed |                                                                     | LGIS<br>Physiology<br>Cell Membrane<br>Dr. Maham<br>Tahir |            | Orientation to Hospital                                                                              |                           | LGIS<br>Community Medicine<br>Introduction to<br>Community Medicine |                   | B<br>r<br>e<br>a<br>k |         | Revision          |  | SGD     | All Demonstrators |
|                         |                                                            |                           |                                                              |                                                                                    |                                                             |                                                                     |                                                           |            |                                                                                                      |                           |                                                                     |                   |                       |         |                   |  | Batch A | Batch D           |
|                         |                                                            |                           |                                                              |                                                                                    |                                                             |                                                                     |                                                           |            |                                                                                                      |                           |                                                                     |                   |                       |         |                   |  | Batch B | Batch E           |
|                         |                                                            |                           |                                                              |                                                                                    |                                                             |                                                                     |                                                           |            |                                                                                                      |                           |                                                                     |                   |                       |         |                   |  | Batch C | Batch F           |
| HoD                     |                                                            |                           |                                                              |                                                                                    |                                                             |                                                                     |                                                           |            |                                                                                                      |                           |                                                                     |                   |                       |         |                   |  |         |                   |
| Principal IMC           |                                                            |                           |                                                              |                                                                                    |                                                             |                                                                     |                                                           |            |                                                                                                      |                           |                                                                     |                   |                       |         |                   |  |         |                   |

Module Lead

Student Affairs (Head)

Medical Education

HoD

Principal IMC



Islam Medical College, Sialkot  
Block-1: Foundation-1, Module-1, Week-2/8  
1st Year MBBS (2026)



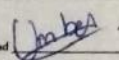
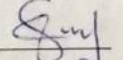
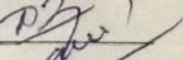
| Day/Date              | 8:30 – 9:20                                                                                                                  | 9:20-10:10                                                                                      | 10:10 – 11:00                                                                   | 11:00-11:50                                                                                                                                                             | 11:50-1:00                                                                                                                                                                                  | 1:00 – 1:30                                        | 1:30 – 2:15                                                                           | 2:15 – 3:00                                                                |                                                                                           |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Monday<br>2/9/2026    | LGIS<br>CFRC<br>Hand washing<br>Dr Zara                                                                                      | islamiyat<br><br>Mufti Arif                                                                     | LGIS<br>Community Medicine<br>Positive health<br>dimension<br>Dr Arooj          | LGIS<br>Embryology<br>Oogenesis<br>Prof. Dr. Naureen<br>Waseem                                                                                                          | SGD<br>Physiology Topic<br>X Team Cell Organelles<br>Biochemistry Topic<br>Y Team biochemical markers & associated inherited<br>disorders<br>Dr.Minahil & Dr. Ayesha                        | S<br>h<br>o<br>r<br>t<br><br>B<br>r<br>e<br>a<br>k | LGIS<br>Biochemistry<br>Cell Membrane<br>Prof.Dr. Shahzad<br>Farooq                   | LGIS<br>Quran<br><br>Mufti Arif                                            |                                                                                           |
| Tuesday<br>2/10/2026  | Practical<br>Anatomy A Staining Techniques<br>Dr. Fatima<br>Physiology B Consent taking<br>Biochemistry C Cell<br>Dr.Zaeshan | LGIS<br>Physiology<br>Cell Organelles<br>II<br>Dr. Maham<br>Tahir                               | LGIS<br>Biochemistry<br>Subcellular<br>organelles<br>Prof Dr Shahzad<br>Farooq  | SGD<br>Physiology Topic<br>Y Team Cell Organelles<br>Biochemistry Topic<br>X Team biochemical markers & associated inherited<br>disorders<br>Dr.Minahil & Dr. Ayesha    | General Anatomy<br>Bone (1)<br>Dr. Rana Zeeshan                                                                                                                                             |                                                    | Bone (1)                                                                              | All Demonstrators<br>Batch A Batch D<br>Batch B Batch E<br>Batch C Batch F |                                                                                           |
|                       | Practical<br>Anatomy C Staining Techniques<br>Dr. Fatima<br>Physiology A Consent taking<br>Biochemistry B Cell<br>Dr.Zaeshan | LGIS<br>General Anatomy<br>Bone (2)<br>Dr. Saba jahanzeb                                        | LGIS 14<br>Physiology<br>Cell Transport I<br>Dr. Maham<br>Tahir                 | SGD<br>Physiology Topic<br>X Team Cell Transport<br>Biochemistry Topic<br>Y Team chemistry of purines and pyrimidines<br>organization of DNA<br>Dr.Minahil & Dr. Ayesha | LGIS<br>Embryology<br>Chromosomal<br>abnormalities<br>Dr. Rana Zeeshan                                                                                                                      |                                                    | Bone (2)                                                                              | All Demonstrators<br>Batch A Batch D<br>Batch B Batch E<br>Batch C Batch F |                                                                                           |
| Thursday<br>2/12/2026 | Practical<br>Anatomy B Staining Techniques<br>Dr. Fatima<br>Physiology C Consent taking<br>Biochemistry A Cell<br>Dr.Zaeshan | LGIS<br>Biochemistry<br>Chemistry of<br>purine and<br>pyrimidines<br>Prof.Dr. Shahzad<br>Farooq | LGIS<br>Physiology<br>Cell Transport II<br>Dr. Maham<br>Tahir                   | 11:50-12:30<br>LGIS<br>General Anatomy<br>Cartilage<br>Dr. Saba jahanzeb                                                                                                | 12:30-1:15<br>LGIS<br>Biochemistry<br>Signal Transaction<br>Dr Adnan Riaz                                                                                                                   |                                                    | LGIS Histology<br>Cell Membrane,<br>Cytoplasm &<br>Organelles<br>Prof. Dr. Riaz Ahmed | Cartilage                                                                  | All Demonstrators<br>Batch A Batch D<br>Batch B Batch E<br>Batch C Batch F                |
|                       | 8:30 – 9:10<br>LGIS<br>Pathology<br>Necrosis and types<br>Apoptosis and Mechanism<br>Dr Faiz                                 | 9:10 – 9:50<br>LGIS PERLs<br>Responsible and<br>Accountable Medical<br>Student<br>Dr Shahneel   | 9:50 – 10:30<br>LGIS<br>Embryology<br>Reproductive Cycles<br>Dr. Aaqiba Rasheed | 10:30 – 11:10<br>LGIS 16<br>Physiology<br>Cell Transport III<br>Dr. Maham<br>Tahir                                                                                      | 11:10 – 12:20<br>SGD<br>Physiology Topic<br>Y Team Cell Transport<br>Biochemistry Topic<br>X Team chemistry of purines and<br>pyrimidines organization of<br>DNA<br>Dr.Minahil & Dr. Ayesha |                                                    | 12:20 – 1:00<br>LGIS<br>B.S<br>Biological basic of<br>behaviour<br>Dr Fatima Mudassar | 1:00 – 1:45<br>Revision                                                    | 1:45 – 3:00<br>All Demonstrators<br>Batch A Batch D<br>Batch B Batch E<br>Batch C Batch F |

Module Lead

Student Affairs

Medical Education

HoD

| Islam Medical College, Sialkot<br>Block-1: Foundation-1, Module-1, Week-3/8<br>1st Year MBBS (2026)                                                                                                                                                                                                                                                                                                                         |                                                                     |                                                              |                                                                                                                      |                                                                                 |                                                                                |                                                                                                                               |                                                                                                                                  |                                                  |                                                                                          |                                                                              |                                                                                                    |                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Day/Date                                                                                                                                                                                                                                                                                                                                                                                                                    | 8:30 – 9:20                                                         | 9:20-10:10                                                   | 10:10 – 11:00                                                                                                        | 11:00-11:50                                                                     | 11:50-1:00                                                                     |                                                                                                                               | 1:00 – 1:30                                                                                                                      | 1:30 – 2:15                                      | 2:15 – 3:00                                                                              |                                                                              |                                                                                                    |                                                                                                                          |
| Monday<br><br>2/16/2026                                                                                                                                                                                                                                                                                                                                                                                                     | LGIS<br>CFRC<br>Radial pulse<br>Dr Zara                             | Weekly Assessment                                            | LGIS<br>Embryology<br>fertilization<br>Prof.Dr.Noureen<br>Waseem                                                     | LGIS<br>Biochemistry<br>signal<br>transaction(G<br>protein)<br>Dr Adnan Riaz    | SGD                                                                            |                                                                                                                               | S<br>h<br>o<br>r<br>t<br><br>B<br>r<br>e<br>a<br>k                                                                               | LGIS<br>Biochemistry<br>Dr Shehzad Farooq        | LGIS<br>B.S<br>phycological Disorders<br>Dr Fatima Mudassar                              |                                                                              |                                                                                                    |                                                                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                     |                                                              |                                                                                                                      |                                                                                 | Physiology<br>X<br>Biochemistry<br>Y                                           | Topic<br>Team<br>Topic<br>Team                                                                                                |                                                                                                                                  |                                                  |                                                                                          | Intro Blood & plasma proteins<br>purines and pyrimidines and<br>nucleic acid |                                                                                                    |                                                                                                                          |
| Tuesday<br><br>2/17/2026                                                                                                                                                                                                                                                                                                                                                                                                    | Practical                                                           |                                                              | LGIS<br>Physiology<br>Introduction to<br>Blood<br>Dr. Sadia<br>Javaid                                                | LGIS<br>Biochemistry<br>Nucleotides<br>Prof.Dr. Zamir<br>Ahmed                  | SGD                                                                            |                                                                                                                               |                                                                                                                                  |                                                  |                                                                                          | B<br>r<br>e<br>a<br>k                                                        | 1:30-3:00                                                                                          |                                                                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                             | Anatomy<br>Physiology<br>Biochemistry                               | A<br>B<br>C                                                  |                                                                                                                      |                                                                                 | cell & organelies<br>Determination of ESR<br>Cell organelies                   | Physiology<br>Y<br>Biochemistry<br>X                                                                                          |                                                                                                                                  |                                                  |                                                                                          |                                                                              | Topic<br>Team<br>Topic<br>Team                                                                     | Intro Blood & plasma proteins<br>Demonstarors<br>purines and pyrimidines and<br>nucleic acid<br>Dr. Minahil & Dr. Ayesha |
|                                                                                                                                                                                                                                                                                                                                                                                                                             | 8:30 – 9:50                                                         |                                                              |                                                                                                                      |                                                                                 | 9:50 – 10:30                                                                   | 10:30-11:10                                                                                                                   | 11:10-12:10                                                                                                                      |                                                  | 12:10 – 12:20                                                                            |                                                                              | 12:20 – 01:30                                                                                      |                                                                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                             | Practical                                                           |                                                              |                                                                                                                      |                                                                                 | LGIS<br>Embryology<br>1st week of<br>Development<br>prof Dr. Noureen<br>Waseem | LGIS<br>Physiology<br>Plasma proteins<br>& edema<br>Dr. Sadia<br>Javaid                                                       | SGD                                                                                                                              |                                                  | B<br>r<br>e<br>a<br>k                                                                    |                                                                              | Anatomy SGD<br>Dissection Hall<br>Joints (2)<br>Batch A<br>Batch B<br>Batch C<br>All Demonstrators |                                                                                                                          |
| Anatomy<br>Physiology<br>Biochemistry                                                                                                                                                                                                                                                                                                                                                                                       | C<br>A<br>B                                                         | cell & organelies<br>Determination of ESR<br>Cell organelies | Physiology<br>X<br>Biochemistry<br>Y                                                                                 | Topic<br>Team<br>Topic<br>Team                                                  |                                                                                |                                                                                                                               | SGD<br>RBC in detail & Erythropoiesis<br>Different types of RNAs. DNA.<br>Difference<br>between DNA, chromatid and<br>chromosome |                                                  |                                                                                          |                                                                              |                                                                                                    |                                                                                                                          |
| Wednesday<br><br>2/18/2026                                                                                                                                                                                                                                                                                                                                                                                                  | 8:30 – 9:50                                                         |                                                              | 9:50-10:30                                                                                                           | 10:30-11:10                                                                     | 11:10-11:50                                                                    |                                                                                                                               | 11:50-12:20                                                                                                                      |                                                  | 12:20-1:30                                                                               |                                                                              |                                                                                                    |                                                                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                             | Practical                                                           |                                                              | LGIS<br>Biochemistry<br>chromosomes<br>rof.Dr. Zamir Ahmed                                                           | LGIS<br>Physiology<br>RBCs & Sites of<br>Erythropoiesis<br>Dr. Sadia<br>Javaid  | LGIS<br>Histology<br>cell junction and surface modification<br>Prof Dr.Riaz    | LGIS<br>Pathology<br>Cellular adaptations dysphasia &<br>neoplasia intercellular<br>accumulations & calcifications<br>Dr faiz | 12:20-1:30                                                                                                                       |                                                  |                                                                                          |                                                                              |                                                                                                    |                                                                                                                          |
| Anatomy<br>Physiology<br>Biochemistry                                                                                                                                                                                                                                                                                                                                                                                       | B<br>C<br>A                                                         | cell organelies<br>Determination of ESR<br>Cell organelies   |                                                                                                                      |                                                                                 |                                                                                |                                                                                                                               | LGIS<br>General Anatomy<br>joints<br>Dr Rana Zeeshan                                                                             |                                                  |                                                                                          |                                                                              |                                                                                                    |                                                                                                                          |
| Thursday<br><br>2/19/2026                                                                                                                                                                                                                                                                                                                                                                                                   | 8:30 – 9:50                                                         |                                                              | 9:50-10:30                                                                                                           | 10:30-11:10                                                                     | 11:10-11:50                                                                    |                                                                                                                               | 11:50-12:20                                                                                                                      |                                                  | 12:20-1:30                                                                               |                                                                              |                                                                                                    |                                                                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                             | Practical                                                           |                                                              | LGIS<br>Biochemistry<br>chromosomes<br>rof.Dr. Zamir Ahmed                                                           | LGIS<br>Physiology<br>RBCs & Sites of<br>Erythropoiesis<br>Dr. Sadia<br>Javaid  | LGIS<br>Histology<br>cell junction and surface modification<br>Prof Dr.Riaz    | LGIS<br>Pathology<br>Cellular adaptations dysphasia &<br>neoplasia intercellular<br>accumulations & calcifications<br>Dr faiz | 12:20-1:30                                                                                                                       |                                                  |                                                                                          |                                                                              |                                                                                                    |                                                                                                                          |
| Anatomy<br>Physiology<br>Biochemistry                                                                                                                                                                                                                                                                                                                                                                                       | B<br>C<br>A                                                         | cell organelies<br>Determination of ESR<br>Cell organelies   |                                                                                                                      |                                                                                 |                                                                                |                                                                                                                               | LGIS<br>General Anatomy<br>joints<br>Dr Rana Zeeshan                                                                             |                                                  |                                                                                          |                                                                              |                                                                                                    |                                                                                                                          |
| Friday<br><br>2/20/2026                                                                                                                                                                                                                                                                                                                                                                                                     | 8:30 – 9:05                                                         |                                                              | 9:05 – 9:40                                                                                                          | 9:40 – 10:15                                                                    | 10:15 – 11:05                                                                  |                                                                                                                               | 11:05-11:40                                                                                                                      | 11:40-12:15                                      | 12:15-1:00                                                                               |                                                                              |                                                                                                    |                                                                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                             | LGIS<br>Community Medicine<br>Health indicators<br>Dr zain ul Islam |                                                              | LGIS<br>Embryology<br>2nd week of<br>Development<br>Dr Aaqiba Rasheed                                                | LGIS<br>Physiology<br>Erythropoiesis<br>& Its Regulation<br>Dr. Sadia<br>Javaid | SGD                                                                            |                                                                                                                               | LGIS<br>Biochemistry<br>Enzymes<br>Prof.Dr. Shahzad<br>Farooq                                                                    | LGIS<br>PERLS<br>Ethics<br>Dr Fatima<br>Mudassar | SGD<br>General Anatomy<br>Revision<br>Batch A<br>Batch B<br>Batch C<br>All Demonstrators |                                                                              |                                                                                                    |                                                                                                                          |
| Physiology<br>Biochemistry                                                                                                                                                                                                                                                                                                                                                                                                  | Y<br>X                                                              | Topic<br>Team<br>Topic<br>Team                               | RBC in detail &<br>Erythropoiesis<br>Demonstrators<br>Different types<br>of RNAs. DNA.<br>Difference<br>between DNA, |                                                                                 |                                                                                |                                                                                                                               |                                                                                                                                  |                                                  |                                                                                          |                                                                              |                                                                                                    |                                                                                                                          |
| Module Lead  Student Affairs (Head)  Head Medical Education  Principal IMC  |                                                                     |                                                              |                                                                                                                      |                                                                                 |                                                                                |                                                                                                                               |                                                                                                                                  |                                                  |                                                                                          |                                                                              |                                                                                                    |                                                                                                                          |



Islam Medical College, Sialkot  
Block-1: Foundation-1, Module-1, Week-4/8  
1st Year MBBS (2026)



| Day/Date               | 8:30 – 9:05                                                | 9:05-9:50                | 9:50 – 10:30                                                                               | 10:30-11:10                                                                                        | 11:10-12:10                                                                                                                                                                                                                 | 12:10 – 12:20                                           | 12:20 - 12:55                                                                                                                                             | 12:55 – 1:30                                                                                                                                       |
|------------------------|------------------------------------------------------------|--------------------------|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Monday<br>2/23/2026    | LGIS<br>CFRC<br>Respiratory<br>Measurements<br>Dr. Zara    | Weekly Assessment        | LGIS<br>B.S<br>Physiology of disease<br>Dr.Fatima Mudassar                                 | LGIS<br>Embryology<br>2nd Week of<br>Development (2)<br>Dr. Aaqiba<br>Rasheed                      | SGD<br>Physiology Topic Role of Iron & Abnormal Hb's<br>Demonstrators<br>X Team<br>Biochemistry Topic Introduction to Enzymology<br>Y Team                                                                                  | S<br>h<br>o<br>r<br>t<br>B<br>r<br>e<br>a<br>k          | LGIS<br>Biochemistry<br>Enzymes<br>Asso.Dr. Adnan Riaz                                                                                                    | Quran<br>Mufti Arif                                                                                                                                |
| Tuesday<br>2/24/2026   | Practical                                                  |                          | LGIS 5<br>Physiology<br>Role of vitamin<br>B12 in RBC<br>maturation<br>Dr. Sadia<br>Javaid | LGIS<br>Biochemistry<br>Enzymes<br>Assoc.Dr. Adnan<br>Riaz                                         | SGD<br>Physiology Topic Role of Iron & Abnormal Hb's<br>Demonstrators<br>Y Team<br>Biochemistry Topic Introduction to Enzymology<br>X Team Dr.Minahil & Dr. Ayesha                                                          |                                                         | 12:20 – 1:00                                                                                                                                              | 1:00 – 1:30<br>Anatomy SGD Dissection<br>Muscle (1)<br>Batch A Batch D<br>Batch B Batch E<br>Batch C Batch F<br>All Demonstrators                  |
|                        | Anatomy A Epithelium (1)                                   | Packed cell volume       |                                                                                            |                                                                                                    | 12:20 – 1:00                                                                                                                                                                                                                |                                                         | 1:00 – 1:30<br>Anatomy SGD Dissection Hall<br>Muscle (2)<br>Batch A Batch D<br>Batch B Batch E<br>Batch C Batch F<br>All Demonstrators                    |                                                                                                                                                    |
|                        | Physiology B                                               | Equipment<br>Dr. Zeeshan |                                                                                            |                                                                                                    | 12:20 – 1:00                                                                                                                                                                                                                |                                                         | 1:00 – 1:30<br>Anatomy SGD Dissection Hall<br>Muscle (2)<br>Batch A Batch D<br>Batch B Batch E<br>Batch C Batch F<br>All Demonstrators                    |                                                                                                                                                    |
| Wednesday<br>2/25/2026 | Practical                                                  |                          | LGIS<br>Embryology<br>3rd Week of<br>Development (1)<br>Prof.Dr.Naureen<br>Waseem          | LGIS<br>Physiology<br>Iron role<br>Dr. Sadia<br>Javaid                                             | SGD<br>Physiology Topic WBC Classification<br>• Functions of WBCs<br>Demonstrators<br>X Team<br>Biochemistry Topic Active sites, Specificity, Catalytic<br>efficiency, Cofactor,Coenzyme,<br>Y Team Dr.Minahil & Dr. Ayesha |                                                         | 12:20 – 1:00                                                                                                                                              | 1:00 – 1:30<br>Anatomy SGD Dissection Hall<br>Muscle (2)<br>Batch A Batch D<br>Batch B Batch E<br>Batch C Batch F<br>All Demonstrators             |
| Thursday<br>2/26/2026  | Practical                                                  |                          | LGIS<br>Biochemistry<br>Enzymes<br>Assoc.Dr. Adnan Riaz                                    | LGIS<br>Physiology<br>Blood Indices &<br>abnormal Hb<br>Dr. Sadia<br>Javaid                        | 11:10-11:50                                                                                                                                                                                                                 | 11:50-12:20                                             | Anatomy SGD Dissection Hall<br>Revision<br>Batch A Batch D<br>Batch B Batch E<br>Batch C Batch F<br>All Demonstrators<br>(DISECTION HALL)<br>12:15 – 1:00 |                                                                                                                                                    |
|                        | Anatomy B Epithelium (1)                                   | Packed cell volume       |                                                                                            |                                                                                                    | 11:10-11:50                                                                                                                                                                                                                 | 11:50-12:20                                             |                                                                                                                                                           |                                                                                                                                                    |
| Friday<br>2/27/2026    | 08:30 – 9:05                                               |                          | 9:05 – 09:40                                                                               | 09:40 – 10:15                                                                                      | 10:15 – 11:05                                                                                                                                                                                                               | 11:05-11:40                                             | 11:40-12:15                                                                                                                                               | SGD<br>General Anatomy<br>Batch A Batch D<br>Batch B Batch E<br>Batch C Batch F<br>All Demonstrators<br>Viva Voce<br>Batch D<br>Batch E<br>Batch F |
|                        | LGIS<br>Medicine<br>Disease causation<br>Dr. Zain ul Islam | Community                | LGIS<br>Embryology<br>3rd Week of<br>Development (2)<br>Dr. Aaqiba Rasheed                 | LGIS<br>Physiology<br>WBC<br>Classification &<br>Function of<br>Neutrophils<br>Dr. Sadia<br>Javaid | Physiology Topic WBC<br>Classification<br>• Functions of<br>WBCs<br>Y Team<br>Biochemistry Topic Active sites,<br>Specificity,<br>Catalytic<br>efficiency,<br>Cofactor,Coenz<br>X Team                                      | LGIS<br>Biochemistry<br>Enzymes<br>Assoc.Dr. Adnan Riaz | LGIS<br>PERLS<br>leadership<br>Dr Shahneel                                                                                                                |                                                                                                                                                    |

Module Lead *[Signature]*

Student Affairs *[Signature]*

HoD Medical Education *[Signature]*

Principal IMC

| Day/Date              | 8:30 - 9:50                                                                                                                                                                                 | 9:50 - 10:30                                                              | 10:30-11:10                                                               | 11:10-12:10                                                                                                                                                                                                                                        | 12:10 - 12:20                                  | 12:20 - 12:55                                                                               | 12:55 - 1:30                                                                                                  |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Monday<br>3/2/2016    | Weekly Assessment<br><i>Lecture Hall # 02 46 04</i>                                                                                                                                         | LGIS Embryology 3rd Week of Development (3) Prof. Dr. Naureen Waseem      | LGIS Community Medicine Disease Prevention Dr. Zain-ul-Islam              | SGD<br>Physiology Topic Abnormal WBC counts<br>Team X<br>Biochemistry Topic Explain the application of enzyme in clinical diagnosis<br>Team Y<br>Dr. Minahil & Dr. Ayesha                                                                          |                                                | LGIS Biochemistry Amino Acid Prof. Dr. Shahzad Farooq                                       | LGIS Pathology Growth curve Steps of viral replication Stages of infectious disease Dr. Qamar / Dr. Rana Asad |
| Tuesday<br>3/3/2016   | Practical<br>Anatomy A Epithelium (1) & Glands Interpret Total Leucocyte Count, Differential Leucocyte Count (normal & abnormal)<br>Physiology B<br>Biochemistry C Chromatography Solutions | LGIS 5 Physiology Abnormal WBC counts & lines of defense Dr. Sadia Javaid | LGIS Biochemistry Amino acids Prof. Dr. Shahzad Farooq                    | SGD Functions of Neutrophils & Macrophages against invading agents<br>Team Y<br>Biochemistry Topic Explain the application of enzyme in clinical diagnosis<br>Team X<br>Dr. Minahil & Dr. Ayesha                                                   | S<br>h<br>o<br>r<br>t<br>B<br>r<br>e<br>a<br>k | LGIS General Anatomy Central Nervous System Dr. Rana Zeeshan                                | Anatomy SGD Dissection<br>Batch A Batch D<br>Batch B Batch E<br>Batch C Batch F<br>All Demonstrators          |
| Wednesday<br>3/4/2016 | Practical<br>Anatomy C Epithelium (1) & Glands Interpret Total Leucocyte Count, Differential Leucocyte Count (normal & abnormal)<br>Physiology A<br>Biochemistry B Chromatography Solutions | LGIS Embryology Ectodermal Derivatives Prof. Dr. Naureen Waseem           | LGIS Physiology Functions of Macrophages in inflammation Dr. Sadia Javaid | SGD Reticulo-Endothelial system<br>Team X<br>Biochemistry Topic classify amino acids based on polarity, nutritional<br>Team Y<br>Dr. Minahil & Dr. Ayesha                                                                                          |                                                | LGIS General Anatomy Peripheral Nervous System (1) Dr. Rana Zeeshan                         | SGD 11:00 - 1:30 Dissection<br>Batch A Batch D<br>Batch B Batch E<br>Batch C Batch F<br>All Demonstrators     |
| Thursday<br>3/5/2016  | Practical<br>Anatomy B Epithelium (1) & Glands Interpret Total Leucocyte Count, Differential Leucocyte Count (normal & abnormal)<br>Physiology C<br>Biochemistry A Chromatography Solutions | LGIS Biochemistry Protein Prof. Dr. Shahzad Farooq                        | LGIS Physiology Reticulo Endothelial System Dr. Sadia Javaid              | 11:10-11:50<br>LGIS Histology Epithelium (1) & Glands Prof. Dr. Riaz Ahmed<br>11:50-12:10<br>LGIS Biochemistry Protein Prof. Dr. Zamir (Principal)                                                                                                 |                                                | LGIS General Anatomy Peripheral Nervous System (2) Dr. Rana Zeeshan                         | Anatomy SGD Dissection<br>Batch A Batch D<br>Batch B Batch E<br>Batch C Batch F<br>All Demonstrators          |
| Friday<br>3/6/2016    | 08:30 - 9:05<br>LGIS CFRC Blood Pressure Dr. Zara                                                                                                                                           | 9:05 - 9:40<br>LGIS Embryology Gynea Integration Dr. Sunila Zahid         | 09:40 - 10:15<br>LGIS Physiology Eosinophils & Basophils Dr. Sadia Javaid | 10:15 - 11:05<br>SGD Functions of Eosinophils & Basophils<br>Team Y<br>Biochemistry Topic acids based on polarity, nutritional importance and clinical application<br>Team X<br>11:05-11:40<br>LGIS B.S Psychology and disease Dr. Fatima Mudassar | 11:40-12:15<br>Quran<br>Mufti Arif             | 12:15 - 1:00<br>PERLS Leadership Doctor as learner Study Skills Asso. Prof. Dr. Asma Sharif |                                                                                                               |

Module Lead

Student Affairs (Practical)

Head Medical Education

Principal IMC



Islam Medical College, Sialkot  
Block-1: Foundation-1, Module-1, Week-6/8  
1st Year MBBS (2016)



| Day/Date               | 8:30-9:50                                                                                                                                       | 9:50 - 10:30                                                                          | 10:30-11:10                                                                       | 11:10-12:10                                                                                                                                                                                                                                             | 12:10 - 12:20                                                                           | 12:20 - 12:55                                                                                       | 12:55 - 1:30                                                                                                                  |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Monday<br>3/9/2026     | Weekly Assessment<br>(Lecture Hall 2 & 4)                                                                                                       | LGIS<br>Embryology<br>Mesodermal &<br>Endodermal<br>Derivatives<br>Dr. Aaqiba Rasheed | LGIS<br>Skill Lab Medicine<br>Dr. Mubeen                                          | SGD<br>Physiology Topic: PROCESS OF DEFENCE AGAINST INVADING AGENTS BY MACROPHAGES & NEUTROPHILS<br>X Team<br>Biochemistry Topic: Hierarchy of protein structure, and protein folding along with associated disease<br>Y Team: Dr. Minahil & Dr. Ayesha | S<br>h<br>o<br>r<br>t<br><br>B<br>r<br>e<br>a<br>k                                      | LGIS<br>Biochemistry<br>Protein<br>Prof. Dr. Zamir Ahmed<br>(Principal)                             | LGIS<br>Community Medicine<br>Natural History Of Disease<br>Dr. Zain-ul-Islam                                                 |
| Tuesday<br>3/10/2026   | Practical<br>Anatomy A: Connective Tissue (1)<br>Physiology B<br>Biochemistry C: prepare different types of solution Molar, Molel, Normal and % | LGIS<br>Physiology<br>Lines of Defence<br>against infection<br>Dr. Sadia Javaid       | LGIS<br>Biochemistry<br>Protein<br>Prof. Dr. Zamir Ahmed<br>(Principal)           | SGD<br>Physiology Topic: PROCESS OF DEFENCE AGAINST INVADING AGENTS BY MACROPHAGES & NEUTROPHILS<br>Y Team<br>Biochemistry Topic: Hierarchy of protein structure, and protein folding along with associated disease<br>X Team: Dr. Minahil & Dr. Ayesha |                                                                                         | 12:20 - 1:00<br>LGIS<br>General Anatomy<br>Autonomic Nervous System<br>Dr. Rana Zeeshan             | 1:00 - 1:30<br>SGD Anatomy<br>All Demonstrators<br>Batch A Batch D<br>Batch B Batch E<br>Batch C Batch F                      |
| Wednesday<br>3/11/2026 | Practical<br>Anatomy C: Connective Tissue (1)<br>Physiology A<br>Biochemistry B: prepare different types of solution Molar, Molel, Normal and % | LGIS<br>Embryology<br>Fetal Period & Fetal<br>Membranes<br>Prof. Dr. Naureen Waseem   | LGIS<br>Physiology<br>Reticuloendothelial system<br>Dr. Sadia Javaid              | SGD<br>Physiology Topic: Reticuloendothelial system & Blood groups<br>X Team<br>Biochemistry Topic: Classify and explain the bio-chemical role of each class of plasma proteins<br>Y Team: Dr. Minahil & Dr. Ayesha                                     |                                                                                         | 12:20 - 1:00<br>LGIS<br>General Anatomy<br>circulatory System (Blood vessels)<br>Dr. Rana Zeeshan   | SGD Anatomy<br>All Demonstrators<br>Batch A Batch D<br>Batch B Batch E<br>Batch C Batch F                                     |
| Thursday<br>3/12/2026  | Practical<br>Anatomy B: Connective Tissue (1)<br>Physiology C<br>Biochemistry A: prepare different types of solution Molar, Molel, Normal and % | LGIS<br>Biochemistry<br>Protein<br>Prof. Dr. Zamir Ahmed<br>(Principal)               | LGIS<br>Physiology<br>Blood groups-1<br>Prof. Dr. Memoona Shafiq                  | 11:10-11:50<br>LGIS Histology<br>Connective Tissue (1)<br>Prof. Dr. Rizaz Ahmed                                                                                                                                                                         |                                                                                         | 11:50-12:30<br>LGIS<br>Pathology<br>Sterilization and disinfection<br>Dr. Qamar Aziz/ Dr. Rana Asad | 12:30 - 1:30<br>SGD<br>General Anatomy Revision<br>Batch A Batch D<br>Batch B Batch E<br>Batch C Batch F<br>All Demonstrators |
| Friday<br>3/13/2026    | 08:30 - 9:05<br>LGIS<br>CFRC<br>Donning & Doffing<br>Dr. Zara                                                                                   | 9:05 - 09:40<br>LGIS<br>Embryology<br>Placenta<br>Dr. Aaqiba Rasheed                  | 09:40 - 10:15<br>LGIS<br>Physiology<br>Blood groups-2<br>Prof. Dr. Memoona Shafiq | 10:15 - 11:05<br>SGD<br>Physiology Topic: Reticuloendothelial system & Blood groups<br>Y Team<br>Biochemistry Topic: Classify and explain the bio-chemical role of each class of plasma proteins<br>X Team: Dr. Minahil & Dr. Ayesha                    | 11:05-11:50<br>LGIS<br>Pharmacology<br>Introduction to Pharmacology<br>Dr. Abdul sattar | 11:50-12:15<br>LGIS<br>PERLS<br>Academic<br>Writing -<br>IT Skills<br>Dr. Maryam                    | 12:15 - 1:00<br>SGD<br>General Anatomy Revision<br>Batch A Batch D<br>Batch B Batch E<br>Batch C Batch F<br>All Demonstrators |

Module Lead

Student Affairs

Medical Education

HoD

Principal/PMC



Block-1: Foundation-1, Module-1, Week-7/8  
1st Year MBBS (2026)



| Day/Date               | 8:30 – 9:10                           | 9:10-9:50                | 9:50 – 10:30         | 10:30-11:10          | 11:10-12:10    |       | 12:10 – 12:20                                      | 12:20 – 12:55           | 12:55 – 1:30                                                                              |                                                                                           |
|------------------------|---------------------------------------|--------------------------|----------------------|----------------------|----------------|-------|----------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Monday<br>3/16/2026    | LGIS<br>Pharmacology                  | Weekly Assessment        | LGIS<br>CFRC         | LGIS<br>Embryology   | SGD            |       | S<br>h<br>o<br>r<br>t<br><br>B<br>r<br>e<br>a<br>k | LGIS<br>Biochemistry    | LGIS<br>PERLs                                                                             |                                                                                           |
|                        |                                       |                          |                      |                      | Physiology     | Topic |                                                    |                         |                                                                                           |                                                                                           |
|                        |                                       |                          |                      |                      | X              | Team  |                                                    |                         |                                                                                           |                                                                                           |
| Tuesday<br>3/17/2026   | Anatomy<br>Physiology<br>Biochemistry | Practical<br>A<br>B<br>C | LGIS<br>Physiology   | LGIS<br>Biochemistry | SGD            |       |                                                    | LGIS 12:20 – 1:00       |                                                                                           | SGD 1:00 – 1:30                                                                           |
|                        |                                       |                          |                      |                      | Physiology     | Topic |                                                    | LGIS<br>General Anatomy | All Demonstrators<br>Batch A      Batch D<br>Batch B      Batch E<br>Batch C      Batch F |                                                                                           |
|                        |                                       |                          |                      |                      | Y              | Team  |                                                    |                         |                                                                                           |                                                                                           |
| Wednesday<br>3/18/2026 | Anatomy<br>Physiology<br>Biochemistry | Practical<br>C<br>A<br>B | LGIS<br>Embryology   | LGIS<br>Physiology   | SGD            |       |                                                    |                         |                                                                                           | LGIS 12:20 – 1:00                                                                         |
|                        |                                       |                          |                      |                      | Physiology     | Topic |                                                    | LGIS<br>General Anatomy | All Demonstrators<br>Batch A      Batch D<br>Batch B      Batch E<br>Batch C      Batch F |                                                                                           |
|                        |                                       |                          |                      |                      | X              | Team  |                                                    |                         |                                                                                           |                                                                                           |
| Thursday<br>3/19/2026  | Anatomy<br>Physiology<br>Biochemistry | Practical<br>B<br>C<br>A | LGIS<br>Biochemistry | LGIS<br>Physiology   | 11:10-11:40    |       | 11:40-12:10                                        |                         |                                                                                           | All Demonstrators<br>Batch A      Batch D<br>Batch B      Batch E<br>Batch C      Batch F |
|                        |                                       |                          |                      |                      | LGIS Histology |       | LGIS Biochemistry                                  |                         |                                                                                           |                                                                                           |
|                        |                                       |                          |                      |                      |                |       |                                                    |                         |                                                                                           |                                                                                           |
| 3/20/2026              | Eid-UI- Fiter Holiday                 |                          |                      |                      |                |       |                                                    |                         |                                                                                           |                                                                                           |

(DISECTION HALL)

Module Lead \_\_\_\_\_

Student Affairs (Head) \_\_\_\_\_

HoD Medical Education \_\_\_\_\_

Principal IMC \_\_\_\_\_



Block-1: Foundation-1, Module-1, Week-8/8  
1st Year MBBS (2026)



| Day/Date               | 8:30 – 9:20          | 9:20-10:10 | 10:10– 11:00 | 11:00-11:50 | 11:50-1:00 | 1:00 – 1:30 | 1:30 - 3:00 |
|------------------------|----------------------|------------|--------------|-------------|------------|-------------|-------------|
| Monday<br>3/23/2026    | Eid-UL-Fiter Holiday |            |              |             |            |             |             |
| Tuesday<br>3/24/2026   | Eid-UL-Fiter Holiday |            |              |             |            |             |             |
| Wednesday<br>3/25/2026 | Module Prep Leave    |            |              |             |            |             |             |
| Thursday<br>3/26/2026  | Module Prep Leave    |            |              |             |            |             |             |
| 3/27/2026              | Module Prep Leave    |            |              |             |            |             |             |

Module Lead \_\_\_\_\_

Student Affairs \_\_\_\_\_

HoD Medical Education \_\_\_\_\_

Principal IMC \_\_\_\_\_

## ASSESSMENT TOOLS

Students will be assessed by the following methods

### **1. Weekly Assessments**

Assessments will be conducted every Monday covering all the lectures conducted in the previous week consisting of MCQs only.

### **2. Assignments/PBLs:**

Assignments/PBLs will be given monthly.

### **3. End of Module Exam:**

At the end of Foundation and H & L module, end of module exam covering all the LOs of the module consisting of MCQs would be conducted.

### **4. Block Exam:**

At the end of block, an exam will be conducted comprising of theory(MCQs) and practical/OSPE content.

### **5. Departmental quizzes, presentations & group projects:**

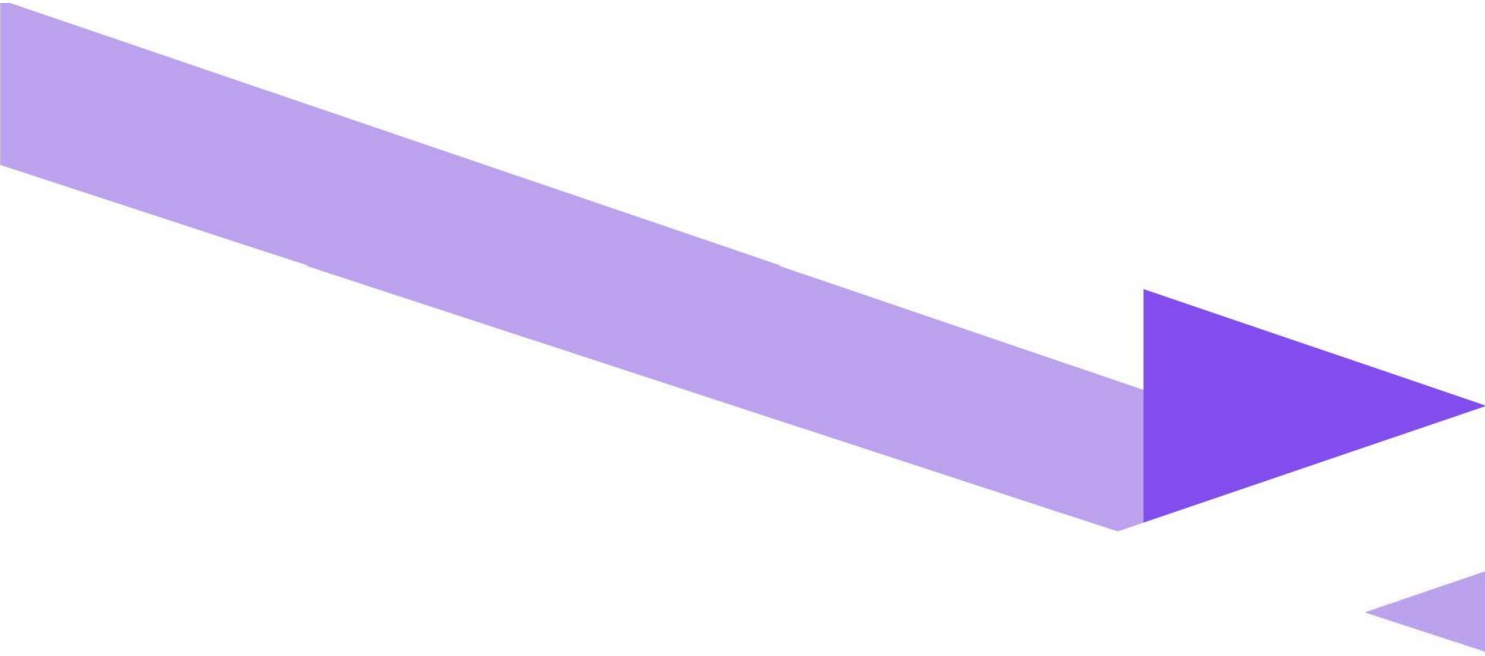
Above mentioned can be the assessment tools for different departments on their will.

**Table 1**  
**MBBS 1<sup>st</sup> Professional**

**Block-1**

| Theme                                  | Subject                            | Oral/Practical/Clinical Exam |            |                                 |                                 |                                  |            |
|----------------------------------------|------------------------------------|------------------------------|------------|---------------------------------|---------------------------------|----------------------------------|------------|
|                                        |                                    | MCQ<br>(1 mark)              | Marks      | OSPE<br>(8 marks each observed) | OSCE<br>(5 marks each observed) | OSVE<br>(14 marks each observed) | Marks      |
| Normal Structure                       | Anatomy applied/clinical           | 40                           | 40         | 04                              | -                               | 01                               | 46         |
| Normal Function                        | Physiology applied/clinical        | 37                           | 37         | 03                              | -                               | 01                               | 38         |
|                                        | Biochemistry applied/clinical      | 34                           | 34         | 02                              | -                               | 01                               | 30         |
| Disease Burden & Prevention            | Community Medicine & Public Health | 06                           | 06         | -                               | -                               | -                                | -          |
|                                        | Behavioral Sciences                | 05                           | 05         | -                               | -                               | -                                | -          |
| Pathophysiology & pharmacotherapeutics | Pathology                          | 13                           | 13         | 1                               | -                               | -                                | 8          |
|                                        | Pharmacology                       | 05                           | 05         | 1                               | -                               | -                                | 8          |
| CFRC                                   | CF-I                               | -                            | -          | -                               | 01                              | -                                | 05         |
| PERLs                                  | PERLs-I                            | -                            | -          | -                               | 01                              | -                                | 05         |
| <b>Total</b>                           |                                    | <b>140</b>                   | <b>140</b> | <b>11 stations x 08 = 88</b>    | <b>02 stations x 05 = 10</b>    | <b>03 stations x 14=42</b>       | <b>140</b> |





## **LIST OF RESOURCES**





### **Anatomy**

- Snell's Clinical Anatomy 10<sup>th</sup> ed.
- Langman's Medical Embryology 12<sup>th</sup> ed
- Medical Histology by Laiq Hussain Siddiqui 8th edition.
- General Anatomy by Laiq Hussain Siddiqui 6th edition.

### **Biochemistry**

- Harpers illustrated Biochemistry (latest edition). Rodwell.V.W MCGrawHill publishers.
- Lippincott illustrated Review (latest edition). Kluwer.W.
- Essentials of Medical Biochemistry vol 1&2 by Mushtaq Ahmed.

### **Pathology**

- Vinary Kumar, Abul K. Abbas and Nelson Fausto Robbins and Cotran, Pathologic basis of disease. WB Saunders.
- Robbins and Cotran Pathological Basis of Disease. Kumar, V., Abbas, A. and Aster, J. Latest Edition
- Richard Mitchall, Vinary Kumar, Abul K. Abbas and Nelson Fausto Robbins and Cotran, Pocket Companion to Pathologic basis of diseases, Saunder Harcourt.
- Walter and Israel. General Pathology. Churchill Livingstone.
- Robbins & Kumar, Medical Microbiology and Immunology Levinson.

### **General Medicine**

- Principles and Practice of Medicine by Davidson (latest edition)
- Clinical Medicine by Parveen J Kumar & Michael Clark
- Oxford Handbook of Medicine
- Macleod's Clinical Examination book
- Medicine and Toxicology by C.K. Parikh
- Hutchison's Clinical Methods by Michael Swash. 21st edition

### **Pharmacology And Therapeutics**

- Katzung and Trevor's Pharmacology: Examination and Board Review- 15th Edition
- Basic and Clinical Pharmacology by Bertram G Katzung (case scenarios only) - 16th Edition-
- Current Medical Diagnosis and Treatment- reference book –Edition-2024
- Basic and Clinical Pharmacology by Bertram G Katzung (case scenarios only) - 15th Edition
- Basic and Clinical Pharmacology by Katzung, McGraw-Hill. 16th Edition.
- Pharmacology by Champe and Harvey, Lippincott Williams & Wilkins 8th Edition.

- Katzung Basic and Clinical pharmacology, Lippincot Illustrated reviews.
- Clinical Pathology Interpretations by A. H. Nagi

### **Behavioural Sciences**

- Handbook of Behavioural Sciences by Prof. Mowadat H.Rana, 3rd Edition
- Medical and Psychosocial aspects of chronic illness and disability 6th edition by Donna R.Falvo and Beverly E.Holland,
- Integrating behavioral sciences in healthcare, Asma Humayun, 2003, 1st edition

### **Community medicine**

- Parks Textbook of Preventive and Social Medicine. K. Park
- Public Health and Community Medicine by Ilyas Ansari
- MSDS manual of Government of Punjab
- Text book of Community Medicine by Park J E. Latest Edition

### **Surgery**

- Bailey & Love's Short Practice of Surgery (latest edition)
- Browse's Introduction to the Symptoms & Signs of Surgical Disease 4th Edition
- Bailey & Love Short Practice of Surgery, Clinical Surgery pearls by Dayananda Babu RACS for Surgical Audits.

### **Patient Safety**

- Patient Safety Curriculum Guide: Multi Professional Guide

### **Microbiology**

- Levinson's review of Microbiology
- Medical Microbiology and Immunology by Levinson and Jawetz,

### **Pediatrics Medicine**

- Nelson Textbook of Pediatrics
- Basis of Pediatrics by Pervez Akbar Khan

### **Gynecology**

- Gynecology by Ten Teachers

### **Infection Control**

- National Guidelines Infection Prevention and control, National Institute of Health Pakistan

### **Biosafety**

- Biosafety in Microbiological and Biomedical Laboratories, 6th Edition (CDC, USA)
- WHO Laboratory Biosafety Manual, Fourth Edition, And Associated Monographs
- WHO safe management of wastes from healthcare facilities chapter 7 -8 page 77-99, 105-125)

### **Family medicine**

- Oxford Handbook of General Practice, 5th Edition

### **Orthopedics**

- Apley and Solomon's System of Orthopaedics and Trauma by Ashley Blom (Editor)

## **Rheumatology**

- Davidson's Principles and Practice of Medicine
- Clinical Medicine by Parveen J Kumar & Michael Clark
- Hutchison's Clinical Methods by Michael Swash

## **Radiology**

- Aids to Radiological Differential Diagnosis by Chapman S. and Nakielny R. 4th edition. Elsevier Science Limited; 2003.

## **Forensic Medicine**

- Knight's Forensic Pathology by Barnard Knight 3rd edition
- G. Principles and Practice of Forensic Medicine by Prof. Nasib R. Awan, 2nd edition
- Forensic DNA Typing – 2nd Edition, Author: John M. Butler
- Parikh's Text book of Medical Jurisprudence, Forensic Medicine and Toxicology by C.K. Parikh 6th Ed., CBS Publisher.
- Gun Shot Wounds 2nd edition by V.J. De Maio
- Knight B. Simpson's Forensic Medicine.
- Knight and Pekka. Principles of Forensic Medicine

## **Forensic Pathology**

- Forensic pathology 2nd edition by V.J. De Maio CRC press Boca Raton London New York Washington DC

## **Toxicology**

- Principles of clinical toxicology 3rd edition Thomas . Gossel CRC press Taylor and Francis group

## **Forensic Sciences**

- Fundamentals of Forensic Science- 3rd Edition: Author: Max M Houck, Jay A. Siegel
- Text Book of forensic medicine and toxicology Principles and Practice 5th edition by Krishan Vig

## **Biomedical ethics**

- Principles of Biomedical ethics, 8th edition by Tom. L. Beauchamp, James F. Childress.

## **Evidence Based Medicine**

- Databases for the latest articles/manuscripts
- Clinical Practice Guidelines- local and international - (within last 3 years)
- Books (Latest edition-within last 5 years)

**Pediatrics**

- Nelson's Book of Pediatric 22 edition Illustrated book of Pediatrics, Pervaiz Akbar textbook pedas medicine

**Islamiyat**

- Standard Islamiyat (compulsory) for B.A, BSc, MA, MSc, MBBS by Prof M Sharif Islahi.
- Ilmi Islamiyat(compulsory) for BA, BSc & equivalent.



# MODULAR INTEGRATED CURRICULUM 2K23

*version 3.0*

## VOLUME:01



Clerkships

Rotation

Foundation

Clinical Skills -FRC



## LOGBOOK

### CLINICAL-FOUNDATION ROTATION CLERKSHIP

### C-FRC



# LOGBOOK C-FRC

## C-FRC-1 YEAR-1





# BLOCK-01

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## FOUNDATION MODULE

| Objectives                                             | Skill                        | Miller's Pyramid Level Reflected |
|--------------------------------------------------------|------------------------------|----------------------------------|
| Demonstrate steps of hand washing                      | Hand washing                 | Shows                            |
| Demonstrate the procedure of taking the pulse          | Radial Pulse                 | Shows                            |
| Record the Respiratory Rate of patient                 | Respiratory Rate measurement | Shows                            |
| Demonstrate the procedure of taking the Blood Pressure | Blood Pressure               | Shows                            |
| Demonstrate the process of wearing the gloves          | Donning and Doffing          | Shows                            |

Place a “✓” in case box if step/task is performed satisfactorily, an “X” if it is not performed satisfactorily, or **N/O** if not observed.

Satisfactory: Performs the step or task according to the standard procedure or guidelines

Unsatisfactory: Unable to perform the step or task according to the standard procedure or guidelines

Date Observed: \_\_\_\_\_

| <b>CHECKLIST FOR HANDWASHING</b><br>(Some of the following steps/tasks should be performed simultaneously.)                                                                                                                                                                                                                                                                                                          | <b>CASES</b><br>(Minimum 2 Entries) |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--|
| <b>STEP/TASK</b>                                                                                                                                                                                                                                                                                                                                                                                                     |                                     |  |
| <b>GETTING READY:</b><br><br>1. Has read the handwashing procedure and understands the 4 moments of hand hygiene. <ul style="list-style-type: none"> <li>i. Before Contact with patient and/or their environment</li> <li>ii. Before performing a clean and/or aseptic procedure</li> <li>iii. After exposure to blood and/or body fluid</li> <li>iv. After contact with patient and/or their environment</li> </ul> |                                     |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>                                                                                                                                                                                                                                                                                                                                                                       |                                     |  |
| <b>THE PROCEDURE:</b><br><br>1. Wet hands with warm water<br><br>2. Apply soap and lather thoroughly<br><br>3. Rub palms, spaces between fingers, backs of hands and wrists, rubbing it vigorously.<br><br>4. Able to identify how long handwashing procedure is<br><br>5. Rinse under running water.<br><br>6. Pat hands dry with paper towel.                                                                      |                                     |  |

|                                                |  |  |
|------------------------------------------------|--|--|
| 7. Turn off tap with paper towel               |  |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b> |  |  |
| <b>SIGNATURES OF SUPERVISOR</b>                |  |  |

Place a “✓” in case box if step/task is performed satisfactorily, an “X” if it is not performed satisfactorily, or **N/O** if not observed.

Satisfactory: Performs the step or task according to the standard procedure or guidelines

Unsatisfactory: Unable to perform the step or task according to the standard procedure or guidelines

Date Observed: \_\_\_\_\_

| <b>CHECKLIST FOR RADIAL PULSE</b><br>(Some of the following steps/tasks should be performed simultaneously.)                                                                                                                                                                                                                                                                                  | <b>CASES</b><br>(Minimum 2 Entries) |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--|--|
| <b>STEP/TASK</b>                                                                                                                                                                                                                                                                                                                                                                              |                                     |  |  |
| <b>GETTING READY:</b><br><br>1. Washed hands/sanitized hands<br><br>2. Prepared equipment: watch with second hand.<br><br>3. Explained procedure to the patient and take consent<br><br>4. Determined if the patient is taking any medications that may affect the pulse rate.<br><br>5. Assisted the patient to a comfortable position                                                       |                                     |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                               |                                     |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                               |                                     |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                               |                                     |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                               |                                     |  |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>                                                                                                                                                                                                                                                                                                                                                |                                     |  |  |
| <b>THE PROCEDURE:</b><br><br>6. Located the radial artery. Use the tip of the index and third fingers of your other hand to feel the pulse in your radial artery between your wrist bone and the tendon on the thumb side of your wrist.<br><br>7. Placed the tips of index and middle fingers over the vessel.<br><br>8. Pushed lightly at first, adding pressure till feeling the pulsation |                                     |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                               |                                     |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                               |                                     |  |  |

|                                                                            |  |  |  |
|----------------------------------------------------------------------------|--|--|--|
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>                             |  |  |  |
| <b>POST PROCEDURE:</b>                                                     |  |  |  |
| 9. Discussed the findings with the facilitator                             |  |  |  |
| 10. Washed hands.                                                          |  |  |  |
| 11. Recorded the results as beats / minute and comment on, rate and rhythm |  |  |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>                             |  |  |  |
| <b>SIGNATURES OF SUPERVISOR</b>                                            |  |  |  |

## VITAL SIGNS REFERENCE RANGES

(Ref: EMT National Training - National Exams)

| Ages                                                          | Heart Rate                                               | Respiratory Rate                                                          | Systolic Blood Pressure              | Temperature |
|---------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------|-------------|
| Infancy (Birth to 1 Year)                                     | 100 to 160 (first 30 minutes)<br>Settling around 120 bpm | 40 to 60 initially<br>30-40 after first few minutes.<br>20-30 by one year | 70 at Birth to 90 at 1 year          | 98-100      |
| Toddler (12 to 36 Months)<br>and Preschool Age (3 to 5 Years) | 20 to 130 bpm<br><br>20 to 120 bpm                       | 20 to 30<br><br>20 to 30                                                  | 70 to 100 mmHg<br><br>80 to 110 mmHg | 96.8 – 99.6 |
| School-age Children (6 to 12 Years)                           | 70 to 110 bpm                                            | 20 to 30                                                                  | 80 to 120 mmHg                       | 98.6        |
| Adolescence (13 to 18 Years)                                  | 55 to 105 bpm                                            | 12 to 20                                                                  | 100 to 120 mmHg                      | 98.6        |
| Early Adulthood (20 to 40 Years)                              | 70 bpm average                                           | 16 to 20 (12-20 normal)                                                   | 120/80 mmHg average                  | 98.6        |
| Middle Adulthood (41 to 60 Years)                             | 70 bpm average                                           | 16 to 20 (12-20 normal)                                                   | 120/80 mmHg average                  | 98.6        |

Place a “✓” in case box if step/task is performed satisfactorily, an “X” if it is not performed satisfactorily, or **N/O** if not observed.

Satisfactory: Performs the step or task according to the standard procedure or guidelines

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**Date Observed:** \_\_\_\_\_

Note: Respiratory rate is not taken in isolation, usually it is performed while checking radial pulse.

| <b>CHECKLIST FOR RESPIRATORY</b><br><b>(Some of the following steps/tasks should be performed simultaneously.)</b>                                                                                                                                                   | <b>CASES</b><br><b>(Minimum 3 Entries)</b> |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--|--|
| <b>STEP/TASK</b>                                                                                                                                                                                                                                                     |                                            |  |  |
| <b>GETTING READY:</b><br><br>1. Introduce yourself to the patient.<br>2. Explain the procedure of radial pulse measurement and reassure the patient.<br>3. Get patient's consent.<br>4. Wash hands/Sanitize hands<br>5. Prepare the necessary material (clock/watch) |                                            |  |  |
|                                                                                                                                                                                                                                                                      |                                            |  |  |
|                                                                                                                                                                                                                                                                      |                                            |  |  |
|                                                                                                                                                                                                                                                                      |                                            |  |  |
|                                                                                                                                                                                                                                                                      |                                            |  |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>                                                                                                                                                                                                                       |                                            |  |  |
| <b>THE PROCEDURE:</b><br><br>6. Check radial pulse (see pulse checklist for reference).<br>7. Proceed with taking the Respiratory rate (RR) while your hand is still on the patient's radial artery (Do not inform your patient that you are taking the RR).         |                                            |  |  |
|                                                                                                                                                                                                                                                                      |                                            |  |  |

|                                                                                                                                                                                                                                              |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| 8. Placed Observe the rise and fall of the patient's chest and count the number of respirations for another one full minute. (One respiration consists of one complete rise and fall of the chest, or the inhalation and exhalation of air). |  |  |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>                                                                                                                                                                                               |  |  |  |
| <b>SIGNATURES OF SUPERVISOR</b>                                                                                                                                                                                                              |  |  |  |

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**Date Observed:** \_\_\_\_\_

| <b>CHECKLIST FOR BLOOD PRESSURE</b><br><b>(Some of the following steps/tasks should be performed simultaneously.)</b>                                                                                                                                                                                                                                                                                        | <b>CASES</b><br><b>(Minimum 3 Entries)</b> |  |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--|--|
| <b>GETTING READY:</b><br><br>1. Introduce yourself to the patient.<br>2. Explain the procedure and reassure the patient. (blood pressure measurement)<br>3. Get patient's consent.<br>4. Wash hands/sanitize hands<br>5. Prepare the necessary material (clock/watch)<br>6. Position the patient in a sitting position and uncover one of his /her arms. (Make sure the patient is relaxed and comfortable). |                                            |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                              |                                            |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                              |                                            |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                              |                                            |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                              |                                            |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                              |                                            |  |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>                                                                                                                                                                                                                                                                                                                                                               |                                            |  |  |
| <b>THE PROCEDURE:</b><br><br>6. Turn on the mercury valve (if it is mercury sphygmomanometer).<br><br>7. Select an appropriately sized cuff and apply it to the upper arm ensuring that it fits securely. (The centre of the cuff bladder must be over brachial artery [the bladder should cover 80% of the circumference of the upper arm] and lower edge 2.5 cm above the ante-cubital fossa).             |                                            |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                              |                                            |  |  |

|                                                                                                                                                          |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| 8. Palpate the brachial or radial artery while inflating the cuff till the point where pulsation disappears and keep inflating the cuff 20-30 mmHg more. |  |  |  |
| 9. Slowly deflate the cuff, noting the pressure at which the pulse reappears. (This is the approximate level of the systolic blood pressure).            |  |  |  |
| 10. Continue to deflate the cuff slowly at 2 mm Hg/second. Note the point at which Korotkoff sounds disappear completely as the diastolic pressure.      |  |  |  |
| 11. Turn off the mercury valve (if it is mercury sphygmomanometer).                                                                                      |  |  |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>                                                                                                           |  |  |  |
| <b>POST PROCEDURE:</b>                                                                                                                                   |  |  |  |
| 12. Wash hands.                                                                                                                                          |  |  |  |
| 13. Document the findings                                                                                                                                |  |  |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>                                                                                                           |  |  |  |
| <b>Signatures of Supervisor</b>                                                                                                                          |  |  |  |

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**Date Observed:** \_\_\_\_\_

| <b>CHECKLIST FOR DONNING &amp; DOFFING</b><br><b>(Some of the following steps/tasks should be performed simultaneously.)</b>                                                                                                                                                                                                                                                                                                                                                          | <b>Minimum 2 Entries</b> |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--|
| <b>STEP/TASK</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                          |  |
| <b>GETTING READY:</b><br><br>1. Washed hands.<br><br>2. Preparation: gloves, in place                                                                                                                                                                                                                                                                                                                                                                                                 |                          |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                          |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>                                                                                                                                                                                                                                                                                                                                                                                                                                        |                          |  |
| <b>THE PROCEDURE: (gloving)</b><br><br>3. Pick up one glove and place the palm away from you. Slide the fingers under the glove cuff and spread them so that a wide opening is created. Keep thumbs under the cuff.<br><br>4. The doctor will thrust his or her hand into the glove. Do not release the glove yet<br><br>5. Gently release the cuff (do not allow the cuff to snap sharply) while unrolling it over the wrist. Proceed with the other glove using the same technique. |                          |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                          |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                          |  |
| <b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b>                                                                                                                                                                                                                                                                                                                                                                                                                                        |                          |  |

|                                 |  |
|---------------------------------|--|
| <b>Signatures of Supervisor</b> |  |
|---------------------------------|--|

## HEMATOPOEITC AND LYMPHATIC MODULE

| Objectives                                                     | Skill                              | Miller's Pyramid Level Reflected |
|----------------------------------------------------------------|------------------------------------|----------------------------------|
| Detail the steps of drawing blood from a vein.                 | *Venipuncture and blood collection | Knows how                        |
| Check for pallor in the conjunctiva, tongue, and palm of hands | Pallor                             | Shows                            |

- ❖ These skills are at the 'Knows how' level of the miller's pyramid, meaning thereby that students need not perform them themselves but may develop a perception regarding them by observing performance/working on simulated patients/facilitation with video.

# COLLECTION

Place a “✓” in case box if step/task is performed satisfactorily, an “X” if it is not performed satisfactorily, or **N/O** if not observed.

Satisfactory: Performs the step or task according to the standard procedure or guidelines

Unsatisfactory: Unable to perform the step or task according to the standard procedure or guidelines

**Date Observed:** \_\_\_\_\_

| CHECKLIST FOR VENIPUNCTURE<br>(Some of the following steps/tasks should be performed simultaneously.)                 | CASES<br>(Minimum 2 Entries) |  |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------|--|
| <b>GETTING READY:</b>                                                                                                 |                              |  |
| 1. Identification of patient                                                                                          |                              |  |
| 2. Washed hands/ sanitized hands                                                                                      |                              |  |
| 3. Preparation: gloves, in place                                                                                      |                              |  |
| <b>SKILL/ACTIVITY DESCRIBED SATISFACTORILY</b>                                                                        |                              |  |
| <b>THE PROCEDURE:</b>                                                                                                 |                              |  |
| 4. Explain procedure to the patient and obtain consent                                                                |                              |  |
| 6. Clean the site with an antiseptic solution and allow it to dry                                                     |                              |  |
| 7. Select an appropriate site for venipuncture, such as the antecubital fossa or the back of the hand                 |                              |  |
| 7. Apply a tourniquet above the site to enhance vein distention                                                       |                              |  |
| 8. Ask the patient to make a fist to further enhance vein distention                                                  |                              |  |
| 9. Insert the needle into the vein at a 15–30-degree angle with the bevel up                                          |                              |  |
| 10. Once the needle is in the vein, release the tourniquet and apply pressure to the site with gauze or a cotton ball |                              |  |

|                                                                                           |  |  |
|-------------------------------------------------------------------------------------------|--|--|
| 11. Remove the needle and apply pressure to the site for a few minutes                    |  |  |
| 12. Dispose of the needle and syringe in a sharp's container                              |  |  |
| 13. Label the specimen with the patient's information and send it to the lab for analysis |  |  |
| <b>SKILL/ACTIVITY DESCRIBED SATISFACTORILY</b>                                            |  |  |
| <b>Signatures of Supervisor</b>                                                           |  |  |

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Satisfactory: Performs the step or task according to the standard procedure or guidelines

Unsatisfactory: Unable to perform the step or task according to the standard procedure or guidelines

**Date Observed:** \_\_\_\_\_

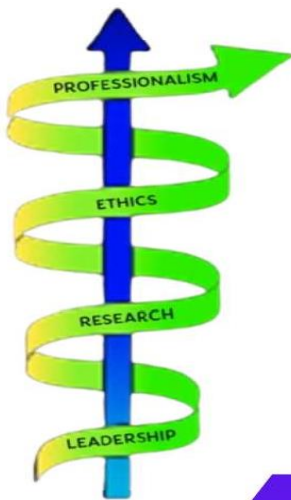
| <b>CHECKLIST FOR PALLOR</b><br>(Some of the following steps/tasks should be performed simultaneously.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>CASES</b><br>(Minimum 2 Entries) |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--|
| <b>GETTING READY:</b><br><br>1. Identification of patient<br><br>2. Presence of natural light                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                     |  |
| <b>SKILL/ACTIVITY OBSERVED AND DESCRIBED SATISFACTORILY</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                     |  |
| <b>THE PROCEDURE:</b><br><br>3. Obtain informed consent from the patient<br><br>4. Examine in natural light                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                     |  |
| <b>EXAMINATION OF THE CONJUNCTIVA:</b><br><br>5. Request the patient to look upwards and simultaneously pull the lower eyelid gently downward, thereby exposing the lower palpebral conjunctiva.<br><br>The lower conjunctiva has a half-moon shape and has been divided into:<br><i>i.</i> posterior rim: the posterior portion of the half-moon shape attached to the sclera.<br><i>ii.</i> anterior rim: the anterior or front portion of the half-moon shape attached to the eyelid.<br><br>Normally, the anterior rim is of bright red color, in sharp contrast to the posterior rim which has relatively pale fleshy color. |                                     |  |
| 6. Report pallor<br><br>(Pallor is said to be present if the anterior rim is not markedly redder as compared to the posterior rim.)<br>(Severe pallor is considered when both, anterior and posterior rims of the palpebral conjunctivae have the same very pale fleshy color.)                                                                                                                                                                                                                                                                                                                                                   |                                     |  |

|                                                                                                                                                                                                                                       |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| <p><b>EXAMINING THE TONGUE FOR PALLOR:</b></p> <p>7. Ask the patient to protrude the tongue and observe the dorsal surface.</p> <p>8. Report pallor (pallor is said to be present if the tongue and oral mucosa are visibly pale)</p> |  |  |
| <p><b>EXAMINING THE HANDS FOR PALLOR:</b></p> <p>9. Holds the patient's hand gently and checks the palm, compares the color of the palm with his/her own palm.</p>                                                                    |  |  |
| <p>10. Reports pallor (severe pallor-very pale or white, some pallor-pale)</p>                                                                                                                                                        |  |  |
| <p><b>SKILL/ACTIVITY PERFORMED SATISFACTORILY</b></p>                                                                                                                                                                                 |  |  |
| <p><b>Signatures of Supervisor</b></p>                                                                                                                                                                                                |  |  |



# PERLS-I

## Year-I





## MODULE RATIONALE

The UHS PERL module is designed to equip medical students with essential competencies in Professionalism, Ethics, Research, and Leadership, aligning with the PMDC 7-Star Doctor (Professional, Ethical, Scholar, Leader, Communicator, Health Advocate, and Collaborator) framework. This framework emphasizes the multifaceted role of a physician, highlighting the need for a holistic approach to medical education. In an era where healthcare systems are constantly evolving, integrating these core areas is vital for developing well-rounded, responsible, and effective healthcare professionals.

### 1. **Importance of Professionalism:**

Professionalism is the cornerstone of medical practice, influencing patient trust and the overall quality of care. This module emphasizes the significance of professional behavior, including accountability, integrity, and respect for diversity, ensuring that students cultivate a strong ethical foundation as they progress through their medical education.

### 2. **Ethical Decision-Making:**

As future healthcare providers, students will face complex ethical dilemmas that require sound judgment and moral reasoning. This module focuses on key ethical principles, such as patient autonomy, equity, and justice in resource allocation, particularly in challenging areas like neoplasia and inflammation. Understanding these principles prepares students to advocate for their patients while navigating the intricate landscape of modern healthcare.

### 3. **Research Competence:**

Research plays a critical role in advancing medical knowledge and improving patient outcomes. By emphasizing evidence-based practice, this module encourages students to engage with scientific literature, develop robust literature search strategies, conduct research projects and apply research findings to clinical decision-making. This skill set is essential for fostering a culture of inquiry and continuous improvement within the healthcare profession.

### 4. **Leadership Development:**

Leadership is an integral part of effective healthcare delivery. This module prepares students to take on leadership roles, emphasizing teamwork, conflict resolution, and

effective communication. By fostering leadership skills, we aim to empower students to influence positive changes in their future workplaces and advocate for patient-centered care.

In summary, the UHS PERL module is designed to create a comprehensive learning experience that prepares medical students for the challenges and responsibilities they will face in their careers. By integrating Professionalism, Ethics, Research, and Leadership, we aim to cultivate competent, compassionate, and ethical healthcare professionals who are equipped to make informed decisions and lead with integrity in an ever-changing medical landscape.

### MODULE LEARNING OUTCOMES

- Exhibit accountability, integrity, and respect for diversity in all aspects of medical practice, embodying the principles of professionalism in clinical and academic settings.
- Analyze and apply ethical principles related to patient care, including autonomy, beneficence, non-maleficence, and justice, particularly in challenging situations such as end-of-life decisions and resource allocation.
- Develop and implement effective literature search strategies, critically evaluate scientific literature, and synthesize findings to inform clinical decision-making and practice.
- Participate in a comprehensive research project, from formulating a research question to data collection and analysis, culminating in the production of a publishable manuscript that meets academic and ethical standards.
- Demonstrate leadership skills through effective communication, conflict resolution, and teamwork, fostering a collaborative environment that enhances patient care and academic performance.
- Recognize and address the social determinants of health, advocating for equity in healthcare access and outcomes for diverse patient populations.
- Engage in self-assessment and reflective practices to identify strengths and areas for improvement, creating actionable plans for personal and professional growth throughout their medical education.
- Utilize effective verbal and non-verbal communication skills to engage with patients, families, and colleagues, ensuring clear and compassionate exchanges that enhance understanding and trust.

## SUBJECTS INTEGRATED IN THE MODULE

1. Professionalism
2. Ethics
3. Research
4. Leadership

## LEARNING RESOURCES

### 1. **Professionalism:**

- Azam, M. (2021). Mind maps for medicine. Scion Publishing. <https://scionpublishing.com/product/mind-maps-for-medicine/>
- Bin Abdulrahman, K. A., Khalaf, A. M., Bin Abbas, F. B., & Alanazi, O. T. (2021). Study habits of highly effective medical students. *Advances in Medical Education and Practice*, 12, 627–633. <https://doi.org/10.2147/AMEP.S309535>
- Bandaranayake, R. C. (2013). Study skills. In K. Walsh (Ed.), *Oxford textbook of medical education* (pp. 244–254). Oxford University Press. <https://doi.org/10.1093/med/9780199652679.003.0021>
- American Board of Internal Medicine Foundation, American College of Physicians Foundation, & European Federation of Internal Medicine. (2005). Medical professionalism in the new millennium: A physician charter. Retrieved from [https://www.abimfoundation.org/what-we-do/physician-charter&#8203;;contentReference\[oaicite:0\]{index=0}](https://www.abimfoundation.org/what-we-do/physician-charter&#8203;;contentReference[oaicite:0]{index=0})
- Barnhoorn, P. C., Houtlosser, M., Ottenhoff-de Jonge, M. W., Essers, G. T. J. M., Numans, M. E., & Kramer, A. W. M. (2019). A practical framework for remediating unprofessional behavior and for developing professionalism competencies and a professional identity. *Medical Teacher*, 41(3), 303–308. [https://doi.org/10.1080/0142159X.2018.1464133&#8203;;contentReference\[oaicite:1\]{index=1}](https://doi.org/10.1080/0142159X.2018.1464133&#8203;;contentReference[oaicite:1]{index=1})
- Guraya, S. S., Guraya, S. Y., Harkin, D. W., Ryan, Á., Mat Nor, M. Z. B., & Yusoff, M. S. B. (2021). Medical Education e-Professionalism (MEeP) framework; From conception to development. *Medical Education Online*, 26(1), 1983926. [https://doi.org/10.1080/10872981.2021.1983926&#8203;;contentReference\[oaicite:2\]{index=2}](https://doi.org/10.1080/10872981.2021.1983926&#8203;;contentReference[oaicite:2]{index=2})
- Kirk, L. M. (2007). Professionalism in medicine: Definitions and considerations for teaching. *Baylor University Medical Center Proceedings*, 20(1), 13–16. [https://doi.org/10.1080/08998280.2007.11928225&#8203;;contentReference\[oaicite:3\]{index=3}](https://doi.org/10.1080/08998280.2007.11928225&#8203;;contentReference[oaicite:3]{index=3})
- Al-Eraky, M. M. (2015). Faculty development for medical professionalism in an Arabian context. [Doctoral Thesis, Maastricht University]. Maastricht University. [https://doi.org/10.26481/dis.20150521ma&#8203;;contentReference\[oaicite:0\]{index=0}](https://doi.org/10.26481/dis.20150521ma&#8203;;contentReference[oaicite:0]{index=0})

- Online Journals and Reading Materials through HEC Digital Library Facility

## 2. **Ethics:**

- World Health Organization. (2015). Global health ethics: Key issues. World Health Organization. <https://apps.who.int/iris/handle/10665/164576>
- World Health Organization. (2011). Standards and operational guidance for ethics review of health-related research with human participants. World Health Organization. <https://www.who.int/publications/i/item/9789241502948>
- World Health Organization. (2023). WHO Code of Ethics. World Health Organization.
- Harvey, J. C. (n.d.). Clinical ethics: The art of medicine. In *Military Medical Ethics*, Volume 1, Chapter 3.
- National Bioethics Committee. (2017). Guidelines and teachers handbook for introducing bioethics to medical and dental students. Healthcare Ethics Committee (HCEC).
- Varkey, B. (2021). Principles of clinical ethics and their application to practice. *Medical Principles and Practice*, 30(1), 17-28. <https://doi.org/10.1159/000509119>
- Pakistan Medical and Dental Council. (2018). Professional ethics and code of conduct.
- Online Journals and Reading Materials through HEC Digital Library Facility

## 3. **Research**

- Medical Statistics. 2nd Ed. by R. Turkwood.
- Biddle, K., Blundell, A., & Sofat, N. (2023). *Understanding clinical research: An introduction*. Scion Publishing. <https://scionpublishing.com/product/understanding-clinical-research/>
- Harris, M., & Taylor, G. (2020). *Medical Statistics Made Easy* (4th ed.). Scion Publishing. <https://scionpublishing.com/product/medical-statistics-made-easy-fourth-edition/>
- Allen, A. K. (2012). *Research skills for medical students*. SAGE Publications, Inc. <https://doi.org/10.4135/9781526436016>
- Online Journals and Reading Materials through HEC Digital Library Facility

## 4. **Leadership**

- Wamboldt, R., & Loughran, N. (2017). *Communication skills for OSCEs*. Scion Publishing. <https://scionpublishing.com/product/communication-skills-for-osces/>
- Edmonstone, J. (2018). Leadership development in health care in low and middle-income countries: Is there another way? *International Journal of Health Planning and Management*, 33(4), e1193–e1199. <https://doi.org/10.1002/hpm.2606>
- National Center for Healthcare Leadership. (2018). *Health Leadership Competency Model 3.0*. Chicago, IL: National Center for Healthcare Leadership. <https://nchl.org/>

- Chen T. Y. (2018). Medical leadership: An important and required competency for medical students. *Ci ji yi xue za zhi = Tzu-chi medical journal*, 30(2), 66–70. [https://doi.org/10.4103/tcmj.tcmj\\_26\\_18](https://doi.org/10.4103/tcmj.tcmj_26_18)



| ORIENTATION                                                                                                                                               |                 |                               |                                                                                                                                                                                                                                                                                                                                                                                                  |                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| *Proposed Sequence of Topics Mentioned below. Medical Colleges are at liberty to manage according to their resources. Topics can switch within each Block |                 |                               |                                                                                                                                                                                                                                                                                                                                                                                                  | Total Hours = 10.5       |
| Code                                                                                                                                                      | Domain          | Topic                         | Specific Learning Objectives                                                                                                                                                                                                                                                                                                                                                                     | Proposed Portfolio Entry |
|                                                                                                                                                           | Professionalism | History of Medical Profession | <ul style="list-style-type: none"> <li>Discuss the origins of Medicine in Ancient Civilizations</li> <li>Explain the key Figures in Medical History (Hippocrates, Avicenna, Florence Nightingale)</li> <li>Discuss modernization of Medicine and Technological Advances</li> <li>Introduce the development of Medical Education and Licensing</li> </ul>                                         | -                        |
|                                                                                                                                                           |                 | Reflective Doctor             | <ul style="list-style-type: none"> <li>Discuss the concept of reflective practice and its importance in medical professionalism, including self-awareness, critical thinking, and continuous improvement.</li> <li>Write a reflective entry after a learning experience, identifying key lessons, areas for improvement, and how these insights will influence their future practice.</li> </ul> |                          |
|                                                                                                                                                           | Ethics          | Hippocratic Oath taking       | <ul style="list-style-type: none"> <li>Explain the history and Significance of the Hippocratic Oath</li> <li>Discuss the importance of Professional Integrity and Moral Conduct</li> <li>Explain the need for lifelong Commitment to</li> </ul>                                                                                                                                                  | -                        |

|  |                   |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                        |
|--|-------------------|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |                   |                                       | <p>Patient Care and Well-being</p> <ul style="list-style-type: none"> <li>Describe ethical Principles in the Oath: Autonomy, Beneficence, Non-maleficence, and Justice</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                        |
|  | <b>Research</b>   | Academic Writing Basics               | <ul style="list-style-type: none"> <li>Introducing the fundamentals of academic writing,</li> <li>Discuss organizing thoughts, writing basic sentences and paragraphs, and understanding the purpose of academic writing in medical education.</li> <li>Discuss College Rules and Regulations for assignment writing and submission</li> </ul>                                                                                                                                                                                                                                                                      | -                                                                                                                                                                                                                                                                      |
|  | <b>Leadership</b> | The Doctor as a learner- Study Skills | <ul style="list-style-type: none"> <li>Time Management: <ul style="list-style-type: none"> <li>Recognize the importance of planning and prioritizing tasks to make the most of available study time.</li> <li>Learn to break down complex tasks and schedule study sessions to optimize productivity.</li> </ul> </li> <li>Organization: <ul style="list-style-type: none"> <li>Understand how to organize study materials, notes, and resources in a structured manner to make learning more efficient.</li> <li>Develop systems for tracking assignments, deadlines, and upcoming exams to</li> </ul> </li> </ul> | Submit a reflection on your study skills, highlighting your personal strategies for time management, organization, and learning efficiency. Include a weekly study schedule that demonstrates how you balance academic responsibilities with self-care and well-being. |

|  |                     |                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                           |
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|  |                     |                                           | <p>stay on top of coursework.</p> <ul style="list-style-type: none"> <li>• Learning Efficiency: <ul style="list-style-type: none"> <li>• Explore techniques for active learning, including summarization, self-testing, and spaced repetition.</li> </ul> </li> <li>• Understand how to avoid common distractions and maintain focus during study sessions.</li> </ul>                                                                                                           |                                                                                                                                                                                           |
|  | <b>Leadership</b>   | Role Modelling/<br>Mentoring<br>Session I | <ul style="list-style-type: none"> <li>• Participate in the first mentoring session.</li> <li>• Introduce yourself to your assigned mentor.</li> <li>• Discuss their strengths and weaknesses with their mentor, receive feedback, and collaboratively create an action plan for personal and professional development</li> </ul>                                                                                                                                                | Submit a summary of your mentoring session, including feedback, areas identified for improvement, and the action plan you developed with your mentor to enhance your professional growth. |
|  | <b>Computer/ IT</b> | Academic<br>Writing-IT Skills             | <ul style="list-style-type: none"> <li>• Demonstrate the use of essential IT skills for academic writing, including word processing software (e.g., Microsoft Word), formatting documents, and essential editing tools to enhance the quality of academic papers.</li> <li>• Practice creating and formatting a simple document using a word processing tool, applying basic formatting features like headings, bullet points, and spacing to organize their writing.</li> </ul> |                                                                                                                                                                                           |

| FOUNDATION-I                                                                                                                                              |                 |                                                     |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                         |
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| *Proposed Sequence of Topics Mentioned below. Medical Colleges are at liberty to manage according to their resources. Topics can switch within each Block |                 |                                                     |                                                                                                                                                                                                                                                                                                                                                                                                          | Total Hours = 7.5                                                                                                                                                                       |
| Code                                                                                                                                                      | Domain          | Topic                                               | Specific Learning Objectives                                                                                                                                                                                                                                                                                                                                                                             | Proposed Portfolio Entry                                                                                                                                                                |
|                                                                                                                                                           | Professionalism | Introduction of medical Professionalism             | <ul style="list-style-type: none"> <li>Define Medical Professionalism</li> <li>Discuss Core Values: Altruism, Accountability, Integrity</li> <li>Explain Ethical Practice and Moral Responsibility</li> <li>Reflect on a scenario or case study that demonstrates professionalism in healthcare, identifying key behaviours and attitudes that align with professional standards</li> </ul>              | Submit a reflective entry discussing what professionalism means in the context of healthcare. Use a case or example to highlight key professional behaviours you observed or practiced. |
|                                                                                                                                                           |                 | Responsible & Accountable Medical Student           | <ul style="list-style-type: none"> <li>Understand the importance of responsibility and accountability in maintaining regularity and punctuality as core professional behaviors expected of medical students.</li> <li>Demonstrating regular attendance and punctuality in academic and clinical activities, reflecting on how this consistency contributes to their professional development.</li> </ul> | Evidence of Attendance Record.                                                                                                                                                          |
|                                                                                                                                                           | Ethics          | Code of Conduct: Duties of healthcare professionals | <ul style="list-style-type: none"> <li>Appreciate student responsibility in following the code of conduct of the college</li> <li>Review the college's code of conduct and identify key responsibilities expected of them as medical students.</li> </ul>                                                                                                                                                | Submit a reflective entry discussing the key points of the college's code of conduct and your responsibilities as a medical student. Include how adherence to these rules shapes your   |

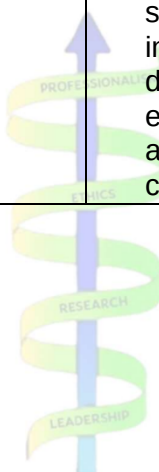
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|  |                   |                                           | Reflect on the importance of following these guidelines in maintaining professionalism and being aware of actions for misconduct (academic, non-academic/disciplinary).                                                                                                                                                                                                                                                      | journey toward becoming a responsible healthcare professional.                                                                                                                                                                                                  |
|  | <b>Leadership</b> | Personal Qualities: Self Directed Learner | <ul style="list-style-type: none"> <li>Develop the ability to become a self-directed learner by setting achievable long-term and short-term goals and effectively managing time to meet academic and personal milestones.</li> <li>Create a personal plan that includes both long-term and short-term academic goals and a weekly time schedule to help manage their studies and personal responsibilities.</li> </ul>       | Submit a personal learning plan outlining your long-term and short-term goals, as well as a detailed weekly time schedule. Reflect on how this plan will support your academic success and personal development as a self-directed learner                      |
|  |                   | Verbal Communication                      | <ul style="list-style-type: none"> <li>Develop effective verbal communication skills, focusing on clear and concise communication in academic, clinical, and team-based settings to enhance collaboration and leadership abilities.</li> <li>Practice delivering clear and concise verbal explanations of medical concepts or tasks during group activities, focusing on tone, clarity, and engagement with peers</li> </ul> | Submit a reflection on a group activity where you practiced verbal communication skills. Highlight how you conveyed information clearly and effectively, and reflect on areas where you can improve your verbal communication in academic or clinical settings. |

## HEMATOPOETIC & LYMPHATIC

*\*Proposed Sequence of Topics Mentioned below. Medical Colleges are at liberty to manage according to their resources. Topics can switch within each Block*

**Total Hours =03**

| Code | Domain            | Topic                     | Specific Learning Objectives                                                                                                                                                                                                                                                                                                                                                                                               | Proposed Portfolio Entry                                                                                                                                                                                                 |
|------|-------------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <b>Research</b>   | Structure of a Manuscript | <ul style="list-style-type: none"> <li>Discuss the basic structure of a research manuscript using the IMRAD format (Introduction, Methods, Results, and Discussion) and its importance in scientific writing.</li> <li>Identify various components of a given research manuscript using the IMRAD structure,</li> </ul>                                                                                                    | Submit the identified components on the manuscript.                                                                                                                                                                      |
|      | <b>Leadership</b> | Non-Verbal Communication  | <ul style="list-style-type: none"> <li>Discuss the role of non-verbal communication, including body language, facial expressions, and gestures, in effectively conveying messages and building rapport in healthcare settings</li> <li>Practice using appropriate non-verbal communication during simulated patient interactions or group discussions, such as eye contact, posture, and active listening cues.</li> </ul> | Submit a reflection on a group activity or simulated interaction where you consciously used non-verbal communication to enhance the interaction. Discuss how it impacted your ability to lead or communicate effectively |



Volume:01

# STUDENT



university of  
Health Sciences  
Lahore

# Portfolio



## Curriculum 2K23 Version 3.0



### MODULE: ORIENTATION

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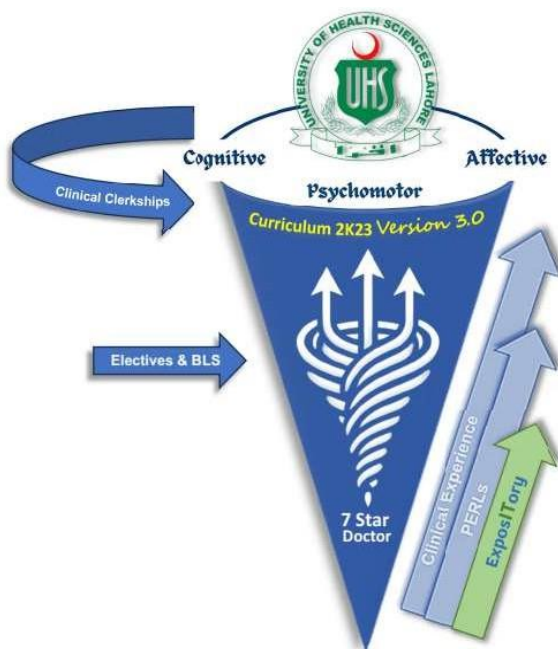
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| <b>Assignment Topic:</b>                                                                                                                                                                                                                                                      |  |
| <b>Date:</b>                                                                                                                                                                                                                                                                  |  |
| <p>Submit a reflection on your study skills, highlighting your personal strategies for time management, organization, and learning efficiency. Include a weekly study schedule that demonstrates how you balance academic responsibilities with self-care and well-being.</p> |  |
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| <b>Facilitator Remarks:</b>                                                                                                                                                                                                                                                   |  |

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| <b>Assignment Topic:</b>                                                                                                                                                                         |  |
| <b>Date:</b>                                                                                                                                                                                     |  |
| <p>Submit a summary of your mentoring session, including feedback, areas identified for improvement, and the action plan you developed with your mentor to enhance your professional growth.</p> |  |
| <div></div>                                                                                                                                                                                      |  |
| <b>Facilitator Remarks:</b>                                                                                                                                                                      |  |



## Curriculum 2K23 Version 3.0



### MODULE: FOUNDATION-I

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| <b>Assignment Topic:</b>                                                                                                                                                                       |  |
| <b>Date:</b>                                                                                                                                                                                   |  |
| <p>Submit a reflective entry discussing what professionalism means in the context of healthcare. Use a case or example to highlight key professional behaviours you observed or practiced.</p> |  |
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| <b>Facilitator Remarks:</b>                                                                                                                                                                    |  |

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| <b>Date:</b>                                                                                                                                                                                   |  |
| <p>Submit a reflective entry discussing what professionalism means in the context of healthcare. Use a case or example to highlight key professional behaviours you observed or practiced.</p> |  |
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| <b>Facilitator Remarks:</b>                                                                                                                                                                    |  |

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| <b>Assignment Topic:</b>                                                                                                                                                                                                                                    |  |
| <b>Date:</b>                                                                                                                                                                                                                                                |  |
| <p>Submit a reflective entry discussing the key points of the college's code of conduct and your responsibilities as a medical student. Include how adherence to these rules shapes your journey toward becoming a responsible healthcare professional.</p> |  |
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| <b>Facilitator Remarks:</b>                                                                                                                                                                                                                                 |  |

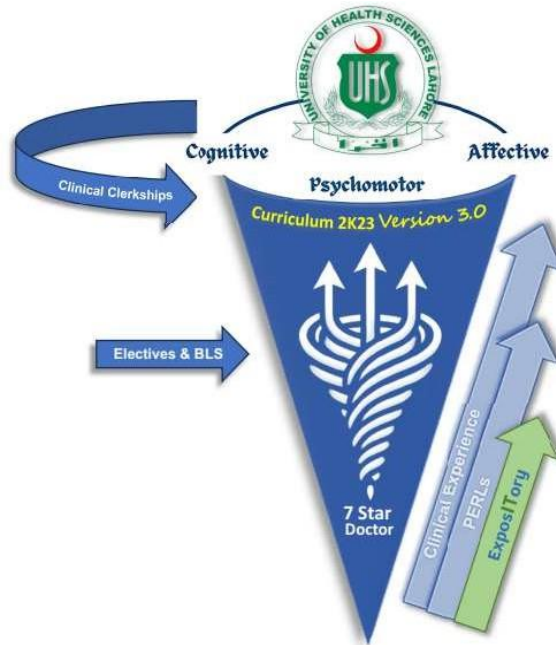
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| <b>Assignment Topic:</b>                                                                                                                                                                                                                          |  |
| <b>Date:</b>                                                                                                                                                                                                                                      |  |
| <p>Submit a personal learning plan outlining your long-term and short-term goals, as well as a detailed weekly time schedule. Reflect on how this plan will support your academic success and personal development as a self-directed learner</p> |  |
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| <b>Facilitator Remarks:</b>                                                                                                                                                                                                                       |  |

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| <b>Assignment Topic:</b>                                                                                                                                                                                                                                               |  |
| <b>Date:</b>                                                                                                                                                                                                                                                           |  |
| <p>Submit a reflection on a group activity where you practiced verbal communication skills. Highlight how you conveyed information clearly and effectively, and reflect on areas where you can improve your verbal communication in academic or clinical settings.</p> |  |
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| <b>Facilitator Remarks:</b>                                                                                                                                                                                                                                            |  |

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| <b>Roll No:</b>                 |  |
| <b>Assignment Topic:</b>        |  |
| <b>Date:</b>                    |  |
| Evidence of Attendance Record.  |  |
|                                 |  |
| <b>Facilitator<br/>Remarks:</b> |  |



## Curriculum 2K23 Version 3.0



### MODULE: HEAMTOPOIETIC & LYMPHOID-I

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| <b>Roll No:</b>                                    |  |
| <b>Assignment Topic:</b>                           |  |
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| Submit the identified components on the manuscript |  |
|                                                    |  |
| <b>Facilitator Remarks:</b>                        |  |

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| <b>Roll No:</b>                                                                                                                                                                                                                 |  |
| <b>Assignment Topic:</b>                                                                                                                                                                                                        |  |
| <b>Date:</b>                                                                                                                                                                                                                    |  |
| <p>Submit a reflection on a group activity or simulated interaction where you consciously used non-verbal communication to enhance the interaction. Discuss how it impacted your ability to lead or communicate effectively</p> |  |
|                                                                                                                                                                                                                                 |  |
| <b>Facilitator Remarks:</b>                                                                                                                                                                                                     |  |

## **Block-1 Coordinators**

### **BIOCHEMISTRY**

**Dr. Umber Naeem Rathore**

Assistant Professor

Office: AP Office Biochemistry, Academic block1, First Floor

Office Hours: Monday to Friday from 0800 Hours till 1500Hours

### **ANATOMY**

**Dr. Aqiba**

Associate Professor of Anatomy

Office: Anatomy Department Academic block 1, First Floor

Office Hours: Monday to Friday from 0800Hours till 1500Hours

### **PHYSIOLOGY**

**Dr.Sadia**

Assistant Professor of Physiology

Office: Physiology Department, Academic block 1, Ground Floor

Office Hours: Monday to Friday from 0800 Hours till 1500Hours

### **PATHALOGY**

**Prof. Dr. Qamar Aziz**

HOD/Professor of Pathology

Office: HOD Office Pathology, Academic block 2, Ground Floor

Office Hours: Monday to Friday from 0800 Hours till 1500Hours

### **COMMUNITY MEDICINE**

**Dr. Zain**

Lecturer Community Medicine

Office: Community Medicine, Academic block1,First Floor

Office Hours: Monday to Friday from 0800 Hours till 1500 Hours

### **BEHAVIOUR SCIENCES**

**Dr. Fatima**

Lecturer Behavioural Sciences

Office Hours: Monday to Friday from 0800 Hours till 1500Hours

### **PHARMACOLOGY**

**Dr. Maira Arif**

Lecturer Pharmacology

Office: Departmet of Pharmacology, Academic block2, First Floor

Office Hours: Monday to Friday from 0800 Hours till 1500Hours

## **CFRC**

### **Dr. Mobeen**

Office: Department of Medicine,

Office Hours: Monday to Friday from 0800 Hours till 1500Hours

## **PERLs**

### **Dr. Shahneel**

Lecturer Medical Education

Office: Department of Medical Education,

Office Hours: Monday to Friday from 0800 Hours till 1500Hours

## **IMPORTANTNOTE**

**To be able to sit in Annual Exam**

**85% attendance and at least 50% in internal  
assessment is mandatory**

## **DISCLAIMER**

This module guide may be subject to changes and students should stay updated through official communication change