# **Study Guide** Musculoskeletal Module-I

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NEW TEACHING BLOCK

**Department of Medical Education** 



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#### **RMU Motto**



# **University Moto, Vision, Values & Goals**

#### **Mission Statement**

To impart evidence-based research-oriented health professional education in order to provide best possible patient care and inculcate the values of mutual respect, ethical practice of healthcare and social accountability.

### **Vision and Values**

Highly recognized and accredited centre of excellence in Medical Education, using evidence-based training techniques for development of highly competent health professionals, who are lifelong experiential learner and are socially accountable.

### **Goals of the Undergraduate Integrated Modular Curriculum**

The Undergraduate Integrated Learning Program is geared to provide you with quality medical education in an environment designed to:

- Provide thorough grounding in the basic theoretical concepts underpinning the practice of medicine.
- Develop and polish the skills required for providing medical services at all levels of the Health care delivery system.
- Help you attain and maintain the highest possible levels of ethical and professional conduct in your future life.
- Kindle a spirit of inquiry and acquisition of knowledge to help you attain personal and professional growth & excellence.

First Year MBBS 2025

Study Guide

MSK – I Module



		Di	scipline Wise Details of	of Modular Content	t				
			Integra	tion					
		~	Them	les	~				
Block	x Module	General Anatomy	Embryology	Histology	Gross Anatomy				
	• Anatomy	<ul><li>Skeletal System</li><li>Bones</li><li>Joints</li></ul>	General Embryology Second Week of Human Development till Placenta & Fetal Membranes	<ul> <li>General Histology</li> <li>Connective Tissue</li> <li>Cartilage</li> <li>Bone</li> </ul>	Shoulder joint till Hand				
	Biochemistry	Minerals, Vitamin	s (A, D, E, ascorbic acid, thiam	nin and niacin), Introduction	n & Classification of Amino Acids				
	Physiology	<ul> <li>NMJ, Introduction</li> <li>Drugs Acting On I</li> <li>Structure of Neuro</li> <li>Nernst Potential, F</li> <li>Recording &amp; Prop</li> <li>Stimulus &amp; Responsion</li> </ul>	<ul> <li>NMJ, Introduction Concept of Motor Unit. Neuromuscular Transmission, Synthesis &amp; Fate of Acetylcholine</li> <li>Drugs Acting On NMJ, Myasthenia Gravis, Lambart Eaton Syndrome</li> <li>Structure of Neurons. Classification of Neurons &amp; Nerve Fibers</li> <li>Nernst Potential, RMP</li> <li>Recording &amp; Propagation of Action Potential &amp; Factors Effecting Nerve Conduction &amp; Hyperpolarized State</li> <li>Stimulus &amp; Response &amp; Types of Stimuli. Stages of Action Potential</li> </ul>						
		Spiral Courses							
<ul> <li>Research Club Activity (1-4)</li> <li>Synopsis Writing</li> <li>Questionnaire Development</li> <li>Hands on session on Data Analysis</li> <li>Manuscript Writing Workshop</li> </ul>									
	Family Medicine	Approach to a pati	ent with Body aches						
	Behavioral Sciences	<ul><li>Healthcare models</li><li>Relevance of ethic</li></ul>	and their clinical application s in life of a doctor						
			Vertic	al Integration					
	<ul> <li>Surgery</li> <li>Shoulder Dislocation</li> <li>Tennis elbow, Fracture of olecranon, Radius and Ulna (Surgery)</li> </ul>								
	Community Medicine	<ul><li>Musculoskeletal I</li><li>Prevention of Acc</li></ul>	<ul> <li>Musculoskeletal Disorders</li> <li>Prevention of Accidents</li> </ul>						
	Medicine	<ul><li>Osteoporosis</li><li>Osteomalacia, Ric</li></ul>	<ul> <li>Osteoporosis</li> <li>Osteomalacia Rickets &amp; Polyarthritis</li> </ul>						
	Pharmacology	<ul> <li>Drugs Acting On</li> <li>Tennis elbow. fractional</li> </ul>	<ul> <li>Drugs Acting On Neuromuscular Junction</li> <li>Tennis elbow, fracture of olecranon, radius and ulna</li> </ul>						
	Obstetrics & Gynecol	ogy • Bony PELVIS Fet	al Skull & Mechanism of Labo	Dr					

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# MSK - I Module Team

Module Name	:	MSK - I Module
Duration of module	:	05 Weeks
Coordinator	:	Dr. Summiya Bashir
Co-coordinator	:	Dr. Ali Raza
Reviewed by	:	Module Committee

	Module Commi	ittee	Module Task Force Team				
1.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar	1.	1. Coordinator Dr. Summiya Bashir (Assistant Professor of Anatomy)			
2.	Director DME	Prof. Dr. Ifra Saeed	2.	DME Focal Person	Dr. Farzana Fatima		
3.	Convener Curriculum	Prof. Dr. Naeem Akhter	3.	Co-coordinator	Dr. Ali Raza (Senior Demonstrator of Anatomy)		
4.	Chairperson Anatomy & Dean Basic	Prof. Dr. Ayesha Yousaf	4.	Co-Coordinator	Dr. Fahd Anwar (Demonstrator of Physiology)		
	Sciences						
5.	Additional Director (Assessment)	Dr. Arsalan Manzoor Mughal	5.	Co-coordinator	Dr. Romessa Naeem (Demonstrator of Biochemistry)		
	DME						
6.	Chairperson Physiology	Prof. Dr. Samia Sarwar					
7.	Chairperson Biochemistry	Dr. Aneela Jamil	DME Implementation Team				
			1.	Director DME	Prof. Dr. Ifra Saeed		
8.	Focal Person Anatomy First Year	Asso. Prof. Dr. Mohtashim	2.	Implementation Incharge 1st & 2 <sup>nd</sup>	Dr. Arsalan Manzoor Mughal		
	MBBS	Hina		Year MBBS	Dr. Farzana Fatima		
9.	Focal Person Physiology	Dr. Sidra Hamid	3.	Assistant Director DME	Dr. Farzana Fatima		
10.	Focal Person Biochemistry	Dr. Aneela Jamil	4.	Editor	Muhammad Arslan Aslam		
11.	Focal Person Pharmacology	Dr. Zunera Hakim					
12.	Focal Person Pathology	Dr. Asiya Niazi					
13.	Focal Person Behavioral Sciences	Dr. Saadia Yasir					
14.	Focal Person Community Medicine	Dr. Afifa Kulsoom					
15.	Focal Person Quran Translation	Dr. Uzma Zafar					
	Lectures						
16.	Focal Person Family Medicine	Dr. Sadia Khan					

# Module II–MSK - I Module

**Rationale:** This module deals with locomotor system. This module describes the structural organization, functions, and congenital anomalies of musculoskeletal system. It explains the mechanism of neuromuscular transmission, its biochemical basis and the importance of Ca++ in the body. It depicts structure and function of joints in upper and lower limb. It elaborates identification of common fractures of long bones on radiograph.

### **Module Outcomes**

At the end of this module the student should be able to:

### Knowledge

- Explain the development & structure of musculoskeletal system.
- Explain the physiological and biochemical factors affecting Neuro Muscular transmission.
- Apply the knowledge of the basic sciences to understand common fractures.
- Appreciate concepts & importance of Artificial Intelligence Family Medicine Biomedical Ethics
  - Research.

### Skills

- Dissect limbs to demonstrate regional Anatomy and relationships of various structures to each other.
- Identify histological features of connective tissue and muscles under microscope.
- Perform practicals on estimation of calcium and protein chemistry.

### Attitude

• Demonstrate a professional attitude, team building spirit, good communication skills and cadaveric handling.

This module will run in 5 weeks duration. Instructional strategies are given in the time table and learning objectives are given in the study guides. Study guides will be uploaded on the university website. Good luck!

### **SECTION - I**

### **Terms & Abbreviations**

#### Contents

- Domains of Learning
- Teaching and Learning

Methodologies/Strategies

- Large Group Interactive Session
   (LGIS)
- Small Group Discussion (SGD)
- Self-Directed Learning (SDL)
- Case Based Learning (CBL)
- Problem- Based Learning (PBL)
- Skill Labs/Practicals (SKL)

#### **Tables & Figures**

• Table1. Domains of learning according to Blooms

#### Taxonomy

- Figure 1. Prof Umar's Model of Integrated Lecture
- Table2. Standardization of teaching content in Small

**Group Discussions** 

- Table 3. Steps of taking Small Group Discussions
- Figure 2. PBL 7 Jumps Model

# **Table1. Domains of Learning According to Blooms Taxonomy**

<b>Sr.</b> #	Abbreviation	Domains of learning
1.	С	Cognitive Domain: knowledge and mental skills.
	• C1	Remembering
	• C2	Understanding
	• C3	Applying
	• C4	Analyzing
	• C5	Evaluating
	• C6	Creating
2.	Р	<b>Psychomotor Domain:</b> Motor skills.
	• P1	Imitation
	• P2	Manipulation
	• P3	Precision
	• P4	Articulation
	• P5	Naturalization
3.	А	Affective Domain: feelings, values, dispositions, attitudes, etc
	• A1	Receive
	• A2	Respond
	• A3	Value
	• A4	Organize
	• A5	Internalize

# **Teaching and Learning Methodologies / Strategies**

#### Large Group Interactive Session (LGIS)

The large group interactive session is structured format of Prof Umar Model of Integrated lecture. It will the followed for delivery of all LGIS. The lecturer will introduce a topic or common clinical condition and explains the underlying phenomena through questions, pictures, videos of patients, interviews, and exercises, etc. Students are actively involved in the learning process.



**Prof Umar's Model of Integrated Lecture** 

# **Small Group Discussion (SGD)**

This format helps students to clarify concepts acquire skills and attitudes. Sessions are structured with the help of specific exercises such as patient case, interviews or discussion topics or power point presentations. Students exchange opinions and apply knowledge gained from lectures, SGDs and self-study. The facilitator role is to ask probing questions, summarize and help to clarify the concepts.

S. No	Topics	Approximate %
1	Title Of SGD	
2	Learning Objectives from Study Guides	
3	Horizontal Integration	24%
4	Core Concepts of the topic	60%
5	Vertical Integration	08%
6	Related Advance Research points	
7	Related Ethical points	08%
8	Artificial Intelligence	
9	Family Medicine	

### Table 2. Standardization of teaching content in Small Group Discussions

# Table 3. Steps of Implementation of Small Group Discussions

Step 1	Sharing of Learning objectives by using students Study guides	First 5 minutes
Step 2	Asking students pre-planned questions from previous teaching session to develop co-relation (these questions will be standardized)	5minutes
Step 3	Students divided into groups of three and allocation of learning objectives	5minutes
Step 4	ACTIVITY: Students will discuss the learning objectives among themselves	15 minutes
Step 5	Each group of students will present its learning objectives	20 min
Step 6	Discussion of learning content in the main group	30min
Step 7	Clarification of concept by the facilitator by asking structured questions from learning content	15 min
Step 8	Questions on core concepts	
Step 9	Questions on horizontal integration	
Step 10	Questions on vertical integration	
Step 11	Questions on related research article	
Step 12	Questions on related ethics content	
Step 13	Students Assessment on online MS teams (5 MCQs)	5 min
Step 14	Summarization of main points by the facilitator	5 min
Step 15	Students feedback on the SGD and entry into log book	5 min
Step 16	Ending remarks	

# **Self-Directed Learning (SDL)**

- Self- directed learning is a process where students take primary charge of planning, continuing, and evaluating their learning experiences.
- Time Home assignment
- Learning objectives will be defined
- Learning resources will be given to students = Textbook (page no), web site
- Assessment:
  - i Will be online on LMS (Mid module/ end of Module)
  - ii. OSPE station

# **Case Based Learning (CBL)**

- It's a learner centered model which engages students in discussion of specific scenarios that typically resemble real world examples.
- Case scenario will be given to the students
- Will engage students in discussion of specific scenarios that resemble or typically are real-world examples.
- Learning objectives will be given to the students and will be based on
  - i. To provide students with a relevant opportunity to see theory in practice
  - ii. Require students to analyze data in order to reach a conclusion.
- iii. Develop analytic, communicative, and collaborative skills along with content knowledge.

# **Problem Based Learning (PBL)**

- Problem-based learning (PBL) is a student-centered approach in which students learn about a subject by working in groups to solve an open-ended problem.
- This problem is what drives the motivation and the learning.

The	The 7- Jump-Format of PBL (Maastricht Medical School)			
Step 7	Syntheise & Report			
Step 6	Collect Information from outside			
Step 5	Generate learning Issues			
Step 4	Discuss and Organise Ideas			
Step 3	Brainstorming to Identify Explanations			
Step 2	Define the Problem			
Step 1	Clarify the Terms and Concepts of the Problem Scenario			
	Problem- Scenario			

Figure 2. PBL 7 Jumps Model

# **Practical Sessions / Skill Lab (SKL)**

Practical Session/ Skill Lab (SKL)	
Demonstration/ power point presentation 4-5 slide	10-15 minutes
Practical work	25-30 minutes
Write/ draw and get it checked by teacher	20-25 minutes
05 mcqs at the end of the practical	10 minutes
At the end of module practical copy will be signed by head of departmen	t
At the end of block the practical copy will be signed by	
Head of Department	
Dean	
Medical education department	
QEC	

### **SECTION – II**

### Learning Objectives, Teaching Strategies & Assessments

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- Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)
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  - Anatomy (LMS)
  - Physiology (LMS)
  - Biochemistry (LMS)

# Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)

# (Knowledge) Anatomy Large Group Interactive Session (LGIS)

		Theory				
Code	Торіс	Learning Objectives	Calgary	C/P/A	Teaching	Assessment
		At the end of session students should be able to	Gauge		Strategy	Tool
		Embryology		•		1
		Describe formation of Amniotic Cavity, embryonic	Must know	C2		
		disc and Umbilical vesicle			-	
	Formation of	Discuss development of chorionic sac	Must know	C2	LGIS	SAQs
	Bilaminar	Outline the process of implantation	Must know	C1	LOIS	MCQs
M2-MSK-I-A-001	Embryonic Disc	Describe changes in Gravid Endometrium	Must know	C2		VIVA
	(2 <sup>nd</sup> week of	Understand the Bio-physiological aspects of gravid	Must know	C2		VOCE
	Development)	endometrium			_	OSPE
		• Corelate with the clinical conditions	Should know	C3		
		• focus on provision of curative and preventive health care measures	Nice to know	C3		
		Practice principles of bioethics	Nice to know	C3	-	
		Apply strategic use of AI in health care	Nice to know	C3		
		read relevant research article	Nice to know	C3		
		Discuss process of gastrulation with special reference to primitive streak	Must know	C2		
		Describe the fate of primitive streak	Must know	C2	-	
		Discuss establishment of body axis	Must know	C2		
M2-MSK-I-A-002	Gastrulation	Draw fate map and discuss its importance in future development	Must know	C2	LGIS	SAQs MCOs
	Establishment of	• Understand the Biophysiological aspects of gastrulation	Must know	C2		VIVA
	Body Axis and	Describe congenital abnormalities associated with	Should know	C3	-	VOCE
	Fate Map ( 3 <sup>rd</sup>	gastrulation	Should know	C3		OSPE
	week)	Read a relevant Research article	Nice know	C3	1	
		Corelate with the clinical conditions	Nice know	C3		
		• focus on provision of curative and preventive health care measures	Nice to know	C3		

		Practice principles of bioethics	Nice to know	C3		
		Apply strategic use of AI in health care	Nice to know	C3		
		Define notochord	Must know	C1		
	Notochord	Delineate different stages of notochord formation	Must know	C1		
	romation	Discuss the importance of notochord in development of central nervous system	Must know	C2		SAQs
M2-MSK-I-A-003	(3 <sup>rd</sup> week)	Describe role of notochord in development of axial Skeleton	Must know	C1	LCIC	MCQs
		Describe the fate of notochord	Must know	C2	LGIS	VIVA
		Correlate with clinical conditions of notochord formation	Should know	C3		OSPE
		• focus on provision of curative and preventive health care measures	Nice to know	C3		OSIL
		Practice principles of bioethics	Nice to know	C3		
		Apply strategic use of AI in health care	Nice to know	C3		
		read relevant research article	Nice to know	C3		
		Define neurulation	Must know	C1		
		Describe formation of neural plate and neural tube	Must know	C2		
		Discuss neural crest formation	Must know	C2		SAQs
		Enlist derivatives of neural crest cells	Must know	C1		MCOs
M2-MSK-I-A-004	Neurulation	Understand the bio-physiological aspects of Neurulation	Must know	C2	LGIS	VIVÀ
	(3 <sup>rd</sup> week)	Discuss neural tube defects	Should know	C3		VOCE
		Discuss different types of spina bifida	Should know	C3		OSPE
		• Discuss the importance of folic acid in the prevention of spina bifida	Should know	C2		
		Corelate with the clinical conditions	Should know	C3		
		• focus on provision of curative and preventive health care measures	Nice to know	C3		
		Practice principles of bioethics	Nice to know	C3		
		Apply strategic use of AI in health care	Nice to know	C3		
		read relevant research article	Nice to know	C3		
		• Enumerate three germ layers and their derivatives	Must know	C1		
	Development and	Describe different divisions of mesoderm	Must know	C2		
M2-MSK-I-A-005	Differentiation of	Describe development of somites and their differentiation	Must know	C2	1 616	
	Somites	Explain different stages of somite development	Must know	C2	LGIS	SAQs
		Understand the Biophysiological aspects of Somite differentiation	Must know	C2		MCQs VIVA
		Correlate clinical aspects of somite differentiation	Should know	C3		VOCE

		• Focus on provision of curative and preventive health care measures	Nice to know	C3		OSPE
		Practice principles of bioethics	Nice to know	C3		
		• Apply strategic use of AI in health care	Nice to know	C3		
		Read relevant research article	Nice to know	C3		
	Early Development	Describe early development of cardiovascular system and chorionic villi	Must know	C2	LGIS	SAQs MCOs
	of Cardiovascular	Discuss development of intraembryonic coelom	Must know	C2		VIVÀ
M2-MSK-I-A-006	System & highlights	Define angiogenesis and vasculogenesis.	Must know	C1		VOCE
	of 4th-8th week	Correlate clinical aspects of angiogenesis	Must know	C3		OSPE
		• Summarize the main developmental events and changes in external form of the embryo during the 4th to 8th weeks	Must know	C2		
		Corelate with the clinical conditions	Should know	C3		
		<ul> <li>focus on provision of curative and preventive health care measures</li> </ul>	Nice to know	C3		
		Practice principles of bioethics	Nice to know	C3		
		• Apply strategic use of AI in health care	Nice to know	C3		
		read relevant research article	Nice to know	v C3		
		Enlist different phases of embryonic development	Must know	C1		
		Describe folding of the embryo in median plane	Must know	C2		
	Folding of Embryo	• Describe folding of the embryo in horizontal plane	Must know	C2		
M2-MSK-I-A-007		Discuss results of folding	Must know	C2		
		Discuss Omphalocele and Gastroschisis	Should know	C3	LGIS	SAQs
		Corelate with the clinical conditions	Should know	C3		MCQs
		<ul> <li>focus on provision of curative and preventive health care measures</li> </ul>	Nice to know	C3		VIVA VOCE
		Practice principles of bioethics	Nice to know	C3		OSPE
		• Apply strategic use of AI in health care	Nice to know	C3		
		read relevant research article	Nice to know	C3		
		Describe different criteria for fetal age estimation	Must know	C2		
		• Discuss the trimesters of pregnancy with their importance	Must know	C2		SAQs
		Describe highlights of fetal period	Must know	C2		MCQs
M2-MSK_I-A-008	Fetal period	Differentiate between embryonic and fetal period	Must know	C2	LOIG	VIVA
W12-WIGIX-1-A-000	retai periou	• Tabulate growth in length and weight during fetal period	Must know	C2	LGIS	VOCE
		• Enumerate and discuss factors influencing fetal growth	Must know	$C^{2}$		OSPE

		Define the term perinatology	Must know	C1		
		Enlist and briefly describe procedures for assessing fetal     well-being	Should know	C3		
		Correlate clinical aspects of fetal period	Should know	C3		
		• focus on provision of curative and preventive health care measures	Nice to know	C3		
		Practice principles of bioethics	Nice to know	C3		
		Apply strategic use of AI in health care	Nice to know	C3		
		read relevant research article	Nice to know	C3		
		• Discuss Implantation and establishment of the embryo within the uterus	Must know	C2		SAQs MCQs
		Describe the differentiation of the uterine lining into decidua	Must know	C2	LGIS	VIVA
		Describe the development of a placenta	Must know	C2		OSPE
M2-MSK-I-A-009	Placenta	Describe fetal – maternal circulation	Must know	C2		
IVI2-IVISIC-I-/1-007	Taccina	Discuss the bio-physiological aspects of placenta	Should know	C2		
		• Corelate the clinical conditions associated with placenta	Should know	C3		
		focus on provision of curative and preventive health care     measures	Nice to know	C3		
		Practice principles of bioethics	Nice to know	C3		
		Apply strategic use of AI in health care	Nice to know	C3		
		read relevant research article	Nice to know	C3		
		Enlist membranes developing during pregnancy	Must know	C1		
		• Discuss origin, composition, location, function and fate of yolk sac	Must know	C2		SAOs
M2-MSK-I-A-0010	Fetal Membranes and	Explain origin, composition, location, function and fate     of Amnion	Must know	C2	LGIS	MCQs
	Multiple	Describe formation of umbilical cord and its structure	Must know	C2		VOCE
	Pregnancies	Define Allantois along with its importance and function	Must know	C1		OSPE
		Discuss different types of twins	Must know	C2		ODIE
		Correlate clinical aspects of fetal membranes	Must know	C3		
		Correlate with the clinical conditions of twin pregnancy	Should know	C3		
		focus on provision of curative and preventive health care     measures	Nice to know	C3		
		Practice principles of bioethics	Nice to know	C3		
		Apply strategic use of AI in health care	Nice to know	C3		

		read relevant research article	Nice to know	C3		
		Histology				
		Define connective tissue	Must know	C1		
		Classify connective tissue	Must know	C2		
	Connective tissue I	• Enlist and explain types of cells in CT	Must know	C2		SAQs
M2-MSK-I-A-0011	tissue Embryonic	• Enumerate sites and describe the function of each type of cell of connective tissue	Must know	C2	LGIS	MCQs VIVA
	connective tissue	• Understand the Biophysiological aspects of connective tissue	Must know	C2		VOCE
	/ mucoid	• Draw and label histological structure of mucoid CT.	Must know	C2		OSPE
	Connective Tissue	Describe fibers in mucoid CT	Must know	C2		
		Correlate clinical conditions of CT	Should know	C3		
		• focus on provision of curative and preventive health care	Nice to know	C3		
		Practice principles of bioethics	Nice to know	C3		
		Apply strategic use of AI in health care	Nice to know	C3	C3	
		• read relevant research articles	Nice to know	C3		
	Connective tissue II Loose aerolar	• Enumerate examples and location of reticular, connective tissue	Must know	C1		SAQs
M2-MSK-I-A-0012	connective tissue & its types	Illustrate histological structure of loose and	Must know	C2	LGIS	MCQs VIVA
		• Correlate clinical aspects of loose and reticular CT	Should know	C3		
	Reticular CT	• focus on provision of curative and preventive	Nice to know	C3		VOCE
		Practice principles of bioethics	Nice to know	C3		OSPE
		• Apply strategic use of AI in health care	Nice to know	C3		
		read relevant research article	Nice to know	C3		
	Connective	• Enumerate examples and location of adipose and dense CT.	Must know	C1		
M2-MSK-I-A-0013	tissue III Adipose CT	• Draw, describe and label histological structure of all types of connective tissue.	Must know	C2	LGIS	SAQs MCOs
	Dense regular and	Differentiate between dense regular and irregular connective tissue microscopically	Must know	C2		VIVA
		Correlate clinical aspects of loose and reticular	Should know	C3		OSPE
		• focus on provision of curative and preventive	Nice to know	C3		
		Practice principles of bioethics	Nice to know	C3		
		Apply strategic use of AI in health care	Nice to know	C3		
	~ ~ ~	read relevant research article	Nice to know	C3		
M2-MSK-I-A-0014	Cartilage	Classify cartilage	Must know	C2		
	1				1	

	• Enlist sites of hyaline, fibro and elastic cartilage	Must know	C1		
	Appreciate microscopic structure of Hvaline. Elastic and	Must know	C2	1	
	Differentiate between three cartilages	Must know	C2	-	SAQs
	Describe the structure of perichondrium	Must know	C2	LGIS	MCQs
	• Describe the arrangement of layers in articular cartilage	Must know	C2	-	VIVA
	• Understand the Biophysiological aspects of cartilage	Must know	C2	-	VOCE
	Correlate with clinical conditions	Should know	C3	-	OSPE
	<ul> <li>focus on provision of curative and preventive</li> </ul>	Nice to know		-	
	Practice principles of bioethics	Nice to know	C3	-	
	Apply strategic use of AI in health care	Nice to know	C3	-	
	<ul> <li>read relevant research article</li> </ul>	Nice to know	C3	-	
	• Describe structure and functions of bone cells	Must know	C2		
	Discuss periosteum and endosteum	Must know	C2		SAQs
Bone-I	Discuss types of bones	Must know	C2	LGIS	MCQs
M2-MSK-I-A-0015 (Cells & Type	• Describe the histological features of spongy and compact	Must know	C2		VIVA
	Describe structure of osteon.	Must know	C2		VOCE
	• Understand the Biophysiological aspects of bone	Must know	C2		OSPE
	Correlate clinical aspects of bone	Should know	C3		
	• focus on provision of curative and preventive	Nice to know	C3		
	Practice principles of bioethics	Nice to know	C3		
	Apply strategic use of AI in health care	Nice to know	C3		
	read relevant research article	Nice to know	C3		
	• Describe osteogenesis	Must know	C2		
Bone-II	• Discuss bone growth, remodeling and repair	Must know	C2		640-
M2-MSK-I-A-0016 (Ossification	• Describe histological changes in bones in osteoporosis, rickets, osteomalacia, osteopetrosis and hone tumors	Must know	C3	LGIS	SAQs MCQs
				-	VIVA
	• Correlate with the clinical conditions.	Should know	C3		NOOD
	<ul> <li>Correlate with the clinical conditions.</li> <li>focus on provision of curative and preventive health care</li> </ul>	Should knowNice to know	C3 C3	-	VOCE OSPE
	<ul> <li>Correlate with the clinical conditions.</li> <li>focus on provision of curative and preventive health care</li> <li>Practice principles of bioethics</li> </ul>	Should knowNice to knowNice to know	C3 C3 C3	-	VOCE OSPE
	<ul> <li>Correlate with the clinical conditions.</li> <li>focus on provision of curative and preventive health care</li> <li>Practice principles of bioethics</li> <li>Apply strategic use of AI in health care</li> </ul>	Should knowNice to knowNice to knowNice to know	C3 C3 C3 C3	-	VOCE OSPE
	<ul> <li>Correlate with the clinical conditions.</li> <li>focus on provision of curative and preventive health care</li> <li>Practice principles of bioethics</li> <li>Apply strategic use of AI in health care</li> <li>read relevant research article</li> </ul>	Should knowNice to knowNice to knowNice to knowNice to know	C3 C3 C3 C3 C3 C3		VOCE OSPE
	<ul> <li>Correlate with the clinical conditions.</li> <li>focus on provision of curative and preventive health care</li> <li>Practice principles of bioethics</li> <li>Apply strategic use of AI in health care</li> <li>read relevant research article</li> </ul> General Anatomy	Should knowNice to knowNice to knowNice to knowNice to know	C3 C3 C3 C3 C3 C3	-	VOCE OSPE

	(General Features)	• Identify general features of bone	Must know	C2		SAQs
		Differentiate between maceration and decalcification of	Must know	C2		MCQs
		Correlate with clinical conditions of bone	Should know	C3	LGIS	VIVA
		• focus on provision of curative and preventive	Nice to know	C3		VOCE
		Practice principles of bioethics	Nice to know	C3		OSPE
		• Apply strategic use of AI in health care	Nice to know	C3		
		• read relevant research article	Nice to know	C3		
		<ul> <li>Classify bones based on different criteria</li> </ul>	Must know	C2		
	Bone-II	<ul> <li>Describe the growing end hypothesis</li> </ul>	Must know	C2		SAQs
	Classification &	Describe blood supply of bones	Must know	C2	LGIS	MCQs
M2-MSK-I-A-0018	Blood supply)	• Appreciate role of bones in estimation of sex, age and	Must know	C2		VIVA
		Correlate with the clinical conditions.	Should know	C3		OSPE
		• focus on provision of curative and preventive health care	Nice to know	C3		ODIL
		Practice principles of bioethics	Nice to know	C3		
		• Apply strategic use of AI in health care	Nice to know	C3		
		read relevant research article	Nice to know	C3		
		Define joints	Must know	C1		
		• Classify fibrous joints with examples	Must know	C2		
	Joints-I	Classify cartilaginous joints with examples	Must know	C2		SAQs
M2-MSK-I-A-0019	(Types)	Classify synovial joints with examples	Must know	C2	LGIS	MCQs
		Understand the Bio-physiological aspects of joints	Must know	C2		VIVA
		Correlate with the clinical conditions	Should know	C3		VOCE
		• focus on provision of curative and preventive health care	Nice to know	C3		OSFL
		Practice principles of bioethics	Nice to know	C3		
		• Apply strategic use of AI in health care	Nice to know	C3		
		read relevant research article	Nice to know	C3		
		Describe structure of synovial joint	Must know	C2		
	Joints-II	Classify synovial joints	Must know	C2		
M2-MSK-I-A-0020	(Movements)	• Explain movements around synovial joints	Must know	C2		SAOs
1912 19101X 1 <sup>-7</sup> X <sup>-</sup> 0020		• Enlist Degenerative joint diseases	Must know	C3		MCQs

• Describe the involvement of anatomical structure of the articular cartilage in Degenerative joint disease	Must know	C3	LGIS	VIVA VOCE
• Correlate with the clinical conditions.	Should know	C3		OSPE
• focus on provision of curative and preventive health care	Nice to know	C3		
Practice principles of bioethics	Nice to know	C3		
• Apply strategic use of AI in health care	Nice to know	C3		
read relevant research article	Nice to know	C3		

# (Knowledge)

# Anatomy Small Group Discussion (SGDs)

Code	Торіс	Learning Objectives	Calgary	C/P/A	Teaching	Assessment
		At the end of Session students should be able to	Gauge		Strategy	Tool
		• Classify the joint (according to type, shape and movement)	Must know	C2		
		• Discuss the attachments of capsule and ligament	Must know	C2		
		• Enlist the intra-articular structure (tendon of biceps brachii)	Must know	C1		
		• Describe attachment of glenoidal labrum with its	Must know	C2		
		significance in relation to synovial membrane				MCQs
		• Discuss the neurovascular supply	Must know	C2		SEQs
M2-MSK-I-A-0021	Shoulder Joint	• Discuss factors indispensable for stability of joint	Must know	C2	SGD,	OSVE
		Discuss the movements at shoulder joint	Must know	C2	Skill Lab	OSPE
		• Enlist related bursae.	Must know	C1		OSCE
		• Explain the related clinicals ( shoulder dislocation, rotator cuff	Should know	C3		
		injuries, Glenoid Labrum tears, Frozen shoulder)				
		• Correlate with the clinical conditions	Should know	C3		
		• focus on provision of curative and preventive health care	Nice to know	C3		
		measures			-	
		Practice principles of bioethics	Nice to know	C3		
		• Apply strategic use of AI in health care	Nice to know	C3		
		• Tabulate muscles of flexor & extensor compartment with	Must should	C2		
	Flexor & Extensor	their origin, insertion, nerve supply and actions				
M2-MSK-I-A-0022	compartment &	Describe Neurovascular organization of arm.	Must should	C2		
		• Map the outline of Brachial artery and Musculo cutaneous	Must know	Р		

	Neurovascular	nerve in a simulated patient or model				MCQs
	organization of the	• Correlate with the clinical conditions (biceps tendinitis,	Should know	C3	SGD,	SEQs
	arm	dislocation of tendon of biceps brachii)			Skill Lab	OSVE
	Ulna	• Discuss consequences of injury to radial nerve (wrist drop), venipuncture in cubital fossa)	Should know	C3		OSPE OSCE
		• Map the outline of Radial nerve and ulnar nerve on a simulated patient or model	Must know	Р		0202
		Correlate with the clinical conditions	Should know	C3		
		• focus on provision of curative and preventive health care measures	Should know	C3		
		Practice principles of bioethics	Nice to know	C3	23	
		• Apply strategic use of AI in health care	Nice to know	C3		
		Read a relevant research article	Nice to know	C3		
		• Determine the side	Must know	C1		
M2-MSK-I-A-0023		Demonstrate anatomical position	Must know	Р	SGD, Skill Lab	MCQs SEQs OSVE OSPE
		• Discuss general features, attachments and articulations	Must know	C2		
		Describe ossification	Must know	C2		
	Ulna	• Elaborate interosseous membrane and its importance	Must know	C2		
		• Correlate with the clinical conditions	Should know	C3		
		• focus on provision of curative and preventive health care measures	Nice to know	C3		
		Practice principles of bioethics	Nice to know	C3		
		Apply strategic use of AI in health care	Nice to know	C3		
		Read a relevant research article	Nice to know	C3		
		• Determine the side	Must know	C1		
M2-MSK-I-A-0024		Demonstrate its anatomical position	Must know	Р		
	Padius	• Discuss general features, attachments and articulations	Must know	C2	SGD,	MCQs
	Kaulus	Describe its ossification	Must know	C2	Skill Lab	SEQs
		• Describe the interosseous membrane and its importance	Must know	C2		OSVE
		Correlate the clinical conditions	Should know	C3		OSPE
		• focus on provision of curative and preventive health care measures	Nice to know	C3		OSCE
		Practice principles of bioethics	Nice to know	C3		
		• Apply strategic use of AI in health care	Nice to know	C3		
		Read a relevant research article	Nice to know	C3	]	

M2-MSK-I-A-0025       Insertion, nerve supply and actions       Should know       C3       SGD, SUPE         M2-MSK-I-A-0025       • Map the outline of Median Nerve , Radial Artery and Ulnar       Should know       P       SGD, SUPE       SGVE         • Map the outline of Median Nerve , Radial Artery and Ulnar       Should know       P       SGD, SUPE       SGVE       SGVE         • Orrelate with Associated clinical conditions (Median nerve injury, pronator syndrome, cubital tunnel syndrome)       Must know       C2       SGD,       SGP,         • Fractice principles of bioethics       • Correlate with Associated clinical conditions (Median nerve injury, pronator syndrome, cubital tunnel syndrome)       Nice to know       C3       SGD,       SGD,         • Practice principles of bioethics       • Nice to know       C3       SGD,       SGD,       SGD,         • Practice principles of bioethics       • Nice to know       C3       SGD,       SGD,       SGD,         • Practice principles of bioethics       • Correlate with Indical conditions associated with extensor       Should know       C3       SGD,       SGD,         • Correlate with Indical conditions       • Orrelate with Indical conditions associated with extensor       Should know       C3       SGD,       Skill Lab       MCQs         • Describe an provision of curative and preventive health care			• Tabulate muscles of flexor compartment with their origin,	Must know	C2		
M2-MSK-I-A-0025       • Correlate with clinical conditions associated with flexor       Should know       C3       SGD, SCB       SCD, OSVE       SCD, 		Flexor	insertion, nerve supply and actions		~	-	MCQs
M2-MSK-I-A-0025       forearm       compartment ownpartment, course, branches and relations)       Should know       P       Skill Lab       OSVE OSPE OSFE         M2-MSK-I-A-0025       Occursion of the provision of curative and preventive health care injury, pronator syndrome, cubital tunnel syndrome)       Must know       C2       OSVE OSFE         M2-MSK-I-A-0026       Focus on provision of curative and preventive health care compartment of the forearm       Practice principles of bioethics       Nice to know       C3         M2-MSK-I-A-0026       Extensor compartment of the forearm       Feature search article       Nice to know       C3         M2-MSK-I-A-0026       Extensor compartment of the forearm       Ocrelate with second compartment with origin, insertion, nerve supply and actions       Must know       C2       Skill Lab       MCQs         M2-MSK-I-A-0026       Extensor compartment of the forearm       Ocrelate with clinical conditions associated with extensor compartment of the forearm       Correlate with clinical conditions       Should know       C3       Skill Lab       MCQs         M2-MSK-I-A-0026       Extensor compartment of the forearm       Ocrelate with clinical conditions       Should know       C2       Skill Lab       Skill Lab       MCQs         M2-MSK-I-A-0026       Extensor compartment of the forearm       Ocrelate with the clinical conditions       Should know       C3       Skill Lab		compartment of the	• Correlate with clinical conditions associated with flexor	Should know	C3	SGD,	SEQs
M2-MSK-I-A-0025       • Map the outline of Median Nerve, Radial Artery and Ulnar Artery of forearm in a simulated patient or Model       Should know       P       OSPE         • Describe nerves and vessels of forearm (formation, commencement, course, branches and relations)       Must know       C2       OSCE         • Correlate with associated clinical conditions (Median nerve injury, pronator syndrome, cubial tunnel syndrome)       Must know       C3       OSCE         • Focus on provision of curative and preventive health care       Nice to know       C3       SGD,       SGD,         • Practice principles of bioethics       Nice to know       C3       Should know       C3       SGD,         • M2-MSK-I-A-0026       Extensor       • Correlate with clinical conditions associated with extensor compartment of the forearm       • Correlate with clinical conditions       Should know       C3       Skill Lab       MCQs         • M2-MSK-I-A-0026       • Extensor       • Correlate with clinical conditions       Should know       C3       Skill Lab       SCGD,       Skill Lab       SEQs         M2-MSK-I-A-0026       • Map the outline of Radial Nerve and Ulnar Nerve on a measures       • Correlate with the clinical conditions       Should know       C3       Skill Lab       SCGD,       Skill Lab       SEQs         M2-MSK-I-A-0026       • Apply strategic use of Al in health care       Nice to know<		forearm	compartment			Skill Lab	OSVE
Main Marken M	M2-MSK-I-A-0025		• Map the outline of Median Nerve, Radial Artery and Ulnar	Should know	Р		OSPE
M2-MSK-I-A-0026       • Describe nerves and vessels of forearm (formation, cubital tunnel syndrome)       Must know       C2         M2-MSK-I-A-0026       • Correlate with associated clinical conditions       Must know       C3         M2-MSK-I-A-0026       • Facture principles of bioethics       Nice to know       C3         M2-MSK-I-A-0026       • Correlate with associated clinical conditions       Must know       C2         M2-MSK-I-A-0026       • Facture principles of bioethics       Nice to know       C3         • Practice principles of extensor compartment with origin, insertion, nerve supply and actions       Must know       C2         • Correlate with clinical conditions associated with extensor compartment of the forearm       • Correlate with clinical conditions       Should know       C2         • Describe nerves and vessels of forearm (formation, ensures and vessels of forearm (formation, comvision of curative and relations)       Must know       C2         • Describe nerves and vessels of forearm (formation, comvision of curative and relations)       Must know       C2         • Orrelate with the clinical conditions       Should know       C2         • Describe nerves and vessels of forearm (formation, course, branches and relations)       • Describe nerves and vessels of forearm (formation, course, branches and relations)       • Describe nerves and vessels of forearm (formation, course, branches and relations)       • Describe nerves and vessels of forear			Artery of forearm in a simulated patient or Model				OSCE
M2-MSK-I-A-0026       Extensor       commencement, course, branches and relations)       Must know       C3         M2-MSK-I-A-0026       Extensor       reduction of the forearm       Foreastice principles of bioethics       Nice to know       C3         M2-MSK-I-A-0026       Extensor       Correlate with conscionated and relations)       SGD, solution       SGD, solution       SGD, solution         M2-MSK-I-A-0026       Extensor       Correlate with conscionated and relations)       SGD, solutical tunnel synchrome, cubia tunnel synchrome)       SGD, solutical tunnel synchrome, cubia tunnel synchrome)         M2-MSK-I-A-0026       Extensor       Correlate with clinical conditions associated with extensor compartment of the forearm       Correlate with clinical conditions       Should know       C3         M2-MSK-I-A-0026       Extensor       Correlate with clinical conditions       Should know       C3       Skill Lab       MCQs         M2-MSK-I-A-0026       Extensor       Correlate with clinical conditions       Should know       C3       Skill Lab       SEQs         M2-MSK-I-A-0026       Extensor       Correlate with clinical conditions       Should know       C3       Skill Lab       SCD, SEQs         M2-MSK-I-A-0026       Extensor       Correlate with clinical conditions       Should know       C3       Skill Lab       SKEQs <td< td=""><td></td><td></td><td>• Describe nerves and vessels of forearm (formation,</td><td>Must know</td><td>C2</td><td></td><td></td></td<>			• Describe nerves and vessels of forearm (formation,	Must know	C2		
M2-MSK-I-A-0026 <ul> <li>Correlate with associated clinical conditions (Median nerve injury, pronator syndrome, cubital tunnel syndrome)</li> <li>Focus on provision of curative and preventive health care</li> <li>Practice principles of bioethics</li> <li>Apply strategic use of AI in health care</li> <li>Read a relevant research article</li> <li>Nice to know</li> <li>Correlate with element of the forearm</li> <li>Correlate with clinical conditions</li> <li>Correlate with the clinical conditions</li> <li>Correlate with the clinical conditions</li> <li>Correlate with the clinical conditions</li> <li>Should know</li> <li>Correlate with the clinical conditions</li> <li>Should know</li> <li>Correlate with the clinical conditions</li> <li>Should know</li> <li>Correlate with the clinical conditions</li> <li>Correlate with the clinical conditin</li></ul>			commencement, course, branches and relations)				
M2-MSK-I-A-0026       injury, pronator syndrome, cubital tunnel syndrome)       -       -       -         M2-MSK-I-A-0026       Extensor compartment of the forearm       -       <			• Correlate with associated clinical conditions (Median nerve	Must know	C3		
M2-MSK-I-A-0026 <ul> <li>Fextersor</li> <li>Compartment of the forearm</li> <li>Practice principles of bioethics</li> <li>Apply strategic use of AI in health care</li> <li>Nice to know</li> <li>CC3</li> <li>Apply strategic use of AI in health care</li> <li>Nice to know</li> <li>CC3</li> <li>Apply strategic use of AI in health care</li> <li>Nice to know</li> <li>CC3</li> <li>Apply strategic use of AI in health care</li> <li>Correlate with clinical conditions associated with extensor</li> <li>Correlate with clinical conditions</li> <li>Should know</li> <li>CC3</li> <li>Skill Lab</li> <li>SCB, SEQS</li> <li>SCB</li> <li>SCB</li></ul>			injury, pronator syndrome, cubital tunnel syndrome)				
M2-MSK-I-A-0026       measures       still Lab       SGD, still Lab       SGD, still Lab       SGD, still Lab       SGD, still Lab       SEQs       oSVE       oSVE <td></td> <td></td> <td>• focus on provision of curative and preventive health care</td> <td>Nice to know</td> <td>C3</td> <td></td> <td></td>			• focus on provision of curative and preventive health care	Nice to know	C3		
M2-MSK-I-A-0026 <ul> <li>Practice principles of bioethics</li> <li>Apply strategic use of A1 in health care</li> <li>Read a relevant research article</li> </ul> Nice to know         C3           M2-MSK-I-A-0026         Extensor <ul> <li>Tabulate muscles of extensor compartment with origin, insertion, nerve supply and actions</li> <li>Correlate with clinical conditions associated with extensor</li> <li>Should know</li> <li>C2</li> <li>Second the outline of forearm (Tennis elbow)</li> <li>Describe nerves and vessels of forearm (formation, course, branches and relations)</li> <li>Correlate with the clinical conditions</li> <li>Should know</li> <li>C2</li> <li>May though the outline of Radial Nerve and Breventive health care</li> <li>Focus on provision of curative and preventive health care</li> <li>Practice principles of bioethics</li> <li>Practice principles of bioethics</li> <li>Practice principles of bioethics</li> <li>Practice principles of bioethics</li> <li>Apply strategic use of A1 in health care</li> <li>Nice to know</li> <li>C3</li> <li>Practice principles of bioethics</li> <li>Practice principles of bioethics</li> <li>Practice principles of point with its articular surfaces</li> <li>Must know</li> <li>C2</li> <li>Discuss the capsule, synovial membrane and ligaments of</li> <li>Must know</li> <li>C2</li> <li>SGD, SEQs</li> <li>SGD, SEQs</li> <li>SGD</li> <li>SGD</li> <li>SEQs</li> <li>Secoribe the type of joint with its articular sur</li></ul>			measures				
• Apply strategic use of AI in health care       Nice to know       C3         • Read a relevant research atticle       Nice to know       C3         • Tabulate muscles of extensor compartment with origin, compartment of the forearm       • Tabulate muscles of extensor compartment with origin, insertion, nerve supply and actions       Must know       C2         • Orrelate with clinical conditions associated with extensor compartment of forearm (formation, compartment of rodel       Must know       C2       Skill Lab       SEQs         • Describe nerves and vessels of forearm (formation, compartment or model       • Orrelate with clinical conditions       Must know       C3       Skill Lab       SEQs         • Orrelate with the clinical conditions       • Map the outline of Radial Nerve and Ulnar Nerve on a simulated patient or model       Must know       C3       OSCE         • Practice principles of bioethics       • Orrelate with the clinical conditions       Should know       C3         • Practice principles of bioethics       • Nice to know       C3       OSCE         • Practice principles of bioethics       • Describe the type of joint with its articular surfaces       Must know       C2         • Describe the type of joint with its articular surface			<ul> <li>Practice principles of bioethics</li> </ul>	Nice to know	C3		
• Read a relevant research article       Nice to know       C3         • Tabulate muscles of extensor compartment with origin, insertion, nerve supply and actions       Must know       C2       SGD,         M2-MSK-I-A-0026       • Correlate with clinical conditions associated with extensor compartment of the forearm       • Correlate with clinical conditions associated with extensor       Should know       C3         M2-MSK-I-A-0026       • Describe nerves and vessels of forearm (Tennis elbow)       • Describe nerves and vessels of forearm (attributed patient or model       SGD,       Skill Lab       SEQs         • Map the outline of Radial Nerve and Ulnar Nerve on a simulated patient or model       • Must know       C3       • OSPE         • Practice principles of bioethics       • Nice to know       C3       • OSCE         • Practice principles of bioethics       • Nice to know       C3         • Read a relevant research article       • Nice to know       C3         • Read a relevant research article       • Describe the type of joint with its articular surfaces       Must know       C2         • Discuss the capsule, synovial membrane and ligaments of the joints       • Describe the related bursae,       Must know       C2         • Describe the related bursae,       • Describe axis and plane of movements       Must know       C2       MCQs			• Apply strategic use of AI in health care	Nice to know	C3		
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M2-MSK-I-A-0026forearmcompartment of forearm (Tennis elbow)SEQs OSVE OSVE OSVE OSCEM2-MSK-I-A-0026• Describe nerves and vessels of forearm (formation, commencement, course, branches and relations)Must knowC2• Map the outline of Radial Nerve and Ulnar Nerve on a simulated patient or model• Must knowC3• Correlate with the clinical conditionsShould knowC3• focus on provision of curative and preventive health care measuresNice to knowC3• Practice principles of bioethicsNice to knowC3• Practice principles of bioethicsNice to knowC3• Describe the type of joint with its articular surfacesMust knowC2• Discuss the capsule, synovial membrane and ligaments of the jointsMust knowC2MCQs• Elbow joint, Proximal and distal radioulnar joints• Enumerate the related bursae,Must knowC1SKILL SKILLOSVE• Describe axis and plane of movementsMust knowC2LABOSPE		compartment of the	Correlate with clinical conditions associated with extensor	Should know	C3	Skill Lab	MCOs
M2-MSK-I-A-0026       • Describe nerves and vessels of forearm (formation, commencement, course, branches and relations)       Must know       C2       OSVE         • Map the outline of Radial Nerve and Ulnar Nerve on a simulated patient or model       • Map the outline of Radial Nerve and Ulnar Nerve on a simulated patient or model       Must know       P       OSVE         • Correlate with the clinical conditions       • Should know       C3       OSVE       OSVE         • Forcise on provision of curative and preventive health care measures       • Nice to know       C3       OSVE         • Practice principles of bioethics       • Nice to know       C3       OSVE         • Read a relevant research article       • Nice to know       C3         • Describe the type of joint with its articular surfaces       Must know       C2         • Discuss the capsule, synovial membrane and ligaments of the joints       • Discuss the capsule, synovial membrane and ligaments of       Must know       C2         • Describe the related bursae, radioulnar joints       • Describe axis and plane of movements       Must know       C1       SKILL       OSVE		forearm	compartment of forearm (Tennis elbow)				SEOs
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Image: Constraint of the constra			• Apply strategic use of AI in health care	Nice to know	C3		
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• Discuss the capsule, synovial membrane and ligaments of Elbow joint, Proximal and distal radioulnar joints• Discuss the capsule, synovial membrane and ligaments of the jointsMust knowC2MCQs• Discuss the capsule, synovial membrane and ligaments of the joints• Discuss the capsule, synovial membrane and ligaments of the jointsMust knowC2MCQs• Enumerate the related bursae, • Describe axis and plane of movementsMust knowC1SKILLOSVE			• Describe the type of joint with its articular surfaces	Must know	C2		
Elbow joint, Proximal and distal radioulnar jointsthe jointsthe jointsSGD, OSVESEQs999			• Discuss the capsule, synovial membrane and ligaments of	Must know	C2	]	MCQs
Proximal and distal radioulnar joints• Enumerate the related bursae,Must knowC1SKILLOSVE• Describe axis and plane of movementsMust knowC2LABOSPE		Elbow joint,	the joints			SGD,	SEQs
radioulnar joints • Describe axis and plane of movements Must know C2 LAB OSPE		Proximal and distal	• Enumerate the related bursae,	Must know	C1	SKILL	OSVE
		radioulnar joints	• Describe axis and plane of movements	Must know	C2	LAB	OSPE
M2-MSK-I-A-0027 • Enumerate muscles producing movements at elbow joint. Must know C1 OSCE	M2-MSK-I-A-0027	5	• Enumerate muscles producing movements at elbow joint.	Must know	C1		OSCE
Correlate with the associated clinical conditions (Elbow Should know C3			• Correlate with the associated clinical conditions (Elbow	Should know	C3	1	
ioint dislocation and student's elbow)			ioint dislocation and student's elbow)				

		• Describe type of radioulnar joints, articular surfaces, capsular attachments, synovial membrane and ligaments.	Must know	C2		
		• Describe movements of supination and pronation with special reference to axes	Must know	C2		
		• Enumerate the muscles producing these movements	Must know	C1		
		Correlate clinical aspects of joint	Should know	C3		
		<ul> <li>focus on provision of curative and preventive health care measures</li> </ul>	Nice to know	C3		
		Practice principles of bioethics	Nice to know	C3		
		• Apply strategic use of AI in health care	Nice to know			
		• Read a relevant research article	Nice to know	C3		
		• Understand the arrangement of carpal bones	Must know	C1		
		• Identify the salient features of carpel bone.	Must know	C2		
		• Discuss the special blood supply of scaphoid bone.	Must know	C3		MCOs
M2-MSK-I-A-0028	Hand	• Describe the mid carpal joint.	Must know	C2	SGD, SKILL LAB	SEQs OSVE OSPE OSCE
		• Discuss the 1st carpometacarpal joint including the type of the joint capsule synovial membrane and ligaments with axis of the movement and the muscles producing the movements	Must know	C2		
		Correlate with the clinical conditions	Should know	<u>C3</u>		
		<ul> <li>Contract with the enhear conditions.</li> <li>focus on provision of curative and preventive health care measures</li> </ul>	Nice to know	C3		
		Practice principles of bioethics	Nice to know	C3		
		• Apply strategic use of AI in health care	Nice to know	C3		
		Read relevant research article	Nice to know	C3		
		• Describe the type of joint with its articular surfaces	Must know	C2		
		• Discuss the capsule, synovial membrane and ligaments of the joint	Must know	C2		MCOs
M2-MSK-I-A-0029		• Enumerate the related bursae	Must know	C1	SGD.	SEOs
	Wrist joint	• Describe axis and plane of movements	Must know	C2	SKILL	OSVE
		• Enumerate muscles producing movements at joint	Must know	C1	LAB	OSPE
		Discuss wrist fractures & Dislocations	Must know	C3		OSCE
		Correlate with the clinical conditions	Should know	C3		
		<ul> <li>focus on provision of curative and preventive health care measures</li> </ul>	Nice to know	C3		
		Practice principles of bioethics	Nice to know	C3		
		• Apply strategic use of AI in health care	Nice to know	C3		

		• Read a relevant research article	Nice to know			
		• Discuss the blood vessels involved in the formation of	Must know	C2		
	Anastomosis	anastomosis around the wrist joint				
	around wrist joint	• Explain the importance of anastomosis.	Must know	C2		MCOs
M2-MSK-I-A-0030	uround wrist joint	• Correlate with the clinical conditions	Should know	C3	SGD	SEOs
		• focus on provision of curative and preventive health care	Nice to know	C3	SKILL	OSVE
		measures Able to focus on provision of curative and			LAB	OSPE
		preventive health care measures			LIND	OSCE
		Practice principles of bioethics	Nice to know	C3		OBCL
		• Apply strategic use of AI in health care	Nice to know	C3		
		Read a relevant research article	Nice to know			
		• Describe the muscles of dorsum of hand	Must know	C2	SGD,	
		• Discuss the Dorsal digital expansion	Must know	C2	SKILL	MCQs
	Dorsum of Hand	• Describe the attachment of flexor retinaculum with structures related to it.	Must know	C2	LAB	SEQs OSVE
M2-MSK-I-A-0031	Flexor retinaculum Extensor retinaculum	• Map the outline of flexor and extensor retinacula on a	Must know	Р		OSPE
		simulated patient or a model.		<b>C2</b>		OSCE
		• Describe the Guyon's canal.	Must know	C2		
		• Describe the formation of the carpel tunnel and its applied anatomy.	Must know	C3		
		• Describe the attachment of extensor retinaculum and its	Must know	C2		
		various compartments with structures passing through it.				
		• Discuss the De Quervain's disease.	Should know	C3		
		• Correlate with the clinical conditions.	Should know	C3		
		• focus on provision of curative and preventive health care measures	Nice to know	C3		
		Practice principles of bioethics	Nice to know	C3		
		• Apply strategic use of AI in health care	Nice to know			
		• Read a relevant research article	Nice to know	C3		
		• Tabulate the muscles forming the thenar and hypothenar eminence.	Must know	C2		MCOs
M2-MSK-I-A-0032		Discuss Lumbricals, Palmar and dorsal interossei with	Must know	C2		SEOs
	Palm of hand-I	their attachments and actions.			SGD.	OSVE
	Muscles &	• Discuss the formation of superficial and deep arterial	Must know	C2	SKILL	OSPE
	Ineurovascular	arches			LAB	OSCE
	organization	• Map the outline of superficial and deep arterial arches	Must know	Р		
		on a simulated patient or model.				
		• Correlate with the clinical conditions.	Should know	C3		
-----------------	-------------------	--	--------------	----	-------	------
		• focus on provision of curative and preventive health	Nice to know	C3		
		care measures				
		Practice principles of bioethics	Nice to know	C3		
		• Apply strategic use of AI in health care	Nice to know	C3		
		Read a relevant research article	Nice to know	C3		
		• Discuss the formation and attachments of palmar aponeurosis.	Must know	C2		
	Palm of hand-II	• Describe the formation of palmar spaces and its divisions	Must know	C2		
M2-MSK-I-A-0033	Fascial spaces of	• Describe the thenar and mid palmar spaces.	Must know	C2		MCQs
	hand Grip	Define pulp spaces	Must know	C1	SGD,	SEQs
	-	• Relate anatomy of pulp space with its common clinical	Must know	C3	SKILL	OSVE
		conditions			LAB	OSPE
		Describe dorsal subcutaneous spaces	Must know	C2		OSCE
		• Demonstrate surgical incisions.	Must know	C3		
		Describe different types of grips	Must know	C2		
		Correlate with the clinical conditions.	Should know	C3		
		<ul> <li>focus on provision of curative and preventive health care measures</li> </ul>	Nice to know	C3		
		Practice principles of bioethics	Nice to know	C3		
		Apply strategic use of AI in health care	Nice to know	C3		
		Read a relevant research article	Nice to know	C3		
	Cross sectional	• Identify the structures present at different levels of cross	Must know	C2	SGD,	MCQs
	Anatomy of	section; mid humeral shaft, end of humeral shaft, elbow joint,			SKILL	SEQs
M2-MSK-I-A-0034	upper limb	superior radioulnar joint, mid forearm, wrist joint, proximal			LAB	OSVE
		shafts of metacarpals.		~~		OSPE
		Correlate with the clinical conditions	Should know	C3		OSCE
		Read a relevant research article	Nice to know	C3		
		• Apply strategic use of AI in health care	Nice to know	C3		

# (Knowledge) Anatomy Self Directed Learning (SDL)

	Theory			
Code	Торіс	Learning Objectives At the end of Session students should be able to	Learning Resources	
M2-MSK-I-A-0035	Shoulder Dislocation	<ul> <li>Classify the joint (according to type, shape and movement)</li> <li>Discuss the attachments of capsule and ligament</li> <li>Enlist heintra-articular structure (tendon of biceps brachii)</li> <li>Describe attachment of glenoidal labrum with its significance in relation to synovial membrane</li> <li>Discuss the neurovascular supply</li> <li>Discuss factors indispensable for stability of joint</li> <li>Discuss the movement sat shoulder joint</li> <li>Enlist related bursae.</li> <li>Explain the related clinicals (shoulder dislocation, rotator cuff injuries, Glenoid Labrum tage, Frozen shoulder)</li> </ul>	<ul> <li>Clinical Oriented Anatomy by Keith L. Moore.8<sup>TH</sup> Edition. (Chapter 3, Page 266- 271,284-285).</li> <li><u>https://teachmeanato my.info/upper- limb/joints/shoulder</u></li> </ul>	
M2-MSK-I-A-0036	Biceps Tendinitis, Popeye's Arm Anastomosis around the elbow joint	<ul> <li>Tabulate muscles of flexor compartment with the irorigin, insertion, nerve supply and actions</li> <li>Describe Neurovascular organization of arm,</li> <li>Explain the related clinicals (biceps tendinitis, Popeye's Arm)</li> </ul>	<ul> <li>Clinical Oriented Anatomy by Keith L. Moore.8<sup>TH</sup>Edition. (Chapter 3, Page201- 211,211-214).</li> <li><u>https://teachmeanato my.info/upper- limb/muscles/anterio</u> r-forearm/</li> </ul>	
M2-MSK-I-A-0037	Wrist Drop	<ul> <li>Tabulate Muscles of extends or compartment with origin insertion, nerve supply and actions</li> <li>Describe the neurovascular organization</li> <li>Discuss consequences of injury to radial nerve (wrist drop), venipuncture in cubital fossa)</li> <li>Read relevant research article</li> <li>Use Digital Library</li> </ul>	Clinical Oriented     Anatomy by Keith L.     Moore.8 <sup>TH</sup> Edition.     (Chapter 3, Page201-     211,211-214). <u>https://teachmeanato     my.info/upper-</u>	

		limb/muscles/upper-
	• Determine the side	Clinical Oriented
	Demonstrate anatomical position	Anatomy by Keith L
Fracture of Ulna	Discuss general features attachment sand articulations	Moore 8 <sup>TH</sup> Edition
	Describe ossification	(Chapter 3, Page147)
	Flaborate interosseous membrane and its importance	https://teachmeanato
	Correlate the clinical aspects	my.info/upper-
	• Correlate the children aspects	limb/bones/ulna/
	• Determine the side	Clinical Oriented
	Demonstrate it anatomical position	Anatomy by Keith L.
	• Discuss general features, attachments and articulations	Moore.8 <sup>TH</sup> Edition.
Colle's Fracture/	• Describe its ossification	(Chapter 3, Page148).
Silliui s Flacture	Describe the interosseous membrane and its importance	https://teachmeanato
	Correlate the clinical aspects	my.info/upper-
		limb/bones/radius/
	• Tabulate muscles of flexor compartment with their origin, insertion, nerves Supply	Clinical Oriented
		Anatomy by Keith L.
- 10	• Describe clinical conditions associated with flexor compartment (Golfer's Elbow)	Moore.8 <sup>11</sup> Edition.
Golfer's Elbow		(Chapter 3, Page215-
		234,236,240)
		https://teachmeanatomy.1
		<u>nto/upper-</u>
		<u>limb/muscles/anterior-</u>
	• Tabulate muscles of extensor compartment with origin insertion, narve supply and	<u>IOrearm/</u>
	• Tabulate inductes of extensor compartment with origin, insertion, herve suppry and actions	• Childar Oriented
Tonnis Elbow	Describe clinical condition associated with extensor compartment of forearm (Tennis	Moore 8TH Edition
Tennis Ellow	elbow)	(Chapter 3 Page 215-
		(Chapter 5, 1 age 215) 234 236 240)
		https://teachmeanatom
		v info/upper-
		limb/muscles/posterior-
		forearm/
	• Describe nerves and vessels of forearm (formation, commencement, course,	
Cubital Tunnel	branches and relations)	Clinical Oriented
	Fracture of Ulna Colle's Fracture/ Smith's Fracture Golfer's Elbow Tennis Elbow	Fracture of Ulna <ul> <li>Determine the side</li> <li>Demonstrate anatomical position</li> <li>Discuss general features, attachment sand articulations</li> <li>Describe ossification</li> <li>Elaborate interosseous membrane and its importance</li> <li>Correlate the clinical aspects</li> <li>Determine the side</li> <li>Demonstrate it anatomical position</li> <li>Discuss general features, attachments and articulations</li> <li>Describe its ossification</li> <li>Describe its ossification</li> <li>Describe the interosseous membrane and its importance</li> <li>Correlate the clinical aspects</li> </ul> <li>Golfer's Fracture/         <ul> <li>Golfer's Elbow</li> <li>Tabulate muscles of flexor compartment with their origin, insertion, nerves Supply and actions</li> <li>Describe clinical conditions associated with flexor compartment (Golfer's Elbow)</li> </ul> </li> <li>Tabulate muscles of extensor compartment with origin, insertion, nerve supply and actions</li> <li>Describe clinical condition associated with extensor compartment of forearm (Tennis elbow)</li>

	Syndrome	<ul> <li>Describe associated clinical conditions (Median nerve injury, pronator syndrome, cubital tunnel syndrome)</li> <li>Read relevant research article</li> <li>Use Digital Library</li> </ul>	Anatomy by Keith L. Moore.8TH Edition. (Chapter 3, Page215- 234,236,240). <u>https://teachmeanatom</u> <u>y.info/upper- limb/muscles/posterior- forearm/</u>
M2-MSK-I-A-0043	Elbow Dislocation	<ul> <li>Describe the type of joint with its articular surfaces</li> <li>Discuss the capsule, synovial membrane and ligaments of the joints</li> <li>Enumerate the related bursae,</li> <li>Describe axis and plane of movements</li> <li>Enumerate muscles producing movements at elbow joint.</li> <li>Describe the associated clinical conditions (Elbow joint dislocation and student's elbow)</li> </ul>	• Clinical Oriented Anatomy by Keith L. Moore.8TH Edition (Chapter 3, Page271- 274). <u>https://www.kenhub.com/ en/library/anatomy/elbow</u> -joint
	Proximal and distal radioulnar dislocation	<ul> <li>Describe type of radioulnar joints, articular surfaces, capsular attachments, synovial membrane and ligaments.</li> <li>Describe movements of supination and pronation with special reference to axes</li> <li>Enumerate the muscles producing these movements</li> <li>Correlate clinical aspects of joint</li> </ul>	Clinical Oriented     Anatomy by Keith L.     Moore.8TH Edition.     (Chapter 3, Page274-     277).     https://www.kenhub.co     m/en/library/anatomy/p     roximal-radioulnar-     joint <u>https://www.kenhub.co     m/en/library/anatomy/d     istal-radioulnar-joint </u>
M2-MSK-I-A-0044	Avascular Necrosis of Scaphoid Bone	<ul> <li>Understand the arrangement of carpal bones</li> <li>Identify the salient features of carpel bone.</li> <li>Discuss the special blood supply of scaphoid bone.</li> <li>Describe the midcarpal joint.</li> <li>Discuss the1st carpometacarpal joint including the type of the joint capsules synovial Membrane and ligaments with axis of the movement and the muscles producing the movements</li> <li>Read relevant research article</li> </ul>	Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. Chapter 3, Page148- 151,278-283). <u>https://teachmeanatomy.in</u>

		• Use Digital Library	<u>fo/upper-</u> limb/muscles/hand/
		• Describe the type of joint with its articular surfaces	
		• Discuss the capsule, synovial membrane and ligaments of the joint	Clinical Oriented
M2-MSK-I-A-0045	Wrist dislocation	Enumerate the related bursae	Anatomy by Keith L.
		• Describe axis and plane of movements	Moore.8TH Edition.
		• Enumerate muscles producing movements at joint	(Chapter 3, Page278).
		Discuss wrist fractures & Dislocations	https://www.kenhub.co
			m/en/library/anatomy/t
			<u>he-wrist-joint</u>
		• Discuss the blood vessels involved in the formation of anastomosis around the	<ul> <li>Clinical Oriented</li> </ul>
		wrist joint	Anatomy by Keith L.
M2-MSK-I-A-0046	Vascular	• Explain the importance of anastomosis.	Moore.8TH Edition.
	insufficiency at		(Chapter 3, Page278).
	wrist joint		https://www.kenhub.co
			m/en/library/anatomy/a
			rterial-anastomoses-of-
			the-upper-extremity
		Describe the muscles of dorsum of hand	
		Discuss the Dorsal digital expansion     Describe the attachment of flower retine culum with structures related to it	
	C	Describe the attachment of nexor retinaction with structures related to it.	Clinical Oriented
MO MOR LA 0047	Carpai Tunnel	• Describe the Guyon's canal.	Anatomy by
MI2-MISK-I-A-004/		• Describe the formation of the carpet tunnel and its applied anatomy.	Keith L. Moore.81H
		• Describe the attachment of extensor retinactium and its various compariments with structures passing through it	Edition. (Chapter 5, $P_{0,2,2,1}(2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,$
		Discuss the De Quervain's disease	https://taachmaanatom
		• Discuss the De Quervani s disease.	winfo/uppor
			<u>y.mio/upper-</u> limb/muscles/hand/
		• Tabulate the muscles forming the thenar and hypothenar eminence	
		Discuss Lumbricals Palmar and dorsal interossei with their attachments and	Clinical Oriented
		actions	Anatomy by Keith L
M2-MSK-I-A-0048	Dupuytren's	Discuss the formation of superficial and deep arterial arches	Moore 8TH Edition
	contracture	Discuss the clinicals associated with palm	(Chapter 3. Pag243-
		- Discuss the enhicuts associated with pain	256).
			https://teachmeanatom
			y.info/upper-

			limb/muscles/hand/
M2-MSK-I-A-0049	Hand infections	<ul> <li>Discuss the formation and attachments of palmar aponeurosis.</li> <li>Describe the formation of palmar spaces and its divisions</li> <li>Describe the thenar and mid palmar spaces.</li> <li>Define pulp spaces</li> <li>Relate anatomy of pulp space with its common clinical conditions</li> <li>Describe dorsal subcutaneous spaces.</li> <li>Demonstrate surgical incisions.</li> <li>Describe different types of grips</li> <li>Read relevant research article</li> <li>Use Digital Library</li> </ul>	

	E	IIStology Practicals Skill Laboratory (SKL)				
Code	Торіс	At The End Of The Practical The Students Should Be Able To	Calgary Gauge	C/P/A	Teaching Strategy	Assessment Tools
	Connective Tissue-I	Identify mucoid connective tissue under microscope	Must know	Р		
M2-MSK-I-A-0050	• Embryonic connective	Illustrate histological structure of mucoid connective tissue	Should know	C2		
	Connective Tissue	Write two points of identification	Should know	C1		OSDE
	Loose areolar connective     tissue	Identify reticular and adipose connective tissue     under microscope	Should know	C2	Skill Lab	MCQs
	Reticular Connective	• Illustrate histological structure of reticular and adipose connective tissue	Should know	C2		
	lissue	Write two points of identification	Should know	C1		
	• Adipose Connective Tissue	Focus the slide	Must know	Р		
	Connective Tissue-II	• Identify dense regular and irregular connective tissue under microscope	Must know	Р		
M2-MSK-I-A-0051	Dense regular     connective tissue	• Illustrate histological structure of dense regular and irregular connective tissue	Should know	C2	Skill Lab	OSPE MCOs
	<ul> <li>Dense irregular</li> </ul>	Write two points of identification	Should know	C1		meqs
	connective tissue	Differentiate between dense regular and irregular connective tissue microscopically	Should know	C2		

#### (Psychomotor) Histology Practicals Skill Laboratory (SKL)

		Focus the slide	Must know	Р		
	Cartilage	Identify all three types of cartilages under microscope	Must know	Р		
M2-MSK-I-A-0052	<ul><li>Hyaline cartilage</li><li>Elastic cartilage</li></ul>	Illustrate microscopic structure of all three cartilages	Should know	C2	Skill Lab	OSPE MCOs
	• Fibrocartilage	Discuss the structure of perichondrium	Should know	C1		MCQS
		Write wo points of identification	Should know	C1		
		• Enlist sites of hyaline, fibro and elastic cartilage	Should know	C1		
		Focus the slide	Must know	Р		
	Bone	Identify compact and spongy bone under	Must know	Р		
M2-MSK-I-A-0053	Compact Bone	microscope			Skill Lab	OSPE
	Spongy Bone	• Illustrate microscopic structure of compact bone and spongy bone	Should know	C2		MCQs
		Write two points of identification	Should know	C1		
		Focus the slide	Must know	Р		

# Anatomy Syllabus of Learning Management System (LMS)

Code	Торіс	Learning Objectives	Learning	Learning Resources
		At the end of session students should be able to	Domain	
		• Describe formation of Amniotic Cavity, embryonic disc and Umbilical vesicle	C2	
	Formation of	Discuss development of chorionic sac	C2	
M2-MSK-I-A-0054	Bilaminar	Outline the process of implantation	C1	Embryology:- KLM     Embryology Developing
M2-MSK-I-A-0054 Embryonic Disc (2 <sup>nd</sup> week of Human	Describe changes in Gravid Endometrium	C2	Human 11 <sup>th</sup> Edition	
	• Understand the Bio-physiological aspects of gravid endometrium	C2	IISMLE O Bank Sten 1	
	Development)	Corelate with the clinical conditions	C3	(Volume 1) 2023-2034
	1 /	• focus on provision of curative and preventive health care measures	C3	(* 010000 1) 2020 200 1
		Practice principles of bioethics	C3	
		Apply strategic use of AI in health care	C3	
		read relevant research article	C3	
M2-MSK-I-A-0055	Gastrulation	• Discuss process of gastrulation with special reference to primitive streak	C2	
	Establishment of	• Describe the fate of primitive streak	C2	
	Establishment of	Discuss establishment of body axis	C2	• Embryology :- KLM

	Body Axis and Fate Map ( 3 <sup>rd</sup> week)	Draw fate map and discuss its importance in future development	C2	Embryology Developing
		• Understand the Biophysiological aspects of gastrulation	C2	Human 11 <sup>th</sup> Edition
		Describe congenital abnormalities associated with gastrulation	C3	• USMLE Q Bank Step I
		Corelate with the clinical conditions	C3	(Volume 1) 2023-2034
		• focus on provision of curative and preventive health care measures	C3	-
		Practice principles of bioethics		-
		Apply strategic use of AI in health care		_
		Read a relevant Research article	03	
		Define notochord	C1	
M2-MSK-I-A-0056	Notochord	<ul> <li>Define notochord</li> <li>Delineate different stages of notochord formation</li> </ul>	C1	-
W12-W15K-1-A-0050	Formation	<ul> <li>Discuss the importance of notochord in development of</li> </ul>	C2	
		central nervous system		• Embryology :- KLM
	(3 <sup>rd</sup> week)	Describe role of notochord in development of axial Skeleton	C1	Embryology Developing
		Describe the fate of notochord	C2	IIIIIIIIIIII II Luition     IISMI F O Bank Sten 1
		Correlate with clinical conditions of notochord formation	C3	(Volume 1) 2023-2034
		• focus on provision of curative and preventive health care measures	C3	(() of all () 2020 2001
		Practice principles of bioethics	C3	-
		Apply strategic use of AI in health care	C3	-
		read relevant research article	C3	-
		Define neurolation	Cl	
		<ul> <li>Describe formation of neural plate and neural tube</li> </ul>	C2	-
		<ul> <li>Discuss neural crest formation</li> </ul>	C2	-
		Enlist derivatives of neural crest cells	C1	Embryology :- KLM
	Neurulation	• Understand the bio-physiological aspects of Neurulation	C2	Embryology Developing
M2-MSK-I-A-0057	(3 <sup>rd</sup> week)	Discuss neural tube defects	C3	Human 11 <sup>th</sup> Edition
		• Discuss different types of spina bifida	C3	• USMLE Q Bank Step 1
		Discuss the importance of folic acid in the prevention of spina     bifida	C2	(Volume 1) 2023-2034
	Corelate with the clinical conditions	C3	-	
		• focus on provision of curative and preventive health care measures	C3	1
		Practice principles of bioethics	C3	1
		Apply strategic use of AI in health care	C3	
		read relevant research article	C3	
		• Enumerate three germ layers and their derivatives	C1	

		Describe different divisions of mesoderm	C2	• Embryology :- KLM
	Development and	• Describe development of somites and their differentiation	C2	Embryology Developing
	Differentiation of	• Explain different stages of somite development	C2	Human 11 <sup>th</sup> Edition
M2-MSK-I-A-0058	Somites	• Understand the Biophysiological aspects of Somite differentiation	C2	USMLE Q Bank Step 1 (Volume
		Correlate clinical aspects of somite differentiation	C3	1) 2023-2034
		• Focus on provision of curative and preventive health care	C3	
		measures		
		Practice principles of bioethics	C3	
		• Apply strategic use of AI in health care	C3	
		Read relevant research article	C3	
		• Enumerate three germ layers and their derivatives	C1	Embryology :- KLM
	Development and	Describe different divisions of mesoderm	C2	Embryology Developing
	Differentiation of	• Describe development of somites and their differentiation	C2	Human 11 <sup>th</sup> Edition
M2-MSK-I-A-0059	Somites	• Explain different stages of somite development	C2	• USMLE Q Bank Step 1
		• Understand the Biophysiological aspects of Somite differentiation	C2	(Volume 1) 2023-2034
		Correlate clinical aspects of somite differentiation	C3	
		• Focus on provision of curative and preventive health care	C3	
		measures		
		Practice principles of bioethics	C3	
		• Apply strategic use of AI in health care	C3	
		Read relevant research article	C3	
		• Describe early development of cardiovascular system and	C2	• Embryology :- KLM
	Early Development	chorionic villi		Embryology Developing
	of Cardiovascular	Discuss development of intraembryonic coelom	C2	Human 11 <sup>th</sup> Edition
M2-MSK-I-A-0060	System & highlights	Define angiogenesis and vasculogenesis.	C1	USMLE Q Bank Step 1
	of 4th-8th week	Correlate clinical aspects of angiogenesis	C3	(Volume 1) 2023-2034
		• Summarize the main developmental events and changes in	C2	
		external form of the embryo during the 4th to 8th weeks		_
		Corelate with the clinical conditions	C3	_
		• focus on provision of curative and preventive health care measures	C3	
		Practice principles of bioethics	C3	
		• Apply strategic use of AI in health care	C3	
		read relevant research article	C3	
		Enlist different phases of embryonic development	C1	• Embryology :- KLM
		Describe folding of the embryo in median plane	C2	Embryology Developing
	Folding of Embryo	Describe folding of the embryo in horizontal plane	C2	Human 11 <sup>th</sup> Edition
	<u> </u>	Discuss results of folding	C2	
		Discuss Omphalocele and Gastroschisis	C3	

M2-MSK-I-A-0061		Corelate with the clinical conditions	C3	• USMLE O Bank Step 1
		• focus on provision of curative and preventive health care measures	C3	(Volume 1) 2023-2034
		Practice principles of bioethics	C3	
		Apply strategic use of AI in health care	C3	
		read relevant research article	C3	
		Describe different criteria for fetal age estimation	C2	
		Discuss the trimesters of pregnancy with their importance	C2	• Embryology :- KLM
M2-MSK-I-A-0062	Fetal period	Describe highlights of fetal period	C2	Embryology Developing
		Differentiate between embryonic and fetal period	C2	Human 11 <sup>th</sup> Edition
		Tabulate growth in length and weight during fetal period	C2	USMLE O Bank Sten 1
		Enumerate and discuss factors influencing fetal growth	C2	(Volume 1) 2023-2034
		Define the term perinatology	C1	(volume 1) 2023 2031
		Enlist and briefly describe procedures for assessing fetal well-	C3	
		being		
		Correlate clinical aspects of fetal period	C3	
		• focus on provision of curative and preventive health care measures	C3	
		Practice principles of bioethics	C3	
		Apply strategic use of AI in health care	C3	
		read relevant research article	C3	
		• Discuss Implantation and establishment of the embryo within the uterus	C2	Embryology :- KLM     Embryology Developing
		Describe the differentiation of the uterine lining into decidua	C2	Human 11 <sup>th</sup> Edition
M2-MSK-I-A-0063	Placenta	Describe the development of a placenta	C2	ISMLE O Ponk Ston 1
		Describe fetal – maternal circulation	C2	(Volume 1) 2022 2024
		Discuss the bio-physiological aspects of placenta	C2	(Volume 1) 2023-2034
		Corelate the clinical conditions associated with placenta	C3	
		• focus on provision of curative and preventive health care measures	C3	
		Practice principles of bioethics	C3	
		Apply strategic use of AI in health care	C3	
		read relevant research article	C3	
		Enlist membranes developing during pregnancy	C1	• Embryology :- KLM
		• Discuss origin, composition, location, function and fate of yolk sac	C2	Embryology Developing
		• Explain origin, composition, location, function and fate of Amnion	C2	Human 11 <sup>th</sup> Edition
	Fetal Membranes	Describe formation of umbilical cord and its structure	C2	USMLE O Bank Sten 1
	and	Define Allantois along with its importance and function	C1	(Volume 1) 2023-2034
WIZ-WISK-I-A-0064	Multiple Pregnancies	Discuss different types of twins	C2	(volume 1) 2025-2054
		Correlate clinical aspects of fetal membranes	C3	
		Correlate with the clinical conditions of twin pregnancy	C3	

		• focus on provision of curative and preventive health care measures	C3	
		Practice principles of bioethics	C3	
		Apply strategic use of AI in health care	C3	
		read relevant research article	C3	
		Histology LGIS		
		Define connective tissue	C1	• <b>Histology :-</b> Junqueira's
MO MOR I A OOCE		Classify connective tissue	C2	Basic Histology 18th Edition
MIZ-MISK-I-A-0065	Connective tissue I	Enlist and explain types of cells in CT	C2	• USMLE O Bank Step 1
	tissue Embryonic	• Enumerate sites and describe the function of each type of cell of connective tissue	C2	(Volume 1) 2023-2034
	connective tissue	Understand the Biophysiological aspects of connective tissue	C2	
	/ mucoid	Draw and label histological structure of mucoid CT.	C2	
	Connective Tissue	Describe fibers in mucoid CT	C2	
		Correlate clinical conditions of CT	C3	
		focus on provision of curative and preventive health care     measures	C3	
		Practice principles of bioethics	C3	
		Apply strategic use of AI in health care	C3	
		read relevant research articles	C3	
	Connective tissue II	•		• <b>Histology :-</b> Junqueira's
	Loose aerolar connective tissue	• Enumerate examples and location of reticular, connective tissue	C1	Basic Histology 18th Edition
M2-MSK-I-A-0066	& its types	Illustrate histological structure of loose and reticular connective tissue	C2	(Volume 1) 2023-2034
	Reficultar C1	Correlate clinical aspects of loose and reticular CT	C3	
		• focus on provision of curative and preventive health care measures	C3	
		Practice principles of bioethics	C3	
		Apply strategic use of AI in health care	C3	
		read relevant research article	C3	
		• Enumerate examples and location of adipose and dense CT.	C1	• <b>Histology :-</b> Junqueira's
	Connective tissue III	Draw, describe and label histological structure of all types of connective tissue.	C2	Basic Histology 18th Edition
M2_MSK_I_A_0067	Adipose CT	Differentiate between dense regular and irregular connective tissue microscopically	C2	(Volume 1) 2023-2034
1V12-1V1012-1-17-000/	Dense regular and	Correlate clinical aspects of loose and reticular CT	C3	
	integular connective	• focus on provision of curative and preventive health care measures	C3	
		Practice principles of bioethics	C3	
		• Apply strategic use of AI in health care	C3	

		read relevant research article	C3	
		Classify cartilage	C2	• <b>Histology :-</b> Junqueira's
		Enlist sites of hyaline, fibro and elastic cartilage	C1	Basic Histology 18th Edition
		Appreciate microscopic structure of Hyaline, Elastic and	C2	• USMLE O Bank Step 1
		Fibrocartilage		(Volume 1) 2023-2034
M2 MSK I A 0068	Cartilaga	Differentiate between three cartilages	C2	Histology - Jungueire's
WIZ-WISK-I-A-0008	Cartilage	Describe the structure of perichondrium	C2	Pasia Histology 18th Edition
		Describe the arrangement of layers in articular cartilage	C2	LISMLE O Dork Stor 1
		Understand the Biophysiological aspects of cartilage	C2	• USWILE Q Bank Step 1 (Uslame 1) 2022 2024
		Correlate with clinical conditions	C3	(Volume 1) 2023-2034
		• focus on provision of curative and preventive health care measures		
		Practice principles of bioethics	C3	
		Apply strategic use of AI in health care	C3	
		read relevant research article	C3	
		Describe structure and functions of bone cells	C2	• <b>Histology :-</b> Junqueira's
		Discuss periosteum and endosteum	C2	Basic Histology 18th Edition
	Bone-I	Discuss types of bones	C2	• USMLE O Bank Sten 1
	(Cells & Types)	Describe the histological features of spongy and compact bone	C2	(Volume 1) 2023-2034
M2-MSK-I-A-0069		Describe structure of osteon.	C2	(volume 1) 2025 2051
		Understand the Biophysiological aspects of bone	C2	
		Correlate clinical aspects of bone	C3	
		focus on provision of curative and preventive health care	C3	
		measures		
		Practice principles of bioethics	C3	
		Apply strategic use of AI in health care	C3	
		read relevant research article	C3	
		Describe osteogenesis	C2	• <b>Histology :-</b> Junqueira's
	Bone-II	Discuss bone growth, remodeling and repair	C2	Basic Histology 18th Edition
	(Ossification)	• Describe histological changes in bones in osteoporosis, rickets,	C3	• USMLE O Bank Step 1
M2-MSK-I-A-0070	``````````````````````````````````````	osteomalacia, osteopetrosis and bone tumors		(Volume 1) 2023-2034
		Correlate with the clinical conditions.	C3	( + 010000 1) 2020 2001
		focus on provision of curative and preventive health care measures	C3	
		Practice principles of bioethics	C3	
		Apply strategic use of AI in health care	C3	
		read relevant research article	C3	
		General Anatomy LGIS	~ -	1
		Describe the functions of bone and skeleton	C2	
	Bone-I	Identify general features of bone	C2	

	(General Features)	Differentiate between maceration and decalcification of bones	C2	Gross Anatomy :- KLM
M2-MSK-I-A-0071	· · · · · · · · · · · · · · · · · · ·	Correlate with clinical conditions of bone	C3	clinically oriented anatomy
		• focus on provision of curative and preventive health care measures	C3	edition 10
		Practice principles of bioethics	C3	IISMLE O Bank Sten 1
		•		(Volume 1) 2023-2034
		Apply strategic use of AI in health care	C3	(volume 1) 2025-2054
		read relevant research article	C3	
		Classify bones based on different criteria	C2	Gross Anatomy:- KLM
M2-MSK-I-A-0072	Bone-II	Describe the growing end hypothesis	C2	clinically oriented anatomy
	Classification &	Describe blood supply of bones	C2	edition 10
	Blood supply)	• Appreciate role of bones in estimation of sex, age and stature.	C2	UISMLE O Bank Sten 1
				(Volume 1) 2023-2034
		Correlate with the clinical conditions.	C3	(volume 1) 2025-2054
		• focus on provision of curative and preventive health care measures	C3	
		Practice principles of bioethics	C3	
		Apply strategic use of AI in health care	C3	
		read relevant research article	C3	
		Define joints	C1	Gross Anatomy:- KLM
		Classify fibrous joints with examples	C2	clinically oriented anatomy
M2-MSK-I-A-0073	Joints-I	Classify cartilaginous joints with examples	C2	edition 10
	(Types)	Classify synovial joints with examples	C2	USMLE O Bank Sten 1
	(1)pes)	Understand the Bio-physiological aspects of joints	C2	(Volume 1) 2023-2034
		Correlate with the clinical conditions	C3	(volume 1) 2025-2054
		• focus on provision of curative and preventive health care measures	C3	
		Practice principles of bioethics	C3	
		• Apply strategic use of AI in health care	C3	
		read relevant research article	C3	
		Describe structure of synovial joint	C2	Gross Anatomy: - KLM
		Classify synovial joints	C2	clinically oriented anatomy
	Joints-II	Explain movements around synovial joints	C2	edition 10
M2-MSK-I-A-0074	(Movements)	Enlist Degenerative joint diseases	C3	USMLE O Bank Sten 1
M2 MBR 171 007 1	(ivio venientis)	• Describe the involvement of anatomical structure of the articular	C3	(Volume 1) 2023 2034
		cartilage in Degenerative joint disease		(volume 1) 2023-2034
		Correlate with the clinical conditions.	C3	7
		focus on provision of curative and preventive health care measures	C3	7
		Practice principles of bioethics	C3	7
		Apply strategic use of AI in health care	C3	7
		read relevant research article	C3	

# (Knowledge) Physiology Large Group Interactive Session (LGIS)

		Theory					
Code	Торіс	Learning Objectives	Calgary Gauge	Grade	C/P/A	Teaching Strategy	Assessment Tool
M2-MSK-I-P-001	Structure of Neuron	Describe different parts of neuron	Must know	A	C1	LGIS SDL	SAQs MCQs VIVA VOCE
	Classification of	• Describe the classification of neurons and nerve fibers	Must know	А	C1	LGIS	SAQs
M2-MSK-I-P-002	Neurons and nerve fibers, NGF	• Describe NGF; given their roles	Should know	В	C1	SDL	MCQs VIVA VOCE
	Stimulus and	Define stimulus	Must know	А	C1	LGIS	SAQs
M2-MSK-I-P-003	Response & Types of Stimuli	• Describe various types of stimuli and response	Must know	A	C1		MCQs VIVA VOCE
M2-MSK-I-P-004	Concept of degeneration and regeneration	• Explain degeneration and regeneration of nerve fibers	Must know	A	C2	LGIS	SAQs MCQs VIVA VOCE
M2-MSK-I-P-005	Properties of nerve fibers	• Discuss the properties of nerve fibers	Must know	A	C2	LGIS	SAQs MCQs VIVA VOCE
	Graded Potential,	Define graded Potential with examples	Must know	А	C1	LGIS	SAQs
M2-MSK-I-P-006	Comparison with action potential	• Compare between graded potential and action potential	Must know	A	C2		MCQs VIVA VOCE

M2-MSK-I-P-007	Nernst Potential RMP	• Understand the concept of Nernst potential and	Must know	А	C2	LGIS SDL	SAQs MCOs
		Define resting membrane potential of nerves	Must know	Α	C1	, SDL	VIVA
		<ul> <li>Explain the factors which determine the level of RMP</li> </ul>	Should know	B	C2	-	VOCE
		<ul> <li>Differences between electrical and chemical synapse</li> </ul>	Must know	А	C2	-	
	RMP: &	• Describe the terms polarized and hyperpolarized	Should know	В	C1	LGIS	SAQs
M2-MSK-I-P-008	Measurement & effect of Electrolytes	Describe the role of various ions for these states	Should know	В	C1	-	MCQs VIVA VOCE
	Stages of Action	• Define and draw action potential	Must know	А	C1	LGIS	SAQs
M2-MSK-I-P-009	Potential I&II	Describe different phases of action potential	Must know	А	C1	-	MCQs VIVA VOCE
	Recording of Action Potential	• Briefly describe the method of recording resting membrane potential and action potential	Should know	В	C1	LGIS	SAQs
M2-MSK-I-P-0010	Propagation of Action Potential &	• Describe the mechanism of propagation of action potential	Must know	А	C1		MCQs VIVA
	Factors effecting nerve conduction Polarization and hyperpolarization state	• Describe various factor that effect nerve conduction	Should know	В	C1		VOCE
	Refractory Period,	• Define refractory period and discuss its types	Must know	А	C1		SAQs
M2-MSK-I-P-0011	Different types of Action Potentials	• Describe various types of action potential	Must know	А	C1	LGIS SDL	MCQs VIVA VOCE
M2-MSK-I-P-0012	Synapse and synaptic transmission	• Describe synapse and its types	Must know	A	C1	LGIS	SAQs MCQs VIVA VOCE

	EPSP, IPSP,	• Discuss in detail various properties of chemical synapse	Should know	В	C2		SAQs
	Properties of					LGIS	MCQs
M2-MSK-I-P-0013	chemical synapse						VIVA
							VOCE
	Properties of	• Discuss in detail various properties of chemical synapse	Must know	А	C2		SAQs
	Chemical synaptic					LGIS	MCQs
							VIVA
							VOCE
	NMJ, Synthesis and	• Describe the physiologic anatomy of neuromuscular	Must know	А	C1		
	release of Ach	junction.				LGIS	SAQs
	Excitation-	Recall Synthesis and release of Ach	Should know	В	C1	SDL	MCQs
M2-MSK-I-P-0014	Contraction coupling	• Describe the mechanism of transmission of impulses	Should know	В	C1		VIVA
		from nerve endings to skeletal muscle fibers					VOCE
		Describe briefly the biochemistry of acetyl choline	Nice to know	С	C1		
	Drugs acting on	• Enlist drugs that enhance and block transmission at	Must know	А	C1		SAQs
	NMJ,Excitation-	neuromuscular junction				LGIS	MCQs
M2-MSK-I-P-0015	Contraction coupling	Describe mechanism of excitation contraction coupling	Must know	А	C1	SDL	VIVA
							VOCE
	Myasthenia Gravis,	• Describe the salient features of myasthenia gravis and	Must know	А	C1		SAQs
M2-MSK-I-P-0016	Lambert Eaton	Lambert Eaton syndrome				LGIS	MCQs
	Syndrome						VIVA
							VOCE

(Knowledge)

**Physiology Small Group Discussion (SGDs)** 

Theory

Code	Торіс	Learning Objectives	Calgary	Grade	C/P/A	Teaching	Assessment
		At the End of Session Students Should Be Able To	Gauge			Strategy	Tool
M2-MSK-I-P-0017	Discussion regarding	Discuss difficulties regarding questions, MCQs of     Eoundation Module	Should know		C2	SGD	MCQs SAOs
	previous module						Viva Voce
	DMD (		01 111	D	<u>C1</u>		OSPE
	RMP, measurement	• Define resting membrane potential of nerves.	Should know	В	CI	0.CD	MCQs
M2-MSK-I-P-0018	& effects, of	• Explain the factors which determine the level of RMP	Should know	В		SGD	SAQs
	electrolyte on KMP				C2		OSPE
		Drugs acting on NMJ	Nice to know	C	C1		MCQs
	Drugs acting on	Excitation contraction coupling	Must know	A			SEQs
M2-MSK-I-P-0019	NMJ excitation				C1	SGD	SAQs
	contraction coupling						Viva Voce
							OSPE
	Synapse and	• Describe synapse and its types	Must know	A	C1		MCQs
	synaptic	• Differences between electrical and chemical synapse	Must know	A			SAQs
M2-MSK-I-P-0020	transmission &				C2	SGD	Viva Voce
	EBSP,IPSP						OSPE
	properties of chemical synapse						
		Concept of Nernst potential	Must know	Α	C1		MCQs
M2-MSK-I-P-0021	Nernst potential	• Equilibrium potential for different ions	Should know	В		SGD	SAQs
					C2		Viva Voce
							OSPE
		Transmission Across NMJ	Should know	В	C1		MCQs
	Neuro muscular	• Diseases of NMJ	Must know	А		SGD	SAQs
M2-MSK-I-P-0022	function(NMJ)				C2		Viva Voce
							OSPE
		Describe NGF	Should know	В	C1		MCQs
		• Give their role	Should know	В	C1	SGD	SAQs

M2-MSK-I-P-0023	Nerve growth factor	•	Explain De-generation and Re-Generation of nerve fibers	Should know	В	C2	Viva Voce
	(NGF)						OSPE

# (Knowledge) Physiology Self Directed Learning (SDL)

	Theory					
Code	Topics	Learning Objective	References			
M2-MSK-I-P-0024	Structure of neurons Classification of neurons & nerve fibers	<ul> <li>Structure of neurons</li> <li>Myelinate Dand unmyelinated nerve fibers.</li> <li>Neuroglia</li> <li>Difference between neurons and glial cells</li> </ul>	<ul> <li>Ganong's Review of Medical Physiology.25<sup>TH</sup> Edition physiology Excitable Tissue; Nerve (Chapter 04, Page 85-90)</li> <li>Textbook of Medical Physiology by Guyton &amp; Hall. 14<sup>th</sup>Edition. Introduction to Physiology. (Unit2, Chapter 05 Membrane Physiology Page74)</li> <li>Physiological Basis of Medical Practice by Best &amp; Taylor's.13<sup>th</sup> Edition. Section 01. Physiology of Body Fluids. (Chapter 03, Page 37)</li> </ul>			
M2-MSK-I-P-0025	Nernst potential, RMP	<ul> <li>Basic physics of membrane potential, Nernst equation,</li> <li>Goldman Equation</li> <li>Origin of RMP indifferent cell types.</li> </ul>	<ul> <li>Human Physiology by Dee Unglaub Silver thorn. 8<sup>TH</sup> Edition. Chapter no. 05 membrane dynamics Page no.188)</li> <li>Textbook of Medical Physiology by Guyton &amp; Hall.14<sup>th</sup> Edition Membrane Potential and action potential. (Unit 2, Chapter 05 Page 63)</li> <li>Ganong's Review of Medical Physiology. 25<sup>TH</sup> Edition, Excitable Tissue; Nerve (Chapter 04, Page 90)</li> <li>Physiological Basis of Medical Practice by Best &amp; Taylor's.13<sup>th</sup> Edition. Section 01. Properties and function of cell membrane. (Chapter 02, Page 31,41-43)</li> </ul>			
M2-MSK-I-P-0026	Properties of nerve fibers	<ul> <li>Rhythmicity of Excitable tissues,</li> <li>Characteristics of signal transmission,</li> <li>Types of refract toy period</li> <li>Concept of excitation</li> </ul>	<ul> <li>Textbook of Medical Physiology by Guyton &amp; Hall. 14<sup>th</sup> Edition. Membrane Potential and action potential (Unit2, Chapter 05, Page 73-76)</li> <li>Ganong's Review of Medical Physiology.25<sup>TH</sup> Edition, Over view of cell physiology in medical physiology. Excite able Tissue; Nerve (Chapter04, Page 94)</li> <li>Physiological Basis of Medical Practice by Best &amp; Taylor's.13<sup>th</sup> Edition.Section01. Property and function of cell membrane.</li> </ul>			

			(Chapter03,Page41,55)
M2-MSK-I-P-0027	Measurement of RMP & effect of electrolytes on RMP	<ul> <li>Measurement of RMP</li> <li>Effect of electrolyte son RMP</li> <li>Role of Na/K pump</li> </ul>	<ul> <li>Textbook of Medical Physiology by Guyton &amp; Hall. 14<sup>th</sup> Edition. Membrane Potential and action potential (Unit2, Chapter 05, Page 65,67-70)</li> <li>Human Physiology by Dee Unglaub Silver thorn. 8<sup>TH</sup>Edition.Chapter no.05 Membrane dynamics Page no.188-194)</li> <li>Physiology by Linda S. Costanzo 6<sup>th</sup> Edition. Cellular Physiology (Chapter01.Page18)</li> </ul>
M2-MSK-I-P-0028	Concept of degeneration & regeneration	<ul> <li>Introduction</li> <li>Axonal Degeneration</li> <li>Wallerian Degeneration</li> </ul>	<ul> <li>Ganong's Review of Medical Physiology.25TH Edition, overview of cell physiology in medical physiology (chapter 6, page 133)</li> <li>A &amp; P Anatomy and physiology Tortora, Chapter 12 Nervous tissue And Homeostasis Page 447</li> <li>Ganong's Review of Medical Physiology.25TH Edition, overview of cell physiology in medical physiology (Chapter 4, page 97)</li> </ul>
M2-MSK-I-P-0029	Stimulus & response & types of stimuli, Stages of action potential	<ul> <li>Neuron action potential,</li> <li>Stages of Propagation of AP</li> <li>Conduction Rates</li> <li>ALL-OR-NONE Principle</li> </ul>	<ul> <li>Textbook of Medical Physiology by Guyton &amp; Hall.14th Edition.Introduction to Physiology. (Unit 2, Chapter 05 Membrane Potential and action potential Page 71)</li> <li>Ganong's Review of Medical Physiology.25TH Edition, Excitable Tissue; Nerve (Chapter 04,Page 93)</li> <li>Physiology by Linda S. Costanzo 6thEdition. cellular Physiology (Chapter 01. Page 25)</li> <li>Physiological Basis of Medical Practice by Best &amp; Taylor's.13th Edition. Section 01. Properties and function of cell membrane. (Chapter 03,Page 45,47-51)</li> </ul>
M2-MSK-I-P-0030	A, Refractory period, types of action potential. Graded potential comparison with action potential B. Recording & propagation of	<ul> <li>Threshold Potential</li> <li>Action potential</li> <li>Types of Action Potential</li> <li>Propagation of Action Potential</li> <li>Hyperpolarization</li> <li>Factors effecting Action potential</li> </ul>	<ul> <li>A.</li> <li>Ganong's Review of Medical Physiology.25TH Edition, General principles and Energy production in Medical Physiology (chapter 04, Page 90, 93)</li> <li>Textbook of Medical Physiology by Guyton &amp; Hall.14th Edition. Introduction to Physiology. (Chapter 5, page 67).</li> <li>Ganong's Review of Medical Physiology.25TH Edition, General principles and Energy production in Medical Physiology (chapter 8, page</li> </ul>

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action potential &	273)
factors effecting	• B.
nerve conduction	Ganong's Review of Medical Physiology.25TH Editions, Overview
& hyperpolarized	of Cellular Physiology in Medical Physiology (chapter 08, Page
state	276, 278, 281)
	• Textbook of Medical Physiology by Guyton & Hall.14th Edition.
	Introduction to Physiology. (Section 1, chapter 04., page
	71,72.73,74)
	Ganong's Review of Medical Physiology.25TH Editions, Overview
	of Cellular Physiology in Medical Physiology (chapter 04, page 93)

(Psychomotor)
Physiology Practicals Skill Laboratory (SKL)

Practicals								
Code	Торіс	At the end of practical students should be able to	Learning	Teaching	Assessment			
			Domain	Strategy	Tool			
		Apparatus identification						
M2-MSK-I-P-0031	Estimation of hemoglobin	Detail procedure	P, A	Skill lab	OSPE			
	Practical I	Precautions						
		• Aseptic measures taken during blood sampling						
	Estimation of hematocrit Practical I	Hct definition						
M2-MSK-I-P-0032		• How to measure	P,A	Skill lab	OSPE			
		Precautions						
		• Procedure						
M2-MSK-I-P-0033	ESR	Precautions	P,A	Skill lab	OSPE			
	Practical I	• Clinical importance of ESR, normal values						
		• Preparation of slide – practice						
M2-MSK-I-P-0034	Preparation of DLC	• How to make blood film	P,A	Skill lab	OSPE			
		• How to stain it after preparation						
		• Help of teaching aid identification of cells						

Code	Topics	Learning Objectives Calgary		Mode of	Tool of
			Model	Assessment	Assessment
M2-MSK-I-P-0035	Structure of neurons Classification of neurons & nerve fibers	<ul> <li>Structure of neurons</li> <li>Myelinated and unmyelinated nerve fibers.</li> <li>Neuroglia</li> <li>Difference between neurons and glial cells</li> </ul>	Nice to know (C)	SDL	MCQs
M2-MSK-I-P-0036	Nernst potential, RMP	<ul> <li>Basic physics of membrane potential, Nernst equation,</li> <li>Goldman Equation</li> <li>Origin of RMP in different cell types.</li> </ul>	Must Know (A)	LGIS&SDL	MCQs
M2-MSK-I-P-0037	Properties of nerve fibers	<ul> <li>Rhythmicity of Excitable tissues,</li> <li>Characteristics of signal transmission,</li> <li>Types of refractory period</li> <li>Concept of excitation</li> </ul>	Nice to know (C)	SDL	MCQs
M2-MSK-I-P-0038	Measurement of RMP &effect of electrolytes on RMP	<ul><li>Measurement of RMP</li><li>Effect of electrolytes on RMP</li><li>Role of Na/K pump</li></ul>	Must Know (A)	LGIS&SDL	MCQs
M2-MSK-I-P-0039	Concept of degeneration & regeneration	<ul><li>Introduction</li><li>Axonal Degeneration</li><li>Wallerian Degeneration</li></ul>	Nice to know (C)	SDL	MCQs
M2-MSK-I-P-0040	Stimulus & response & types of stimuli, Stages of action potential	<ul> <li>Neuron action potential,</li> <li>Stages of Propagation of AP</li> <li>Conduction Rates</li> <li>ALL-OR-NONE Principle</li> </ul>	Nice to know (C)	SDL	MCQs
M2-MSK-I-P-0041	<ul> <li>A, Refractory period, types of action potential. Graded potential comparison with action potential</li> <li>B. Recording &amp; propagation of action potential &amp; factors effecting nerve conduction &amp; hyperpolarized state</li> </ul>	<ul> <li>Threshold Potential</li> <li>Action potential</li> <li>Types of Action Potential</li> <li>Propagation of Action Potential</li> <li>Hyperpolarization</li> <li>Factors effecting Action potential</li> </ul>	Must Know (A)	LGIS&SDL	MCQs

# Physiology Syllabus of Learning Management System (LMS)

		Theory				
Code	Торіс	Learning Objectives At the End of Lecture Students Should Be Able To	Learning Domain	Calgary Gauge	Teaching Strategy	Assessment Tool
		Minerals & Vitamins				
	Minerals	<ul><li>Classify Minerals</li><li>State Daily Requirements of Calcium in different conditions</li></ul>	C1 C2	Should Know	-	
M2-MSK-I-B-001	Introduction.	Discuss Types & Sources of Calcium phosphate	C2	Should Know	L	GIS
	Calcium Phosphate	<ul> <li>Apply the strategic use of artificial intelligence in healthcare</li> <li>Use HEC digital library</li> <li>Practice principles of bioethics</li> <li>Understand the curative and preventive health care measures</li> </ul>	C3	Nice to know	MCQs, SA	AQs & Viva
M2-MSK-I-B-002	Biochemical Role of Calcium & Phosphate	<ul> <li>Discuss causes of Hypercalcemia &amp; Hypocalcemia</li> <li>Describe effects of Hypercalcemia &amp; Hypocalcemia</li> <li>State Daily Requirements of Phosphate</li> <li>Discuss Biochemical functions of Phosphate</li> </ul>	C2 C2	Must Know Should Know	L	GIS
		<ul> <li>Apply the strategic use of artificial intelligence in healthcare</li> <li>Use HEC digital library</li> <li>Practice principles of bioethics</li> <li>Understand the curative and preventive health care measures</li> </ul>	C3	Nice to know	MCQs, SA	AQs & Viva
M2-MSK-I-B-003	Fluoride	<ul> <li>Elaborate Biochemical functions of Fluoride, Sulphur &amp; Magnesium</li> <li>Describe Deficiency Effects</li> </ul>	C2 C1	Should Know Must Know	L	GIS
	Magnesium, Sulphur	<ul> <li>Apply the strategic use of artificial intelligence in healthcare</li> <li>Use HEC digital library</li> <li>Practice principles of bioethics Understand the curative and preventive health care measures</li> </ul>	C3	Nice to know	MCQs, SA	AQs & Viva
M2-MSK-I-B-004	Iodine, Copper, Zinc, Selenium, Manganese	<ul> <li>Recall sources &amp; daily requirements</li> <li>Discuss their biochemical functions</li> <li>Describe Deficiency Effects</li> </ul>	C1 C2	Should Know Must know	L MCQs, SA	GIS AQs & Viva

(Knowledge) Biochemistry Large Group Interactive Session (LGIS)

		<ul> <li>Apply the strategic use of artificial intelligence in healthcare</li> <li>Use HEC digital library</li> <li>Practice principles of bioethics</li> <li>Understand the curative and preventive health care measures</li> </ul>	C3	Nice to know	
M2-MSK-I-B-005	Vitamins & Their Classification Vitamin A and E	<ul> <li>Classify Vitamins &amp; Water-Soluble Vitamins</li> <li>Enlist Sources of Vitamin A &amp; E</li> <li>Describe Biochemical functions of Vitamin A &amp; E</li> <li>Describe Deficiency Effects of Vitamin A &amp; E</li> <li>Explain Toxic Effects of Vitamin A</li> </ul>	C2 C1	Should Know Should Know Must Know	LGIS
		<ul> <li>Apply the strategic use of artificial intelligence in healthcare</li> <li>Use HEC digital library</li> <li>Practice principles of bioethics</li> <li>Understand the curative and preventive health care measures</li> </ul>	C3	Nice to know	MCQs, SAQs & Viva
M2-MSK-I-B-006	Vitamin D	<ul> <li>Enlist Sources of Vit.D</li> <li>Explain Steps of activation of Vit.D in the body</li> <li>Describe Biochemical functions of Vit.D</li> <li>Explain Deficiency effects of Vit.D</li> <li>Explain Toxic effects of Vit.D</li> </ul>	C1 C2	Should Know Must Know	LGIS MCQs, SAQs & Viva
		<ul> <li>Apply the strategic use of artificial intelligence in healthcare</li> <li>Use HEC digital library</li> <li>Practice principles of bioethics</li> <li>Understand the curative and preventive health care measures</li> </ul>	C3	Nice to know	
M2-MSK-LB-007	Vitamin C	<ul> <li>Enlist Sources of Vit.C</li> <li>Describe Biochemical functions of Vit.C</li> </ul>	C1	Should Know Must know	LGIS
1v12-1v131x-1-D-007	v naililli C	<ul> <li>Explain Deficiency effects of Vit.C</li> <li>Explain Toxic effects of Vit.C</li> </ul>	C2	Nice Know	MCQs, SAQs & Viva

		<ul> <li>Apply the strategic use of artificial intelligence in healthcare</li> <li>Use HEC digital library</li> <li>Practice principles of bioethics</li> </ul>	C3	Nice to know	
M2-MSK-I-B-008	Niacin & Thiamine	<ul> <li>Understand the curative and preventive health care measures</li> <li>Enlist Sources</li> <li>Describe Biochemical functions</li> <li>Explain Deficiency effects</li> </ul>	C1 C2	Should Know Must Know	LGIS
		<ul> <li>Apply the strategic use of artificial intelligence in healthcare</li> <li>Use HEC digital library</li> <li>Practice principles of bioethics</li> <li>Understand the curative and preventive health care measures</li> </ul>	C3	Nice to know	MCQs, SAQs & Viva
M2-MSK-I-B-009	Classification & Structure of Amino	Classification & Structure of Amino Acids & Isomerism of Amino Acids	C2	Should Know	LGIS
	Acids	<ul> <li>Apply the strategic use of artificial intelligence in healthcare</li> <li>Use HEC digital library</li> <li>Practice principles of bioethics</li> <li>Understand the curative and preventive health care measures</li> </ul>	C3	Nice to know	MCQs, SAQs & Viva

(Knowledge)		
<b>Biochemistry Small Group Discussion (SGDs)</b>		
Theory		
	_	

Theory							
Code	Торіс	Learning Objectives	Learning	Calgary	Teaching	Assessment	
			Domain	Gauge	Strategy	Tools	
	Introduction and Classification of	• Define Vitamins	C1	Should Know	SGD	MCQ SAQ	
M2-MSK-I-B-0010	Vitamins & Vitamin E	Introduction & Classification of Vitamins	C1	Should Know		VIVA	
	•	Discuss sources, functions	C2	Should Know			
		clinical significance of vitamin E.	C2				

				Must Know		
		<ul> <li>Apply the strategic use of artificial intelligence in healthcare</li> <li>Use HEC digital library</li> <li>Practice principles of bioethics</li> <li>Understand the curative and preventive health care measures</li> </ul>	C3	Nice to know		
					SGD	MCQ
M2-MSK-I-B-0011	Minerals	<ul> <li>Discuss Sources, Functions of Phosphate, Iodine, Fluoride, Copper, Zinc, Selenium, Magnesium, Sulphur And Cobalt.</li> <li>Related clinical significance</li> </ul>	C2 C3	Should Know Must Know		SAQ VIVA
		<ul> <li>Apply the strategic use of artificial intelligence in healthcare</li> <li>Use HEC digital library</li> <li>Practice principles of bioethics</li> <li>Understand the curative and preventive health care measures</li> </ul>	C3	Nice to know		

# (Knowledge) Biochemistry Self Directed Learning (SDL)

Code	Topics	Learning Objective	Calgary Gauge	References
		Minerals & Vita	mins	
M2-MSK-I-B-0012	Hypercalcemia	<ul> <li>Discuss causes of Hypercalcemia</li> <li>Explain Biochemical Basis</li> <li>Describe effects of Hypercalcemia</li> </ul>	Must Know	<ul> <li>Textbook of Lippincott 8<sup>th</sup> Edition Chapter # 29 page#466-467</li> <li>Textbook of Harper 32<sup>nd</sup> Edition Chapter # 44 page# 540</li> <li><u>https://www.ncbi.nlm.nih.gov/books/NBK218735</u></li> <li><u>https://youtu.be/34FTvJZCrt4</u></li> </ul>
M2-MSK-I-B-0013	Hypocalcemia	<ul> <li>Discuss causes of Hypocalcemia</li> <li>Describe effects of Hypocalcemia</li> </ul>	Must Know	<ul> <li>Textbook of Lippincott 8<sup>th</sup> Edition Chapter # 29 page #466-467</li> <li><u>https://www.ncbi.nlm.nih.gov/books/NBK279023/</u></li> <li><u>https://youtu.be/qAeWKCXDniw</u></li> </ul>

M2-MSK-I-B-0014	Clinical Role of Fluoride, Magnesium,	<ul> <li>State Daily Requirements of Phosphate Discuss Biochemical functions of Calcium</li> <li>Elaborate Biochemical Basis</li> <li>Enlist Sources of Fluoride, Sulphur.</li> </ul>	Must Know	<ul> <li>Textbook of Lippincott 8<sup>th</sup> Edition Chapter # 29 page #468</li> <li><u>https://www.ncbi.nlm.nih.gov/</u></li> </ul>
M2-MSK-I-B-0015	Wilson's Disease	<ul> <li>Describe causes of deficiency</li> <li>Recall sources &amp; daily requirements of Copper</li> <li>Discuss their biochemical functions of Copper</li> <li>Describe Deficiency Effects</li> </ul>	Should Know Must Know	<ul> <li><u>https://youtu.be/PTOJNdtuXro</u></li> <li>Textbook of Lippincott 8<sup>th</sup> Edition Chapter # 29 page #449-454</li> <li><u>https://youtu.be/1i9fSQSvYI0</u></li> <li><u>https://pubmed.ncbi.nlm.nih.gov/</u></li> </ul>
M2-MSK-I-B-0016	Applied Biochemistry of Vitamin A and E	<ul> <li>Classify Fat- &amp; Water-Soluble Vitamins</li> <li>Enlist Sources of Vitamin A &amp; E</li> <li>Describe Deficiency Effects of Vitamin A &amp; E</li> <li>Explain Toxic Effects of Vitamin A</li> </ul>	Should Know Must Know	<ul> <li>Textbook of Lippincott 8<sup>th</sup> Edition Chapter # 28 page #423,432-436,441,444</li> <li>Textbook of Harper 32<sup>nd</sup> Edition Chapter # 44 page# 528-529</li> <li><u>https://byjus.com/chemistry</u></li> <li><u>https://youtu.be/7ZFr9xiAt94</u></li> </ul>
M2-MSK-I-B-0017	Rickets	<ul> <li>Enlist Sources of Vit.D</li> <li>Describe Biochemical functions of Vit.D</li> <li>Explain Deficiency effects of Vit.D</li> <li>Explain Toxic effects of Vit.D</li> </ul>	Should Know Must Know	<ul> <li>Textbook of Lippincott 8<sup>th</sup> Edition Chapter # 28 page # 437-440</li> <li>Textbook of Harper 32<sup>nd</sup> Edition Chapter # 44 page# 530-532</li> <li><u>https://byjus.com/chemistry</u></li> <li><u>https://youtu.be/6xhE5e16X0c</u></li> </ul>
M2-MSK-I-B-0018	Deficiency Manifestation of Vitamin A	• Explain Deficiency effects of vitamin A	Must Know	<ul> <li>Textbook of Lippincott 8<sup>th</sup> Edition Chapter # 28 Page #435,439</li> <li>Textbook of Harper 32<sup>nd</sup> Edition Chapter # 44 page# 530-532</li> <li><u>https://www.ncbi.nlm.nih.gov/</u></li> <li><u>shttps://youtu.be/ZCINiQX-mxU</u></li> </ul>

M2-MSK-I-B-0019	Deficiency manifestation of Thiamine	• Explain Deficiency effects	Must Know	<ul> <li>Textbook of Lippincott 8<sup>th</sup> Edition Chapter # 28 Page #429,430</li> <li>Textbook of Harper 32<sup>nd</sup> Edition Chapter # 44 page# 534</li> <li><u>https://www.ncbi.nlm.nih.gov/</u></li> <li><u>https://youtu.be/WAkXS8lgoA0</u></li> </ul>
M2-MSK-I-B-0020	Deficiency	<ul> <li>Describe Biochemical</li></ul>	Should	<ul> <li>Textbook of Lippincott 8<sup>th</sup> Edition Chapter # 28and</li></ul>
	manifestation of	functions Niacin a <li>Explain deficiency effects of</li>	Know	1 Page #1-5 &429-431 <li>Textbook of Harper 32<sup>nd</sup> Edition Chapter # 44 page#</li>
	Niacin	Niacin	Must Know	534-535 <li><u>https://microbenotes.com/</u></li> <li><u>https://youtu.be/9pwBUTIcxHk</u></li>

# (Psychomotor) Biochemistry Practicals Skill Laboratory (SKL)

Practicals							
Code	Торіс	At the End of Practical Students Should Be	Learning	Teaching	Assessment		
		Able To	Domain	Strategy	Tool		
M2-MSK-I-B-0021	Color test for detection of amino	• Biuret test	Р				
	acids	Ninhydrin Test		Skill Lab	OSPE		
M2-MSK-I-B-0022	Color test for detection of amino	Xanthoprotic Test	Р				
	acids	Million- Nasse's Test		Skill Lab	OSPE		
M2-MSK-I-B-0023	Color test for detection of amino	Arginine by Sakaguchi's Test	Р				
	acids	Tryptophan by Aldehyde Test		Skill Lab	OSPE		
M2-MSK-I-B-0024	Quantitative Analysis	Serum calcium	Р	Skill Lab	OSPE		
		Serum Ascorbic Acid					

Code	Торіс	Learning Objectives At the End of Lecture Students Should Be Able To	Learning	Calgary Gauge	Learning Resources
			Domain	Gauge	
	Ι	Minerals & Vitamins	1 1		
		Classify Minerals	C1	Should Know	• Textbook of
	Minerals	• State Daily Requirements of Calcium in different conditions	C2		Lippincott 8 <sup>th</sup> Edition
M2-MSK-I-B-0025	classification and Introduction. Calcium Phosphate	Discuss Types & Sources of Calcium phosphate	C2	Should Know	
		<ul> <li>Apply the strategic use of artificial intelligence in healthcare</li> <li>Use HEC digital library</li> <li>Practice principles of bioethics</li> <li>Understand the curative and preventive health care measures</li> </ul>	C3	Nice to know	
		• Discuss causes of Hypercalcemia & Hypocalcemia	C2	Must Know	• Textbook of
		<ul> <li>Describe effects of Hypercalcemia &amp; Hypocalcemia</li> </ul>			Lippincott 8 <sup>th</sup> Edition
	Biochemical Role of	State Daily Requirements of Phosphate	C2	Should Know	
M2-MSK-I-B-0026	Calcium &	<ul> <li>Discuss Biochemical functions of Phosphate</li> </ul>			
	Phosphate	• Apply the strategic use of artificial intelligence in healthcare	C3	Nice to know	
		• Use HEC digital library			
		• Practice principles of bioethics			
		• Understand the curative and preventive health care measures			
		Elaborate Biochemical functions of Fluoride, Sulphur &	C2	Should Know	• Textbook of
		Magnesium		Must Know	Lippincott 8 <sup>th</sup> Edition
M2-MSK-I-B-0027		Describe Deficiency Effects	C1		
	Fluoride,				
	Magnesium, Sulphur	• Apply the strategic use of artificial intelligence in healthcare	C3	Nice to know	
		• Use HEC digital library			
		Practice principles of bioethics			

# **Biochemistry Syllabus of Learning Management System (LMS)**

		Understand the curative and preventive health care measures			
M2-MSK-I-B-0028	Iodine, Copper, Zinc, Selenium, Manganese	<ul> <li>Recall sources &amp; daily requirements</li> <li>Discuss their biochemical functions</li> <li>Describe Deficiency Effects</li> </ul>	C1 C2	Should Know Must know	• Textbook of Lippincott 8 <sup>th</sup> Edition
		<ul> <li>Apply the strategic use of artificial intelligence in healthcare</li> <li>Use HEC digital library</li> <li>Practice principles of bioethics</li> <li>Understand the curative and preventive health care measures</li> </ul>	C3	Nice to know	
M2-MSK-I-B-0029	Vitamins & Their Classification Vitamin A and E	<ul> <li>Classify Vitamins &amp; Water-Soluble Vitamins</li> <li>Enlist Sources of Vitamin A &amp; E</li> <li>Describe Biochemical functions of Vitamin A &amp; E</li> <li>Describe Deficiency Effects of Vitamin A &amp; E</li> <li>Explain Toxic Effects of Vitamin A</li> </ul>	C2 C1	Should Know Should Know Must Know	• Textbook of Lippincott 8 <sup>th</sup> Edition Textbook of Harper 32 <sup>nd</sup> Edition
		<ul> <li>Apply the strategic use of artificial intelligence in healthcare</li> <li>Use HEC digital library</li> <li>Practice principles of bioethics</li> <li>Understand the curative and preventive health care measures</li> </ul>	C3	Nice to know	
M2-MSK-I-B-0030	Vitamin D	<ul> <li>Enlist Sources of Vit.D</li> <li>Explain Steps of activation of Vit.D in the body</li> <li>Describe Biochemical functions of Vit.D</li> <li>Explain Deficiency effects of Vit.D</li> </ul>	C1	Should Know Must Know	Textbook of Harper 32 <sup>nd</sup> Edition
		<ul> <li>Explain Toxic effects of Vit.D</li> <li>Apply the strategic use of artificial intelligence in healthcare</li> <li>Use HEC digital library</li> <li>Practice principles of bioethics</li> <li>Understand the curative and preventive health care measures</li> </ul>	C2 C3	Nice to know	
		<ul> <li>Enlist Sources of Vit.C</li> <li>Describe Biochemical functions of Vit.C</li> </ul>	C1	Should Know	Textbook of Harper 32 <sup>nd</sup> Edition
	Vitamin C		C2	Must know	

M2-MSK-I-B-0031		• Explain Deficiency effects of Vit.C				
		• Explain Toxic effects of Vit.C		C2		
		<ul> <li>Apply the strategic use of artificial i</li> <li>Use HEC digital library</li> <li>Practice principles of bioethics</li> </ul>	intelligence in healthcare	C3	Nice to know	
	Niacin & Thiamine	<ul> <li>Understand the curative and prevent</li> <li>Enlist Sources</li> <li>Describe Biochemical functions</li> <li>Explain Deficiency effects</li> </ul>	tive health care measures	C1 C2	Should Know Must Know	Textbook of Harper 32 <sup>nd</sup> Edition
M2-MSK-I-B-0032		<ul> <li>Apply the strategic use of artificial i</li> <li>Use HEC digital library</li> <li>Practice principles of bioethics</li> </ul>	intelligence in healthcare	C3	Nice to know	
	Classification & Structure of Amino	<ul> <li>Understand the curative and prevent</li> <li>Classification &amp; Structure of Amino Amino Acids</li> </ul>	Acids & Isomerism of	C2	Should Know	Textbook of Lippincott 8 <sup>th</sup> Edition
M2-MSK-I-B-0033	Acids	<ul> <li>Apply the strategic use of artificial i</li> <li>Use HEC digital library</li> <li>Practice principles of bioethics</li> <li>Understand the curative and prevent</li> </ul>	intelligence in healthcare	C3	Nice to know	
M2-MSK-I-B-0034	Hypercalcemia	<ul> <li>Discuss causes of Hypercalcemia</li> <li>Explain Biochemical Basis</li> <li>Describe effects of Hypercalcemia</li> </ul>	C3 Must Know	<ul> <li>Textbo page#4</li> <li>Textbo page#</li> <li><u>https://</u></li> </ul>	bok of Lippincott 8 466-467 bok of Harper 32 <sup>nd</sup> 540 /www.ncbi.nlm.nih /youtu.be/34FTvJZ	<sup>th</sup> Edition Chapter # 29 Edition Chapter # 44 gov/books/NBK218735 <u>Crt4</u>
M2-MSK-I-B-0035	Hypocalcemia	<ul> <li>Discuss causes of Hypocalcemia</li> <li>Describe effects of Hypocalcemia</li> <li>State Daily Requirements of Phosphate Discuss Biochemical</li> </ul>	C3 Must Know	Textboo page #4 <u>https://v</u> <u>https://v</u>	ok of Lippincott 8 <sup>th</sup> 66-467 www.ncbi.nlm.nih. youtu.be/qAeWKC	<sup>1</sup> Edition Chapter # 29 gov/books/NBK279023/ XDniw

		functions of Calcium			
M2-MSK-I-B-0036	Clinical Role of Fluoride, Magnesium, Sulphur	<ul> <li>Elaborate Biochemical Basis</li> <li>Enlist Sources of Fluoride, Sulphur.</li> <li>Describe causes of deficiency</li> </ul>	C2	Must Know	<ul> <li>Textbook of Lippincott 8<sup>th</sup> Edition Chapter # 29 page #468</li> <li><u>https://www.ncbi.nlm.nih.gov/</u></li> <li><u>https://youtu.be/PTOJNdtuXro</u></li> </ul>
M2-MSK-I-B-0037	Wilson's Disease	<ul> <li>Recall sources &amp; daily requirements of Copper</li> <li>Discuss their biochemical functions of Copper</li> <li>Describe Deficiency Effects</li> </ul>	C2	Should Know Must Know	<ul> <li>Textbook of Lippincott 8<sup>th</sup> Edition Chapter # 29 page #449-454</li> <li><u>https://youtu.be/1i9fSQSvYI0</u></li> <li><u>https://pubmed.ncbi.nlm.nih.gov/</u></li> </ul>
M2-MSK-I-B-0038	Applied Biochemistry of Vitamin A and E	<ul> <li>Classify Fat- &amp; Water-Soluble Vitamins</li> <li>Enlist Sources of Vitamin A &amp; E</li> <li>Describe Deficiency Effects of Vitamin A &amp; E</li> <li>Explain Toxic Effects of Vitamin A</li> </ul>	C3	Should Know Must Know	<ul> <li>Textbook of Lippincott 8<sup>th</sup> Edition Chapter # 28 page #423,432-436,441,444</li> <li>Textbook of Harper 32<sup>nd</sup> Edition Chapter # 44 page# 528-529</li> <li><u>https://byjus.com/chemistry</u></li> <li><u>https://youtu.be/7ZFr9xiAt94</u></li> </ul>
M2-MSK-I-B-0039	Rickets	<ul> <li>Enlist Sources of Vit.D</li> <li>Describe Biochemical functions of Vit.D</li> <li>Explain Deficiency effects of Vit.D</li> <li>Explain Toxic effects of Vit.D</li> </ul>	C3	Should Know Must Know	<ul> <li>Textbook of Lippincott 8<sup>th</sup> Edition Chapter # 28 page # 437-440</li> <li>Textbook of Harper 32<sup>nd</sup> Edition Chapter # 44 page# 530-532</li> <li><u>https://byjus.com/chemistry</u></li> <li><u>https://youtu.be/6xhE5e16X0c</u></li> </ul>
M2-MSK-I-B-0040	Deficiency Manifestation of Vitamin A	• Explain Deficiency effects of vitamin A	C3	Must Know	<ul> <li>Textbook of Lippincott 8<sup>th</sup> Edition Chapter # 28 Page #435,439</li> <li>Textbook of Harper 32<sup>nd</sup> Edition Chapter # 44 page# 530-532</li> <li><u>https://www.ncbi.nlm.nih.gov/</u></li> <li><u>shttps://youtu.be/ZCINiQX-mxU</u></li> </ul>
		• Explain Deficiency effects	C3	Must Know	<ul> <li>Textbook of Lippincott 8<sup>th</sup> Edition Chapter # 28 Page #429,430</li> </ul>

M2-MSK-I-B-0041	Deficiency manifestation of Thiamine				<ul> <li>Textbook of Harper 32<sup>nd</sup> Edition Chapter # 44 page# 534</li> <li><u>https://www.ncbi.nlm.nih.gov/</u></li> <li><u>https://youtu.be/WAkXS8lgoA0</u></li> </ul>
M2-MSK-I-B-0042	Deficiency manifestation of Niacin	<ul> <li>Describe Biochemical functions Niacin a</li> <li>Explain deficiency effects of Niacin</li> </ul>	C3	Should Know Must Know	<ul> <li>Textbook of Lippincott 8<sup>th</sup> Edition Chapter # 28and 1 Page #1-5 &amp;429-431</li> <li>Textbook of Harper 32<sup>nd</sup> Edition Chapter # 44 page# 534-535</li> <li><u>https://microbenotes.com/</u></li> <li><u>https://youtu.be/9pwBUTIcxHk</u></li> </ul>

### **SECTION - III**

# **Basic and Clinical Sciences (Vertical Integration)**

#### Content

- Case Base Learning (CBLs)
- Vertically Integrated LGIS

# **Basic and Clinical Sciences (Vertical Integration)**

#### **Case Based Learning (CBL)**

Subject	Topic	Learning Objectives	Learning
Subject Topic		Learning Objectives	Learning
		At the end of the lecture the student should be able to	Domain
	Shoulder Dislocation	Apply basic knowledge of subject to study clinical case.	C1
Anatomy	Wrist Drop	Apply basic knowledge of subject to study clinical case.	C3
	Paresthesia	Apply basic knowledge of subject to study clinical case.	C3
Physiology	Insecticide poisoning	Apply basic knowledge of subject to study clinical case.	C3
	Night Blindness	Apply basic knowledge of subject to study clinical case.	C3
Biochemistry	Rickets	Apply basic knowledge of subject to study clinical case.	C3

# Large Group Interactive Sessions (LGIS) Community Medicine

Theory							
Code	Торіс	Learning Objectives	Cognitive	Teaching	Mode of		
			Domain	Strategy	Assessment		
		• Explain causes of low back pain	C2				
		• Describe prevention of low back pain	C2				
		• Describe work related musculoskeletal disorders	C2				
M2-MSK-I-VI(CM)-001	Musculoskeletal Disorders	<ul><li>addition with its burden/epidemiology</li><li>Identify risk factors of Musculoskeletal disorders MSD</li></ul>	C1	LGIS	MCQs		
		<ul> <li>Identify risk factors related to MSD due to excessive mobile usage.</li> </ul>	C1				
		• Describe prevention of exposure to risk factors related to	C1				
		<ul> <li>workplace</li> <li>Describe the application of ergonomics in MSD related to the above disorders.</li> </ul>	C1				
	Prevention of	• Categorize different types of accidents	C1				
M2-MSK-I-VI(CM)-002	Accidents	• Describe risk factors involved in accidents	C2	LGIS	MCQs		
		• Describe steps involved in prevention of different types of accidents.	C2				

Theory						
Code	Topic	Learning Objectives	Learning	Teaching	Assessment	
		At the end of the lecture the student should be able to	Domain	Strategy	Tool	
		Enlist causes Osteoporosis	C2			
		Discuss changes in bones in Osteoporosis	C2			
M2-MSK-I-VI(M)-001	Osteoporosis	Describe clinical features	C2	LGIS	MCQs	
	_	Enlist investigation	C3			
		Discuss management	C2			
		• Differentiate different causes of polyarthritis	C2			
		• on basis of clinical features				
M2-MSK-I-VI(M)-002	Polyarthritis	• Discuss the diagnostic criteria of rheumatoid arthritis	C2	LGIS	MCQs	
		• Discuss the diagnostic criteria of SLE	C2			
		• Plan investigations of a patient with polyarthritis to find out etiology	C3			
		• Discuss general and specific management of a patient with polyarthritis	C2			
		• Enlist causes of rickets	C1			
		• Discuss changes in bones in osteomalacia	C2			
M2-MSK-I-VI(M)-003	Osteomalacia	• Describe clinical features of osteomalacia& rickets	C2	LGIS	MCQs	
	/rickets	• Enlist investigations for of osteomalacia& rickets	C1			
		• Discuss management of osteomalacia& rickets	C2			

# Surgery

		Theory			
Code	Topic	Learning Objectives	Learning	Teaching	Assessment
		At the end of the lecture the student should be able to	Domain	Strategy	Tool
		• Discuss the possible sites of shoulder dislocation	C2		
M2-MSK-I-VI(S)-001	Shoulder	Discuss the consequences of dislocation	C2	LGIS	MCQs
	Dislocation	Management concepts	C2		
	Tennis elbow,	• Describe:			
M2-MSK-I-VI(S)-002	fracture of	• Tennis elbow	C2	LGIS	MCQs

olecranon,	Discuss fractures of radius and ulna	C2	
radius and	Describe the common sites of fracture	C2	
ulna	Management concepts	C2	

Pharmacolo	gy
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Theory									
Code	Торіс	Learning Objectives	Learning	Teaching	Assessment				
		At the end of the lecture the student should be able to	Domain	Strategy	Tool				
M2-MSK-I-VI(Pharm)-001	Drugs Acting On Neuromuscular Junction	• Give the stepwise mechanism of neuromuscular transmission	C1						
		Classify drugs acting on neuromuscular junction	C1	LGIS	MCQs				
		• Explain the mechanism of action, clinical uses, adverse drug	C2						
		affects and contraindications of neuromuscular stimulants							
		• Describe the mechanism of action, clinical uses, adverse effects	C2	LGIS	MCQs				
		and contraindications of neuromuscular blockers							
M2-MSK-I-VI(Pharm)-002	Tennis elbow, fracture of olecranon, radius and ulna	• Outline the pathophysiology of myasthenia gravis	C1	LGIS	MCQs				
		• Describe the mechanism of action of cholinesterase inhibitors	C2	LGIS	MCQs				
		Classify drugs used in myasthenia gravis	C1	LGIS	MCQs				
		• Recognize the adverse effects and contraindications of drugs used	C2	LGIS	MCQs				
		in myasthenia gravis							

# **Obstetrics & Gynecology**

Theory									
Code	Topic	Learning Objectives	Learning	Teaching	Assessment				
		At the end of the lecture the student should be able to	Domain	Strategy	Tool				
M1-MSK-II-VI(OBG)-001	Bony PELVIS Fetal Skull & Mechanism of Labor	<ul> <li>Understand the structure, functions, and anatomical components of the bony pelvis, and its role in supporting the weight of the body and facilitating childbirth</li> <li>Understand the anatomy and features of the fetal skull, including fontanelles and sutures, and their significance in labor and delivery.</li> </ul>	C2 C2	LGIS	MCQs				
		• Describe the stages and the physiological mechanisms of labor,	C2						
		including the movements of the fetus through the birth canal.							
### **SECTION – IV**

### **Spiral Courses**

### Content

- Longitudinal Themes
  - The Holy Quran Translation
  - Seerat Mubarak
  - **o** Biomedical Ethics & Professionalism
  - Family Medicine
  - Artificial Intelligence (Innovation)
  - Integrated Undergraduate Research Curriculum (IUGRC)
  - Early Clinical Exposure (ECE)

#### Introduction to Spiral Courses The Holy Quran Translation

A course of Islamic Studies provides students with a comprehensive overview of the fundamental aspects of Islam, its history, beliefs, practices, and influence on society and familiarize students with a solid foundation in understanding the religion of Islam from an academic and cultural perspective. Ethics, in integrated form will shape the core of the course to foster among students the universal ethical values promoted by Islam.

#### Bioethics

Biomedical ethics, also known as bioethics, is a field of study that addresses the ethical, social, and legal issues arising from medicine and the life sciences. It applies moral principles and decision-making frameworks to the practice of clinical medicine, biomedical research, and health policy. Biomedical ethics seeks to navigate the complex ethical dilemmas posed by advances in medical technology, research methodologies, and healthcare practices. Key areas of focus include patient rights and autonomy, confidentiality, informed consent, end-of-life care, resource allocation, and the ethics of genetic engineering, among others.

Biomedical ethics within medical universities plays a pivotal role in shaping the moral framework through which future healthcare professionals navigate the complex and often challenging decisions they will face in their careers. This critical discipline integrates ethical theories and principles with clinical practice, research, and healthcare policy, fostering a deep understanding of the ethical dimensions of medicine. By embedding biomedical ethics into the curriculum, Rawalpindi medical university equips students with the tools to critically analyze and address ethical dilemmas, ranging from patient confidentiality and informed consent to end-of-life care and the equitable distribution of healthcare resources.

This education goes beyond theoretical knowledge, encouraging students to apply ethical reasoning in practical scenarios, thus preparing them for the moral complexities of the medical field. Biomedical ethics also promotes a culture of empathy, respect, and integrity, ensuring that future medical practitioners not only excel in their technical skills but also uphold the highest ethical standards in patient care and research. Through seminars, case studies, and interdisciplinary collaborations, students are encouraged to engage in ethical discourse, reflecting on the societal impact of medical advancements and the responsibility of medical professionals to society. This foundational aspect of medical education cultivates a generation of healthcare professionals committed to ethical excellence, patient advocacy, and the pursuit of equitable healthcare for all.

#### Professionalism

Professionalism in medicine refers to the set of values, behaviors, and relationships that underpin the trust the public has in doctors and other healthcare professionals. It encompasses a commitment to competence, integrity, ethical conduct, accountability, and putting the interests of patients above one's own. Professionalism involves adhering to high standards of practice, including maintaining patient confidentiality, communicating effectively and respectfully with patients and colleagues, and continually engaging in self-improvement and professional development. It also includes a responsibility to improve access to high-quality healthcare and to contribute to the welfare of the community and the betterment of public health. In essence, professionalism in medicine is foundational to the quality of care provided to patients and is critical for maintaining the trust that is essential for the doctor-patient relationship.

Rawalpindi Medical University emphasizes the importance of professionalism in medicine, integrating it throughout its curriculum to ensure that students embody the core values of respect, accountability, and compassion in their interactions with patients, colleagues, and the community. This focus on professionalism is designed to prepare students for the complexities of the healthcare environment, instilling in them a deep sense of responsibility to their patients, adherence to ethical principles, and a commitment to continuous learning and improvement. Through a combination of theoretical learning, practical training, and mentorship, RMU encourages its students to exemplify professionalism in every aspect of their medical practice. Workshops, seminars, and clinical rotations further reinforce these values, providing students with real-world experiences that highlight the importance of maintaining professional conduct in challenging situations. RMU's approach to professionalism not only shapes competent and ethical medical professionals but also contributes to the broader mission of improving healthcare standards and patient outcomes. By prioritizing professionalism, Rawalpindi Medical University plays a crucial role in advancing the medical profession and ensuring that its graduates are well-equipped to meet the demands of a rapidly evolving healthcare landscape with honor and integrity.

#### Communication Skills

Communication skill for health professionals involves the ability to effectively convey and receive information, thoughts, and feelings with patients, their families, and other healthcare professionals. It encompasses a range of competencies including active listening, clear and compassionate verbal and non-verbal expression, empathy, the ability to explain medical conditions and treatments in an understandable way, and the skill to negotiate and resolve conflicts. Effective communication is essential for establishing trust, ensuring patient understanding and compliance with treatment plans, making informed decisions, and providing holistic care. It directly impacts patient satisfaction, health outcomes, and the overall efficiency of healthcare delivery.

At Rawalpindi Medical University (RMU), the development of communication skills is regarded as a fundamental aspect of medical education, recognizing its critical importance in enhancing patient care, teamwork, and interdisciplinary collaboration. RMU is dedicated to equipping its students with exceptional communication abilities, enabling them to effectively interact with patients, their families, and healthcare colleagues. The curriculum is thoughtfully designed to incorporate various interactive and experiential learning opportunities, such as role-playing, patient interviews, and group discussions, which allow students to practice and refine their communication skills in a supportive environment.

By integrating communication skills training throughout its programs, RMU not only enhances the interpersonal competencies of its future healthcare professionals but also contributes to improving the overall quality of healthcare delivery. Graduates from RMU are distinguished not just by their clinical expertise but also by their ability to connect with patients and colleagues, making them highly effective and compassionate practitioners.

#### **Behavioral Sceinces**

Behavioral sciences in medicine focus on understanding and addressing the psychological and social aspects of health and illness. This interdisciplinary field combines insights from psychology, sociology, anthropology, and other disciplines to enhance medical care and patient outcomes. It explores how behavior, emotions, and social factors influence health, disease, and medical treatment. By incorporating behavioral science principles into medical practice, healthcare professionals can better understand patients' perspectives, improve communication, and promote positive health behaviors, ultimately contributing to more comprehensive and effective patient care.

#### Family Medicine

Family medicine is a medical specialty dedicated to providing comprehensive health care for people of all ages and genders. It is characterized by a long-term, patient-centered approach, building sustained relationships with patients and offering continuous care across all stages of life. It focuses on treating the whole person within the context of the family and the community, emphasizing preventive care, disease management, and health promotion.

The Family Medicine Curriculum at Rawalpindi Medical University (RMU) marks a significant stride towards holistic healthcare education, aiming to prepare medical graduates for the comprehensive and evolving needs of family practice. This curriculum is designed to offer a broad perspective on healthcare, focusing on preventive care, chronic disease management, community health, and the treatment of acute conditions across all ages, genders, and diseases. Emphasizing a patient-centered approach, the curriculum ensures that students develop a deep understanding of the importance of continuity of care, patient advocacy, and the ability to work within diverse community settings.

RMU's Family Medicine Curriculum integrates theoretical knowledge with practical experience. Students are exposed to a variety of learning environments, including community health centers, outpatient clinics, and inpatient settings, providing them with a well-rounded understanding of the different facets of family medicine. This hands-on approach is complemented by interactive sessions, workshops, and seminars that cover a wide range of topics from behavioral health to geriatric care, ensuring students are well-equipped to address the comprehensive health needs of individuals and families.

#### Artificial Intelligence

To realize the dreams and impact of AI requires autonomous systems that learn to make good decisions. Reinforcement learning is one powerful paradigm for doing so, and it is relevant to an enormous range of tasks, including robotics, game playing, consumer modeling and healthcare. This class will provide a solid introduction to the field of reinforcement learning and students will learn about the core challenges and approaches, including generalization and exploration. Through a combination of lectures, and written and coding assignments, students will become well versed in key ideas and techniques for RL. Assignments will include the basics of reinforcement learning as well as deep reinforcement learning — an extremely promising new area that combines deep learning techniques with reinforcement learning. In addition, students will advance their understanding and the field of RL through a final project.

#### Integrated Undergraduate Research Curriculum

The integrated undergraduate research curriculum (IUGRC) of RMU occupies a definite space in schedule of each of the five years in rational and incremental way. It has horizontal harmonization as well as multidisciplinary research work potentials. In the first-year teachings are more introductory & inspirational rather than instructional. The teachings explain what & why of research and what capacities are minimally required to comprehend research & undertake research. Some research dignitaries' lecture are specifically arranged for sharing their experiences and inspiring the students. Students are specifically assessed through their individual compulsory written feedback (reflection) after the scheduled teachings end.

#### Entrepreneurship

Entrepreneurship is the process of designing, launching, and running a new business, which typically starts as a small enterprise offering a product, process, or service for sale or hire. It involves identifying a market opportunity, gathering resources, developing a business plan, and managing the business's operations, growth, and development.

Entrepreneurship in medical universities represents a burgeoning field where the innovative spirit intersects with healthcare to forge advancements that can transform patient care, medical education, and healthcare delivery. This unique amalgamation of medical expertise and entrepreneurial acumen empowers students, faculty, and alumni to develop groundbreaking medical technologies, healthcare solutions, and startups that address critical challenges in the health sector. By integrating entrepreneurship into the curriculum, Rawalpindi Medical university is not only expanding the traditional scope of medical education but also fostering a culture of innovation and problem-solving. This enables future healthcare professionals to not only excel in clinical skills but also in business strategies, leadership, and innovation management.

Such initiatives often lead to the creation of medical devices, digital health platforms, and therapeutic solutions that can significantly improve patient outcomes and make healthcare more accessible and efficient. Through incubators, accelerators, and partnerships with the industry, medical universities are becoming hotbeds for healthcare innovation, driving economic growth, and contributing to the broader ecosystem of medical research and entrepreneurial success.

#### Digital Literacy Module

Digital literacy means having the skills one needs to live, learn, and work in a society where communication and access to information is increasingly through digital technologies like internet platforms, social media, and mobile devices.

#### Early Clinical Exposure (ECE)

Early clinical exposure helps students understand the relevance of their preclinical studies by providing real-world contexts. This can enhance motivation and engagement by showing students the practical application of their theoretical knowledge. Early exposure allows students to begin developing essential clinical skills from the start of their education. This includes not only technical skills but also crucial soft skills such as communication, empathy, and professionalism. Direct interaction with patients early in their education helps students appreciate the complexities of patient care, including the psychological and social aspects of illness. Early exposure to various specialties can aid students in making informed decisions about their future career paths within medicine.

Early clinical experiences contribute to the development of a professional identity, helping students see themselves as future physicians and understand the responsibilities and ethics associated with the profession. This can help reduce the anxiety associated with clinical work by familiarizing students with the clinical environment. It can build confidence in their abilities to interact with patients and healthcare professionals. Engaging with real-life clinical situations early on encourages the development of critical thinking and problem-solving skills, which are essential for medical practice. It helps bridge the gap between theoretical knowledge and practical application, leading to a more integrated and holistic approach to medical education. It allows students to observe and understand how healthcare systems operate, including the challenges and limitations faced in different settings.: Early patient interaction emphasizes the importance of patient-centered care from the outset, underscoring the importance of treating patients as individuals with unique needs and backgrounds. Practical experiences can enhance long-term retention of knowledge as students are able to connect theoretical learning with clinical experiences.: Early clinical experiences often involve working in multidisciplinary teams, which fosters a sense of collaboration and understanding of different roles within healthcare.

In summary, early clinical exposure in medical education is pivotal for the holistic development of medical students, providing them with a strong foundation of practical skills, professional attitudes, and a deep understanding of patient-centered care.

# The Family Medicine

	Theory											
Code	Торіс	Learning Objectives	Learning	Teaching	Assessment							
		At the end of the lecture the student should be able to	Domain	Strategy	Tool							
		• Describe presenting complains of patients with body aches	~~	1.010								
MSK-I-SI(FM)-001	Approach to a	• Discus complications of body aches	C3	LGIS	MCQs							
	Patient with body     Oescribe initial treatment of patients with body aches											
	actics	• Know when to refer patient to consultant/ Hospital										

### **Behavioral Sciences**

		Theory			
Code	Торіс	Learning Objectives	Learning	Teaching	Assessment
		At the end of the lecture the student should be able to	Domain	Strategy	Tool
	Healthcare models	• To define bio-psychosocial model of health care	C1	LGIS	MCQs
MSK-I-SI(BS)-001	and their clinical	To describe Integrated model of healthcare	C2	LGIS	MCQs
	<ul> <li>Bio-psychosocial</li> <li>model</li> </ul>	• To describe Public health care model	C2	LGIS	MCQs
		• To describe Holistic and Traditional Allopathic medicine.	C2	LGIS	MCQs
	•Integrated health care Model	• To obtain information from the patient according to bio- psychosocial model		LGIS	MCQs
	•Publica health care model	• Elaborate the importance of health belief model in clinical setting	C1	LGIS	MCQs
		• Relevance of ethics in life of a doctor	C3	LGIS	MCQs
		Guiding principles of medical ethics	C3	LGIS	MCQs
MSK-I-SI(BS)-002	Relevance of	• To address the common ethical issues	C3	LGIS	MCQs
	ethics in life of a doctor	• To address the common ethical dilemmas in health professional life	C3	LGIS	MCQs

Integrated	Undergraduate	Research	Curriculum	(IUGRC)
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Theory												
Code	Торіс	Learning Objectives	Cognitive	Teaching	Mode of							
			Domain	Strategy	Assessment							
	Research Club	Organize research idea or general	C3	Research Club	Manuscript							
	Activity 1	thought into a topic that can be		Activity	submission at							
		configured into research problem	C3	Teaching	SJRMC							
	Synopsis Writing	• Formulating a research question		strategy								
M2-MSK-I-SI(IUGRC)-001		according to FINER Criteria	C2	(LGIS on								
		Formulate appropriate research		campus)								
		questioning using PEO/PICO/PICOT	C2	(SDL/PAL off								
		format	C3	campus)								
		• Understand the concept of literature	C2									
		review										
		Cognizant with concept of publication										
		ethics										
		Outline steps of synopsis writing										
		according to SJRMC Guidelines										
	Research Club	• Understand about questionnaires used	C2	Research Club	Manuscript							
	Activity 2	in research	~	Activity	submission at							
		• Categorize types of questions used in	C	Teaching	SJRMC							
M2-MSK-I-SI(IUGRC)-002	Questionnaire	research their advantages and	C3	strategy								
	Development	disadvantages	<b>C</b> 2	(LGIS on								
		• Identify Designs and stages of	$C_2$	(SDL/DAL off								
		development of questionnaire	CS	(SDL/PAL OII								
		• Interpret Simple rules for writing a		campus)								
		good questionnaire										
		• Appraise Parts and Layout of										
		questionnaire	<b>C</b> 2									
	Research Club	• Make variables on computer	C2	Research Club	Manuscript							
	Activity 3	• Feed data under variables on computers	C3	Activity	submission at							
MO MOR I CHUICDON 002	Handa an arreiter -	Summarize data on computer including	C2	Teaching	SJRMC							
W12-WISK-1-SI(1UGKC)-003	Hands on session on	text, tabulations & graphics	$C^{2}$	strategy								
	Data Analysis		03									

		<ul> <li>Perform Descriptive analysis of data on computer</li> <li>Organize, and save data in a suitable way.</li> <li>Calculate/recode variables and prepare data for analysis.</li> <li>Conduct descriptive and basic inferential statistics.</li> <li>Be familiar with SPSS presentation of statistical output.</li> <li>Create and edit graphical displays of data.</li> </ul>	C3 C2 C2 C3 C2	(LGIS on campus) (SDL/PAL off campus)	
M2-MSK-I-SI(IUGRC)-004	<b>Research Club</b> Activity 4 Manuscript Writing Workshop	<ul> <li>At the end of session students will be able to:</li> <li>Interpret &amp; apply basic principles of manuscript writing of research report</li> <li>Perceive authorships requirements or rules of drafting manuscript of a research report for publication in indexed journal</li> </ul>	C3 C2 C2 C2	Research Club Activity Teaching strategy (LGIS on campus) (SDL/PAL off campus)	Manuscript submission at SJRMC
		<ul> <li>Write discussion section of draft</li> <li>Explain conclusion, recommendation and acknowledge part of research report</li> <li>clarify types of citations included in discussion section</li> </ul>	C2 C2		

## **SECTION-V**

### Assessment



### Assessment

Assessment is the systematic basis for making inferences about the learning and development of students. It is the process of defining, selecting, designing, collecting, analyzing, interpreting, and using information to increase students' learning and development.

### **Assessment Policy**

#### Scope

This policy is applicable to all the students of the MBBS program of RMU for all modes of teaching (on campus/online/any other) from the date of approval by the RMU Academic Council.

#### 1. Guiding principles

- RMU has the responsibility to ensure to all the stakeholders that students have achieved the identified outcomes of the medical degree course.
- Assessment requires a variety of methods; no single method can completely ensure that the requisite competence level has been achieved. Hence each assessmentinstrument must be selected based on its utility index.
- Feedback, ensuring that the feedback loop is closed, should be provided to students following all assessments to ensure that students identify gaps in their learning and faculty can review future curricular and assessment content.
- The quality of the entire assessment including confidentiality of the assessment process must be ensured.
- The assessment process should be clear and transparent so that students know in advance the expectations (from students) and consequences of the assessment.
- Details of the conduct of examinations are available in the Examination policy document.

#### 2. Purposes of Assessment.

- To ensure appropriate competence has been achieved.
- Feedback to students regarding their readiness and deficiencies
- Feedback to faculty to evaluate the effectiveness of the teaching program.

#### **3.** Forms of assessments

#### **3.1 Formative Assessment**

A formative assessment refers to a low-stakes assessment that does not normally contribute towards a student's final grade. Assessment for learning is carried out throughout modules and clerkships using various strategies (at the discretion of module coordinators and clerkship directors' feedback. Weekly assessment of Large Group Interactive Session (LGIS) and Self-Directed Learning (SDL) Sessions will be conducted on LMS (learning management system). The LMS result will be shared by module coordinator and DME through vice chancellor on weekly basis

#### 3.2 Summative Assessment

A summative assessment is performed at the end of a unit that allows a teacher to measure a student's understanding, typically against a standardized criterion. These Assessment includes End of Module Assessment (EMA), End of Block Assessment (EBA), Pre- Annual Assessment (PAA) and Annual Professional Assessment (APA). Each Assessment comprises of theory component and a practical component.

#### **3.2.1** Components of Assessment

- Cognitive competence is tested in the theory component using the following tool of assessment
  - $\circ \quad \text{USMLE/ PLAB Type / Multiple Choice Questions}$

(MCQs)

- $\circ \quad USMLE/PLAB \ Type / Extended \ Match \ Questions \ (EMQ)$
- Short Answer Questions (SAQs)
- Short Essay Questions (SEQs)
- Competence in psychomotor and affect domains is tested in practical component using the following tools of assessment
  - o Audio Visual OSPE (AVOSPE): This comprises of stations using PowerPoint slides with images animations and videos
  - Laboratory OSPE (Lab OSPE): This comprises of stations focused on practical (hands on performance) components from core subject areas
  - Integrated OSPE (I OSPE): This comprises of stations, from each core subject, emphasizing horizontal and vertical integration
  - Objective Structured Clinical Examinations (OSCE): This comprises of stations, dedicated to Early Clinical Exposure (ECE), Simulated Patients (SP), models, ALPHA and clinical component of core subjects
  - o Objective Structured Viva Examinations (OSVE): This comprises of table viva for each core subject. Students will be evaluated by internal and

external examiner using a structured marking rubric, with each viva

#### 3.2.2 End of Module Assessment (EMA)

- End of module assessments will be conducted at the end of each module.
- The module teams will be responsible for the assessment plan including assessment strategies, timings, and other essentials

#### **3.2.3 End of Block Assessment (EBA)**

- End of block assessments will be conducted at the end of each block.
- The block teams will be responsible for the assessment plan including assessment strategies, timings, and other essentials
- 80% attendance in each subject will be mandatory
- Student must pass in all LMS, mid module assessments to appear in EBA
- There will be no remedial classes for attendance compensation
- There will be no remedial of assessment in case of poor academic performance

су 17. так									Domain	s: C-Core	Subjec	t (70%)	Levels	С1-С2, Н	V- Horizo	ontal &	Vertica	l Integ	ration	(20%) Levels	C2-C3, S	- Spir	ral Int	tegra	tion (1	0%) Lev	els C2-C3	lanna - an a						
										The	eory (C	ognitiv	e) Asse	ssment							-			104	10		Practical (	Skill & Attitu	de) Assessr	nent		15		
End of Module Assessment	Subject			М	ICQs			EM	Qs			SAQs				SEQ	ls		Mari	Total Ks Marks	Total Time			AV	OSPE		Time	AED Reflective Writing		OSVE		Total Practical Marks	Grand Total	Total Time of Module Assessment
		C	HV	S	Total	Marks	C	Total	Marks	C	HV	S	Total	Marks	C	HV	S	Tota	Ī	meory	-	C	HV	S	Total	Marks	,		Viva	Сору	Total	IVIGI K3		
	Anatomy	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
First Module	Physiology	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
	Biochemistry	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
Formative- Week	ly LMS Based Assess	ment	of 30	MCQ	s (10 M	CQs per	Subje	ct)																										
					<u> </u>		- y - y				_			g g			v.	-									0	9					8	
										The	eory (C	ognitiv	e) Asse	sment												1	Practical (	Skill & Attitu	de) Assessr	nent				Total Time of
End of Module Assessment	Subject			M	ICQs			EM	Qs			SAQs				SEQ	5		Marl	Total Marks	Total			AV	OSPE		Time	AED Reflective		OSVE		Total Practical	Grand Total	Module
		C	HV	s	Total	Marks	C	Total	Marks	С	HV	s	Total	Marks	С	HV	S	Tota		Theory	Time	C	HV	S	Total	Marks	100000	Writing	Viva	Сору	Total	Marks	10.000	Assessment
Second	Anatomy	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
Medule	Physiology	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
Module	Biochemistry	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
Formative- Week	ly LMS Based Assess	imen t	of 30	MCQ	s (10 M	CQs per	Subje	ct)												5 - 241A														
54. St.		30. 					87							83 84		12								- 225-						10				
				Based	Asses	ment				OSPE				Gran		Ĩ.								ſ		W	eekly LMS	Assessment		1				

## Table of Specification (TOS) For Module Examination for First Year MBBS

Block	Subjects		LMS	Base	d Assess	sment		Gran	Total Block					
	Subjects			N	ICQs		LabOSPE	IOSPE COSPE		Tota	Marke	Time	a Tetel	Time
	8	С	ΗV	S	Total	Time	С	HV	S	TOLA	IVIGI N3	time	Total	
	Anatomy	21	6	3	30	30 min	14	4		2 20	60	6 HRS	90	10 HRS
BLOCK	Physiology	21	6	j 3	30	30 min	14	4	1	2 20	60	6 HRS	90	10 HRS
	Biochemistry	21	6	3	30	30 min	14	4		2 20	60	6 HRS	90	10 HRS
50% Questions/OSPE Stations/Viva Stations will be from Foundation Module and 50% Questions will be from MSK-1 Module														
			For E	ach a	ssessm	ent studen	t will have to	o individually	pass Theo	ry and	Practica	l compo	onents	

Subjects	Anatomy	Physiology	Diochemist
No of MCQs*	30	30	30
Marks/MCQ	30	30	30

Marks per

item	128 225	(9530)		- 25	30	
MCQ=1	EMQ=5	SAQ= 5	SEQ= 9	AVOSPE= 5	OSPE= 3	_
OSPE 1	ime=1 Round of 40 Stu	idents =80 min		97.0 TV.	C 11	
	3 Round of 40 St	udents =240 min				
	OSVE=Time per studen	t=5mins				

#### **3.2.4 Continuous Internal Assessment (CIA)**

Continuous Internal Assessment means the assessment based on tests and assignments given to the students during an academic period.

Break up of internal assessment is as follows:

Blocks	Subjects	Total marks	Module 1	Module 2	Total marks
Dlock 1	Anatomy	30 marks	15 marks	15 marks	
90 Marks	Physiology	30 marks	15 marks	15 marks	90 Marks
30 IVIAI KS	Biochemistry	30 marks	15 marks	15 marks	
Block 2	Anatomy	30 marks	15 marks	15 marks	
Block 2	Physiology	30 marks	15 marks	15 marks	90 Marks
90 IVIALKS	Biochemistry	30 marks	15 marks	15 marks	
	Anatomy	30 marks	15 marks	15 marks	
BIOCK 3	Physiology	30 marks	15 marks	15 marks	90 Marks
90 Iviarks	Biochemistry	30 marks	15 marks	15 marks	
				Total marks	270 Marks

Once internal assessment is compiled it CANNOT be altered under ANY circumstance unless a clerical/ human error is detected. He will repeat classes

and skillsThere will be no change in calculated internal assessment scores for supplementary University examination.



#### I. Diagrammatic Presentation of Various Components of Clinically Oriented Integrated Modular Curriculum of Rawalpindi Medical University

Reference: The Integrated & Clinically Oriented Assessment Model For Under Graduates Rawalpindi Medical University "Mumtahin" "سنتحن" (The Examiner)

	Total Assessments Time								
Block	Sr. #	Module – 1 Foundation Module - I Components	Type of Assessments	Assessment Time	Summative Assessment Time	Formative Assessment Time	No. of Asses	sments	
	1	End Module Examinations (SEQs, SAQs, EMQs, MCQs AvOSPE Based)	Summative	2 Hours 25 minutes	2 Hours & 35 minutes	30 Minutes	1 Formative	2 Summative	
	2	Structured & Clinically oriented Viva voce	Summative	10 Minutes					
	3	Weekly LMS based Assessment (MCOs based)	Formative	30 Minutes					
	Total			3	3 Hours & 05 Min	utes	3 Assessm	ents	
				Tota	l Assessments Tin	ne			
	Sr. #	Module – 2 MSK-I Module Components	Type of Assessments	Assessment Time	Summative Assessment Time	Formative Assessment Time	No. of Assessments		
llock – I	1	End Module Examinations (SEQs, SAQs, EMQs, MCQs Av OSPE Based)	Summative	2 Hours 25 minutes	2 Hours &		2	2	
Щ	2	Structured & Clinically oriented Viva voce	Summative	10 Minutes	35 minutes	60 Minutes	Formative	Summative	
	3	2 Weekly LMS based Assessment (MCQs based) Formative		2 x 30 Minutes					
	Tota	l		3 H	ours & 35 Minute	S	4 Assessme	nts	
			Type of	Total A	Assessments Time				
	Sr. #	Block – I Assessment	Assessments	Assessment	Summative	Formative	No. of Assess	sments	
				Time	Assessment Time	Assessment Time			
	1	Objectively Structured Practical Examination (OSPE)	Summative	5 Hours	5 Hours & 30 minutes			2 Summative	
	2	LMS Based Block Assessment (MCQs based)	Summative	30 Minutes	50 minutes			Summutve	
		Total		5 He	ours & 30 Minute	S	2 Assessm	ents	

# No. of Assessments of Anatomy for First Year MBBS (Block- I):

Block	Sr. #	Module – 3 MSK-II Module Components	Type of Assessments	Assessment Time	Summative Assessment Time	Formative Assessment Time	No. of A	Assessments	
	1	End Module Examinations (SEQs, SAQs, EMQs, MCQs Av OSPE Based)	Summative	2 Hours 25 minutes	2 Hours & 35 minutes	30 Minutes	1 Formative	2 Summative	
	2	Structured & Clinically oriented Viva voce	Summative	10 Minutes					
	3	Weekly LMS based Assessment (MCQs based)	Formative	30 Minutes					
	Total			3	Hours & 05 Minut	es	3 Assessments		
				Total	Assessments Time				
	Sr. #	Module – 4 Haematology & Immunology Module-I Components	Type of Assessments	Assessment Time	Summative Assessment Time	Formative Assessment Time	No. of Assessments		
ck – II	1	End Module Examinations (SEQs, SAQs, EMQs, MCQs Av OSPE Based)	Summative	2 Hours 25 minutes	2 Hours &		2	2	
Blc	2	Structured & Clinically oriented Viva voce	Summative	10 Minutes	35 minutes	60 Minutes	Formative	Summative	
	3	2 Weekly LMS based Assessment (MCQs based)	Formative	2 x 30 Minutes					
	Tota	l		3 Ho	urs & 35 Minutes		4 Asses	ssments	
			Type of	Total As	sessments Time				
	Sr. #	Block – II Assessment	Assessments	Assessment Time	Summative Assessment Time	Formative Assessment Time	No. of A	ssessments	
	1	Objectively Structured Practical Examination (OSPE)	Summative	5 Hours	5 Hours &			2 Summative	
	2	LMS Based Block Assessment (MCQs based)	Summative	30 Minutes	50 minutes			Summarve	
		Total		5 Hou	urs & 30 Minutes		2 Assessments		

# No. of Assessments of Anatomy for First Year MBBS (Block- II):

				Total	<b>Assessments</b> Tin	me		
Block	Sr. #	Module – 5 CVS Module-I Components	Type of Assessments	Assessment Time	Summative Assessment Time	Formative Assessment Time	No. of A	Assessments
	1	End Module Examinations (SEQs, SAQs, EMQs, MCQs Av OSPE Based)	Summative	2 Hours 25 minutes	2 Hours & 35 minutes	30 Minutes	1 Formative	2 Summative
	2	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	3	Weekly LMS based Assessment (MCQs based)	Formative	30 Minutes				
	Total			3	Hours & 05 Mi	nutes	3 Ass	essments
				Total	Assessments Tin	ne		
ck – II	Sr. # Module - Respirat	Respiration Module-I Components	Respiration Module-I Components     Type of Assessments       nd Module Examinations     Summative	Assessment Time	Summative Assessment Time	Formative Assessment Time	No. of A	Assessments
	1	End Module Examinations (SEQs, SAQs, EMQs, MCQs Av OSPE Based)	Summative	2 Hours 25 minutes	2 Hours &		2	2
Blc	2	Structured & Clinically oriented Viva voce	Summative	10 Minutes	35 minutes	60 Minutes	Formative	Summative
	3	2 Weekly LMS based Assessment (MCQs based)	Formative	2 x 30 Minutes				
	Tota	l		3 Ho	ours & 35 Minute	es	4 Asses	ssments
			Type of	Total As	ssessments Time			
	Sr. #	Block – III Assessment	Assessments	Assessment	Summative	Formative	No. of A	ssessments
	510 //			Time	Assessment	Assessment Time		
					Time			
	1	Objectively Structured Practical Examination (OSPE)	Summative	5 Hours	5 Hours &			2 Summative
	2	LMS Based Block Assessment (MCQs based)	Summative	30 Minutes	50 minutes			Summative
		Total		5 Ho	urs & 30 Minute	S	2 Ass	essments

## No. of Assessments of Anatomy for First Year MBBS (Block- III):

### **Total Time of Anatomy Assessments for First Year MBBS:**

Module	Summative Assessment Time	<b>Formative Assessment Time</b>	Total Assessments Time
Foundation Module - I	2 Hours & 35 minutes	30 Minutes	3 Hours & 05 Minutes
MSK-I Module	2 Hours & 35 minutes	60 Minutes	3 Hours & 35 Minutes
Block -I	5 Hours & 30 Minutes		5 Hours & 30 Minutes
MSK-II Module	2 Hours & 35 minutes	30 Minutes	3 Hours & 05 Minutes
Haematology &	2 Hours & 35 minutes	60 Minutes	3 Hours & 35 Minutes
Immunology Module-I			
Block -II	5 Hours & 30 Minutes		5 Hours & 30 Minutes
CVS Module-I	2 Hours & 35 minutes	30 Minutes	3 Hours & 05 Minutes
Respiration Module-I	2 Hours & 35 minutes	60 Minutes	3 Hours & 35 Minutes
Block -III	5 Hours & 30 Minutes		5 Hours & 30 Minutes
<b>Pre-Annual Examination</b>			7 Hours & 45 Minutes
First Professional			3 Hours & 45 Minutes
Grand Total	31 Hours & 30 Minutes	4 hours and 30 minutes	48 Hours

## **Total Teaching Hours vs Total Assessment Hours**

Ratio of Teaching Hours	Grand Total Teaching Hours	Grand Total Assessment Hours		
to Assessments Hours	250 Hours:	48 Hours		
	5:1			

				<b>Total</b> A	<b>Assessments</b> Time				
Block	Sr. #	Module – 1 Foundation Module - I Components	Type of Assessments	Assessment Time	Summative Assessment Time	Formative Assessment Time	No. of A	ssessments	
	1	End Module Examinations (SEQs, SAQs, EMQs, MCQs Av OSPE Based)	Summative	2 Hours 25 minutes	2 Hours & 35 minutes	30 Minutes	1 Formative	2 Summative	
	2	Structured & Clinically oriented Viva voce	Summative	10 Minutes					
	3	Weekly LMS based Assessment (MCQs based)	Formative	30 Minutes					
	Total			3]	Hours & 05 Minut	tes	3 Asse	ssments	
				<b>Total</b> A	Assessments Time				
ock – I	Sr. #	Module – 2 MSK-I Module Components	Type of Assessments	Assessment Time	Summative Assessment Time	Formative Assessment Time	No. of As	ssessments	
	1	End Module Examinations (SEQs, SAQs, EMQs, MCQs Av OSPE Based)	Summative	2 Hours 25 minutes	2 Hours &		2	2	
Ble	2	Structured & Clinically oriented Viva voce	Summative	10 Minutes	35 minutes	60 Minutes	Formative	Summative	
	3	2 Weekly LMS based Assessment (MCQs based)	Formative	2 x 30 Minutes					
	Tota			<b>3 Ho</b> ı	irs & 35 Minutes		4 Assess	sments	
			Type of	Total Ass	sessments Time				
	Sr. #	Block – I Assessment	Assessments	Assessment	Summative	Formative	No. of As	sessments	
				Time	Assessment Time	Assessment			
						Time			
	1	Objectively Structured Practical Examination (OSPE)	Summative	5 Hours	5 Hours & 30 minutes			2 Summative	
	2	LMS Based Block Assessment (MCQs based)	Summative	30 Minutes				Summurve	
		Total		5 Hou	irs & 30 Minutes		2 Asse	ssments	

## No. of Assessments of Physiology for First Year MBBS (Block- I):

				Tota	l Assessments Ti	me		
Block	<b>Sr.</b> #	Module – 3 MSK-II Module Components	Type of Assessments	Assessment Time	Summative Assessment Time	Formative Assessment Time	No. of Assess	ments
	1	End Module Examinations (SEQs, SAQs, EMQs, MCQs Av OSPE Based)	Summative	2 Hours 25 minutes	2 Hours & 35 minutes	30 Minutes	1 Formative	2 Summative
	2	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	3	Weekly LMS based Assessment	Formative	30				
		(MCQs based)		Minutes				
-	Total			J Tota	Hours & 05 Mi	nutes	3 Assessme	nts
k - II	Sr. #	Module – 4 Haematology & Immunology Module-I Components	Type of Assessments	Assessment Time	Summative Assessment Time	Formative Assessment Time	No. of Assess	ments
	1	End Module Examinations (SEQs, SAQs, EMQs, MCQs Av OSPE Based)	Summative	2 Hours 25 minutes	2 Hours &		2	2
Bloc	2	Structured & Clinically oriented Viva voce	Summative	10 Minutes	35 minutes	60 Minutes	Formative	Summative
	3	2 Weekly LMS based Assessment (MCQs based)	Formative	2 x 30 Minutes				
	Tota			<b>3 H</b>	ours & 35 Minut	tes	4 Assessmen	ts
			Type of	Total A	ssessments Time	9		
	Sr. #	Block – II Assessment	Assessments	Assessment	Summative	Formative	No. of Assessi	nents
				Time	Assessment	Assessment Time		
					Time			
	1	Objectively Structured Practical Examination (OSPE)	Summative	5 Hours	5 Hours & 30 minutes			2 Summative
	2	LMS Based Block Assessment (MCOs based)	Summative	30				
				Minutes				
		Total		5 Ho	ours & 30 Minut	es	2 Assessme	nts

# No. of Assessments of Physiology for First Year MBBS (Block- II)

				Total A	Assessments Time	)		
Block	Sr. #	Module – 5 CVS Module-I Components	Type of Assessment s	Assessment Time	Summative Assessment Time	Formative Assessment Time	No. of A	Assessments
	1	End Module Examinations	Summative	2 Hours 25				
		(SEQs, SAQs, EMQs, MCQs Av OSPE Based)		minutes	2 Hours &	30 Minutes	1 Formative	2 Summative
	2	Structured & Clinically oriented Viva voce	Summative	10 Minutes	55 minutes		1 official ve	Summarve
	3	Weekly LMS based Assessment	Formative	30 Minutes				
		(MCQs based)					2 4	
	Total			Total	3 Hours & 05 Mir	iutes	3 Assessments	
		Module – 6	TT O		Assessments 1 mit	Eormativa		
	Sr. # Resp	Respiration Module-I Components	Type of Assessments	Assessment Time	Assessment	Assessment Time	No. of Assessments	
ock – II	1	End Module Examinations (SEQs, SAQs, EMQs, MCQs Av OSPE Based)	Summative	2 Hours 25 minutes				2
Blc	2	Structured & Clinically oriented Viva voce	Summative	10 Minutes	2 Hours & 35 minutes	60 Minutes	2 Formative	2 Summative
	3	2 Weekly LMS based Assessment (MCQs based)	Formative	2 x 30 Minutes				
	Tota			<b>3 Ho</b> ı	urs & 35 Minutes		4 Asses	ssments
			Type of	Total Ass	sessments Time			
	<b>Sr.</b> #	Block – III Assessment	Assessments	Assessment	Summative	Formative	No. of A	ssessments
				Time	Assessment Time	Assessment Time		
	1	Objectively Structured Practical Examination (OSPE)	Summative	5 Hours	5 Hours & 30 minutes			2 Summative
	2	LMS Based Block Assessment (MCQs based)	Summative	30 Minutes				
		Total		5 Hou	irs & 30 Minutes		2 Ass	essments

## No. of Assessments of Physiology for First Year MBBS (Block- III):

## **Total Time of Physiology Assessments for First Year MBBS:**

Module	Summative Assessment Time	<b>Formative Assessment Time</b>	Total Assessments Time
Foundation Module - I	2 Hours & 35 minutes	30 Minutes	3 Hours & 05 Minutes
MSK-I Module	2 Hours & 35 minutes	60 Minutes	3 Hours & 35 Minutes
Block -I	5 Hours & 30 Minutes		5 Hours & 30 Minutes
MSK-II Module	2 Hours & 35 minutes	30 Minutes	3 Hours & 05 Minutes
Haematology &	2 Hours & 35 minutes	60 Minutes	3 Hours & 35 Minutes
Immunology Module-I			
Block -II	5 Hours & 30 Minutes		5 Hours & 30 Minutes
CVS Module-I	2 Hours & 35 minutes	30 Minutes	3 Hours & 05 Minutes
Respiration Module-I	2 Hours & 35 minutes	60 Minutes	3 Hours & 35 Minutes
Block -III	5 Hours & 30 Minutes		5 Hours & 30 Minutes
<b>Pre-Annual Examination</b>			7 Hours & 45 Minutes
First Professional			3 Hours & 45 Minutes
Grand Total	31 Hours & 30 Minutes	4 hours and 30 minutes	48 Hours

### **Total Teaching Hours vs Total Assessment Hours**

Ratio of Teaching Hours	Grand Total Teaching Hours	Grand Total Assessment Hours
to Assessments Hours	225 hours:	48 Hours
	9:2	

				<b>Total</b> A				
Block	Sr. #	Module – 1 Foundation Module - I Components	Type of Assessments	Assessment Time	Summative Assessment Time	Formative Assessment Time	No. of A	ssessments
	1	End Module Examinations (SEQs, SAQs, EMQs, MCQs Av OSPE Based)	Summative	2 Hours 25 minutes	2 Hours & 35 minutes	30 Minutes	1 Formative	2 Summative
	2	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	3	Weekly LMS based Assessment (MCQs based)	Formative	30 Minutes				
	Total				3 Hours & 05 N	linutes	3 Asse	ssments
				Total A	Assessments Time			
	Sr. #	Module – 2 MSK-I Module Components	Type of Assessments	Assessment Time	Summative Assessment Time	Formative Assessment Time	No. of A	ssessments
llock – 1	1	End Module Examinations (SEQs, SAQs, EMQs, MCQs Av OSPE Based)	Summative	2 Hours 25 minutes	2 Hours &		2	2
щ	2	Structured & Clinically oriented Viva voce	Summative	10 Minutes	35 minutes	60 Minutes	Formative	Summative
	3	2 Weekly LMS based Assessment (MCQs based)	Formative	2 x 30 Minutes				
	Total			3 Hou	ırs & 35 Minutes		4 Asses	sments
			Type of	Total Ass	sessments Time			
	Sr.#	Block – I Assessment	Assessments	Assessment	Summative	Formative Assessment	No. of A	ssessments
				Time	Assessment Time	Time		
	1	Objectively Structured Practical Examination (OSPE)	Summative	5 Hours	5 Hours & 30 minutes			2 Summative
	2	LMS Based Block Assessment (MCQs based)	Summative	30 Minutes	50 minutes			Summative
		Total		5 Hou	rs & 30 Minutes		2 Asse	essments

## No. of Assessments of Biochemistry for First Year MBBS (Block- I):

				Total	<b>Assessments</b> Tin	ne		
Block	Sr. #	Module – 3 MSK-II Module Components	Type of Assessments	Assessment Time	Summative Assessment Time	Formative Assessment Time	No. of Ass	essments
	1	End Module Examinations (SEQs, SAQs, EMQs, MCQs Av OSPE Based)	Summative	2 Hours 25 minutes	2 Hours & 35 minutes	30 Minutes	1 Formative	2 Summative
	2	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	3	Weekly LMS based Assessment (MCQs based)	Formative	30 Minutes				
_	Total			3	Hours & 05 Mir	nutes	3 Assess	ments
				Total	Assessments Tin	ne		
ck – II	Sr. # Module – 4 Haematology & Immunology Module-I Components		Type of Assessments	Assessment Time	Summative Assessment Time	Formative Assessment Time	No. of Asso	essments
	1	End Module Examinations (SEQs, SAQs, EMQs, MCQs Av OSPE Based)	Summative	2 Hours 25 minutes	2 Hours &		2	2
Blc	2	Structured & Clinically oriented Viva voce	Summative	10 Minutes	35 minutes	60 Minutes	Formative	Summative
	3	2 Weekly LMS based Assessment (MCQs based)	Formative	2 x 30 Minutes				
	Tota	l		<b>3</b> Ho	ours & 35 Minute	es	4 Assessm	nents
			Type of	Total As	ssessments Time			
	Sr.#	Block – II Assessment	Assessments	Assessment	Summative	Formative	No. of Asse	essments
	51. "			Time	Assessment	Assessment Time		
					Time			
	1	Objectively Structured Practical Examination (OSPE)	Summative	5 Hours	5 Hours &			2 Summative
	2	LMS Based Block Assessment (MCQs based)	Summative	30 Minutes	50 minutes			Summative
		Total		<b>5 Ho</b>	urs & 30 Minute	S	2 Assess	ments

## No. of Assessments of Biochemistry for First Year MBBS (Block- II):

				Total	Assessments Time			
Block	<b>Sr.</b> #	Module – 5 CVS Module-I Components	Type of Assessments	Assessment Time	Summative Assessment Time	Formative Assessment Time	No. of Asse	essments
	1	End Module Examinations (SEQs, SAQs, EMQs, MCQs Av OSPE Based)	Summative	2 Hours 25 minutes	2 Hours & 35 minutes	30 Minutes	1 Formative	2 Summative
	2	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	3	Weekly LMS based Assessment (MCQs based)	Formative	30 Minutes				
	Total				3 Hours & 05 Minute	es	3 Assessr	nents
				Total	Assessments Time	<b>F</b>		
ck – II	Sr. #	Module – 6     Typ       Respiration Module-I Components     Typ       Asso     Some field of the second secon	Type of Assessments	Assessment Time	Summative Assessment Time	Formative Assessment Time	No. of Assessments	ssments
	1	End Module Examinations (SEQs, SAQs, EMQs, MCQs Av OSPE Based)	Summative	2 Hours 25 minutes	2 Hours &		2	2
Blc	2	Structured & Clinically oriented Viva voce	Summative	10 Minutes	35 minutes	60 Minutes	Formative	Summative
	3	2 Weekly LMS based Assessment (MCQs based)	Formative	2 x 30 Minutes				
	Tota	l		<b>3 Ho</b>	urs & 35 Minutes		4 Assessm	ents
			Type of	Total As	sessments Time			
	Sr. #	Block – III Assessment	Assessments	Assessment	Summative	Formative	No. of Asse	ssments
	0101			Time	Assessment Time	Assessment		
						Time		
	1	Objectively Structured Practical Examination (OSPE)	Summative	5 Hours	5 Hours &			2 Summative
	2	LMS Based Block Assessment (MCQs based)	Summative	30 Minutes	50 minutes			Summative
		Total		5 Hoi	urs & 30 Minutes		2 Assessi	nents

## No. of Assessments of Biochemistry for First Year MBBS (Block- III):

**Total Time of Biochemistry Assessments for First Year MBBS:** 

Module	Summative Assessment Time	Formative Assessment Time	Total Assessments Time
Foundation Module - I	2 Hours & 35 minutes	30 Minutes	3 Hours & 05 Minutes
MSK-I Module	2 Hours & 35 minutes	60 Minutes	3 Hours & 35 Minutes
Block -I	5 Hours & 30 Minutes		5 Hours & 30 Minutes
MSK-II Module	2 Hours & 35 minutes	30 Minutes	3 Hours & 05 Minutes
Haematology & Immunology Module-I	2 Hours & 35 minutes	60 Minutes	3 Hours & 35 Minutes
Block -II	5 Hours & 30 Minutes		5 Hours & 30 Minutes
CVS Module-I	2 Hours & 35 minutes	30 Minutes	3 Hours & 05 Minutes
Respiration Module-I	2 Hours & 35 minutes	60 Minutes	3 Hours & 35 Minutes
Block -III	5 Hours & 30 Minutes		5 Hours & 30 Minutes
Pre-Annual Examination			7 Hours & 45 Minutes
First Professional			3 Hours & 45 Minutes
Grand Total	31 Hours & 30 Minutes	4 hours and 30 minutes	48 Hours

### **Total Teaching Hours vs Total Assessment Hours**

Ratio of Teaching Hours	Grand Total Teaching Hours	Grand Total Assessment Hours
to Assessments Hours	125 Hours:	48 Hours
	5:2	

No. of Assessments of Clinical Component (Vertical and Horizontal Integration) for First Year MBBS (Block- I):

				Total Ass	essments Time	No. of
Block	Sr. #	Module – 1 Foundation Module - I Components	Type of Assessments	Assessment Time	Formative Assessment Time	Assessments
	1	Mid Module Examination (MCQs Based)	Formative	15 Minutes	45 Minutes	2 Formative
	2	End Module Examination (MCQs Based)	Formative	30 Minutes		
	Total			45	5 Minutes	2 Assessments
I.				Total Ass	No. of	
Block -	Sr. #	Module – 2 MSK-I Module Components	Type of Assessments	Assessment Time	Formative Assessment Time	Assessments
Block -	<b>Sr. #</b>	Module – 2 MSK-I Module Components Mid Module Examination (MCQs Based)	Type of AssessmentsFormative	Assessment Time 15 Minutes	Formative Assessment Time 45 Minutes	Assessments 2 Formative
Block -	<b>Sr. #</b> 1 2	Module – 2 MSK-I Module Components Mid Module Examination (MCQs Based) End Module Examination (MCQs Based)	Type of AssessmentsFormativeFormative	Assessment Time 15 Minutes 30 Minutes	Formative Assessment Time 45 Minutes	Assessments 2 Formative

No. of Assessments of Clinical Component (Vertical and Horizontal Integration) for First Year MBBS (Block- II):

				Total Assessments Time		No. of Assessments
Block	<b>Sr.</b> #	Module – 3 MSK-II Module Components	Type of Assessments	Assessment Time	Formative Assessment Time	
	1	Mid Module Examination (MCQs Based)	Formative	15 Minutes	45 Minutes	2 Formative
	2	End Module Examination (MCQs Based)	Formative	30 Minutes		
	Total			45 Minutes		2 Assessments
				Total Assessments Time		No. of Assessments
llock – II	<b>Sr.</b> #	Module – 4 Haematology & Immunology Module-I Components	Type of Assessments	Assessment Time	Formative Assessment Time	
н	1	Mid Module Examination (MCQs Based)	Formative	15 Minutes	45 Minutes	2 Formative
	2	End Module Examination (MCQs Based)	Formative	30 Minutes		
	Tota	l i		45 M	linutes	2 Assessments

## No. of Assessments of Clinical Component (Vertical and Horizontal Integration) for First Year MBBS (Block- III):

			Type of	Total Asses	ssments Time	No. of Assessments
Block	Sr. #	Module – 5 CVS Module-I Components	Assessments	Assessment Time	Formative Assessment Time	
	1	Mid Module Examination (MCQs Based)	Formative	15 Minutes	45 Minutes	2 Formative
	2	End Module Examination (MCQs Based)	Formative	30 Minutes		
	Total			45 N	linutes	2 Assessments
Ш			Type of	Total Assessments Time		No. of Assessments
ock – I	Sr. #	Sr. # Module – 6 Respiration Module-I Components	Assessments	Assessment Time	Formative Assessment Time	
Ble	1	Mid Module Examination (MCQs Based)	Formative	15 Minutes	45 Minutes	2 Formative
	2	End Module Examination (MCQs Based)	Formative	30 Minutes		
	Total			45 Minutes		2 Assessments

### Total Time of Clinical Component (Vertical and Horizontal Integration) Assessments for First Year MBBS:

Module	Formative Assessment Time	Total Assessments Time
Foundation Module - I	45 Minutes	45 Minutes
MSK-I Module	45 Minutes	45 Minutes
Block -I		
MSK-II Module	45 Minutes	45 Minutes
Haematology & Immunology Module-I	45 Minutes	45 Minutes
Block -II		
CVS Module-I	45 Minutes	45 Minutes
Respiration Module-I	45 Minutes	45 Minutes
Block -III		
Pre-Annual Examination		35 Minutes
First Professional		60 Minutes
Grand Total	4 hours and 30 minutes	6 hours and 5 minutes

### **Total Teaching Hours vs Total Assessment Hours**

<b>Ratio of Teaching Hours</b>	Grand Total Teaching Hours	Grand Total Assessment Hours
to Assessments Hours	97 Hours:	6 Hours
	19:1	

#### **3.2.4 Pre- Annual Assessment (PAA)**

- It is mandatory to appear in all EBA to appear in PAA
- Transcript / good character certificate from head of departments will be needed to appear in pre-annual assessment.

### **Proposed Table of Specifications for 1<sup>st</sup> Pre-Annual Examination 2025**

• Total Marks: 845

Total marks =800 Marks						
Subjects	% Weightage of subjects	Marks distribution as per weightage				
Anatomy	28%	240 Marks				
Physiology	28%	240 Marks				
Biochemistry	28%	240 Marks				
Integrated Subjects Community Medicine & Public Health/Research Behavioral Sciences Pathology Pharmacology Radiology Family Medicine Surgery Medicine Gynae & Obs Orthopedics Pediatrics Surgery Ophthalmology Otorhinolaryngology	14 %	115 Marks				
Early Clinical Exposure (ECE)	1%	5 Marks				
ALPHA(Artificial Intelligence, Leadership, Professionalism, Humanities & Arts) GEC (General Education Cluster)	1%	5 Marks				
Total Marks		845 Marks				

Notes:

- The total marks for final Annual Assessment (Professional examination) are 900 as per UHS
- The total marks for Pre-Annual Assessment are 800 as OSVE is not being used as assessment tool.
- As per analysis of Module/Block results throughout the academic year, the passing percentage of students is generally higher in OSVE than in other assessment tools. For comprehensive assessment this tool will not be used in Pre- Annual Assessment.as per decision of assessment committee OSVE is not included.

Total Marks	BLOCK I	BLOCK II	BLOCK III	Total
	Marks	Marks	Marks	Marks
845 Marks	285 Marks	285 Marks	275 Marks	845 Marks

#### **A - Blockwise Distribution of Marks**

#### **B** - Subject wise marks breakup in Blocks

Subjects	Block I	Block II	Block III	Total
				Marks
Anatomy	80 Marks	80 Marks	80 Marks	240 Marks
				(28%)
Physiology	80 Marks	80 Marks	80 Marks	240 Marks
				(28%)
Biochemistry	80 Marks	80 Marks	80 Marks	240 Marks
				(28%)
Integrated	45 Marks	45 Marks	35 Marks	125 Marks
Subjects				(16%)
-				

Block	Subjects	Theory (Knowledge)	Practical (Skill/attitude)	Total marks	Total marks (Core subjects + Integrated Subjects)
	Anatomy	50	30	80 marks	
	Physiology	50	30	80 marks	
	Biochemistry	50	30	80 marks	
Block I	Total			240	
	Integrated Subjects			marks	
	Community Medicine /Research	6 Marks			240+ 45 = 285 marks
(Core	<b>Behavioral Sciences</b>	3 Marks			
Subjects +	Pathology	2 Marks			
Subjects)	Pharmacology	3 Marks			
Subjects)	Radiology	2 Marks		45 Morka	
	Gynae & Obs	4 Marks		43 Marks	
	Medicine	2 Marks			
285	Family Medicine	2 Marks			
Marks	Pediatrics	4 Marks			
101un Kb	Surgery	2 Marks			
	ECE		5 Marks		
	ALPHA and GEC		5 Marks		
	Total		240+45=	285 marks	
marks					

# C - Subject wise Break up of Marks for First year MBBS - Block -I

Block	Subjects	Theory (Knowledge)	Practical (Skill/attitude)	Total marks	Total marks (Core subjects + Integrated Subjects )
	Anatomy	50	30	80 marks	
	Physiology	50	30	80 marks	
Block II	Biochemistry	50	30	80 marks	
(Core	Total			240 marks	
subjects +	Integrated Subjects				
Integrated Subjects)	Community Medicine /Research	4 Marks			240+ 45 = 285 marks
5 /	Family Medicine	3 Marks			
	Orthopedics	3 Marks			
	Radiology	3 Marks		45	
285	Medicine	3 Marks		Marks	
Marks	Gynae & Obs	3 Marks			
	Behavioral Sciences	4 Marks			
	Pathology	2 Marks			
	ECE		5 Marks		
	ALPHA and GEC		5 Marks		
marks	Total		240+45=28	35 marks	

# D - Subject wise Break up of Marks for First year MBBS - Block -II

Block	Subjects	Theory (Knowledge)	Practical (Skill/attitude)	Total marks	Total marks (Core subjects + Integrated Subjects )
	Anatomy	50	30	80 marks	
	Physiology	50	30	80 marks	
Block III	Biochemistry	50	30	80 marks	
	Total			240	
				marks	
	Integrated Subjects				240+35 = 275 marks
Total	Community Medicine	2 Marks			
marks	Behavioral Sciences	2Marks			
(Core	Medicine	3 Marks			
subjects +	Family medicine	3 Marks			
Integrated	Gynae & Obs	2 Marks			275 marks
Subjects )	Radiology	2 Marks		35 Marks	
	Pediatrics	2 Marks		55 IVIALKS	
	Otorhinolaryngology	3 Marks			
	Ophthalmology	2 Marks			
275	Pathology	2Marks			
Marks	Pharmacology	2 Marks			
	ECE		5 Marks		
	ALPHA and GEC		5 Marks		
	Total		240+35=2	275 marks	
marks					
GRAND T	OTAL MARKS	800			

## E - Subject wise Break up of Marks for First year MBBS - Block -III
		MCQs			EMQ			SAQ			SEQ		Total
Subjects	Module	Module-	Marks	marks									
	-1	2		-1	2		-1	2		-1	2		
Anatomy	13	12	25	-	01	5	01	01	10	0.5	0.5	10	50
Physiology	12	13	25		01	5	01	01	10		01	10	50
Biochemistry	15	10	25	-	01	5	01	01	10	01	-	10	50
Vertically &													
Spirally			35	-		-	-		-	-		-	35
Integrated													
Subjects													
Total	110		110	3		15	6		30	3		30	185

Block -I Theory Component (Knowledge)

Block -I Practical Component (Skill & Attitude)

	Lab OSPE			Iospe	Iospe OSCE						Total
Subjects	Number of Stations of Module -1	Number of Stations of Module -2	Marks	Number of Stations of Module -1	Number of Stations of Module -2	Marks	Number of Stations of Module -1	Number of Stations of Module -2	Marks	stations	marks
Anatomy	01	02	15	01		5	01	01	10	6	30
Physiology	01	02	15		01	5	01	01	10	6	30
Biochemistry	01	02	15	-	01	5	01	01	10	6	30
ECE	-		-	-		-		01	5	1	5
ALPHA- Research	-		-	-		-		01	5	1	5
Total	9		45	3		15	8		40	20	100

G- Modular distribution of Marks for Module 3 (MSK-II Module) & Module 4(Haematology & Immunology Module-I) - Block -II

	MCQs			EMQ			SAQ			SEQ			Total
Subjects	Module	Module-	Marks	marks									
	-1	2		-1	2		-1	2		-1	2		
Anatomy	12	13	25		01	5	01	01	10	0.5	0.5	10	50
Physiology	12	13	25		01	5	01	01	10		01	10	50
Biochemistry	10	15	25		01	5	01	01	10		01	10	50
Vertically &													
Spirally			35	-		-	-		-	-		-	35
Integrated													
Subjects													
Total	110		110	3		15	6		30	3		30	185

Block -II Theory Component (Knowledge)

Block -II Practical Component (Skill & Attitude)

	Lab OSPE			I ospe			OSCE			T	Total
Subjects	Number of Stations of Module -1	Number of Stations of Module - 2	Marks	Number of Stations of Module - 1	Number of Stations of Module - 2	Marks	Number of Stations of Module -1	Number of Stations of Module -2	Marks	stations	marks
Anatomy	02	01	15	-	01	5	01	01	10	6	30
Physiology	01	02	15		01	5	01	01	10	6	30
Biochemistry	01	02	15	01	-	5	01	01	10	6	30
ECE	-		-	-		-		01	5	1	5
ALPHA- Research	-		-	-		-		01	5	1	5
Total	9		45	3		15	8		40	20	100

### H - Modular distribution of Marks for Module 5 (CVS Module-I) & Module 6 (Respiration Module-I) - Block -III

	MCQs			EMQ			SAQ			SEQ			Total
Subjects	Module	Module-	Marks	marks									
	-1	2		-1	2		-1	2		-1	2		
Anatomy	13	12	25	01	-	5	01	01	10	0.5	0.5	10	50
Physiology	13	12	25	01		5	01	01	10	01		10	50
Biochemistry	13	12	25	01	-	5	01	01	10	01	-	10	50
Vertically &													
Spirally			25	-		-	-		-	-		-	25
Integrated													
Subjects													
Total	100		100	3		15	6		30	3		30	175

### Block -III Theory Component (Knowledge)

Block -III Practical Component (Skill & Attitude)

	Lab OSPE			I OSPE			OSCE			Tatal	Total
Subjects	Number of Stations of Module - 1	Number of Stations of Module - 2	Marks	Number of Stations of Module - 1	Number of Stations of Module - 2	Marks	Number of Stations of Module -1	Number of Stations of Module -2	Marks	stations	
Anatomy	02	01	15	-	01	5	01	01	10	6	30
Physiology	02	01	15	01	-	5	01	01	10	6	30
Biochemistry	02	01	15	-	01	5	01	01	10	6	30
ECE	-		-	-		-		01	5	1	5
ALPHA- Research	-		-	-		-		01	5	1	5
Total	9		45	3		15	8		40	20	100

<b>Calculation for Pre-Annua</b>	<b>Assessment</b>	Implementation	for First	Year MI	BBS 2025
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Block -I	Theory com	ry component (Knowledge) Practical component (Skill & Attitude)			ill & Attitude)				
	MCQs	SAQs	SEQs 1	EMQs	Lab OSPE	I OSPE	OSCE	Total time required for Block – I pre annual assessment is	
Total number of	110	6	3	3	9	3	8	8 hrs and 25 minutes	
questions									
Time required for	110 x 1	6 x 10	3 x 10	$3 \ge 5 \min$	9 x2.5 min	3 x 2.5	8 x 2.5 min		
each component	min	min	min			min			
	110 mins	60 mins	30 mins	25 mins	22.5 mins	7.5 mins	20 mins		
Total time	110+60+30	+25 = 225  min	ns (4hrs and 2	5 mins)	22.5+7.5+2	0 = 50  mins/	round of 20 stu	dents 4 hrs	
					If the OSPE	is conducted	l simultaneously	at 4 venues:	
					In 50 minut	es, 20 studen	ts can complete	the OSPE at each venue, totaling 80 students across all venues.	
	•				With 5 rou	nds at 4 venu	es, the entire cl	ass can complete the OSPE within 4 hours.	
Block -II	Theory com	ponent (Knov	vledge)		Practical con	nponent (Ski	ll & Attitude)		
	MCQs	SAQs	SEQs	EMQs	Lab OSPE	I OSPE	OSCE	Total time required for Block – II pre annual assessment is	
Total number of	110	6	3	3	9	3	8	8 hrs and 25 minutes	
questions									
Time required for	110 x 1	6 x 10 min	3 x 10 min	3 x 5	9 x2.5 min	3 x 2.5	8 x 2.5 min		
each component	min			min		min			
	110 mins	60 mins	30 mins	25 mins	22.5 mins	7.5 mins	20 mins		
Total time	110+60+30	+25 = 225  min	ns (4hrs and 2	5 mins)	22.5+7.5+2	0 = 50  mins/	round of 20 stu	dents 4 hrs	
					If the OSPE	is conducted	l simultaneously	at 4 venues:	
					In 50 minut	es, 20 studen	ts can complete	e the OSPE at each venue, totaling 80 students across all venues.	
	<b>-</b>				With 5 rou	nds at 4 venu	es, the entire cl	ass can complete the OSPE within 4 hours.	
Block -III	Theory com	ponent (Knov	vledge)		Practical con	nponent (Ski	ll & Attitude)		
	MCQs	SAQs	SEQs	EMQs	Lab OSPE	I OSPE	OSCE	Total time required for Block – III pre annual assessment is	
Total number of	100	6	3	3	9	3	8	8 hrs and 15 minutes	
questions									
Time required for	100 x 1	6 x 10 min	3 x 10 min	3 x 5	9 x2.5 min	3 x 2.5	8 x 2.5 min		
each component	min			min		min			
	100 mins	60 mins	30 mins	25 mins	22.5 mins	7.5 mins	20 mins		
Total time	100+60+30	+25 = 225  min	ns (4hrs and 1	5 mins )	22.5+7.5+2	0 = 50  mins/	round of 20 stu	dents 4 hrs	
					If the OSPE is conducted simultaneously at 4 venues:				
					In 50 minut	es, 20 studen	ts can complete	e the OSPE at each venue, totaling 80 students across all venues.	
With 5 rounds at 4 venues, the entire class can complete the OSPE within 4 hours.									

#### **3.2.5** Annual Professional Assessment (APA)

- Minimum 50% score in pre-annual assessment is required to appear in annual professional examination.
- Annual professional exam weightage will be 70%
- Continuous internal assessment weightage will be 30%
- 60% marks will be needed to pass annual professional examination.
- Written and practical /OSPE/OSCE should be passed separately.

#### Regulations

- Final Annual Assessment shall be open to any student who:
  - Has been enrolled/registered and completed one academic year preceding the concerned Final Annual Assessment in Rawalpindi Medical University.
  - Has his/her name submitted to the Controller of Examinations for assessment purposes by the Principal of the College and meets all prerequisites for the assessment.
  - Has his/her internal assessment marks for all Blocks submitted to the Controller of Examinations by the Principal of the College along with the admission form.
  - Produces good character certificate the following certificates duly verified by the Principal:
- Candidates not meeting the above requirements shall not be allowed to appear in the Final Annual Assessment but may sit for the supplementary examination if they fulfill all remaining requirements and stay enrolled as regular students up to the next examination.
- To pass the Final Annual Assessment, students must achieve at least 50% in both the Written and Oral/Practical/Clinical assessments, as well as a 50% aggregate score

simultaneously.

- Candidates scoring 85% or above in any paper will be awarded a "distinction" in that Block, provided they achieve at least 80% in the Written component. Candidates must pass all papers in the Final Annual Assessment concurrently to receive any distinctions.
- A candidate who fails one or more papers in the Final Annual Assessment may temporarily join the next professional class until the supplementary examination but will not be promoted permanently without passing all papers.

- Students taking the supplementary examination for the first time due to an absence in the annual examination, if failing any paper, will be retained in their current class.
- Any student failing to clear the First or Second Final Annual Assessment MBBS within four attempts will be ineligible to continue or reapply for MBBS or BDS admission.
- Examination applications must be submitted to the Controller of Examination via the College Principal, with the required fee and documentation.
- College must submit question papers, internal assessment marks, and attendance records for each block to the Examinations Department of Rawalpindi Medical University.
- Revised internal assessments are only permissible for detained students. Continuous assessment records must be maintained by college departments.
- Examination fees are to be paid through the Principal, using a bank draft, pay order, or crossed cheque made out to the Treasurer, Rawalpindi Medical University.
- One annual and one supplementary examination for First and Second Final Annual Assessment MBBS are allowed per academic session. Under exceptional circumstances, such as national emergencies, a special examination may be arranged with the Syndicate and Board of Governors' approval.
   Reference: UHS INTEGRATED CURRICULUM VERSION 2

### Statutes:

- Scheduling: The First Professional MBBS will be held at the end of First year whereas the Second Professional MBBS shall be held at the end of Second year.
- Subjects: Every candidate is required to appear in the following subjects in each Block
  - a. Core subjects- Integrated Anatomy, Integrated Physiology, Integrated Biochemistry
  - b. Vertically integrated Subjects- Community Medicine C Public Health,
  - Behavioral Sciences, Pathology, Pharmacology, associated Clinical Subjects

c. Spirally Integrated subjects- General Education Cluster (GEC), ALPHA (Artificial Intelligence, Leadership, Professionalism, Humanities and Arts), Early Clinical Exposure (ECE) and Research.

• Assessments: There will be three papers in First Annual Professional Examination and four papers in the Second Annual professional Examination.

Paper	First year MBBS	Second year MBBS
Paper-1	Block -I	Block -I
Paper-2	Block- II	Block- II
Paper-3	Block-III	Block-III
Paper-4		GEC (Islamic Studies C Pakistan
		Studies)

### a. First Professional Examination Total Marks = G00\*

- 1. Block I Assessment Total Marks = 300
- 2. Block II Assessment Total Marks = 300
- 3. Block III Assessment Total Marks = 300
- b. Second Professional Examination- 1000 Marks\*
  - 1. Block I Assessment Total Marks = 300
  - 2. Block II Assessment Total Marks = 300
- 3. Block III Assessment Total Marks = 300
- 4. GEC Assessment (Islamic Studies C Pakistan Studies)Total Marks = 100

\*Marks Adopted from University of Health Sciences (UHS) Reference: <u>https://www.uhs.edu.pk/downloads/2k23mbbscurriculum.pdf</u>

### • Continuous Internal Assessment (CIA):

Continuous Internal Assessment shall carry total marks = 270(30% of the total allocated marks = 900) for first and second year MBBS.CIA for each block is 90 marks and this score will be equally distributed to the written Assessment (45 marks) and practical assessment(45 marks).

- Block Assessment Components: the components of Block Assessment shall be as follows:
  - a. **One theory Paper (K)** having two sections

1. Section:1 One best type Multiple choice questions of 75 Marks (1 mark for each MCQ) and time allocated will be 90 Minutes. The integration ratio in MCQs will be 70% core content, 10% horizontal integration, and 20% vertical integration. There will be no negative marking

First year MBBS	Number of MCQs	Number of SEQs
Block -I	75	6
Block -II	75	6
Block -III	75	6
Second Year MBBS	Number of MCQs	Number of SEQs
Block -I	70	7
Block -II	75	6

2. Section:2 will have Structured Essay Questions of 5 marks each and time allocated for 1 SEQ will be 10 minutes.

- b. **Practical Component (Skill and Attitude):** The assessment will include an Objective Structured Practical Examination (OSPE) with a total of 15 stations, time allocated for each station will be 4 minutes.
- i. Laboratory OSPE (Lab OSPE): This section will consist of stations focused on practical (hands on performance) components from core subject areas, each station carries 5 marks.
- ii. Integrated OSPE (I OSPE): This section will include stations, from each core subject, emphasizing horizontal and vertical integration, each station carries 5 marks

i. **Objective Structured Clinical Examinations (OSCE):** This section comprises of stations, dedicated to Early Clinical Exposure (ECE), Simulated Patients (SP), models, ALPHA and clinical component of core subjects each station carries 5 marks.

ii. **Objective Structured Viva Examinations (OSVE):** This section will consist of table viva for each core subject. Students will be evaluated by internal and external examiner using a structured marking rubric, with each viva carries15 marks.

First year MBBS	Number of Lab OSPE Stations	Number of iOSPE Stations	Number of OSCE Stations	Numbe r of table
Block -I	5	3	4	3
Block -II	5	3	4	3
Block -III	4	3	5	3

Second Year MBBS	Number of Lab OSPE Stations	Number of iOSPE Stations	Number of OSCE Stations	Numbe r of tables
				VIVA
Block -I	4	3	5	3
Block -II	5	3	4	3
Block -III	5	3	4	3

• Annual Examination Eligibility Criteria: Eligibility to appear in Annual Professional will be as per RMU Assessment Policy approved by the Academic Council and

Syndicate.

• Passing Criteria: A student will be declared pass in a block assessment if he/she scores 50% and above marks in each block assessment component (Theory and

Practical) and 50% and above marks in each Core Subject (Anatomy, Physiology C Biochemistry).

• Supplementary Examination Criteria: The student who fails in any component of a block assessment will have to appear in the supplementary examination of the entire

block.

### **Table of Abbreviation**

CIA	Continuous Internal Assessment
I-OSPE	Integrated OSPE
Lab OSPE	Laboratory Objective Structured Practical Examination
OSCE	Objective Structured Clinical Examinations
OSVE	Objective Structured Viva Examinations
ECE	Early Clinical Exposure
ALPHA	(Artificial Intelligence, Leadership, Professionalism, Humanities C Arts
GEC	General Education Cluster
Κ	Knowledge

### Annual Assessment Plan of First Year MBBS 2025 (Batch 52)

- Total First Professional Marks: 900
- Continuous Internal Assessment (30%) =270 Marks
- Annual Marks: (70%) =630 Marks

A: Original Distribution of CIA (Continuous Internal Assessment) Marks (270 Marks)

Blocks	Subjects	Total marks	Module 1	Module 2	Total marks	
	Anatomy	30 marks	15 marks	15 marks		
Block 1	Physiology	30 marks	15 marks	15 marks	90 Marks	
90 Marks	Biochemistry	30 marks	15 marks	15 marks		
	Anatomy	30 marks	15 marks	15 marks		
Block 2	Physiology	30 marks	15 marks	15 marks	90 Marks	
90 Marks	Biochemistry	30 marks	15 marks	15 marks		
	Anatomy	30 marks	15 marks	15 marks		
Block 3	Physiology	30 marks	15 marks	15 marks	90 Marks	
90 Marks	Biochemistry	30 marks	15 marks	15 marks		
	I		ſ	Fotal marks	270 Marks	
polated mar	ks to be calculate	d from Summa	tive assessmen	nts throughout th	e Academic Ye	
Blocks	Modules	Anatomy	Physiology	Biochemistry	Total	
D1 1 1	Module 1	200	200	200	600	
BIOCK I	Module 2	200	200	200	600	
1470 Marks	Block Exam	90	90	90	270	
	Total	490	490	490	1470	
D11-0	Module 1	200	200	200	600	
Block 2	Module 2	200	200	200	600	

1470 Marks	Block Exam	90	90	90	270
	Total	490	490	490	1470
D1 1 2	Module 1	200	200	200	600
Block 3	Module 2	200	200	200	600
1470 Marks	Block Exam	90	90	90	270
	Total	490	490	490	1470
<b>Total Marks</b>		1470	1470	1470	4410

Note:

• Total Operational marks =4410 converted to 270 marks and per block 1470 marks will be converted to 90 marks for Annual professional marks calculation.

• The CIA should be submitted to Examination cell in round off values.

• Evidence of CIA Marks along with papers should be retained in the department that can be reproduced on request by examination cell if required. Reference: https://www.uhs.edu.pk/downloads/2k23mbbscurriculumv20.pdf

# Annual First professional Examinations 2025

- Total First Professional Marks: 900
- Continuous Internal Assessment (30%) =270 Marks
- Annual Marks: (70%) =630 Marks

A: First Professional Examination (70%)									
Total marks = 630 Marks									
Subjects	% Weightage of subjects	Marks distribution as per weightage							
Anatomy	35%	218 Marks							
Physiology	30%	192 Marks							
Biochemistry	23%	137 Marks							
Integrated Subjects									
Community Medicine									
C Public									
Health/Research									
Behavioural Sciences									
Pathology									
Pharmacology									
Radiology	11%								
Family Medicine		73 Marks							
• Surgery									
Medicine									
• Gynae C Obs									
Orthopedics									
Pediatrics									
• Surgery									
Ophthalmology									
Otorhinolaryngology									

### A: First Professional Examination (70%)

<ul> <li>Early Clinical Exposure</li> <li>ALPHA and General Education Cluster (GEC)</li> </ul>	2%	10 Marks
	Total Marks	630 Marks

### **B:** Blockwise Distribution of Marks

Total	BLOCK 1	BLOCK 2	BLOCK 3	Total
Annual	Marks	Marks	Marks	Marks
Professional				
<b>Marks (70%)</b>				
630 Marks	210 Marks	210 Marks	210 Marks	630 Marks

• Reference: https://www.uhs.edu.pk/downloads/2k23mbbscurriculumv20.pdf

# C: Subject Wise Marks Breakup In Blocks

Subjects	Block 1	Block 2	Block 3	Total
				Marks
Anatomy	85 Marks	78 Marks	55 Marks	218 Marks (35%)
Physiology	45 Marks	64 Marks	83 Marks	192 Marks (30%)
Biochemistry	53 Marks	39 Marks	45 Marks	137 Marks (23%)
Integrated Subjects	27 Marks	29 Marks	27 Marks	83 Marks (13%)

# **D:** Subject Wise Distribution of Marks for First Year MBBS

Block	Subjects	Theory	Practical	Total marks	Total marks Core Subject + Integrated Subjects
	Anatomy	45 marks	40 marks	85 marks	
	Physiology	20 marks	25 marks	45 marks	
	Biochemistry	23 marks	30 marks	53 marks	
	Total	88	95	183 marks	
	Integrated Subjects				
	Communit	4 Marks			
Block 1	y Medicine				
	/Research				
	Behavioral	2 Marks			
	Sciences			-	183+27 =
	Pathology	2 Marks			210 marks
	Pharmacology	3 Marks			
	Radiology	1 Marks		27 Marks	
	Gynae C Obs	1 Marks			
	Medicine	1 Marks			
210 Marks	Family Medicine	1 Marks			
	Pediatrics	1 Marks			
	• Surgery	1 Marks			
	• ECE		5 Marks	1	
	ALPHA and GEC		5 Marks	1	
	Total marks		183+2	27 = 210 marks	·

Block	Subjects	Theory	Dractical	Total	Total marks
DIUCK	Subjects	Theory	Fractical	marks	<b>Core Subject + Integrated Subjects</b>
	Anatomy	38 marks	40 marks	78 marks	
	Physiology	34 marks	30 marks	64 marks	
Block 2	Biochemistry	14 marks	25 marks	39 marks	
DIOCK 2	Total	86	95	181 Marks	181+29 =
	Integrated Subjects				210 marks

	Communit	4 Marks	
	y Medicine		
	/Research		
	Family Medicine	1 Marks	29 Marks
	<ul> <li>Orthopedics</li> </ul>	2 Marks	
210 Marks	Radiology	2 Marks	
	Medicine	3 Marks	

	Gynae C Obs	l Marks			
	Behavioral	4 Marks			
	Sciences				
	Pathology	2 Marks			
	• ECE		5 Marks		
	ALPHA and		5 Marks		
	GEC				
	Total marks	-	181+29	= 210 marks	
Block	Subjects	Theory	Practical	Total marks	Total marks Core Subject + Integrated Subjects
	Anatomy	25 marks	30 marks	55 marks	
	Physiology	48 marks	35 marks	83 marks	
	Biochemistry	15 marks	30 marks	45 marks	
	Total	88	95	183 marks	
	Integrated Subjects				
	Community	3 Marks			
Block 3	Medicine			-	
	Behavioral     Sciences	2 Marks			
	Medicine	2 Marks		-	183+27 =
	Family medicine	1 Marks			210 marks
	Gynae C Obs	1 Marks			
	Radiology	1 Marks		27 Marks	
	Pediatrics	1 Marks			
210 Marks	Otorhinolaryngology	1 Marks		1	
210 WIALKS	Ophthalmology	1 Marks		1	
	Pathology	2 Marks		]	

GRAND TOTAL MARKS				630	Marks		
Total marks			183+	27 = 210 marks	s		
	•	ALPHA and GEC		5 Marks			
	•	ECE		5 Marks			
	•	Pharmacology	2 Marks				

E: Block Wise Distribution of Marks for First Year MBBS (Batch 52) (Annual Professional Marks + CIA)

Subject	Theor	ry			Total Marks		
	Component	No of Items	Marks	Component	No of Items	Marks	
Block 1	Section I- MCQ	75	75	LabOSPE	5	25	210
(Foundation s MSK-1) Total Annual marks=210	Section II- SEQ		30	iOSPE	3	15	
		6		OSCE	4	20	
				OSVE	3	45	
CIA = 90 Marks	Continuous Internal Asses	sment (30%)	45	Continuous In	nternal Assessment (30%)	45	90
Total Annual marks+ CIA =210+90= 300	Total Marks		150	Total Marks		150	300
Block 2	Section I-	75	75	LabOSPE	5	25	210
(MSK-2 Blood and Immunity	MCQ		30	iOSPE	3	15	
	Section II-	6		OSCE	4	20	
Total Annual	SEQ			OSVE	3	45	
marks=210							
CIA = 90 Marks	Continuous Internal Asses	sment (30%)	45	Continuous I	nternal Assessment (30%)	45	90
Total Annual marks+ CIA =210+90= 300	Total Marks		150	Total Marks		150	300
Block 3	Section I-	75	75	LabOSPE	4	20	210
(CVS Respiration)	MCQ		30	iOSPE	3	15	
Total Annual	Section II-	6		OSCE	5	25	

marks=210	SEQ			OSVE	3	45	
CIA = G0 Marks	Continuous Internal Assess	ment (30%)	45	Continuous Ir	nternal Assessment (30%)	45	90
Total Annual marks + CIA =210+G0= 300	Total Marks		150	Total Marks		150	300
					Grand Tota	Marks	G00

F: 1<sup>st</sup> Professional Examination 2025 (Batch 52)

### Block 1 Assessment Breakup (Foundation & MSK-1 Modules)

			Theory	1		Practical (OSPE)		OSVE	Marks	%	Total M	arks	
												per sub	ject
		No of	No of			No of	No of	No of					
Themes	Discipline	MCQs (1	SEQs (5			Stations	Stations	Stations	OSVE				
		marks	marks	Marks	%	of LabOSPE	of iOSPE	of OSCE	(15			Marks	%
		each)	each)			(5 marks	(5 marks	(5 marks	Marks)				
						each)	each)	each)					
	Anatomy C	30	3	45	30	3	1	1	1	40	32	85	40
Core s	Applied /Clinical												
Horizontally	Physiology C	10	2	20	26	1	1	-	1	25	29	45	21
Integrated	Applied/Clinical												
Subjects	Biochemistry C	18	1	23	26	1	1	1	1	30	29	53	25
	Applied/clinical												
	Community Medicine C Public												
	Health/Research	4	-	3	4	-	-	-	-	-	-	4	
	Behavioural	2	-	1	2	-	-	-	-	-	-	2	
	Sciences												
Vertically	Pathology	2	-	2	2	-	-	-	-	-	-	2	
Integrated	Radiology	1		1								1	
Subjects	Gynae C Obs	1		1								1	
	Medicine	1		1								1	
	Family Medicine	1		1								1	14
	Paediatrics	1		1								1	
	Surgery	1		1								1	

	Pharmacology	3	-	3	3	-	-		-	-	-	3	]
Spirally	ECE	-	-	_		-	-	1	-	5	5	5	
Integrated Subjects	ALPHA and GEC	-	-	-		-	-	1	-	5	5	5	
	Total	75	6x5=30	105	100	5x5=25	3x5=15	4x5=20	3x15=45	105	100	210	100
	Total	105				105					105+1	05=210	

G: 1<sup>st</sup> Professional Examination 2025 (Batch 52)

### Block 2 Assessment

MSK-2 & Bloc	od/Immunity	Modules
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			Theory		Practical			OSVE	Total M		arks
										per subj	ject
Theme	me Subject		No of SEQs (5 marks each)	Marks	No of Stations of LabOSPE (5 marks each)	No of Stations of iOSPE (5 marks each)	No of Stations of OSCE (5 marks each)	OSVE (15 Marks)	Marks	Total Marks	%
	Anatomy C Applied /Clinical	23	3	38	3	1	1	1	40	78	37
Core s Horizontally Integrated Subjects	Physiology C Applied/Clinical	24	2	29	1	1	1	1	30	64	30
	Biochemistry C Applied/clinical	9	1	14	1	1	-	1	25	39	18
	Community Medicine C Public Health	4	-	4	-	-	-	-	-	4	
	Behavioural Sciences	4	-	4	-	-	-	-	-	4	
Vertically Integrated	Pathology	2	-	2	-	-	-	-	-	2	
Subjects	Family Medicine	1								1	15
	Orthopedics	2								2	

	Radiology	2								2	
	Medicine	3								3	
	Gynae C Obs	1								1	
Spirally Integrated	ECE	-	-	-	-	-	1	-	5	5	
Subjects	ALPHA and GEC	-	-	-	-	-	1	-	5	5	
Total		75	6x5=30	105	5x5=25	3x5=15	4x5=20	3x15=45	105	210	100
Total		105			105					105+105	=210

### H: 1<sup>st</sup> Professional Examination 2025 (Batch 52) Block 3 Assessment CVS & Respiratory Modules

			Theory			Practical		OSVE		Total Maı subje	•ks per ct
Themes	Discipline	No of MC Qs (1 marks each)	No of SEQs (5 mark s each)	Marks	No of Stations of LabOSPE (5 marks each)	No of Station s of iOSPE (5 marks each)	No of Stations of OSCE (5 marks each)	OSV E (15 Marks)	Marks	Marks	%
	Anatomy C Applied /Clinical	15	2	25	1	1	1	1	30	55	26
Core s Horizontally Integrated Subjects	Physiology C Applied/Clinical	33	3	48	2	1	1	1	35	83	40
	Biochemistry C Applied/clinical	10	1	15	1	1	1	1	30	45	21
	Community Medicine C Public Health	2	-	2	-	-	-	-	-	2	
	Behavioural Sciences	2	-	2	-	-	-	-	-	2	
	Pathology	2	-	2	-	-	-	-	-	2	
	Medicine	2		2						2	
Vertically Integrated	Family medicine	1		1						1	
Subjects	Gynae C Obs	1		1						1	
	Radiology	1		1						1	
	Pediatrics	1		1						1	

	Otorhinolaryngology	1		1						1	13
	Opthalmology	1		1						1	
	Pathology	2		2						2	
	Pharmacology	1	-	1	-	-	-	-		1	
Spirally Integrated	ECE	-	-	-	-	-	1	-	5	5	
Subjects	ALPHA and GEC	-	-	-	-	-	1	-	5	5	
Total	•	75	6x5=30	105	4x5=20	3x5=15	5x5=25	3x15=45	105	210	100
Total		105			105				105+10	5=210	

# **SECTION – VI**

**Time Table** 

**Integrated Clinically Oriented Modular Curriculum for First Year MBBS** 

MSK-I Module Time Table First Year MBBS Session 2024 – 2025

Batch- 52

# MSK - I Module Team

Module Name	:	MSK - I Module
Duration of module	:	05 Weeks
Coordinator	:	Dr. Summiya Bashir
Co-coordinator	:	Dr. Ali Raza
Reviewed by	:	Module Committee

	Module Commi	ittee	Module Task Force Team						
1.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar	1.	Coordinator	Dr. Summiya Bashir (Assistant Professor of Anatomy)				
2.	Director DME	Prof. Dr. Ifra Saeed	2.	DME Focal Person	Dr. Farzana Fatima				
3.	Convener Curriculum	Prof. Dr. Naeem Akhter	3.	Co-coordinator	Dr. Ali Raza (Senior Demonstrator of Anatomy)				
4.	Chairperson Anatomy & Dean Basic	Prof. Dr. Ayesha Yousaf	4.	Co-Coordinator	Dr. Fahd Anwar (Demonstrator of Physiology)				
	Sciences								
5.	Additional Director (Assessment)	Dr. Arsalan Manzoor Mughal	5.	Co-coordinator	Dr. Romessa Naeem (Demonstrator of Biochemistry)				
	DME								
6.	Chairperson Physiology	Prof. Dr. Samia Sarwar							
7.	Chairperson Biochemistry	Dr. Aneela Jamil		DME I	mplementation Team				
			1.	Director DME	Prof. Dr. Ifra Saeed				
8.	Focal Person Anatomy First Year	Asso. Prof. Dr. Mohtashim	2.	Implementation Incharge 1st & 2 <sup>nd</sup>	Dr. Arsalan Manzoor Mughal				
	MBBS	Hina		Year MBBS	Dr. Farzana Fatima				
9.	Focal Person Physiology	Dr. Sidra Hamid	3.	Assistant Director DME	Dr. Farzana Fatima				
10.	Focal Person Biochemistry	Dr. Aneela Jamil	4.	Editor	Muhammad Arslan Aslam				
11.	Focal Person Pharmacology	Dr. Zunera Hakim							
12.	Focal Person Pathology	Dr. Asiya Niazi							
13.	Focal Person Behavioral Sciences	Dr. Saadia Yasir							
14.	Focal Person Community Medicine	Dr. Afifa Kulsoom							
15.	Focal Person Quran Translation	Dr. Uzma Zafar							
	Lectures								
16.	Focal Person Family Medicine	Dr. Sadia Khan							

				Integratio	on									
				Themes										
Block		Module	General Anatomy	Embryology	Histology	Gross Anatomy								
	Anatomy     Skeletal System     General Embryology     General Histology     General Histology     General Histology													
	Anatomy     Bones     Second Week of     Use a second Week of     Second Week of													
	Joints Human Development till     Cartilage Shoulder joint till Hand													
				Placenta & Fetal Membranes	• Bone									
	٠	Biochemistry	Minerals, Vitamins	s (A, D, E, ascorbic acid, thiamin	and niacin), Introduction	& Classification of Amino Acids								
			NMJ, Introduction Concept of Motor Unit. Neuromuscular Transmission, Synthesis & Fate of Acetylcholine											
	٠	Physiology	<ul> <li>Drugs Acting On NMJ, Myasthenia Gravis, Lambart Eaton Syndrome</li> </ul>											
			Structure of Neurons. Classification of Neurons & Nerve Fibers											
			Nernst Potential, RMP											
			Recording & Propagation of Action Potential & Factors Effecting Nerve Conduction & Hyperpolarized State											
			Stimulus & Respon	nse & Types of Stimuli, Stages of	f Action Potential									
				Spira	Courses									
	•	Research Club Activity	• Synopsis Writing											
		(1-4)	Questionnaire Dev	elopment										
I			• Hands on session of	on Data Analysis										
			Manuscript Writin	g Workshop										
	•	Family Medicine	Approach to a patient	ent with Body aches										
	•	Behavioral Sciences	Healthcare models	and their clinical application										
			Relevance of ethic	s in life of a doctor	T. 4 4*									
	_	Concerns	• Chaulder Diale ast	vertical	Integration									
	•	Surgery	<ul> <li>Shoulder Dislocati</li> <li>Tannia albaw, Erad</li> </ul>	Oll	Ino (Surgary)									
		Community Madiaina	Tennis elbow, Flag     Musculoskalatal D	bioordoro	lila (Surgery)									
	•	Community Medicine	<ul> <li>Nusculoskeletal D</li> <li>Dravantian of A asi</li> </ul>	idente										
		Madiaina	Prevention of Acc.     Osteoporosis	Prevention of Accidents										
	•	Wiedicine	Osteopolosis     Osteopolosis     Osteopolosis											
		Pharmacology	Drugs Acting On N	Neuromuscular Junction										
		i narmacology	Tennis elbow free	ture of olectation radius and uln	9									
		Obstatrics & Gynacology	Bony PEI VIC Fat	al Skull & Mechanism of Labor	a									
	Obstetrics & Gynecology        Bony PELVIS Fetal Skull & Mechanism of Labor													

# **Discipline Wise Details of Modular Content**

Category A*		Category H	**				Ca	tegory C		
General Embryol	logy	General Histology	General		Demonstrations / SGD		CBL	Practical's	SDL	SSDL
			Anatomy					1		
• Second week of Hu	ıman	• Connective Tissue I	• Bone I	٠	Gross Anatomy:	•	Shoulder	• Histology	<ul> <li>Shoulder Dislocation</li> </ul>	• Proximal
Development		• Connective Tissue II	• Bone II	•	Shoulder joint		Dislocation	of	<ul> <li>Biceps Tendinitis,</li> </ul>	& distal
• Gastrulation (3rd w	reek)	• Connective Tissue III	• Joint I	٠	-Flexor Compartment &	•	Wrist Drop	connective	Popeye's Arm	radioulna
Notochord Formation	on (3rd	• Cartilage	• Joint II		Neurovascular			Tissue I	Wrist Drop	r joint
week)		Bones			organization of Arm			• Connectiv	• Fracture of Ulna	• Bones of
• Neurulation &				٠	Extensor compartment			e tissue II	• Colle's Fracture/	hand
differentiation of So	omites				& Neurovascular			• Cartilage	Smith's Fracture	
(3rd week)					organization of Arm			• Bone	<ul> <li>Golfer's Elbow</li> </ul>	
• Early development	of CVS			٠	Bones of Forearm				<ul> <li>Tennis Elbow</li> </ul>	
& highlights of 4th-	-8th			٠	Flexor compartment of				Cubital Tunnel	
week					forearm				Syndrome	
• Folding of Embryo				•	Extensor compartment				<ul> <li>Elbow Dislocation</li> </ul>	
• Fetal period					of forearm				<ul> <li>Proximal and distal</li> </ul>	
• Placenta				•	Neurovascular				radioulnar dislocation	
• Fetal Membranes &	Z				organization of Forearm				<ul> <li>Avascular Necrosis of</li> </ul>	
Multiple pregnancy	7			•	Elbow joint				Scaphoid Bone	
				•	Proximal & Distal				<ul> <li>Wrist dislocation</li> </ul>	
					radioulnar joints				• Vascular insufficiency at	
				•	Bones of Hand				wrist joint	
				•	Wrist joint				Carpal Tunnel	
				•	Dorsum of Hand, Flexor				• Dupuytren's Contracture	
					& Extensor retinaculum				<ul> <li>Hand infections</li> </ul>	
				•	Palm of Hand & Facial					
					spaces					
				•	Neurovascular					
					organization of Hand					
				•	Surface Marking					
Category A*: By Profes	ssors									

## **Categorization of Modular Content of Anatomy:**

Category B\*\*: By Associate & Assistant Professors

Category C\*\*\*: By Senior Demonstrators & Demonstrators

# **Teaching Staff / Human Resource of Anatomy**

Sr. #	Designation of Teaching Staff / Human Resource	Total number of teaching staff
1.	Professor of Anatomy department	01
2.	Associate professor of Anatomy department	02
3.	Assistant professor of Anatomy department (AP)	02
4.	Demonstrators of Anatomy department	04

# **Contact Hours (Faculty)**

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	2 * 19= 38 hours
2.	Small Group Discussions (SGD)	1 * 2 + 2*12=26 hours
3.	Case Based Learning (CBL)	2*2 = 4 hours
5.	Practical / Skill Lab	1.5 * 20 = 30 hours

## **Contact Hours (Students)**

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	1 * 19 = 19 hours
2.	Small Group Discussions (SGD)	1.5 * 18 + 2*1=29 hours
3.	Case Based Learning (CBL)	2*2 = 4 hours
4.	SSDL	3*2 = 6 hours
5.	Practical / Skill Lab	1.5 * 4 = 6 hours
6.	Self-Directed Learning (SDL)	1 * 7= 7 hours

Category A*	Category B**			Category	C***	
LGIS	LGIS	PBL	CBL	Practical's	SGD	SDL
NMJ, Introduction concept of motor unit. Neuromuscular transmission, synthesis & fateo facety lcholine ( <b>Prof. Dr. Samia</b> <b>Sarwar /Dr Aneela</b> )	Structure of neurons. Classification of neurons & nerve fibers ( <b>By Dr Sheena Tariq</b> )		<ol> <li>Paresthesia, Paresis</li> <li>Insecticide poisoning</li> </ol>	<ol> <li>Determination of Hemoglobin concentration</li> <li>Determination of Hematocrit (HCT)</li> <li>Determination of Erythrocyte Sedimentation Rate (ESR)</li> <li>Determination of Differential leukocyte Count (DLC)</li> </ol>	<ol> <li>Nernst potential</li> <li>NMJ, Transmission across NMJ, Diseases of NMJ</li> </ol>	<ol> <li>Structure of neurons. Classification of neurons &amp; nerve fibers</li> <li>Nernst potential, RMP</li> <li>Properties of nerve fibers</li> <li>Measuret of RMP &amp; effect of electrolytes on RMP 5. Concept of degeneration &amp;</li> </ol>
Drugsactingon NMJ, Myasthenia Gravis, Lambart Eaton Syndrome ( <b>Prof. Dr.</b> <b>Samia Sarwar / Dr</b> <b>Aneela</b> )	Nernst potential, RMP ( <b>By Dr Shazia</b> )					regeneration 6. Stimulus & response & types of stimuli, Stages of action potential 7.A Refractory period, types of action potential Graded
	Properties of nerve fibers ( <b>By Dr Sheena</b> )					potential comparison
	Measurement of RMP& effect of electrolytes on RMP ( <b>By Dr. Shazia</b> )					B. Recording & propagation of action
	Concept of degeneration & re generation ( <b>By Dr</b> <b>Kamil</b> )					effecting nerve conduction & hyperpolarized state <b>SDL:(On Campus)</b> 1.Nernst potential, RMP
	Stimulus & response & types of stimuli, Stages of action potential ( <b>By Dr Fareed</b> )					Action Potential

# Categorization of Modular Content of Physiology:

Refractory period, types			
of action potential.			
Graded potential			
comparison			
With action potential			
(By Dr Shazia)			
Recording &			
propagation of action			
potential & factors			
effect ingnerve			
Conduction & hyper			
polarized state (By Dr			
Fareed)			

Category A\*: By Professors

Category B\*\*: By Associate & Assistant Professors

Category C\*\*\*: By Senior Demonstrators & Demonstrators

Sr.#	Designation of Teaching Staff / Human Resource	Total number of teaching staff
1.	Professor of physiology department	01
2.	Associate professor of physiology department	01
3.	Assistant professor of physiology department (AP)	01 (DME)
4.	Demonstrators of physiology department	07
5.	Residents of physiology department (PGTs)	06

# **Teaching Staff / Human Resource of Physiology**

# Contact Hours (Faculty) & Contact Hours (Students)

Sr.#	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (Lectures)	$10X \ 2 = 20 \text{ Hours}$
		$18x 2 \text{ hours} = 36 \text{hours} + 2 \text{hours} (4 \text{th week}) + 1 \text{ hour} (1^{\text{st}})$
2.	Small Group Discussions (SGD)/ Case based learning (CBL)	week) =39 hours
3.	Problem Based Learning (PBL)	
4.	Practical / Skill Lab	18x 2  hours = 36  hours + 2  hours (4  th week) = 38  hours
5.	Self-Directed Learning (SDL)	7x 1hour= 7 hours (Off Campus)
		4x 1hour= 4hours (On Campus) (Third week)

# **Categorization of Modular Content of Biochemistry:**

Category A*	Category B**			Category C***	
LGIS	LGIS	PBL	CBL	Practical's	SGD
Minerals: Introduction &	Vitamins: Introduction &		Night Blindness	• 7 Colour Tests for	Introduction & Classification of
Classification.	Classification.		Rickets	Proteins	Vitamins.
Calcium & Phosphate	Vitamin A &Vitamin E			• Serum Calcium & Ascorbic Acid	Vitamin E
	Vitamin C				
	Niacin & Thiamine				•Minerals
	Magnesium, Sulphur,				
	Fluoride				
Vitamin D	Minerals: Copper, Zinc,				
	Selenium, Iodine,				
	Magnesia				
	Classification & Structure of				
	Amino Acids& Isomerism				
Category A*: Assistant Profess	sor& Senior Demonstrator with	post graduate Qualif	fication		
Category B**: Senior Demonst	rators				
Category C***: By All Demons	strators				

# **Teaching Staff / Human Resource of Biochemistry**

<b>Sr.</b> #	<b>Designation of Teaching Staff / Human Resource</b>	Total number of teaching staff
1	Assistant professor of biochemistry department (AP)	01
2	Demonstrators of biochemistry department	06

### Contact Hours (Faculty) & Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	<b>Total Hours (Faculty)</b>	Total Hours (student)
1.	Large Group Interactive Session (Lectures)	12	6
2.	Small Group Discussions (SGD)	6 * 5 = 30 hours	1.5*4=6
3.	Problem Based Learning (PBL)	2 * 1 = 2 hours	02
4.	Practical / Skill Lab	30 hours	6
5.	Self-Directed Learning (SDL)	1 * 7= 7hours	07

Day & Date	8:00a	m – 09:00am	09	9:00am – 10:00am	10:00am – 10:20am	10:20a	m-11:20am	<b>11:20</b> a	m-12:10pm	12:10pm- 12:30pm	12:30pm – 2:00pm	Home Assignment
	BIOCHE	MISTRY (LGI	S) PH	IARMACOLOGY	10 <b>.</b> 20aiii	ANATO	OMY (LGIS)	PHYSIO	LOGY(LGIS)	12.50pm		
14-04-2025 Monday	Mineral introduc classification/ cal & Phosphate	ion/ cium Defin classif vitami	ition and fication of ns vitamin Neu	Drugs Acting On romuscular Junction		Embryology 2nd Week of Development	Histology Connective tissue (CT) – I (Cells of CT)	Structure of neurons Classification of neurons and nerve fibers	Nernst Potential & RMP		Practical & Tutorial Venue & topic mentioned at the end	SDL Physiolog Structure of Neurons &
	Dr. Aneela / Dr. U (Even)	Jzma Dr. Al	mas (Odd)		-	Prof. Dr. Ayesha/Asso. Prof. Dr. Arsalan (Even)	Asso. Prof. Dr. Mohtasham (Odd)	Dr. Sheena (Even)	Dr. Shazia (Odd)		(Referred to table no. 1)	Neurons
		-	CBL	•		RESEARCH C	CLUB ACTIVITY 1	PHYSIOI	LOGY (LGIS)		Practical & Tutorial	
15-04-2025 Tuesday		Sho (Should	ulder Joint er Dislocation)			Synop	sis Writing	Nernst Potential & RMP	Structure of neurons Classification of neurons and nerve fibers		Venue & topic mentioned at the end	SDL Physiolog Nernst Potentia
					l k	Dr. Rizwana Shahid (Even)	Dr. Asif (Odd)	Dr. Shazia (Even)	Dr. Sheena (Odd)	l k	Practical & Tutorial Venue & topic mentioned at the end (Referred to table no. 1) Practical & Tutorial Venue & topic mentioned at the end (Referred to table no. 1) Practical & Tutorial Venue & topic mentioned at the end (Referred to table no. 1) Practical & Tutorial Venue & topic mentioned at the end (Referred to table no. 1) SDL Anatomy Shoulder Dislocation <b>12:30pm – 2:00pm</b> Practical & Tutorial Venue & topic mentioned	a Rivii
		SGD/ I	DISSECTION		6	ANATO	OMY (LGIS)	BEHAVIO	RAL SCIENCES	6		
16-04-2025 Wednesday	Flavor co	nnartment & N	aurovascular organi	zation of arm	Br	Histology Connective tissue-I	Embryology 2nd Week of Human	Healthcare clinical	models and their application	Br	Practical & Tutorial Venue & topic mentioned at the end (Referred to table no. 1) Practical & Tutorial Venue & topic mentioned at the end (Referred to table no. 1)	SDL Biochemistry Hypercalcemia
wednesday	Hexor Co	inpartment & No				(Cells of CT) Asso. Prof. Dr. Mohtasham (Even)	Development Prof. Dr. Ayesha/Asso. Prof. Dr. Arsalan (Odd)	Dr. Azeem Rao (Odo	l) Dr. Sadia Yasir (Even)			
			CBL			ANATO	OMY (LGIS)	PHYSIOLOGY (LGIS)				
17-04-2025 Thursday	Extensor c	ompartment & N (W	Neurovascular organ rist Drop)	ization of arm		General Anatomy Bone-I (General (Ex Features)	Histology Connective tissue-II tracellular Matrix & Types of	Properties of nerve Fibers	Measurement & effect of electrolytes on RMP		Practical & Tutorial Venue & topic mentioned at the end (Referred to table no. 1)	SDL Biochemistry Hypocalcemia
						Assit. Prof. Dr. Sumvyia (Even)	D. Prof. Dr. Mohtasham (Odd)	Dr. Fahd Anwar (Eve	n) Dr. Shazia (Odd)			
Day & Date	8:00am –	9:00am	09:00ai	n – 10:00am		10:00am – 11:00	0am	11:00am – 12:00pm				
	MEDIO	INE	BIOCHEN	IISTRY (LGIS)		ANATOMY (LO	GIS)	FAMILY	MEDICINE	-		
18-04-2025 Friday	Osteopo	rosis	classification of vitamins, Vitamin A, Vitamin E	Mineral introduction/ classification/ calcium & Phosphate	Com (Extracellula	Histology hective Tissue – II ar Matrix & Types of CT)	3 <sup>rd</sup> week of development (Gastrulation)	Approach to a pa	tient with Body Pains		SDL Anatomy Shoulder Dislocation	
	Dr Saima (Even)	Dr Javaria Malik (odd)	Dr. Almas (Even)	Dr. Aneela / Dr. Uzma (Odd)	Asso. Prof	. Dr. Mohtasham (Even)	Prof. Dr. Ayesha/Asso. Prof. Dr. Arsalan (Odd)	Dr Sadia (Even)	Dr. Sidra Hamid (Odd)	12.10	12.20mm 2.00mm	Homo
Day & Date	0.00am – 0	7.00am	07.004	n – 10.00am	10:00ani – 10:20am	10.204	m-11.20am	11.20a	m-12.10pm	12:10pm- 12:30pm	12.30pm – 2.00pm	Assignment
		SGD/ I	DISSECTION			ANATO	OMY (LGIS)	PHYSIOLOGY(LGIS)				
19-04-2025		Discost	ion & Cnotting		e a k	Embryology           3 <sup>rd</sup> week of development (Gastrulation)	General Anatomy Bone-I (General Features)	Measurement & effect of electrolytes on RM	ct Properties of nerve IP Fibers	e a k	Practical & Tutorial Venue & topic mentioned	SDL Anatomy Biceps
Saturday		Dissect	ion & Spotting		B r	Prof. Dr. Ayesha/Asso. Prof. Dr. Arsalan (Even)	Assit. Prof. Dr. Sumyyia (Odd)	Dr. Shazia (Even)	Dr. Fahd Anwar (Odd)	B r	(Referred to table no. 1)	Tendinitis, Popeye's Arm

Table No. 1 (Time: 12:20pm – 02:00pm)																					
Batch	Batch Distribution for Practical Topics for Skill Lab with Venue Sche													edule for Practical							
Skills	(all subje	ects)		Connective Tissue	Day	Histology BiochemistryPract				ical Physiology Practical				Phy	siology	<b>Biochemistry SGD</b>					
CBL/	CBL / Small Group Discussion			Histology Practica		Practical								SGD							
(Biocl	nemistry	and Physiol	ogy)	Histology Laborat		Batch	Teacher	Batch	Teacher	-	Batch	Teacher	Q	Batch	Teacher	Batch	Teacher Name				
				• Biuret, Ninhydrin			Name		Name			Name	HO		Name						
Sr. No	Sr. No Batch Roll No.		).	(Biochemistry Pra	Monday	C	DD	В	Dr. Rahat	HC	Ε	Dr. Ali /Dr.	by	Α	Dr.	D	Dr. Uzma Zafar				
1	•	01.70		Biochemistry Lab	oratory	T1	D	HC	0		þà –	•	Afsheen	eq		Sheena Dr. U-ma	F				
1.	A	01-70	<u>`</u>	• Determination of ]	Hemoglobin	Tuesday D		py –		Dr. Sana Latii	ed –	A D	Dr. Sheena	vis	B	Dr. Uzilla Dr. Eoroh	E A	Dr. Ranat			
2.	B	1/1-140	) 0	concentration (Phy	ysiology-	Thursday	E D	ed		Dr. Uzma	- vis	<u> </u>	Dr. Uzina	per	E E	Dr. Faran Dr. Ali/Dr	A	Dr. Annas Dr. Sono Lotif			
5.	C	141-210	0	Practical)		Thursday	D	rvis	A	Dr. Annas	iper	D	Dr. Nazia	Su	Ľ	Afsheen	C	Dr. Sana Laui			
4.	D	211-28	0			Saturday	Α	npe	Ε	Dr. Romessa	Su	С	Dr. Farah		D	Dr. Nazia	B	Dr. Romessa			
5.	Ε	281-onwa	urds					Š													
			Topics for S	h Venue																	
				• Physiology SGD:	Nernst potentia	l (Physiology															
				Lecture Hall 05)		1															
			• Biochemistry SGI	ind																	
				Lastura Hall No 2	$\sqrt{11}$	nin E (venue:															
				• Anotomy CBL · St	) Joulder Dielocat	ion Wrist droi															
				Table No. 2 F	louider Disiocat	on with Venu	es and '	Teachers	Name	for Problem Ra	ased I a	earning	(PRL) Sessi	ons							
Sr No.	Batches	Roll No			T	eachers	cs and	Sr No. 1	Batches	Roll No		v v	eniie	0115		Т	eachei	rs			
1.	A1	(01-35)	Lect	ure Hall no.05	Dr. Sana Latif		6			(176-210)	New I	ecture 1	Hall Complex	x	Dr. Nazia (Demonstrator						
		(01 00)	Phys	siology	(Senior Demon	strator Bioche	mistry)		02	(1/0 =10)	Lecture Theater # 03			-	Physiology)						
2.	A2	(36-70)	Lect	ure Hall #.04 (1st	Dr. Farah Ali S	hah	2 /	7.	D1	(210-245)	New	ew Lecture Hall Comple		ex	x Dr. Jawad (E		nonstr	ator			
			Floo	rAnatomy)	(Demonstrator of Physiology)						Lecture Theater # 02				Physi	ology)					
3.	<b>B</b> 1	(71-105)	Ana	tomy Museum (First	Dr. Nayab Ram	izan		8.	D2	(246-280)	New	w Lecture Hall Comple		ex	Dr. k	Kashif Asl	nraf				
			Floo	r Anatomy)	(APWMO Biod	chemistry)					Lecture Theater # 02		er # 02		(Demonstrator Ana			my)			
4.	<b>B2</b>	(106-140)	Lect	ure Hall no.03 (First	Dr. Zeneara Saq	ib (Senior		9.	<b>E1</b>	(281-315)	Anato	omy Mu	seum (First I	Floor	Dr. U	Jzma Zafa	ır				
			Floo	r)	Demonstrator of	of Anatomy)					Anator	my)			(APW	VMO Bio	chemis	stry)			
5.	C1	(141-175)	Ana	tomy Museum (First	Dr. Farhat	```		10	<b>E2</b>	(315 onwards)	Lectu	ire Hall	no.04		Dr. N	lajam	``				
			rAnatomy)	gy)	C		4• . C						(PG)	l Physiolo	ogy)						
					I able No. 3 Ve	nues for Larg	e Grou	p Interac	uve Se	$\frac{\text{ssion}(\text{LGIS})}{\text{re Theorer # 02}}$	-										
	<b>Udd Koll Numbers</b> New Lecture Hall Complex Lecture Theater # 03																				
	<b>Even Koll Number</b> New Lecture Hall Complex Lecture Theater # 02																				
																	141	Page			

Table No	. 4 Batch D	istribution and Venues for An SGDs / Dissections	atomy Small Gro	oup Discussion	Table No. 5 Batch Distribution and Venues for Physiology & Biochemistry Small Group Discussion SGDs										
Batches	Roll No	Subgroup	Anatomy Teacher	Venue	Batches	Roll No	Subgroup	Physiology Teacher	Physiology Venue	Biochemistry Teacher	Biochemistry Venue				
A	01- 70	A1: Roll No (1 – 17) A2: Roll No (18 – 34) A3: Roll No (35 – 51) A4: Roll No (52 – 70)	Dr. Ali Raza (Senior. Demonstrator)	Anatomy Lecture Hall 03	Α	01-70	A1: Roll No (1 – 14) A2: Roll No (15 – 28) A3: Roll No (29 – 42) A4: Roll No (43 – 56) A5: Roll No (57 – 70)	Dr. Sheena Tariq (APWMO)	Physiology Lecture Hall 5	Dr. Uzma Zafar (APWMO)	Basement Lecture Hall No. 2				
В	71-140	B1: Roll No (71 – 87) B2: Roll No (88 – 104) B3: Roll No (105 – 121) B4: Roll No (122 – 140)	Dr. Sajjad Hussain (Senior. Demonstrator)	Anatomy Lecture Hall 04	В	71-140	B1: Roll No (71 – 84) B2: Roll No (85 – 98) B3: Roll No (99 – 112) B4: Roll No (113 – 126) B5: Roll No (127 – 140)	Dr. Uzma Kiyani (Senior Demonstrator)	Physiology Lecture Hall 5	Dr. Rahat (APWMO)	Basement Lecture Hall No. 2				
С	141-210	C1: Roll No (141 – 157) C2: Roll No (158 – 174) C3: Roll No (175 – 191) C4: Roll No (192 – 210)	Dr. Tayyaba Qureshi (Assistant Professor)	New Lecture Hall Complex 02	C	141-210	C1: Roll No (141 – 154) C2: Roll No (155 – 168) C3: Roll No (169 – 182) C4: Roll No (183 – 196) C5: Roll No (197 – 210)	Dr. Farah Shah (Demonstrator)	Physiology Lecture Hall 5	Dr. Almas (APWMO)	Basement Lecture Hall No. 2				
D	211-280	D1: Roll No (211 – 227) D2: Roll No (228 - 244) D3: Roll No (245 – 261) D4: Roll No (262 – 280)	Dr. Sumyyia Bashir (Assistant Professor)	New Lecture Hall Complex 3	D	211-280	D1: Roll No (211 – 224) D2: Roll No (225 – 238) D3: Roll No (239 – 252) D4: Roll No (253 – 266) D5: Roll No (267 – 280)	Dr. Nazia (Demonstrator)	Physiology Lecture Hall 5	Dr. Sana Latif (Senior Demonstrator)	Basement Lecture Hall No. 2				
Е	281- onwards	E1: Roll No (281 – 297) E2: Roll No (298 – 314) E3: Roll No (315 – 331) E4: Roll No (332 – onwards)	Dr. Zeneara Saqib (Demonstrator)	New Lecture Hall Complex 01 / Anatomy Museum	E	281- onwards	E1: Roll No (281 – 294) E2: Roll No (295 – 308) E3: Roll No (309 – 322) E4: Roll No (323 – 336) E5: Roll No (337 – onwards)	Dr. Ali Zain / Dr. Afsheen (P. G Trainee)	Physiology Lecture Hall 5	Dr. Romessa (Demonstrator)	Basement Lecture Hall No. 2				

Time Table for Musculoskeletal-I Module Second Week														
(21-04-2025 to 26-04-2025)														
Date/ Day	8:00am – 10:00am	10:00am – 10:20am	10:20ar	12:10pm	12:10pm- 12:30pm	12:30pm – 2:00pm	Home Assignment							
	SGD / DISSECTION		ANATO	MY (LGIS)	RESEARCH CL	UB ACTIVITY 2								
21-04-2025 Monday	Bones of forearm (Ulna & Radius) Batches, Teachers & Venue		General Anatomy Bone-II (Classification & Blood Supply) Assit, Prof. Dr. Sumvvia	Embryology 3 <sup>rd</sup> week (Notochord formation & Differentiation of Somites) Prof. Dr. Avesha/Asso.	Questionnaire	Development		Practical & Tutorial Venue & topic mentioned at the end (Referred to table no. 1)	SDL Physiology Resting Membrane Potential					
			(Even)	Prof. Dr. Arsalan (Odd)										
	SGD / DISSECTION		ANATO	MY (LGIS)	PHYSIOLO	OGY(LGIS)								
22-04-2025 Tuesday	Flexor compartment & Neurovascular organization of forearm Batches, Teachers & Venue	a k	Embryology 3 <sup>rd</sup> week (Notochord formation & Differentiation of Somites)	General Anatomy Bone-II (Classification & Blood Supply)	Concept of Degeneration and regeneration	Stimulus & Response &Type of stimuli. Stages of action potential	a k	Practical & Tutorial Venue & topic mentioned at the end (Referred to table no. 1)	SDL Physiology Action Potential					
		r e a	Prof. Dr. Ayesha/Asso. Prof. Dr. Arsalan (Even)	Assit. Prof. Dr. Sumyyia Odd)	Dr. Fahd (Even)	Dr. Fareed (Odd)	r e a							
	SGD / DISSECTION	B	ANATOMY (LGIS)		PHYSIOLO	OGY(LGIS)	8							
23-04-2025 Wednesday	Extensor compartment & Neurovascular organization of		Histology Connective Tissue-III (Types of CT)	Embryology 3 <sup>rd</sup> week (Neurulation)	Stimulus & Response &Type of stimuli. Stages of action potential	Concept of Degeneration and regeneration		Practical & Tutorial Venue & topic mentioned at the end (Referred to table no. 1)	SDL Biochemistry Wilson's Disease					
	forearm		Ass. Prof. Dr. Mohtasham (Even)	Prof. Dr. Ayesha/Asso. Prof. Dr. Arsalan (Odd)	Dr. Fareed (Even)	Dr. Fahd (Odd)		(Referred to table no. 1)						
	SGD / DISSECTION		ANATO	MY (LGIS)	BIOCHEMI	STRY LGIS			CDL Disslamistary					
			Embryology	Histology	Fluoride, Magnesium &				SDL Biochemistry					
24-04-2025 Thursday	Elbow joint Batches, Teachers & Venue		3 <sup>rd</sup> week (Neurulation)	Connective Tissue-III (Types of CT)	Sulphur Copper, Zinc, Selenium, Iodine, Manganese	Vitamin D		Practical & Tutorial Venue & topic mentioned at the end (Referred to table no. 1)	Fluoride, Magnesium & Sulphur, Zinc, Selenium, Iodine					
			Prof. Dr. Ayesha/Asso. Ass. Prof. Dr. Mohtasham		Dr. Uzma	Dr. Aneela			Manganese					
Data/ Day	8:00om 10:00om		Prof. Dr. Arsalan (Even)	(Odd)	(Even)	(Odd)			Ū.					
Date/ Day	BEHAVIORAL SCIENCES		ANATOMY (L)	GIS)	PBL 1 (SE	SSION – I)								
			Embryology	Histology	1221(02			SDL Anatomy						
25-04-2025 Friday	doctor	4 <sup>th</sup> -8 <sup>th</sup> wee de	k of development & Early velopment of CVS	Cartilage	PBL	Team		Colle's Fracture/ Smith's Fractur	9					
	Dr. Azeem Rao (Odd) Vasir (Even)	Prof. Dr. Aye	esha/Asso. Prof. Dr. Arsalan (Even)	Asso. Prof. Dr. Mohtasham (Odd)										
Date/ Day	8:00am – 10:00am 10:00		10:20ar	n-11:20am	11:20am-	12:10pm	12:10pm- 12:30pm	12:30pm – 2:00pm	Home Assignment					
	SGD/ DISSECTION		ANATO	MY (LGIS)	PHYSIOLO	OGY (LGIS)								
		×	Histology	Embryology	Recording & propagation	Refractory period, types of	×		SDL Anatomy					
26-04-2025 Saturday	Proximal & Distal Radioulnar joints	Brea	Cartilage	4 <sup>th</sup> -8 <sup>th</sup> week of development & Early development of CVS	of action potential & factors effecting nerve conduction & hyperpolarized state	action potential. Graded potential comparison with action potential	Brea	Practical & Tutorial Venue & topic mentioned at the end (Referred to table no. 1)	Golfer's Elbow & Tennis Elbow Online SDL					
			Asso. Prof. Dr.Prof. Dr. Ayesha/Asso.Mohtasham (Even)Prof. Dr. Arsalan (Odd)		Dr. Fareed (Even)	Dr Shazia (Odd)			Evaluation)					

						Table I	No. 1 (7	Гіте: 12:2	20pm –	02:00pm)								
Batch	Distribut	tion for Pra	ctical	Topics for Skill	Lab with Venue		Schedule for Practical											
Skills	(all subje	ects)		• Connective Tiss	• Connective Tissue II (Anatomy		Hi	Histology H		<b>Biochemistry Practical</b>		al Physiology Practical			Phy	vsiology	Bioch	nemistry SGD
CBL/	Small G	roup Discu	ssion	Histology Pract		Pr								SGD				
(Bioch	(Biochemistry and Physiology)			Histology Laboratory-Dr Kashif			Batch	Teacher	Batch	Teacher		Batch	Teacher	Q	Batch	Teacher	Batch	Teacher Name
G N	Sr. No Batch Roll No.			• Xanthoproteic 1		0	Name	D	Name	HOD		Name	HC		Name		D U	
Sr. No			0.	(Biochemistry Practical) Venue-		Monday	C	DD	В		Dr. Rahat	E	Dr. Ali / Dr.	by	Α	Dr. Shoono	D	Dr. Uzma
1				Biochemistry L	<b>T</b> 1_	D	H	<u> </u>	Du Cana Latif	by		Aisneen	ed	D D Ll-	Dr. Llama	F	Zafar Du Dahat	
1.	A	01-/0		• Determination of	of Hematocrit	Tuesday D		by		Dr. Sana Latif	ed	A	Dr. Sheena	.vis	B	Dr. Uzma		Dr. Ranat
2.	B	141.01	)	(HCT)(Physiolo	gy-Practical)	Wednesday	E	sed		Dr. Uzma	vis	B	Dr. Uzma	per		Dr. Faran	A	Dr. Almas
3.	C	141-21	0			Inursday	В	upervis	А	Dr. Almas	npeı	D	Dr. Nazia	Su	E	Afsheen	C	Dr. Sana Latif
4.	D	211-28	0			Saturday	Α		E	Dr. Romessa	S	С	Dr. Farah		D	Dr. Nazia	B	Dr. Romessa
5.	Ε	281-onwa	ards					$\mathbf{N}$										
				Topics for	r SGDs / CBL wit	h Venue												
				<ul> <li>Physiology CBI</li> </ul>														
		(Physiology Leo																
				• Biochemistry C	BL: Night Blindne	ess (Venue:												
				Lecture Hall No	<u>()</u>	• • • • • • • • • • • • • • • • • • • •			<b>N</b> T			<del>.</del>						
C- N-	Datalar	D-UN-		Table No. 2	2 Batch Distribut	ion with Venu	ies and	Teachers	Name	tor Problem Ba	ased	Learning	g (PBL) Sess	ions		Т	1	
<u>Sr No.</u>	Batches	<b>KOII NO</b>	Last	venue		eachers	3	SI NO. Datch		<u>KOII NO</u>	New Lecture Hall Comple				Dr. N	I Jazia (Dam	eachel	rs
1.	AI	(01-55)	Dhyo	iology	Dr. Salla La	Dr. Salla Latli (Sonior Domonstrator		0. <b>C</b>		(176-210)	Lecture Hall Complet			X	DI. Nazia (Demonstrator i hysiolo			
			1 1195	Biocher		nonstrator				L		Lecture Theater # 03						
2	A2	(36-70)	Lect	ure Hall # 04 (1st F	Floor Dr Farah A	· Farah Ali Shah		7 <b>Г</b>	)1	(210-245) N		New Lecture Hall Comple			Dr. Jawad (Demonstrator Phys			
2.	1 1 2	(30 70)	Anat	omy)	(Demonstra	(Demonstrator of Physiolog)			<i>,</i>	(210/213)	Lect	ure Theat	er # 02		D1. 5	uwuu (Den	lonstre	aor r nysiology)
3.	<b>B1</b>	(71-105)	Anat	omy Museum (Firs	st Dr. Nayab l	Ramzan		8. <b>E</b>	02	(246-280)	Nev	w Lecture	Hall Comple	ex	Dr. Kashif Ashraf			
			Floo	r Anatomy)	(APWMO ]	Biochemistry)					Lectu	Lecture Theater # 02			(Demonstrator Anatomy)			
4.	<b>B2</b>	(106-140)	Lect	ure Hall no.03 (Fir	st Dr. Zeneara	Saqib (Senior		9. <b>E</b>	E1	(281-315)	Ana	atomy Mu	seum (First H	Floor	r Dr. l	Uzma Zafa	r	
			Floo	r)	Demonstrat	or of Anatomy	)				Anatomy)				(APWMO Biochemistry)			
5.	5. <b>C1</b> (141-175) Ar		Anat	omy Museum (Firs	st Dr. Farhat			10 <b>E</b>	E <b>2</b>	(315 onwards)	Lec	ture Hall	no.04		Dr. N	Najam		
	Floor			rAnatomy)	(PGT Physi	ology)	~								(PG	T Physiolo	gy)	
Table No. 3 Venues for Large Gr									tive Se	ssion (LGIS)	-							
Udd Koll Numbers New Lecture Hall Complex Lecture Theater # 03																		
				ł	Even Koll Numbe	er New Lec	ture Ha	II Complex	x Lectu	re Theater # 02								
																	144	Page
Table No	. 4 Batch D	istribution and Venues for An SGDs / Dissections	atomy Small Gro	oup Discussion	Table	No. 5 Bate	ch Distribution and Venue	s for Physiology a	& Biochemistry S	mall Group Discu	ssion SGDs							
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Batches	Roll No	Subgroup	Anatomy Teacher	Venue	Batches	Roll No	Subgroup	Physiology Teacher	Physiology Venue	Biochemistry Teacher	Biochemistry Venue							
Α	01- 70	A1: Roll No (1 – 17) A2: Roll No (18 – 34) A3: Roll No (35 – 51) A4: Roll No (52 – 70)	Dr. Ali Raza (Senior. Demonstrator)	Anatomy Lecture Hall 03	Α	01-70	A1: Roll No (1 – 14) A2: Roll No (15 – 28) A3: Roll No (29 – 42) A4: Roll No (43 – 56) A5: Roll No (57 – 70)	Dr. Sheena Tariq (APWMO)	Physiology Lecture Hall 5	Dr. Uzma Zafar (APWMO)	Basement Lecture Hall No. 2							
В	71-140	B1: Roll No (71 – 87) B2: Roll No (88 – 104) B3: Roll No (105 – 121) B4: Roll No (122 – 140)	Anatomy Lecture Hall 04	В	71-140	B1: Roll No (71 – 84) B2: Roll No (85 – 98) B3: Roll No (99 – 112) B4: Roll No (113 – 126) B5: Roll No (127 – 140)	Dr. Uzma Kiyani (Senior Demonstrator)	Physiology Lecture Hall 5	Dr. Rahat (APWMO)	Basement Lecture Hall No. 2								
С	141-210	C1: Roll No (141 – 157) C2: Roll No (158 – 174) C3: Roll No (175 – 191) C4: Roll No (192 – 210)	Dr. Tayyaba Qureshi (Assistant Professor)	C	141-210	C1: Roll No (141 – 154) C2: Roll No (155 – 168) C3: Roll No (169 – 182) C4: Roll No (183 – 196) C5: Roll No (197 – 210)	Dr. Farah Shah (Demonstrator)	Physiology Lecture Hall 5	Dr. Almas (APWMO)	Basement Lecture Hall No. 2								
D	211-280	D1: Roll No (211 – 227) D2: Roll No (228 - 244) D3: Roll No (245 – 261) D4: Roll No (262 – 280)	Dr. Sumyyia Bashir (Assistant Professor)	New Lecture Hall Complex 3	D	211-280	D1: Roll No (211 – 224) D2: Roll No (225 – 238) D3: Roll No (239 – 252) D4: Roll No (253 – 266) D5: Roll No (267 – 280)	Dr. Nazia (Demonstrator)	Physiology Lecture Hall 5	Dr. Sana Latif (Senior Demonstrator)	Basement Lecture Hall No. 2							
Ε	281- onwards	E1: Roll No (281 – 297) E2: Roll No (298 – 314) E3: Roll No (315 – 331) E4: Roll No (332 – onwards)	Dr. Zeneara Saqib (Demonstrator)	New Lecture Hall Complex 01 / Anatomy Museum	E	281- onwards	E1: Roll No (281 – 294) E2: Roll No (295 – 308) E3: Roll No (309 – 322) E4: Roll No (323 – 336) E5: Roll No (337 – onwards)	Dr. Ali Zain / Dr. Afsheen (P. G Trainee)	Physiology Lecture Hall 5	Dr. Romessa (Demonstrator)	Basement Lecture Hall No. 2							



				Ti	me Table for N (05	Iusculoskeletal- -05-2025 to 10-(	I Module Third W 05-2025)	/eek			
Day & Date	8:00am - 09:0	0am	09:00am – 10:00am	10:00am –	10:20an	n-11:20am	11:20am	-12:10pm	12:10pm-	12:30pm – 2:00pm	Home
	RESEARCH CLUB A	CTIVITY 3	PBL 1 (SESSION-II)	10:20am	ANATO	MY (LGIS)	PHYSIOLO	OGY (LGIS)	12:30pm		Assignment
05-05-2025 Monday	Manuscript Writing	Workshop	PBL Team		Histology Bone I (Cells & types)	Embryology Folding of Embryo	Refractory period, types of action potential. Graded potential comparison with action potential	NMJ, Introduction concept of motor unit. Neuro muscular transmission, synthesis & fate of acetylcholine		Practical & Tutorial Venue & topic mentioned at the end (Referred to table no. 1)	SDL Physiology Concept of Degeneration and regeneration
					Asso. Prof. Dr. Mohtasham (Even)	Prof. Dr. Ayesha/Asso. Prof. Dr. Arsalan (Odd)	Dr Shazia (Even)	Prof. Dr. Samia Sarwar/ Dr Aneela (Odd)		(Referred to table no. 1)	
	PHARMACOL	OGY	RESEARCH CLUB	1	ANATO	MY (LGIS)	PHYSIOLO	DGY(LGIS)			
06-05-2025 Tuesday	Drugs used Myasthenia Gr	in avis	Manuscript Writing Workshop	k	Embryology Folding of Embryo	Histology Bone I (Cells & types)	NMJ, Introduction concept of motor unit. Neuro muscular transmission, synthesis & fate of acetylcholine	Recording & propagation of action potential & factors effecting nerve conduction & Hyperpolarized state	×	Practical & Tutorial Venue & topic mentioned at the end (Referred to table no. 1)	SDL Physiology Nernst Potential & RMP & Action Potential
				ea	Prof. Dr. Ayesha/Asso. Prof. Dr. Arsalan (Even)	Asso. Prof. Dr. Mohtasham (Odd)	Prof. Dr. Samia Sarwar/ Dr Aneela (Even)	Dr. Fareed (Odd)	e a	( · · · · · · · · ,	
	SGD/ DISSEC	TION	JOINT SESSION	B	ANATO	MY (LGIS)	COMMUNIT	Y MEDICINE	B		
07-05-2025	Dissection & Sp	Dissection & Spotting			Embryology Fetal period	Histology Bone II (Ossification)	Musculoskele	etal Disorders		Practical & Tutorial Venue & topic mentioned at the end	SDL Biochemistry Rickets
Wednesday			Anatomy, Physiology, Peads, Family Medicine & Community Meidicine		Prof. Dr. Ayesha/Asso. Prof. Dr. Arsalan (Even)	Asso. Prof. Dr. Mohtasham (Even)				(Referred to table no. 1)	
	S	GD/ DISSECT	ION		ANATO	MY (LGIS)	PBL 2 (SE	SSION – I)			
08-05-2025 Thursday		Bones of Han	d		Histology Bone II (Ossification)	Embryology Fetal period	- Muscle V	Veakness		Practical & Tutorial Venue & topic mentioned at the end	SDL Biochemistry Deficiency manifestation of
Thatbady		Dones of Thus	u		Asso. Prof. Dr. Mohtasham (Even)	Prof. Dr. Ayesha/Asso. Prof. Dr. Arsalan (Odd)	PBL	Team		(Referred to table no. 1)	Vit A &
Day & Date	8:00am – 09:00am	09:	00am – 10:00am		10:00am – 11:00	)am	11:00am -	- 12:00pm			
	SGD / DISSECTION	BIOCI	Eluoride Magnesium		ANATOMY LC	General Anatomy	PHYSIOLO	GY (LGIS)	-	SDL Anatomy	
09-05-2025 Friday	Wrist joint	Vitamin D	& SulphurCopper, Zinc, Selenium, Iodine, Manganese		Placenta	Joints 1(types)	SDL: Nernst Potential & RMP & Action Potential	Drugs acting on NMJ, Myasthenia Gravis, Lambart Eaton Syndrome		Avascular Necrosis of Scapho	id Bone
		Dr. Aneela (Even)	Dr. Uzma (Odd)	Prof. Dr.	Ayesha/Asso. Prof. Dr. Arsalan (Odd)	Assit. Prof. Dr. Tayyaba (Even)	Dr Shazia (Even)	Prof. Dr. Samia Sarwar/Dr Aneela (Odd)			
Date/ Day		8:00am – 10:00	lam	10:00am – 10:20am	10:20an	n-11:20am	11:20am	-12:10pm	12:10pm- 12:30pm	12:30pm – 2:00pm	Home Assignment
	S	GD/ DISSECT	ION	10.20am	ANATO	MYLGIS	PHYSIOL	OGY LGIS			SDI Anatomy
10-05-2025				eak	General Anatomy Joints I (Types)	Embryology Placenta	Drugs acting on NMJ, Myasthenia Gravis,	SDL: Nernst Potential &	e a k	Practical & Tutorial Venue & topic mentioned	Wrist Dislocation
Friday	Dorsum of Ha	nd, Flexor & Ex	tensor Ketinacula	Bre	Assit. Prof. Dr. Tayyaba (Even)	Prof. Dr. Ayesha/Asso. Prof. Dr. Arsalan (Odd)	Eaton Syndrome Prof. Dr. Samia Sarwar /Dr Aneela (Even)	RMP & Action Potential Dr Shazia (Odd)	Br(	at the end (Referred to table no. 1)	Mid Module Online Clinical Evaluation
										147	Page

	Table No. 1 (Time: 12:20pm – 02:00pm)																
Batch	Distribut	tion for Practical	Topics for Skill Lab v	vith Venue		<-		<b>I</b>	Sch	nedu	le for Pra	octical					
Skills	(all subje	ects)	• Cartilage (Anatomy H	Iistology	Day	His	stology	Bioc	hemistry Practi	ical	Physiolo	gy Practical		Phy	siology	Bioch	nemistry SGD
CBL /	Small G	roup Discussion	Practical) Venue-Hist	ology		Pra	actical		-		-			S	GD		-
(Bioch	nemistry a	and Physiology)	Laboratory-Dr Kashif	Ashraf		Batch	Teacher	Batch	Teacher		Batch	Teacher	D	Batch	Teacher	Batch	Teacher Name
			• Tryptophan Test, Sak	aguchi's			Name		Name	D		Name	ОH		Name		
Sr. No	Batch	Roll No.	Test (Biochemistry Pr	actical)	Monday	С	Q	B	Dr. Rahat	ОН	Ε	Dr. Ali /Dr.	Jy ]	Α	Dr.	D	Dr. Uzma
			Venue- Biochemistry	Laboratory			ЮН			[ yc		Afsheen	sd l		Sheena		Zafar
1.	Α	01-70	<ul> <li>Determination of Erythmeter</li> </ul>	rocyte	Tuesday	D	] j	С	Dr. Sana Latif	sd l	Α	Dr. Sheena	vise	B	Dr. Uzma	Ε	Dr. Rahat
2.	B	71-140	Sedimentation Rate		Wednesday	E	ed b	D	Dr. Uzma	vise	B	Dr. Uzma	)erv	C	Dr. Farah	Α	Dr. Almas
3.	С	141-210	(ESR)(Physiology-Prac	tical)	Thursday	В	vise	Α	Dr. Almas	Der	D	Dr. Nazia	Sup	Ε	Dr. Ali/Dr.	С	Dr. Sana Latif
4	р	211 280			Saturday	•	Der	Г	Dr Domassa	Sul	C	Dr. Foroh		D	Aisneen Dr. Nazia	P	Dr Pomosso
4.	р Б	211-200 281 onwords			Saturday	A	Sup	Ľ	DI. Komessa	• •	C	DI. Falali			DI. Mazia	D	DI. Kolliessa
5.	Ľ	201-011walus	Topics for SCD	e / CRI wit	h Vonuo												
	Physiology CPL: Insecticide poisoning																
			• Fliyslology CBL. In (Physiology Lecture F	fall 05)	soning												
			Biochemistry SGD: Mit	norals (Vonuo	· Looturo Holl N	Io											
	Biochemistry SGD: Minerals (Venue: Lecture Hall No 2)																
	2) Table No. 2 Batch Distribution with Venues and Teachers Name for Problem Based Learning (PBL) Sessions																
Sr No.	Sr No. Batches         Roll No         Venue         Teachers         Sr No.         Batches         Roll No											venue			Т	'eacher	S
1.	A1	(01-35) Lect	ure Hall no.05	Dr. Sana La	tif		6. C	2	(176-210)	New	/ Lecture	Hall Complex	K	Dr. N	lazia (Den	nonstrat	tor Physiology)
		Phys	siology	(Senior Den	nonstrator					Lect	ture Theat	er # 03					
				Biochemist	cy)												
2.	A2	(36-70) Lect	ure Hall #.04 (1st Floor	Dr. Farah A	li Shah		7. D	1	(210-245)	Nev	w Lecture	Hall Comple	ex	Dr. Ja	awad (Der	nonstra	tor Physiology)
		Anat	tomy)	(Demonstra	tor of Physiolo	ogy)				Lect	ture Theat	ter # 02					
3.	<b>B1</b>	(71-105) Anat	tomy Museum (First	Dr. Nayab F	Ramzan		8. D	2	(246-280)	Nev	w Lecture	Hall Comple	Х	Dr. H	Kashif Asl	nraf	
		Floo	r Anatomy)	(APWMO I	Biochemistry)					Lect	ture Theat	ter # 02		(Dem	onstrator	Anaton	ny)
4.	<b>B2</b>	(106-140) Lect	ure Hall no.03 (First	Dr. Zeneara	Saqib (Senior		9. <b>E</b>	1	(281-315)	Ana	atomy Mı	iseum (First F	Floor	Dr. U	Jzma Zafa	r	
		Floo	r)	Demonstrat	or of Anatomy	)				Ana	tomy)			(APV	VMO Bio	chemist	ry)
5.	C1	(141-175) Anat	tomy Museum (First	Dr. Farhat			10 <b>E</b>	2	(315 onwards)	Lec	cture Hall	no.04		Dr. N	lajam		
		Floo	rAnatomy)	(PGT Physi	ology)									(PG	r Physiolc	gy)	
	Table No. 3 Venues for Large Group Interactive Session (LGIS)																
Udd Koll Numbers New Lecture Hall Complex Lecture Theater # 03																	
			Even	Koll Numbe	r New Lect	ure Ha	II Complex	Lectu	re Theater # 02								

Table No	. 4 Batch D	istribution and Venues for An SGDs / Dissections	atomy Small Gro	up Discussion	Table	No. 5 Bate	ch Distribution and Venue	es for Physiology &	& Biochemistry S	mall Group Discu	ssion SGDs
Batches	Roll No	Subgroup	Anatomy Teacher	Venue	Batches	Roll No	Subgroup	Physiology Teacher	Physiology Venue	Biochemistry Teacher	Biochemistry Venue
A	01-70	A1: Roll No (1 – 17) A2: Roll No (18 – 34) A3: Roll No (35 – 51) A4: Roll No (52 – 70)	Dr. Ali Raza (Senior. Demonstrator)	Anatomy Lecture Hall 03	A	01-70	A1: Roll No (1 – 14) A2: Roll No (15 – 28) A3: Roll No (29 – 42) A4: Roll No (43 – 56) A5: Roll No (57 – 70)	Dr. Sheena Tariq (APWMO)	Physiology Lecture Hall 5	Dr. Uzma Zafar (APWMO)	Basement Lecture Hall No. 2
В	71-140	B1: Roll No (71 – 87) B2: Roll No (88 – 104) B3: Roll No (105 – 121) B4: Roll No (122 – 140)	Dr. Sajjad Hussain (Senior. Demonstrator)	Anatomy Lecture Hall 04	В	71-140	B1: Roll No (71 – 84) B2: Roll No (85 – 98) B3: Roll No (99 – 112) B4: Roll No (113 – 126) B5: Roll No (127 – 140)	Dr. Uzma Kiyani (Senior Demonstrator)	Physiology Lecture Hall 5	Dr. Rahat (APWMO)	Basement Lecture Hall No. 2
С	141-210	C1: Roll No (141 – 157) C2: Roll No (158 – 174) C3: Roll No (175 – 191) C4: Roll No (192 – 210)	Dr. Tayyaba Qureshi (Assistant Professor)	New Lecture Hall Complex 02	С	141-210	C1: Roll No (141 – 154) C2: Roll No (155 – 168) C3: Roll No (169 – 182) C4: Roll No (183 – 196) C5: Roll No (197 – 210)	Dr. Farah Shah (Demonstrator)	Physiology Lecture Hall 5	Dr. Almas (APWMO)	Basement Lecture Hall No. 2
D	211-280	D1: Roll No (211 – 227) D2: Roll No (228 - 244) D3: Roll No (245 – 261) D4: Roll No (262 – 280)	Dr. Sumyyia Bashir (Assistant Professor)	New Lecture Hall Complex 3	D	211-280	D1: Roll No (211 – 224) D2: Roll No (225 – 238) D3: Roll No (239 – 252) D4: Roll No (253 – 266) D5: Roll No (267 – 280)	Dr. Nazia (Demonstrator)	Physiology Lecture Hall 5	Dr. Sana Latif (Senior Demonstrator)	Basement Lecture Hall No. 2
Ε	281- onwards	E1: Roll No (281 – 297) E2: Roll No (298 – 314) E3: Roll No (315 – 331) E4: Roll No (332 – onwards)	Dr. Zeneara Saqib (Demonstrator)	New Lecture Hall Complex 01 / Anatomy Museum	E	281- onwards	E1: Roll No (281 – 294) E2: Roll No (295 – 308) E3: Roll No (309 – 322) E4: Roll No (323 – 336) E5: Roll No (337 – onwards)	Dr. Ali Zain / Dr. Afsheen (P. G Trainee)	Physiology Lecture Hall 5	Dr. Romessa (Demonstrator)	Basement Lecture Hall No. 2

### Time Table for Musculoskeletal-I Module Fourth Week (12-05-2025 to 17-05-2025)

Day & Date	8:00am – 09	9:00am	09:00am – 10:00am	10:00am – 10:20am	10:20an	1-11:20am	<b>11:20</b> a	m-12:10pm	12:10pm- 12:30pm	12:30pm – 2:00pm	Home Assignment
12-05-2025 Monday	Γ	DISSECT	ION Spotting		BIOCHEM Classification & Structure of Amino Acids Isomerism Dr. Rahat (Even)	ISTRY LGIS Vitamin C, Niacin & Thiamine Dr. Almas/ Dr Aneela (Odd)	PBL 2 ( PE	<b>SESSION-II</b> ) BL Team		Practical & Tutorial Venue & topic mentioned at the end (Referred to table no. 1)	SDL Physiology Properties of nerve fibers
	MEDIO	CINE	SGD/ DISSECTION		ANATO	MY LGIS	COMMUN	ITY MEDICINE		Practical & Tutorial	
13-05-2025 Tuesday	Osteomalaci Polyart Dr. Umer	ia, rickets hritis Dr Iqra	Cross Sectional Anatomy	a k	Embryology Fetal membranes & multiple pregnancy	General Anatomy Joints II	Preventio	on of Accidents	ak	Venue & topic mentioned at the end (Referred to table no. 1)	Drugs acting on NMJ
	(Even)	(Odd)		r e	Prof. Dr. Ayesha (Even)	Assit. Prof. Dr. Tayyaba (Odd)	Dr Abdul Qudoos (Odd)	Dr. Maimoona (Even)	r e		
14-05-2025 Wednesday	S Palm	GD / DISSE	CTION acial spaces	н	GYNA Bony PELVI Mechanis	E & OBS S Fetal Skull & sm of Labor	BIOCHEN Vitamin C, Niacin & Thiamine	AISTRY (LGIS) Classification & Structure of Amino Acids Isomerism		Practical & Tutorial Venue & topic mentioned at the end (Referred to table no. 1)	SDL Biochemistry Deficiency manifestation of
			OPTON		(Even)	(Odd)	Aneela (Even)	(Odd)	-		Thiamin
15.05.0005	8	SGD/ DISSE	CTION		Tennis elbow, Fra	GERY acture of Olecranon,	General Anatomy	Embryology	-	Practical & Tutorial	SDL Biochamistry
Thursday	Neurova	scular Organ	ization of Hand		Tadıı Dr. Junaid Khan	is, ulna Dr. Rana Adnan	Joints II Prof. Dr. Ayesha	Fetal membranes & Multiple Pregnancy Assit. Prof. Dr. Tayyaba	-	mentioned at the end (Referred to table no. 1)	Deficiency manifestation of
16-05-2025 Friday						Early Clinical Exposu	(Odd) re (ECE)	(Even)			SDL Anatomy Carpal Tunnel Syndrome
	S	GD / DISSE	CTION		ANATO	MY LGIS	SU	RGERY		Practical & Tutorial	SDI Anatomy
17-05-2025 Saturday	Cutaneous Inr limb, F	nervation & I orce & weigł	Dermatomes of upper t transmission	r e a k	Embryology Teratogenesis Prof. Dr.	Embryology Teratogenesis Prof. Dr. Saima	Shoulde	er Dislocation	r e a k	Venue & topic mentioned at the end	Dupuytren's Contracture
Ĵ		C		B	Ayesha (Even)	(Odd)	Dr. Asad Amir (Even)	Dr. Hira (Odd)	B	(Referred to table flo. 1)	Online Clinical Evaluation

						Table N	No. 1 (T	'ime: 12:2	0pm –	02:00pm)								
Batch	Distribut	ion for Prac	tical	Topics for Skill Lab v	vith Venue				Î	Sch	nedule	e for Pra	ctical					
Skills	(all subje	ects)		Bone (Anatomy Histor)	logy	Day	His	stology	Bioc	hemistry Practi	ical	Physiolo	gy Practical		Phy	siology	Bioch	emistry SGD
CBL	Small G	roup Discus	sion	Practical) Venue-Hist	ology		Pra	actical							S	GD		
(Bioc	hemistry a	and Physiol	ogy)	Laboratory-Dr. Kashi	f		Batch	Teacher	Batch	Teacher		Batch	Teacher	D	Batch	Teacher	Batch	Teacher
				• Calcium & Ascorbic A	Acid			Name		Name			Name	[O]		Name		Name
Sr. No	Batch	Roll No	).	Estimation (Biochemi	stry	Monday	C	D	B	Dr. Rahat	Q	Ε	Dr. Ali /Dr.	уF	Α	Dr.	D	Dr. Uzma
				Practical) Venue- Bio	chemistry			OF OF			<u>y</u> I		Afsheen	d b		Sheena		Zafar
1.	A	01-70		Laboratory		Tuesday	D	by H	С	Dr. Sana Latif	d b	Α	Dr. Sheena	ise	B	Dr. Uzma	E	Dr. Rahat
2.	B	71-140	)	• Determination of Diff	erential	Wednesday	E	d b	D	Dr. Uzma	ise	B	Dr. Uzma	erv	С	Dr. Farah	Α	Dr. Almas
3.	С	141-210	0	leukocyte Count		Thursday	B	<i>'</i> ise	Α	Dr. Almas	erv	D	Dr. Nazia	dnç	E	Dr. Ali/Dr.	C	Dr. Sana
				(DLC)(Physiology-Pr	actical)			erv			Sup					Alsneen		Latif
4.	D	211-280	0			Saturday	Α	Sup	E	Dr. Romessa		С	Dr. Farah		D	Dr. Nazia	В	Dr. Romessa
5.	E	281-onwa	irds					•1										
	Topics for SGDs / CBL with Venue																	
	• Physiology: NMJ, Transmission across NMJ,																	
				Diseases of NMJ (Phy	siology Lec	ture Hall 05)												
				• Biochemistry CBL: R	ickets (Venu	e: Lecture Ha	11											
				No 2)		•41 \$7			NT			•						
C- N-	Dadahaa	D-UN-		Table No. 2 Batc	<u>n Distributi</u>	on with venu	es and	leachers	Name	Tor Problem Ba	ased L	_earning	(PBL) Sessi	ons	1	Т		-
<u>5r No</u>	Batches	<b>KOII NO</b>	Last	venue	Dr. Corro Lo		<b>D</b>	r No. Bat	cnes	<b>KOII NO</b>	Narra	V	enue		Dr. N	I Tarria (Darr	eacher	S torr
1.	AI	(01-55)	Dhue	vielogy	Dr. Sana La	lll		0.		(176-210)	Looty	Lecture I	r = 03	X	Dr. N	azia (Dei	nonstra	lor
			Filys	aology	(Sellior Del	nonstrator					Lectu	lie Theat	e1 # 03		Fllys	ology)		
2	Δ2	(36-70)	Lect	ure Hall # 0/ (1st Floor	Dr Farah A	li Shah		7 I	)1	(210-245)	Neu	v Lecture	Hall Comple	v	Dr I	wad (De	monstra	tor
۷.	A4	(30-70)	Anat	(15111001)	(Demonstra	tor of Physiol	ogy)	/.	/1	(210-243)	Lectu	re Theat	r = 02	-1	Physi	ology)	monsua	lioi
3	<b>B1</b>	(71-105)	Anat	omy Museum (First	Dr Navah F	amzan	557	8 I	)2	(246-280)	New	v Lecture	Hall Comple	γ	Dr F	Cashif Asi	hraf	
5.	21	(/1 105)	Floo	r Anatomy)	(APWMO I	Riochemistry)			-	(210 200)	Lectu	re Theat	er # 02	011	(Dem	onstrator	Anator	nv)
4.	B2	(106-140)	Lect	ure Hall no.03 (First	Dr. Zeneara	Sagib (Senior		9. I	61	(281-315)	Ana	tomy Mu	seum (First l	Floor	Dr. I	Izma Zafa	ar	
		()	Floo	r)	Demonstrat	or of Anatomy	)			()	Anato	omy)			(APV	VMO Bio	chemist	try)
5.	C1	(141-175)	Ana	comy Museum (First	Dr. Farhat		/	10 <b>I</b>	E2	(315 onwards)	Lect	ture Hall	no.04		Dr. N	ajam		57
		``´´	Floo	rAnatomy)	(PGT Physi	ology)				`````					(PG)	r Physiolo	ogy)	
				Tal	ble No. 3 Ve	nues for Larg	ge Grou	p Interac	tive Se	ssion (LGIS)								
	Odd Roll Numbers New Lecture Hall Complex Lecture Theater # 03																	
				Even	Roll Numbe	r New Lec	ture Ha	ll Complex	x Lectu	re Theater # $\overline{02}$								
				Odd I Even	Roll Number Roll Numbe	rs New Lec r New Lec	ture Hal ture Hal	ll Comple: ll Comple:	<u>x Lectu</u> x Lectu	re Theater # 03 re Theater # 02								

Table No	. 4 Batch D	istribution and Venues for An SGDs / Dissections	atomy Small Gro	oup Discussion	Table	No. 5 Bate	ch Distribution and Venue	es for Physiology a	& Biochemistry S	mall Group Discu	ssion SGDs
Batches	Roll No	Subgroup	Anatomy Teacher	Venue	Batches	Roll No	Subgroup	Physiology Teacher	Physiology Venue	Biochemistry Teacher	Biochemistry Venue
A	01- 70	A1: Roll No (1 – 17) A2: Roll No (18 – 34) A3: Roll No (35 – 51) A4: Roll No (52 – 70)	Dr. Ali Raza (Senior. Demonstrator)	Anatomy Lecture Hall 03	Α	01-70	A1: Roll No (1 – 14) A2: Roll No (15 – 28) A3: Roll No (29 – 42) A4: Roll No (43 – 56) A5: Roll No (57 – 70)	Dr. Sheena Tariq (APWMO)	Physiology Lecture Hall 5	Dr. Uzma Zafar (APWMO)	Basement Lecture Hall No. 2
В	71-140	B1: Roll No (71 – 87) B2: Roll No (88 – 104) B3: Roll No (105 – 121) B4: Roll No (122 – 140)	Dr. Sajjad Hussain (Senior. Demonstrator)	Anatomy Lecture Hall 04	В	71-140	B1: Roll No (71 – 84) B2: Roll No (85 – 98) B3: Roll No (99 – 112) B4: Roll No (113 – 126) B5: Roll No (127 – 140)	Dr. Uzma Kiyani (Senior Demonstrator)	Physiology Lecture Hall 5	Dr. Rahat (APWMO)	Basement Lecture Hall No. 2
С	141-210	C1: Roll No (141 – 157) C2: Roll No (158 – 174) C3: Roll No (175 – 191) C4: Roll No (192 – 210)	Dr. Tayyaba Qureshi (Assistant Professor)	C	141-210	C1: Roll No (141 – 154) C2: Roll No (155 – 168) C3: Roll No (169 – 182) C4: Roll No (183 – 196) C5: Roll No (197 – 210)	Dr. Farah Shah (Demonstrator)	Physiology Lecture Hall 5	Dr. Almas (APWMO)	Basement Lecture Hall No. 2	
D	211-280	D1: Roll No (211 – 227) D2: Roll No (228 - 244) D3: Roll No (245 – 261) D4: Roll No (262 – 280)	Dr. Sumyyia Bashir (Assistant Professor)	New Lecture Hall Complex 3	D	211-280	D1: Roll No (211 – 224) D2: Roll No (225 – 238) D3: Roll No (239 – 252) D4: Roll No (253 – 266) D5: Roll No (267 – 280)	Dr. Nazia (Demonstrator)	Physiology Lecture Hall 5	Dr. Sana Latif (Senior Demonstrator)	Basement Lecture Hall No. 2
Е	281- onwards	E1: Roll No (281 – 297) E2: Roll No (298 – 314) E3: Roll No (315 – 331) E4: Roll No (332 – onwards)	Dr. Zeneara Saqib (Demonstrator)	New Lecture Hall Complex 01 / Anatomy Museum	E	281- onwards	E1: Roll No (281 – 294) E2: Roll No (295 – 308) E3: Roll No (309 – 322) E4: Roll No (323 – 336) E5: Roll No (337 – onwards)	Dr. Ali Zain / Dr. Afsheen (P. G Trainee)	Physiology Lecture Hall 5	Dr. Romessa (Demonstrator)	Basement Lecture Hall No. 2

### Tentative Schedule for LMS Based Weekly Online Assessments for First Year MBBS (MSK-I Module - I) Batch 52

Class	Module	Day & Date	Time of	Focal person	Department
			Assessment		Responsible
		Monday 21 <sup>st</sup> March, 2025	7:00 pm - 7:30pm	Prof. Dr. Ayesha Yousaf	Anatomy
		Tuesday 22 <sup>nd</sup> March, 2025	7:00 pm - 7:30pm	Prof. Dr. Samia Sarwar	Physiology
Second Year	GIT Module - I	Wednesday 23 <sup>rd</sup> March, 2025	7:00 pm - 7:30pm	Dr. Aneela Jamil	Biochemistry
MBBS		Monday 05 <sup>th</sup> March, 2025	7:00 pm- 7:30pm	Prof. Dr. Ayesha Yousaf	Anatomy
		Tuesday 06 <sup>th</sup> March, 2025	7:00 pm- 7:30pm	Prof. Dr. Samia Sarwar	Physiology
		Wednesday 07 <sup>th</sup> March, 2025	7:00 pm - 7:30pm	Dr. Aneela Jamil	Biochemistry

The Online Assessment for MSK-I Module for Second Year MBBS will be as per following schedule:

\*Note: All dates are subject to change.

Time Table for Musculoskeletal-I Module Fifth Week

Date & Day	Tentative Schedule
19-05-2025 Monday	
20-05-2025 Tuesday	
21-05-2025 Wednesday	
22-05-2025 Thursday	
23-05-2025 Friday	Assessment Week
24-05-2025 Saturday	
26-05-2025 Monday	
27-05-2025 Tuesday	
28-05-2025 Wednesday	

### (19-05-2025 to 28-05-2025)

\*Note: All dates are subject to change.

## **SECTION VII**

# Table of Specification (TOS) For MSK - I Module Examination for First Year MBBS

	Domains: C-Core Subject (70%) Levels C1-C2, HV- Horizontal & Vertical Integration (20%) Levels C2-C3, S- Spiral Integration (10%) Levels C2-C3 Theory (Cognitive) Assessment Practical (Skill & Attitude) Assessment																																
		Theory (Cognitive) Asse												essment												Practical	(Skill & Attitu	ide) Assess	ment				
End of Module Assessment	Subject		M	CQs			EN	1Qs				SAQs				SEC	5		Marks	Total Marks Theory	Total Time			AV OSF	E	Time	AED Reflective Writing		OSVE		Total Practical Marks	Grand Total	Total Time of Module Assessment
		C HV	S	Total	Marks	С	Total	Marks		С	HV	S	Total	Marks	С	HV	S	Total	I	meory		С	HV	S Tot	al Mar	s		Viva	Сору	Total	INIGI K3		
	Anatomy	19 4	2	25	25	1	1	5		3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1 1	50	50 min	15 min	45	5	50	100	200	6 HRS
First Module	Physiology	19 4	2	25	25	1	1	5		3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1 1	50	50 min	15 min	45	5	50	100	200	6 HRS
	Biochemistry	19 4	2	25	25	1	1	5		3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1 1	50	50 min	15 min	45	5	50	100	200	6 HRS
Formative- Wee	kly LMS Based Assessr	nent of 30	MCQs	(10 M	CQs per S	bubje	ct)																										
										_1																	(a) III a						
										Theo	ory (C	ognitiv	/e) Asse	essment						Tetel						Practical	(Skill & Attitu	ide) Assess	ment		Tatal	Grand	Total Time of
According to the second	Subject		M	CQs			EN	1Qs				SAQs				SEC	5		Marke	Total	Total			AV OSE	E	Time	AED Reflective		OSVE		Dractical	Grand	Module
Assessment		с ну	S	Total	Marks	С	Total	Marks	+	С	нv	S	Total	Marks	C	нv	S	Total	IVIDIAS	Theory	Time	С	нν	S To	al Mar	s	Writing	Viva	Copy	Total	Marke	Total	Assessment
	Anatomy	19 4	2	25	25	1	1	5	+	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1 1	50	50 min	15 min	45	5	50	100	200	6 HRS
Second	Physiology	19 4	2	25	25	1	1	5	+	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1 1	50	50 min	15 min	45	5	50	100	200	6 HRS
Module	Biochemistry	19 4	2	25	25	1	1	5	+	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1 1	50	50 min	15 min	45	5	50	100	200	6 HRS
Formative- Wee	kly LMS Based Assessr	nen tof 30	MCQs	(10 M	CQs per S	bubje	ct)	•																			•					•	
					-		-																										
Block	Subjects	LMS	Based M	Assess CQs Total	ment Time	υ	abOSPE C	IOSPE HV	05 CO:	SPE SPE	Total	Marks	5 Time	Gran d Total	Total Bloc Time	k								No	ubjects of MCQs	Weekly LM	S Assessment y Physiology 30	30	er.				
	Anatomy	21 6	5 3	30	30 min		14		4	2	20	60	6 HRS	90	10 HRS	1								M	arks/MCC	30	30	30	-				
BLOCK	Physiology	21 6	53	30	30 min		14		4	2	20	60	6 HRS	90	10 HRS										*M	CQ=1 Mark	each, 1 min ea	ch					
	Biochemistry	21 6	53	30	30 min		14		4	2	20	60	6 HRS	90	10 HRS														_				
	50% Quest	ions/OSPE	E Statio	ons/Viv	a Station	s will	l be from	Foundation	n Mod	dule and	1 50% (	Questi	ons will	be from	MSK-1 Mo	dule																	
		For E	Each as	sessme	ent stude	nt wi	ill have to	o individual	ly pas	ss Theor	y and	Practic	al comp	onents																			
Marks per																																	
ltem			-											0.005		-																	
'	NCQ=1	EMQ=	- 5		SAQ= 5			SEQ= 9	9		AVO	SPE= 5		OSPE=	3																		
	OSPE TIME=	2 Round o	of 40 St	udents	=80 min				-																								
		3 Kound o	01 40 5	tudents	s = 240 mi	In			-																								
	OSVE	=Time per	stude	nt=5mi	ns																												

# **Annexure I**

**Templates for Theory Paper** 

• MCQ, SEQ Paper, & EMQ

Templates for AV OSPE

**Templates for Structured Viva** 

### Rawalpindi Medical University Rawalpindi Department of Anatomy, Physiology & Biochemistry MCQs & EMQ Paper for \_\_\_\_\_ Module, First Year MBBS Batch 52

#### Date: 00-00-0000

Total Marks: 30 (MCQs: 25, EMQ: 5)Roll No. \_\_\_\_\_Total Time: 30 MinutesName. \_\_\_\_\_Each MCQ carries 1 mark and EMQ carries 5 marks

Encircle the single best response

<b>Q.</b> #	Integrated & Clinically Oriented Assessment of the Subject Anatomy, Physiology & Biochemistry	Level of
	Section A: Core Knowledge of Anatomy / Physiology / Biochemistry (70%)	Cognition
1.	Question	C1
	a	
	b	
	c	
	d	
	e	
	USMLE: Type Question Reference: Ganong 25 <sup>th</sup> Edition Page No. 101	
	Section – B: Integrations (30%)	•
	Horizontal Integration Anatomy / Physiology / Biochemistry (5%)	
2.	Horizontal Integration with Anatomy (2.5%)	C1
	Questions	
	a	
	b	
	c	
	d	
	e	
	USMLE: Type Question Reference: Ganong 25 <sup>th</sup> Edition Page No. 101	
	Vertical Integration with Medicine / Surgery / Gynae Obs etc (15%)	•
3.	Question	C3
	a	
	b	
	c	
	d	
	e	

	USMLE: Type Question Reference: Ganong 25 <sup>th</sup> Edition Page No. 101								
	Spiral Integration (10%)	•							
Medical Bioethics									
4.	Question	C2							
	a								
	b								
	c								
	d								
	e								
	USMLE: Type Question Reference: Ganong 25 <sup>th</sup> Edition Page No. 101								
	Family Medicine								
5.	Question								
	a								
	b								
	c								
	d								
	e								
	USMLE: Type Question Reference: Ganong 25 <sup>th</sup> Edition Page No. 101								

#### Rawalpindi Medical University Rawalpindi Department of Anatomy, Physiology & Biochemistry SEQ & SAQ Paper for \_\_\_\_\_ Module, \_\_\_\_ Year MBBS Batch \_\_\_\_\_ Date: 00-00-0000

Total Marks: 70 Each SAQ carries 5 marks Each SEQ carries 9 marks Time allowed: 1 hour & 30 minutes Each SAQ: 5 minutes, SEQ: 10 minutes

#### Attempt all Questions

Integrated & Clinically Oriented Assessment of the Subject of Anatomy, Physiology & Biochemistry							
	Domain	Percentage					
•	Core Knowledge (CK) of Anatomy/Physiology			(70%)			
Biochemistry							
•	Integration			(30%)			
	• Horizontal Integration (HI)			(05%)			
	• Vertical Integration (VI)			(15%)			
	<ul> <li>Spiral Integration (SI)</li> </ul>			(10%)			
Q.#	Construct your Answers according to the given	Domain	Marks	%	Level of		
	Scenarios and Questions			Weightage	Cognition		
	Short Answer Questions (SAQs) Total Marks	: 25 (Each	SAQ car	ries marks)			
	A 55 years Male, known case of Coronary Artery						
	Disease, presented						
	to	CK &					
		VI					
	•••••						
	a	au		0.04	$\mathbf{C}^{2}$		
SAQ I		СК	2	8%	C2		
	b						
		CK	2	12%	C2		
	c						
		СК	2	8%	C2		

d	СК	2	12%	C2
e. USMLE Question. References: Part a: Guyton & Hall 14 <sup>th</sup> Edition page # 114 Part b: Guyton & Hall 14 <sup>th</sup> Edition Page # 116	СК	1	8%	C2

Q.#	Construct your Answers according to the given	Domain	Marks	%	Level of
	Scenarios and Questions			Weightage	Cognition
	Short Essay Question (SEQs) T	otal Marks	: 45		
	A 55 years Male, known case of Coronary Artery				
	Disease, presented				
	to	CK & VI			
	a				<b>G2</b>
SEQ 1		HI with Anatomy	2	6.66%	C2
	b				
		СК	3	6.66%	C2
	с				
		CK	2	6.66%	C2
	d				
		СК	1	6.66%	C2
	e				
					~ ~
	USMLE Style Question. References:	СК	1	6.66%	C2
	• Part a: Guyton & Hall 14 <sup>th</sup> Edition page # 101				
	• Part b: Guyton & Hall 14 <sup>th</sup> Edition Page # 103				
	• Part c: Guyton & Hall 14 <sup>th</sup> Edition Page # 103				

Rawalpindi Medical University Rawalpindi Department of Anatomy / Physiology / Biochemistry Clinically Oriented Audio Visal Objective Structured Practical Examination (OSPE) \_\_\_\_\_\_ Module 2025

\_\_\_\_\_ Year MBBS (Batch \_\_\_\_\_)

Day: \_\_\_\_\_

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

**10 AV OSPE Slides** 

**Time Allowed: 50 minutes** 

05 minutes for each slide

Chairperson

Department of \_\_\_\_\_ Rawalpindi Medical University, Rawalpindi

> **Director DME** Rawalpindi Medical University Rawalpindi

Additional Director Assessment Rawalpindi Medical University Rawalpindi

> Vice Chancellor Rawalpindi Medical University Rawalpindi

#### Slide 1

Core Knowledge with Horizontal / Vertical / Spiral Integration

**Topic:** 

**Teaching Strategy:** 

Requirements: Answer sheet, Pen

Objective: \_\_\_



1.	 (01)
2.	 (01)
3.	 (01)
4.	 (01)
5.	 (01)

#### Slide 1

### Key for Examiner

1.	
2.	
3.	
4.	
5.	

# **Department of Anatomy**

MSK-I Module (Structured Viva)

Date: Time: 8:00-2:00pm

Roll no: 181 onwards

Roll no.	Osteology of upper limb (radius, ulna,bones of hand) and clinicals (10)	Arthrology of upper limb (shoulder, elbow,radioulnar and small joints of hand) with clinicals (05)	Flexor and extensor compartments of arm with clinicals (C1-C3) (10)	Flexor and extensor compartments of forearm with clinicals (C1-C3) (05)	Palm and dorsum of hand with retinuclae and clinicals (C1-C3) (5)	Surface marking (skill) (05)	Soft tissue spotting (skill) (05)	Gross sketch copy (skill) (02)	Professionalism (PCD) (03)	Total marks (50)
1										

Examiner

Sign \_\_\_\_

Stamp

\*Objective Structured Practical Examination (OSPE) will be held in end of block assessment.

# **Department of Physiology MSK-I Module** (Structured Viva)

MOD	ULE:	DATE:		TEACHER NAME:			SIGNATURE	
Sr. No.	Roll No.	Students Name	Definition/ Enlist/Enumerate Q=1 C1 (5Marks)	Physiological/ Pathophysiological Mechanism Q=2 C2 (8 Marks)	Related Diseases/ Diagnostic Parameters/ Management / Treatment Guidelines Q=3 C3 (6 Marks)	Additional Domains of knowledge to be Assessed • Family Medicine /Preventive Medicine e Artificial Intelligence) • Counseling • Prevention • Social Impact • Payehosocial Impact • Community Implication • Prevalence / algorithms C1/C2/C3 (2 Marks)	Professionalism & Behavior Components; Appropriate dressing & white coat College ID cardwith picture Behavior Level of Confidence/Non verbal Body language Communication Skills Language of Communication Volume of voice Clanty & fluency of speech Understanding of questions Prioritizing the answers A3 (4 Marks)	Total marks obtained out of 25
						41234-04055001746051	(4 Marks)	
								-
				-			0	
1								

\*Objective Structured Practical Examination (OSPE) will be held in end of block assessment.

# **Department of Biochemistry MSK-I Module** (Structured Viva)

		Date:	Time:	Teacher's Na	me	
Roll No.	Classification/ Definition/ Enumerate (C1) (05 Marks)	Metabolic role/ Mechanism of action/ Physiological mechanism (C2) (08 Marks)	Related clinical disorders/ Pathogenesis (C3) (06 Marks)	Additional domains of Knowledge to be assessed Family Medicine, Artificial Intelligence, Ethics and Research (C1, C2, C3) (02 Marks)	Professionalism & Behavior (A3) (04 Marks)	Total marks (25)

\*Objective Structured Practical Examination (OSPE) will be held in end of block assessment.

# Rawalpindi Medical University 1st Year MBBS Model MCQS (USMLE Format)

1. 30-year-old Female secretary presents with wrist pain and a sensation of numbress and burning in her palm and the first, second, and third fingers of her right hand. The pain worsens at night and is relieved by loose shaking of the hand. There is sensory loss in the same fingers. Exam reveals a positive	
Tinel's sign. What could be the likely diagnosis?	
A) Carpel Tunnel syndrome	Anatomy
B) Cubital Tunnel Syndrome	
C) Saturday night palsy	
D) Pronator syndrome	
E) Klumpke's paralysis	
2. A 35-year-old lady presented with sudden onset of extreme muscle weakness. She could not talk or see. After administration of a drug called	
neostigmine, her symptoms improved because the drug a. Activates acetylcholine:	
A) Activates acetylcholine esterase permanently	
B) Activates acetylcholine temporarily	
C) Inhibits acetylcholine permanently:	Physiology
D) Inhibits acetylcholine esterase temporarily	
E) Releases acetylcholine at the nerve termina	
3. A 60-year-old male presents to the clinic with complaints of easy bruising and prolonged bleeding after minor cuts. He reports a recent history of	
increased bleeding during his dental procedure and noticed excessive bruising on his arms after a fall. Upon examination, his medical history reveals that	
he has been on long-term anticoagulant therapy for atrial fibrillation. Blood tests show a prolonged prothrombin time (PT). Which of the following	
vitamins is most likely playing a critical role in this patient's blood clotting ability?	Biochemistry
A) Riboflavin	
B) Vitamin C	
C) Pyridoxine	
D) Folic acid	
E) Vitamin K	

# Rawalpindi Medical University 1<sup>st</sup> Year MBBS Model SEQs & SAQs (USMLE Format)

Q1. A 12-year-old male football player presented to the emergency department with a painful right elbow after a tackle during a game. He reported that he	
landed on his right arm and felt a sudden, sharp pain in his elbow. He was diagnosed with a fracture of the medial epicondyle of the humerus.	
1. Which nerve and artery is affected in this case? (1)	
2. Enlist the muscles supplied by this nerve. (1)	
3. What would be the position of hand in this case? (1)	Anatomy
4. What is the most common complication of a medial epicondyle fracture in children? (1)	·
5. What would be an appropriate management option for a displaced medial epicondyle fracture? (1)	
Q2. A 35-year-old lady presented in emergency department with sudden onset of shortness of breath, dropping of eyelids and slurring of speech. Her serum	
auto-antibody titer was much raised. These antibodies were directed against ligand- gated-channels at the neuromuscular junction. The symptoms reversed	
after the administration of a drug prescribed by the duty doctor.	
1. Name the drug. Give its mechanism of action. (1)	
2. Name the disorder she is suffering from. (1)	Physiology
3. What is the pathophysiological basis of this disorder? (3)	тиузююду
4. What other common symptom is associated with Myasthenia Gravis that may help in diagnosis?	
5. What is the most commonly affected muscle group in Myasthenia Gravis?	
Q3. A 40-year-old woman with minimal sunlight exposure, a poor diet, and symptoms of fatigue, bone pain, muscle weakness, and low light vision difficulty	
presents to the clinic. Blood tests reveal low serum calcium and low vitamin D levels.	
1. What is the most likely diagnosis?	
2. What is the biological function of Vitamin D?	Biochemistry
3. What is the appropriate treatment for Vitamin D deficiency?	
4. What is the role of Vitamin A in the visual cycle?	
5. What is the most likely cause of her night blindness?	

### Sample EMQ

A 60-year-old man presents to the clinic with complaints of progressive weakness in his legs over the past six months. He reports difficulty climbing stairs and standing from a seated position. On examination, there is noticeable wasting (atrophy) of the muscles in his thighs and calves bilaterally. Neurological examination reveals normal reflexes and sensation. He denies any recent trauma or prolonged immobilization.

Match the following types and causes of muscle atrophy with their corresponding descriptions:

Types and Causes of Muscle Atrophy:

A. Disuse atrophy

B. Neurogenic atrophy

C. Cachexia

D. Sarcopenia

E. Endocrine-related atrophy

F. Denervation atrophy

G. Malnutrition-related atrophy

Descriptions:

Atrophy due to reduced physical activity or immobilization, leading to loss of muscle mass and strength.

Muscle wasting secondary to damage or disease affecting the nerves that supply the muscles.

Severe muscle wasting associated with chronic illness such as cancer, characterized by involuntary weight loss and systemic inflammation.

Age-related loss of muscle mass and strength, often seen in elderly individuals.

Muscle wasting due to hormonal imbalances or deficiencies affecting muscle protein synthesis.

Atrophy resulting from inadequate intake of essential nutrients, leading to muscle weakness and wasting. Matching:

Type A:

Type B:

Type C:

Type D:

Type E:

Type F:

Type G:

### Rawalpindi Medical University 1<sup>st</sup> Year MBBS Model AV OSPE

Slide 1 / Video

Core Knowledge with Horizontal / Vertical / Spiral Integration

**Topic: Dinner Fork Deformity** 

**Teaching Strategy: Small Group Discussion** 

Requirements: Answer sheet, Pen

Objective: To Assess the Knowledge of Students Regarding Injuries of Upper Limb



1.	Name the clinical condition shown in video / slide?	(01)
2.	What is the primary cause of this clinical condition?	(01)
3.	Which muscles are most commonly affected?	(01)
4.	Discuss the radiological findings seen in this condition?	(01)
5.	What are the management options for this patient?	(01)

### Rawalpindi Medical University 1<sup>st</sup> Year MBBS OSPE (Block-I)

Observed Station \_\_\_\_

Marks: 05

Time Allowed: 03 Minutes

\_\_\_\_\_

Subject: Biochemistry

**Topic assessed: Plasma Protein** 

Requirements: Urine sample from the patient, Burette, Dilute acetic acid solution, Ethanol (95%), Test tube and rack Pipette White paper for background contrast

white paper for background contras

**Objective: To Perform Burette Test** 

For Candidate:	Learning domain	Marks
You are in a clinical laboratory setting, and a 45-year-	<b>Psychomotor (C1)</b>	5 Marks
old female patient has been admitted with suspected		
nephrotic syndrome. The attending physician has		
requested a quick screening test to check for the		
presence of albumin in her urine.		
Perform the Burette Test on a urine sample to detect		
albumin.		

Key Station \_\_\_\_\_

Requirements: Urine sample from the patient, Burette, Dilute acetic acid solution, Ethanol (95%), Test tube and rack Pipette White paper for background contrast

Q1	Answer	Marks
1	Transfer 5 mL of the urine sample into a clean test tube.	1
2	Add 2-3 drops of dilute acetic acid to acidify the sample.	1
3	Slowly add ethanol (95%) dropwise along the side of the test tube.	1
4	Observe the interface for the formation of a milky white precipitate.	1
5	Interpret a positive result as the presence of albumin if precipitate forms.	1