



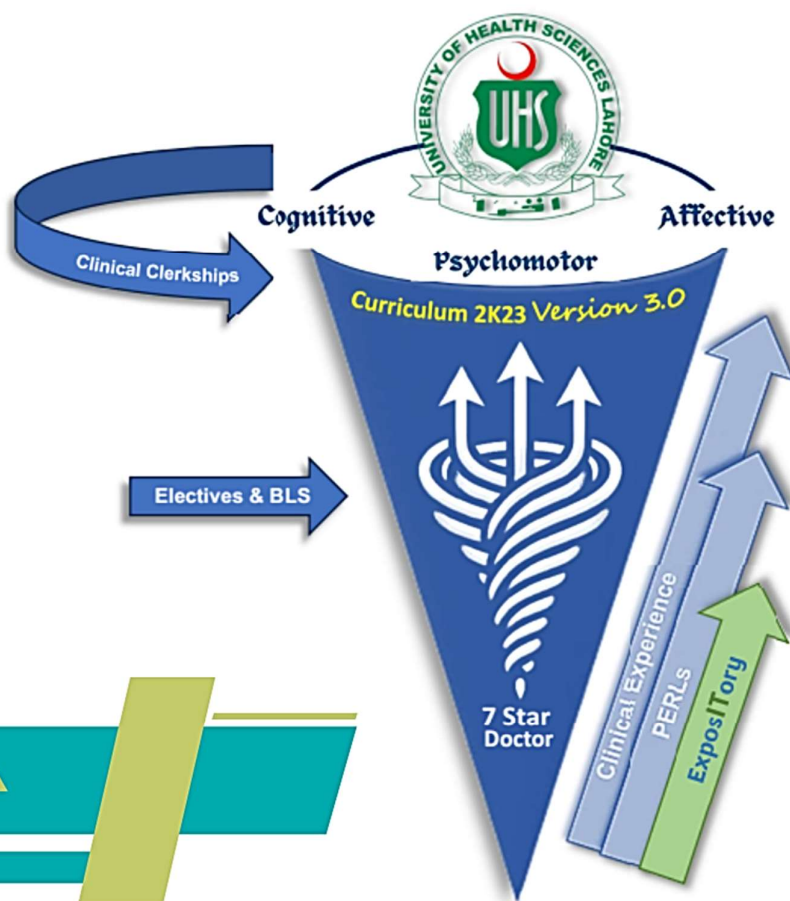
STUDY GUIDE BLOCK 2

Sialkot Medical College, Sialkot



Modular Integrated Curriculum 2K23 *version 3.0*

BLOCK-02





MODULE-03 MUSCULOSKELETAL & LOCOMOTION-1

Modular Integrated
Curriculum 2K23
version 3.0



MODULE RATIONALE

The musculoskeletal system comprises the bones, muscles, cartilage, tendons, ligaments, and other connective tissues that provide the framework, support, and movement of the body. The initial learning activities will help in understanding the normal structure, development, and normal physiological mechanisms of the organs of the system. This will help in better understanding the possible pathological conditions of the system, including common injuries, diseases, and disorders that affect it, followed by discussion on some important group of drugs used for treatment and/or prevention of these conditions (administration route, mechanism of action and side effects). The impact of musculoskeletal diseases on society and the effect of ageing on occurrence of musculoskeletal diseases will be discussed. Emphasis has been given to incorporate deranged laboratory and imaging findings into the clinical problem solving.

MODULE OUTCOMES

- Develop an understanding of the fundamental components of the musculoskeletal system.
- Explain the development of the structure & function of the musculoskeletal components of limbs, back & correlate it with organization and gross congenital anomalies of the limbs.
- Identify the anatomical features of bones, muscles & neurovascular components of the limbs with clinical correlation.
- Describe how injury and disease alter the Musculoskeletal structure & function.
- Integrate concepts relating to various metabolic processes, their disorders and relevant lab investigations in the study of human Musculoskeletal system.
- Describe the role of the limbs (upper/lower) in musculoskeletal support, stability, and movements.
- Describe the types, formation, stability, function & clinical significance of joints of the upper and lower limb.
- Describe the basic histology of muscle fibers including their molecular structure (Sarcomere).
- Explain the mechanism of excitation and contraction of skeletal and smooth muscles.
- Discuss the psychosocial impact of musculoskeletal diseases in society.

THEMES

- Pectoral Region & Axilla
- Upper limb
- Pelvic Girdle
- Lower Limb

CLINICAL RELEVANCE

- Congenital anomalies of limb
- Joint Dislocation
- Fracture
- Multiple Sclerosis, Astrocytoma, Alzheimer's Disease
- Myopathy, Muscular Dystrophy

IMPLEMENTATION TORs

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



NORMAL STRUCTURE			
THEORY			
CODE	GROSS ANATOMY	TOTAL HOURS = 105	
	SPECIFIC LEARNING OUTCOMES	DISCIPLINE	TOPIC
UPPER LIMB			
MS-A-001	Describe the topographical anatomy of Pectoral Region	Human Anatomy	Pectoral Region
	Perform dissection of the Pectoral Region or use models to identify the key structures		
	Describe muscles of the Pectoral Region with their origin, insertion, nerve supply and actions.		
MS-A-002	Describe the cutaneous nerves. and Superficial veins of the Upper Limb.	Human Anatomy	Dermatomes and cutaneous innervation of Upper Limb
	Describe the extent, attachments, and structures passing through Clavipectoral Fascia	Human Anatomy	
MS-A-003	Define the boundaries of auscultation and state its clinical significance	Integrate with Medicine	Pectoral region & Back
	Describe the osteology of the bones in pectoral region. Enumerate the superficial muscles of back, connecting shoulder girdle with vertebral column. Describe the 1. Attachments 2. Nerve supply Actions of Trapezius, Latissimus Dorsi, Rhomboid major and minor. Mention the neurovascular supply of pectoral region and Correlate with important clinical conditions. Describe superficial muscles of the back with their origin, insertion, nerve supply and actions.	Human Anatomy	
MS-A-004	Describe the Osteology of Clavicle (Morphological features, side determination, attachments, ossification)	Human Anatomy	Bones of Upper Limb: Clavicle & Scapula

	Describe the correlates functions of Clavicle (clavicle fracture, its role in terms of weight transmission of upper limb, compression of neurovascular structures)		
	Describe the Osteology of Scapula (morphological features, attachments, ossification)		
	Determine the side and identify the landmarks of scapula		
	Describe the movements of Scapula associated with movements of Shoulder Girdle		
	Tabulate the muscles of scapular region and give their attachments, nerve supply and action		
	Tabulate the attachments, origin, insertion, innervation, and actions of Anterior Axio-appendicular Muscles		
MS-A-005	Describe the Sternoclavicular Joint in terms of articulating surfaces, ligaments, articular disc, nerve supply.	Human Anatomy	Bones of thorax, Joints of Upper Limb: Sternoclavicular Joint
MS-A-006	Develop clear concepts of the topographical anatomy of Axilla and its contents	Human Anatomy	Axila
	Describe the boundaries of Axilla. (Identification of muscles forming the boundaries of axilla)		
	List the contents of Axilla		
	Perform dissection/ Identify the Axilla and its contents		
	Describe Axillary Artery with reference to its 3 parts – their relations, branches, and anastomoses		
	Describe the formation, tributaries, and drainage of Axillary Vein	Human Anatomy	
	Identify and demonstrate the course/ relation and branches/tributaries of axillary vessels		
	Describe the Axillary Lymph Nodes in terms of location, grouping, areas of drainage and clinical significance		
	Describe the course, relations, root value and distribution of Axillary nerve.		

	Describe the boundaries and contents of quadrangular space.		
MS-A-007	Describe the Osteology of Humerus (Side Determination, morphological features, attachments, ossification)		Bones of upper limb: Humerus
MS-A-008	Describe the Shoulder Joint under the following headings: Articulation, Type/ Variety, Capsule, Ligaments, Innervation, Blood supply, Movements.	Human Anatomy	Joints of Upper Limb: Shoulder Joint
	Describe the 3 parts of Deltoid Muscle and correlate them with its unique functions. Explain its role in abduction of shoulder joint. Explain mechanism of Abduction of arm		
	Identify and demonstrate the movements of scapula and shoulder joint.		
	Draw and label the arterial anastomosis around shoulder joint		
	Describe, in detail, the Scapula-Humeral Mechanism in relation to movement of abduction. Discuss important clinical conditions		
MS-A-009	Describe Rotator Cuff Muscles, state their Anatomical significance and explain Rotator Cuff Tendinitis	Human Anatomy	Rotator Cuff
	Clinical correlates of shoulder joint. (shoulder joint stability, dislocation and shoulder pain)	Integrate with Surgery	
MS-A-010	Describe the formation of Brachial Plexus; Infra and Supraclavicular parts. Discuss Brachial plexus injuries	Human Anatomy	Nerves of Upper Limb
	Demonstrate and identify the formation of brachial plexus and its branches		
	List the branches of brachial plexus and give their areas of distribution and muscles they innervate		
	Enlist and tabulate the muscles of anterior compartment of arm with their attachments, nerve supply and action.		

	Identify & Describe Musculocutaneous Nerve in terms of its Origin, Course, Termination, Relations, Branches, and distribution. Describe and illustrate the cutaneous innervation of the arm.		
MS-A-011	Describe the Brachial Artery in terms of its course, relations, branches, and distribution	Human Anatomy	Blood supply of arm
	Tabulate the attachments, innervation, and actions of Triceps brachii as a muscle of Posterior Fascial Compartment of Arm		
	Identify & Describe the Profunda Brachii Artery giving its course, relations, branches, and distribution		
MS-A-012	Describe Cubital Fossa with emphasis on its boundaries, contents, and clinical significance	Human Anatomy	Muscles of Arm
	Demonstrate surface marking of superficial veins of arm and forearm for IV (Intra venous) injections		
	Demonstrate biceps brachii reflex, triceps reflex and brachioradialis reflex		
MS-A-013	Determine the side and identify the landmarks of radius and ulna.	Human Anatomy	Bones of Forearm
	Describe the Osteology of Radius (Side Determination, morphological features, attachments).		
	Describe the Osteology of Ulna (Side Determination, morphological features, attachments).		
MS-A-014	Describe osseofascial compartment of forearm. Tabulate flexor and pronators muscles of forearm, their attachments, actions and nerve supply. Describe the action of paradox with examples	Human Anatomy	Muscle of Anterior/Flexor Compartment of Forearm
MS-A-015	Tabulate the attachments, innervation, and actions of Extensor Muscles of the Forearm		Muscle of Lateral and Posterior/Extensor Compartment of Forearm
	Tabulate the attachments, innervation, and actions of Lateral Muscles of the Forearm		
MS-A-016	Identify the muscles and nerves of flexor and extensor compartments of forearm		Nerves of Forearm

	Describe and illustrate the cutaneous innervation of the Forearm		
	Describe ulnar, median and radial nerves in fore arm.		
MS-A-017	Describe the Origin, Course, Relations, and branches of Ulnar and radial Artery in Forearm Describe the Origin, Course, Relations and list the tributaries of veins of Forearm. Surface marking of Brachial artery, Cephalic, Median cubital, Basilic Vein, Radial & Ulnar arteries, anterior & posterior interosseous artery		Blood supply of forearm
MS-A-018	Identify the Extensor & Flexor Retinacula and describe their attachments and relations	Human Anatomy	Retinacula of Forearm
MS-A-019	Demonstrate the formation of carpal tunnel and identify the contents Describe Carpel Tunnel Syndrome	Human Anatomy- Integrate with surgery	Carpal tunnel syndrome
	Describe the features, attachments, relations and structures passing under Flexor Retinaculum		
MS-A-020	Describe the Origin, Course, Relations, and branches of Ulnar Artery in Forearm	Human Anatomy	Forearm: Blood supply and Venous drainage
	Describe the Origin, Course, Relations and list the tributaries of veins of Forearm		
	Surface marking of Brachial artery, Cephalic, Median cubital, Basilic Vein, Radial & Ulnar arteries, anterior & posterior interosseous artery		
	Describe the Elbow Joint in terms of articular surfaces, type, variety, ligaments, muscles producing movements, blood supply {Anastomosis around elbow joint}, nerve supply and radiological imaging.	Human Anatomy	Joints of Upper Limbs: Elbow Joint
MS-A-021	Describe Carrying Angle and justify its importance in limb movement	Integrate with Surgery	
MS-A-022	Describe the Radioulnar Joints in terms of articular surfaces, type, variety, ligaments, muscles producing movements, nerve supply and radiological imaging.	Human Anatomy	Joints of Upper Limbs: Radioulnar Joint

	Describe the wrist joint in terms of articular surfaces, type, variety, ligaments, muscles producing movements, nerve supply and radiological imaging.		
	Demonstrate mechanisms of movements of Pronation & Supination		
MS-A-023	Describe the features of Interosseous Membrane with structures that pierce through it	Human Anatomy	Interosseous membrane
MS-A-024	Describe the features and explain the importance of Fibrous Flexor Sheaths, synovial flexor sheaths and extensor expansion	Human Anatomy	Fascia & Muscles of Hand
MS-A-025	Demonstrate the attachments and actions of the muscles of hand Identify the muscles and neurovasculature of palm. Explain the morphology and tabulate the attachments, innervation and actions of intrinsic muscles of hand. Explain the fascial spaces of palm and pulp space of fingers Describe Dupuytren contracture, mallet finger and buttonaire deformity.	Human Anatomy	Hand & Actions of Muscles of Upper Limb as a Functional Unit
	Describe hand as a functional unit. (position of hand, movement of thumb and fingers while performing different functions) Discuss cupping of hand and fist formation.		
MS-A-026	Draw the Radial Artery course, relation and termination in hand with its clinical significance in the region Describe the Ulnar Artery's Course, relation and termination in hand with its clinical significance in the region Describe the formation, branches, and areas of distribution of Superficial and Deep Palmar Arch	Human Anatomy	Blood vessels of forearm and hand
MS-A-027	Describe the course, relations and branches of Ulnar, Median and Radial Nerves in the Hand	Human Anatomy	Nerves of forearm and hand

MS-A-028	Describe the First Carpometacarpal Joint in terms of; Type, Variety, Articular Surfaces, Ligaments, Relations, Blood Supply, Innervation, movements.	Human Anatomy	Joints of Hands
	Demonstrate the movements of the 1st carpometacarpal joint		
	Describe the Metacarpophalangeal & interpharyngeal Joints in terms of; Type, Variety, Articular Surfaces, Ligaments, Relations, Blood Supply, Innervation & Movements		
MS-A-029	Palpate the arteries of the upper limb on a subject	Integrate with Medicine	Skills
	Identify the topographical features of upper limb in a cross-sectional model/ specimen.	Integrate with Radiology	
	Demonstrate and identify the anatomical landmarks of upper limb on radiographs/ CT (Computed tomography)/ MRI (Magnetic resonance imaging)		
	Mark the anatomical landmarks and surface marking on a subject/ simulated model	Human Anatomy	
LOWER LIMB			
THEORY			
CODE	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
MS-A-030	Draw and label the Parts of the hip bone, with its attachments.	Human Anatomy	Hip Bone
	Describe the parts, attachments of hip bone		
	Identify the parts and bony features of the hip bone, with its attachments, important relations		
	Demonstrate the side determination of hip bone, its bony features, attachments		
MS-A-031	Describe the parts, attachments, side determination of femur	Human Anatomy	Femur
	Identify the parts and bony features of the femur, with its attachments.		

	Demonstrate the side determination of femur, its bony features, attachments, and important relations (correlate these with fractures)		
	Describe coxa Vara and coxa valga and their clinical significance		
MS-A-032	Describe the extent, attachments, and modifications of Fascia Lata	Human Anatomy	Fascia Lata
	Demonstrate the attachment of fascia Lata, iliotibial tract		
MS-A-033	Describe the cutaneous nerves and vessels of thigh	Human Anatomy	Neurovascular Supply of thigh
	Draw and label the cutaneous nerve supply of thigh		
	Describe the formation, course, relations, tributaries, and termination of the superficial veins		
	Explain the anatomical justification of venesection, varicose veins, and saphenous venous grafts		
	Describe the lymphatic drainage of the region with special emphasis on afferent and efferent of inguinal lymph nodes		
	Identify the superficial and deep lymph nodes		
	Explain the anatomical justification for enlargement of inguinal lymph nodes		
MS-A-034	Describe and identify the Boundaries and contents of femoral triangle	Human Anatomy	Femoral Triangle & Canal
	Draw and label the Boundaries and contents of femoral triangle		
	Identify the femoral sheath with its compartments		
	Describe the formation of femoral sheath and its significance		
	Describe the formation of femoral canal and its contents and significance		
	Describe the formation and significance of femoral ring		
	Compare and contrast the anatomical features of femoral and inguinal hernias	Integrate with Surgery	

MS-A-035	Tabulate the muscles of anterior compartment of thigh with their attachments, nerve supply and actions	Human Anatomy	Muscles of Anterior Compartment of Thigh
	Demonstrate and identify the muscles of anterior compartment of thigh with their proximal and distal attachments		
	Demonstrate the actions of muscles of anterior compartment of thigh		
	Explain the anatomical basis of psoas abscess	Integrate with Surgery	
MS-A-036	Identify and demonstrate the nerves and vessels of anterior compartment of thigh along with their branches	Human Anatomy	Neurovascular supply of Anterior Compartment of Thigh
	Describe the origin, course, relations, branches, distribution, and termination of femoral artery		
	Describe the origin, course, relations, tributaries, area of drainage and termination of femoral vein		
	Describe the origin, course, relations, branches, distribution, and termination of femoral nerve		
	Tabulate the muscles of anterior compartment of thigh with their attachments, nerve supply and actions.		
MS-A-037	Describe the formation, boundaries, contents of adductor canal	Human Anatomy	Adductor Canal
	Identify and demonstrate the boundaries and contents of adductor canal		
MS-A-038	Describe Muscles of medial compartment of thigh with their proximal and distal attachments, innervation and actions		Muscles of Medial Compartment of Thigh
	Identify the muscles of medial compartment of thigh with their proximal and distal attachments		
	Demonstrate the actions of the muscles of the compartment on self/ subject		
MS-A-039	Describe the origin, course, relations, branches/ tributaries, distribution, and termination of		

	neurovascular structures of medial compartment of thigh	Human Anatomy	Neurovascular supply of Medial Compartment of Thigh
	Identify the nerves and vessels of medial compartment of thigh along with their branches		
	Describe and identify the lumbar and sacral plexus and its branches supplying the lower limb		
	Describe the cutaneous nerve supply and lymphatics of the region		
MS-A-040	List the structures passing through the greater and lesser sciatic foramen.		Gluteal Region
	Describe the muscles of gluteal region with their proximal and distal attachments, innervation, and actions		
	Identify the muscles of gluteal region with their proximal and distal attachments		
	Describe the origin, course, relations, branches/ tributaries, distribution, and termination of neurovascular structures of gluteal region		
	Demonstrate the actions of the muscles of gluteal region		
	Explain the anatomical basis of the consequences of wrongly placed gluteal intramuscular injections Damage to Gluteus medius & minimus due to poliomyelitis	Integrate with Medicine	
	Demonstrate and identify the origin, course, relations, branches/tributaries and termination of nerves and vessels of gluteal region	Human Anatomy	
MS-A-041	Describe the Attachments of muscles of posterior compartment of thigh with the innervation and action	Human Anatomy	Muscles of Posterior Compartment of Thigh
	Identify the muscles of posterior compartment of thigh with their proximal and distal attachments		
	Demonstrate the actions of muscles of posterior compartment of thigh		
	Describe the anatomical basis of signs and symptoms of sciatica.	Integrate with Surgery	

MS-A-042	Describe the origin, course, relations, branches, distribution, and termination of Profunda femoris artery	Human Anatomy	Blood supply of Posterior compartment thigh
	Describe blood supply on back of thigh		
MS-A-043	Describe the origin, course, relations, branches, distribution, and termination of sciatic nerve	Human Anatomy	Sciatic Nerve
	Describe the anatomical basis, signs and symptoms of compression of or injury to sciatic nerve	Integrate with Surgery	
MS-A-044	Describe the hip joint with its type, articulations, ligaments, stabilizing factors		
	Movements, and neuro-vascular supply with clinical significance.	Human Anatomy	
	Perform the movements of hip joint at various angles and be able to describe the muscles producing the movement.		
	Discuss important associated clinical conditions (Hip dislocation, Arthritis, Hip joint stability and Trendelenburg sign) movements, and neuro-vascular supply with clinical significance.		
MS-A-045	Describe the Boundaries and contents of popliteal fossa. Discuss clinical correlates (Popliteal aneurysm, Palpation of Popliteal artery, semi membranous bursa swelling and Baker's cyst	Human Anatomy	Popliteal Fossa
	Draw and label boundaries and contents of popliteal fossa		
	Identify the boundaries and contents of popliteal fossa		
	Describe the origin, course, relations, branches/tributaries, distribution and termination of popliteal artery and vein		
MS-A-046	Describe parts of tibia and fibula, with their attachments, important relations and side determination	Human Anatomy	Knee Joint

	Identify the parts and bony features of the tibia & fibula, their bony features, attachments, important relations.		
	Draw and label Parts of patella with its attachments		
	Describe features of patella, and name the factor responsible for stabilizing Patella		
	Describe the knee joint with its type, articulations, ligaments, movements, and neuro-vascular supply		
	Explain the mechanism of locking and unlocking of knee joint with the foot on ground and off the ground		
	Describe the attachments and role of popliteus in locking and unlocking of the knee joint		
	Describe the factors responsible for stability of knee joint. Discuss important associated clinical conditions.		
MS-A-047	Describe the Muscles of anterior, lateral, and posterior compartments of leg with their proximal & distal attachments, innervation, and actions	Human Anatomy	Muscles of leg
	Identify the muscles of anterior, lateral, and posterior compartments of leg with their proximal and distal attachments		Neurovascular supply of Leg
MS-A-048	Describe the origin, course, relations, branches/tributaries and termination of nerves and vessels of anterior, lateral, and posterior compartments of leg- Compartment Syndrome, Foot Drop		Neurovascular supply of Leg
	Describe the cutaneous nerves and veins of leg.		
	Draw and label the cutaneous nerve supply and dermatomes of leg		
MS-A-049	Identify the extensor, flexor, and peroneal retinacula and demonstrate the structures related to them		Flexor, Extensor, and peroneal Reticula
	Describe the attachments, relations, and structures passing under cover of, extensor, peroneal, and flexor retinacula		

	Identify and demonstrate the nerves and vessels of anterior, lateral, and posterior compartments of leg along with their branches		
	Describe the formation of noncalcaneous (Achilles tendon)		
MS-A-050	Describe the articulations, muscles and nerve supply and movements at Tibiofibular joints	Human Anatomy	Tibio-fibular Joint
MS-A-051	Describe the ankle joint with its type, articulations, ligaments, movements, and nerve supply	Human Anatomy	Ankle Joint
	Describe the factors stabilizing the ankle joint. Discuss important associated clinical conditions.		
	Identify and demonstrate the articulating surfaces and ligaments of ankle joint		
MS-A-052	Describe the formation, attachments, and clinical significance of plantar aponeurosis	Human Anatomy	Plantar Fascia
	Explain the anatomical basis of the signs and symptoms of plantar fasciitis.	Integrate with Orthopedics	
MS-A-053	Identify the parts and bony features, attachments, and important relations of the articulated foot	Human Anatomy	Muscles of foot
	Describe the muscles of the dorsum and sole of foot with their proximal & distal attachments, innervation and actions emphasizing the role of interossei and lumbricals.		
	Draw and label the muscles of the layers of sole of foot		
	Demonstrate and identify the muscles and tendons with their proximal and distal attachments in the sole of foot		
MS-A-054	Describe the interphalangeal, subtalar and midtarsal joints with their types, articulation, movements, ligaments.	Human Anatomy	Small joints of foot
MS-A-055	Describe the formation, components, stabilizing and maintaining factors of the arches of foot	Integrate with Orthopedics	Arches of foot
	Describe the clinical significance of arches of foot with respect to flat foot, claw foot.		

MS-A-056	Describe the fibrous flexor sheaths, extensor expansions and synovial flexor sheaths	Human Anatomy	Retinacula of foot
MS-A-057	Describe the origin, course, relations, branches/tributaries, distribution, and termination of plantar vessels	Human Anatomy	Neurovascular supply of foot
	Identify the nerves and vessels on the foot along with their branches		
	Describe the cutaneous nerves of foot		
	Draw and label the cutaneous nerve supply and dermatomes of foot		
	Identify the nerves and vessels in the sole of foot along with their branches		
	Describe the palpation of dorsalis pedis artery & explain the clinical significance of dorsalis pedis artery		
MS-A-058	Describe the surface anatomy, course, relations, tributaries, and communications of the superficial veins of the lower limb	Human Anatomy	Arterial and Venous drainage of lower limb
	Draw a concept map of the superficial veins of lower limb		
	List the factors favoring venous return of the lower limb		
MS-A-059	Explain the anatomical basis of the formation,	Integrate with Surgery	Human Gait
	and signs and symptoms of deep venous thrombosis	Integrate with Medicine	
MS-A-060	Discuss Clinical correlations of Lower Limb Arteries (palpation of femoral, popliteal, posterior tibial & dorsalis pedis arteries, collateral circulation, intermittent claudication, occlusive arterial disease)	Human Anatomy	Lymphatic drainage of lower limb
MS-A-061	Draw a concept map of the lymphatic drainage of lower limb	Human Anatomy	Cutaneous dermatomes & nerve supply of lower limb

	Discuss clinical correlates of Lower limb nerves (Femoral nerve injury, Sciatic Nerve injury, Common fibular, tibial & obturator nerve injury) Describe the anatomical basis of knee jerk, ankle jerk, and plantar reflex		
MS-A-062	Demonstrate the surface marking of nerves and vessels of lower limb		Topographical and radiological anatomy of lower limb
	Demonstrate the surface marking of bony landmarks of lower limb		
	Identify the topographical features of lower limb in a cross-sectional model		
	Demonstrate and identify the features of bones and joints of lower limb on radiograph/ CT scan/ MRI	Integrate with Radiology	
MS-A-063	Describe the common fractures of the following bone with the risk factors, clinical presentations, and management: 1. Clavicle 2. Humerus 3. Radius 4. Ulna 5. Small bones of hand 6. Hip bone 7. Femur 8. Tibia 9. Fibula 10. Small bones of foot	Orthopedics and trauma	Bone Fracture
MS-A-064	Describe the dislocations of the following joints with the risk factors and clinical presentations, and brief management: Shoulder joint 1. Elbow joint 2. Interphalangeal joint of hand 3. Hip joint	Orthopedics and trauma	Joint Dislocation

	4. Knee joint 5. Ankle joint		
THEORY			
CODE	EMBRYOLOGY & POST-NATAL DEVELOPMENT	TOTAL HOURS = 06	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
MS-A-065	Name the molecular and genetic factors involved in the development of musculoskeletal system	Human Embryology	Development of Muscles
	Describe the development of skeletal muscle and innervation of axial skeletal Muscles-developmental basis of myotome		
	Briefly discuss the development of cardiac and smooth muscle (Detail to be covered in respective modules later).		
MS-A-066	Describe the process of limb development and limb growth	Human Embryology	Development of Limb
MS-A-067	Describe the embryological basis of cutaneous innervation of limb	Human Embryology	Development of Nerve supply of limbs
	Describe the embryological basis of blood supply of limbs and concept of axial artery		
MS-A-068	Describe the embryological basis of congenital anomalies related to muscular system.	Human Embryology	Congenital anomalies of limbs
	Describe the clinical presentations and embryological basis of; i. Amelia ii. Meromelia iii. Phocomelia iv. Cleft Hand and Foot v. Polydactyly, Brachydactyly, Syndactyly vi. Congenital club foot	Integrate with Paediatrics	
MS-A-069	Describe the developmental process of cartilage and bone	Human Embryology	Development of Cartilage

	Describe the process of histogenesis of cartilage and bone		
THEORY			
CODE	MICROSCOPIC ANATOMY	TOTAL HOURS = 06	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
MS-A-070	Describe the microscopic structure and ultramicroscopic structure of skeletal muscle	Histology	Histology of Muscles
	Explain the basis of myasthenia gravis.	Integrate with Medicine	
	Describe the microscopic and ultramicroscopic structure of cardiac muscle	Histology	
	Describe the microscopic and ultramicroscopic structure of smooth muscle		
	Compare and contrast the histological features of three types of muscle tissue		
MS-A-071	Describe Myosatellite Cells & their role in regeneration of muscle, hyperplasia, and hypertrophy of muscle fiber	Histology/ Integrate with Pathology	Functional Histology
	Explain the histopathological basis of leiomyoma	Histopathology	
MS-A-072	Describe the light and electron microscopic structure of bone cells Describe the light and electron microscopic structure of compact and spongy bone	Histology	Histology of Osseous tissue
	Describe the histological justification for osteoporosis, Osteopetrosis	Integrate with Pathology	
	Describe the histological basis for bone repair after fractures.		
MS-A-073	Compare and contrast the microscopic features of compact and spongy bone	Histology	Histology of Bone
	Explain the characteristic features of ossification (Intramembranous & Endochondral ossification)		

	Describe the zones seen in an epiphyseal growth plate		
MS-A-074	Describe the metabolic role of bone -	Integrate with Medicine	Functional Histology of Bone
	Describe the clinical presentation of osteoporosis, osteopenia	Integrate with Orthopedics	
MS-A-075	Describe the microscopic and ultramicroscopic structure of all types of cartilage	Histology	Histology of Cartilage
	Compare and contrast the structure of cartilage and bone matrix		
	Tabulate the differences between three types of cartilage		
MS-A-076	Describe the histological basis for bone & Cartilage growth and repair	Histology	Mechanism of Bone growth

PRACTICAL

CODE	HISTOLOGY	TOTAL HOURS = 08	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
MS-A-077	Draw and label the histology of skeletal muscle	Histology	Histology of Muscles
	Draw and label the histology of smooth muscle		
	Draw and label the histology of cardiac muscle		
MS-A-078	Draw and label the histological picture of compact bone	Histology	Histology of Bones
	Draw and label the histological picture of spongy bone		
MS-A-079	Draw and label the microscopic structure of hyaline cartilage	Histology	Histology of Cartilage
	Draw and label the microscopic structure of elastic cartilage		
	Draw and label the microscopic structure of fibro cartilage		

NORMAL FUNCTION			
THEORY			
CODE	MEDICAL PHYSIOLOGY	TOTAL HOURS = 32	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
MS-P-001	Explain the Physiological basis of membrane potential	Medical Physiology	Diffusion / Equilibrium Potentials
	Explain diffusion potentials of Na & K		
MS-P-002	Define Nernst potential		Nernst potential
	Explain Physiological Basis of Nernst potential		
	Write the Nernst equation.		
	Calculate Nernst potential for Na & K		
	Explain the effects of altering the concentration of Na ⁺ , K ⁺ , Ca on the equilibrium potential for that ion		
MS-P-003	Describe the normal distribution of Na ⁺ , K ⁺ , Ca and Cl ⁻ across the cell membrane		Goldman Equation
	Explain physiological basis of Goldman equation		
	Clarify the role of Goldman equation in generation of Resting Membrane Potential (RMP).		
MS-P-004	Describe the Physiological basis of generation of RMP.		Resting Membrane Potential in Neurons
	Explain the effects of hyperkalemia and Hypokalemia on the Resting Membrane Potential (RMP)		
	Name the membrane stabilizers		
	Explain the physiological basis of action of Local Anesthetics.	Medical Physiology Integrate with Anesthesiology	
MS-P-005	Describe the Physiological anatomy of Neurons	Medical Physiology	Neurons
	Discuss the axonal transport		
	Enlist & give functions of Neuroglial cells		
	Explain process of myelination in Central Nervous System (CNS) & Peripheral Nervous System (PNS)		
MS-P-006	Classify neurons functionally.		Classification of

	Classify nerve fibers according to Erlanger & Gasser Classification		Neurons & Fibers
MS-P-007	Define Action Potential		Action Potential of Neurons
	Enlist the Properties of action potential		
	Describe the ionic basis of an action potential.		
	Explain the phases of action potential.		
	Explain the effects of hyperkalemia and Hypokalemia on the action potential.		
	Draw monophasic action potential.		
	Explain absolute and relative refractory period		
MS-P-008	Explain the role of other ions in action potential.		Role of other ions in action potential
	Elaborate the effect of hypocalcemia on neuron excitability.		
MS-P-009	Explain Physiological basis & properties of Graded potential		Local / Graded potentials
	Draw & explain Physiological basis & properties of compound action potential.		
	Contrast between action potential and graded potential		
	Describe the ionic basis of excitatory Post Synaptic Potential (EPSP), Inhibitory Post Synaptic Potential (IPSP), End Plate Potential (EPP).		
MS-P-010	Classify and explain Physiological basis of different types of synapses	Medical Physiology	Synapse
	Elaborate how signal transmission takes place across chemical synapse		
MS-P-011	Explain the mechanism of conduction of Nerve impulse in myelinated and unmyelinated nerve fibers.		Conduction of Nerve Impulse
	Elaborate significance of saltatory conduction		
MS-P-012	Enlist the types of nerve injury	Medical Physiology Integrate with	Nerve Degeneration
	Explain Wallerian degeneration.		
	Describe the process of regeneration of nerve fiber.		
	Describe the causes, features & pathophysiology of Multiple sclerosis, GB syndrome.		

		Medicine	
MS-P-013	Discuss the physiological anatomy of skeletal muscles.	Medical Physiology	Skeletal muscle
	Differentiate b/w skeletal, smooth, and cardiac muscle		
	Describe the structure of Sarcomere		
MS-P-014	Differentiate between isometric and isotonic contraction by giving examples.		Characteristics of whole muscle contraction
	Compare the fast and slow muscle fibers.		
MS-P-015	Explain the mechanism of summation and Tetanization.	Medical Physiology	Mechanics of muscle contraction
	Describe staircase effect/Treppe phenomena		
	Discuss the mechanism of skeletal muscle fatigue.		
	Explain the remodeling of skeletal muscle to match the function. Describe the development of macro motor units in poliomyelitis.		
	Explain the physiological basis of rigor mortis	Medical Physiology Integrate with Forensic Medicine	
MS-P-016	Describe the physiological anatomy of Neuro Muscular Junction (NMJ)	Medical Physiology	Neuromuscular junction
	Mechanism of Neuromuscular transmission & generation of End Plate Potential		
	Explain features, pathophysiology & treatment of myasthenia Gravis	Medical Physiology Integrate with Medicine	
	Describe the enhancers or blockers of neuromuscular transmission at the neuromuscular junction.	Medical Physiology	
	Discuss the steps/ events of excitation contraction coupling in skeletal muscle.	Medical Physiology	
MS-P-017	Differentiate between types of smooth muscles.	Medical Physiology	Smooth Muscle
	Describe mechanism of smooth muscle contraction in comparison to skeletal muscle.		

	Explain the physiological anatomy of neuromuscular junction of smooth muscle		
	Explain the excitatory and inhibitory transmitters secreted at Neuro Muscular Junction (NMJ) of smooth muscles.		
	Explain the depolarization of multiunit smooth muscles without action potentials. Explain the local tissue factors and hormones that can cause smooth muscle contraction without action potential.		
	Explain the regulation of smooth muscle contraction by calcium ions.		
	Explain membrane potential and action potentials in smooth muscles.		
	Explain the phenomena of stress relaxation and reverse stress relaxation in smooth muscles.		
	Explain the LATCH mechanism		
	Describe the significance of LATCH mechanism.		
	Explain the nervous and hormonal control of Smooth Muscle Contraction.		
THEORY			
CODE	MEDICAL BIOCHEMISTRY	TOTAL HOURS = 30	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
MS-B-001	Classify carbohydrates along with the structure and biomedical importance of each class	Biochemistry	Classification carbohydrates
MS-B-002	Explain the isomerization of carbohydrates	Biochemistry	Carbohydrates
MS-B-003	Describe the physical and chemical properties of carbohydrates	Biochemistry	Extracellular matrix
	Differentiate between proteoglycan and glycoproteins		
	Describe the components of extracellular matrix: 1. Describe structure, functions and clinical significance of glycosaminoglycans	Biochemistry	

	2. Discuss structure and functions of Fibrous proteins (collagen and Elastin) 3. Interpret diseases associated with them on basis of sign/symptoms and data 4. Interpret the importance of vitamin C in collagen synthesis 5. Describe sources, active form, functions and deficiency diseases of vitamin C 6. Identify the defects in collagen synthesis based on given data (Ostegenesis Imperfecta)		
	Interpret genetic basis of Duchene muscular dystrophy	Biochemistry	
	Explain the transport and uptake of glucose in cells, steps of glycolysis and citric acid cycle along with enzymes, co enzymes and cofactors involved		
MS-B-004	Discuss the provision of energy to the muscles and cells through glycolytic pathway and TCA cycle	Biochemistry	Glycolysis and Tricarboxylic acid cycle (TCA)
	Explain the hormonal and allosteric regulation of glycolysis and TCA	Biochemistry	
MS-B-005	Describe the digestion and absorption of proteins in mouth, stomach and small intestine. Discuss the uptake of amino acids by cells	Biochemistry	Protein Digestion & Transport across cell
MS-B-006	Explain following reactions with enzymes involved in it: 1. Transamination 2. Deamination decarboxylation 3. Deamidation 4. Trans deamination. 5. Oxidative deamination.	Biochemistry	Reactions involve in catabolism
MS-B-007	Role of pyridoxal phosphate, glutamate, glutamine, alanine and discuss the mechanism of transport of ammonia to liver	Biochemistry	Transportation of ammonia to liver
MS-B-008	Illustrate steps of urea cycle with enzymes and its importance Discuss ammonia intoxication	Biochemistry	Urea cycle

MS-B-009	Interpret different types of hyperammonia on basis of sign symptoms and data		
MS-B-010	Discuss the metabolism of aliphatic, aromatic, branched chain, sulfur containing, hydroxyl group containing amino acids with the products formed and enzymes and vitamins involved in them	Biochemistry	Protein metabolism
MS-B-011	Interpret the following on basis of given data: 1. Phenylketonuria 2. Tyrosinemia 3. Albinism 4. Homocystinuria 5. Maple syrup urine disease 6. Alkaptonuria	Biochemistry	Inborn errors of amino acid metabolism

PRACTICAL

CODE	SPECIFIC LEARNING OBJECTIVES	TOTAL HOURS=06	
		DISCIPLINE	TOPIC
MS-P-018	Demonstrate and categorize the following movements: Pushing against the wall, Biceps curls, squats, yoga chair pose, standing on toes, running on an inclined treadmill, yoga tree pose, deadlift as isotonic and isometric skeletal muscle contraction.	Physiology	Locomotion
MS-B-012	Estimation of total proteins by kit method.	Biochemistry	Total proteins
MS-B-013	Estimation of albumin and globulin		Albumin/ globulin

PATHOPHYSIOLOGY AND PHARMACOTHERAPEUTICS

THEORY

CODE	SPECIFIC LEARNING OBJECTIVES	TOTAL HOURS = 4+7=11	
		DISCIPLINE	TOPIC
MS-Ph-01	Explain the mechanism by which drugs can stimulate NMJ.	Pharmacology & Therapeutics	Drugs acting on Neuromuscular Junction (NMJ)
	Explain the mechanism by which drugs can block NMJ.		

MS-Ph-02	Discuss briefly the therapeutic effect of drugs used in myasthenia gravis.		Drugs in Myasthenia Gravis
MS-Ph-03	Discuss briefly the therapeutic effect of drugs used as local anesthetics.		Local Anesthetics
MS-Pa-01	Describe the hyperplasia, hypertrophy, and atrophy of muscle fiber	Pathology	Muscle remodeling
	Explain the histopathological basis of leiomyoma		
MS-Pa-02	Describe the histological basis of Duchenne Muscular Dystrophy and myopathy.		Diseases of Muscle
MS-Pa-03	Describe the clinical presentation and histological justification for osteoporosis, osteopetrosis		Diseases of Bone
	Describe the histological basis for bone repair after fractures		
MS-Pa-04	Describe the histological basis for cartilage growth and repair		Disease of Cartilage

AGING

THEORY

CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 04	
		DISCIPLINE	TOPIC
MS-Ag-01	Discuss the effect of age on bone fragility and its implications with management.	Geriatrics/ Medicine/ Biochemistry	Bone
MS-Ag-02	Discuss the effect of age on loss of cartilage resilience and its implications and management		Cartilage
MS-Ag-03	Discuss the effect of age on Muscular strength and its implications and management		Muscle
MS-Ag-04	Explain the protective effect of estrogen (female sex hormone) on bone mineral density and relate it to increased prevalence of postmenopausal fractures in women.		Effect of estrogen on BMD

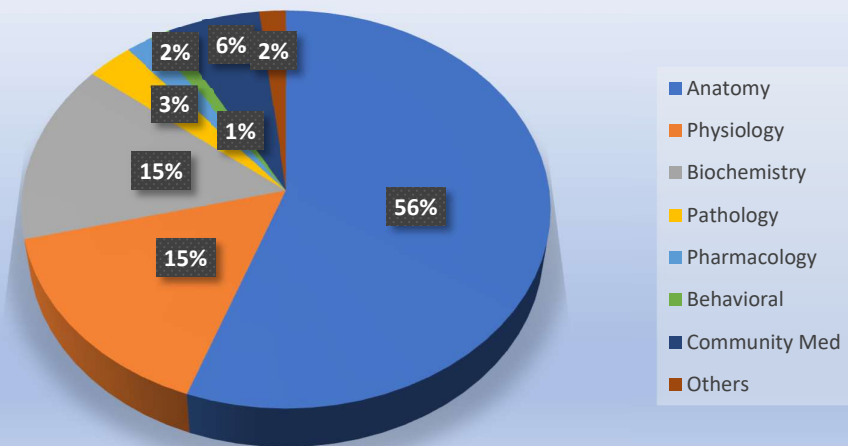
DISEASE PREVENTION AND IMPACT

THEORY

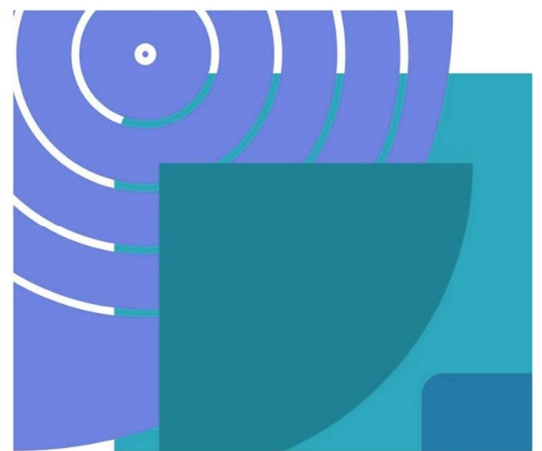
CODE	SPECIFIC LEARNING OUTCOMES	TOTAL HOURS = 14+3=17	
		DISCIPLINE	TOPIC
MS-CM-001	Explain causes of low back pain	Community Medicine and Public Health	Back Pain
	Describe prevention of low back pain		
MS-CM-002	Describe work related musculoskeletal disorders addition with its burden/epidemiology		Work related Musculoskeletal disorders
	Identify risk factors of Musculoskeletal disorders MSD at workplace		
	Describe prevention of exposure to risk factors related to workplace		
MS-CM-003	Describe MSD related to mobile addition with its burden/epidemiology	Community Medicine and Public Health	MSD related to mobile usage
	Describe MSD related to mobile usage (Text neck, Trigger thumb, DeQuervain Syndrome, Carpel Tunnel Syndrome)		
	Identify risk factors related to MSD due to excessive mobile usage.		
	Describe the preventive strategies for mobile addiction-related MSD.		
MS-CM-004	Describe the application of ergonomics in MSD related to the above disorders.	Community Medicine and Public Health	Ergonomics
MS-CM-005	Describe the concept of non-communicable Musculoskeletal diseases		Noncommunicable disease
MS-CM-006	Identify the risk factors in the community for Osteoporosis		Risk factor assessment of Musculoskeletal diseases
	Learn and apply interventions to prevent the risk factors for various musculoskeletal diseases in the community.		
MS-BhS-001	Identify and deal with the various psychosocial aspects of Musculoskeletal conditions (such as Osteoarthritis, Osteomyelitis, Rheumatoid arthritis, Gout, chronic back pain, psychosomatic complaints) and Neuromuscular conditions (Muscular dystrophy,	Behavioral Sciences	Psychosocial factors influencing chronic illnesses

	Myasthenia Gravis, Sclerosis) on Individual, Family and Society		
MS-BhS-002	Identify the psychosocial risk factors as mediating factors between illness and its effect.		Psychosocial Impact of Disease and its management
	Discuss the role of psychological variables like coping, social support, and other health cognitions in mediating between illness and its effect.		

Musculoskeletal & Locomotion-1



Module Weeks	Recommended Minimum Hours
08	225





BLOCK-02

MUSCULOSKELETAL AND LOCOMOTION MODULE

Objectives	Skill	Miller's Pyramid Level Reflected
Measure body temperature using a mercury/digital thermometer	Body temperature	Shows
Examine the wrist joint for functionality	Wrist joint examination	Shows
Examine strength of the upper limb	Upper limb strength and power examination	Shows
Examine strength of the lower limb	Lower limb strength and power examination	Shows
Examine the knee joint for functionality	Knee joint examination	Shows
Examine the shoulder joint for functionality	Shoulder joint examination	Shows
Examine the hip joint for functionality	Hip joint examination	Shows
*Identify common fractures showing in x rays of upper limb	X ray common fractures Upper limb	Knows how

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

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

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

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Date Observed: _____

CHECKLIST FOR BODY TEMPERATURE (Some of the following steps/tasks should be performed simultaneously.)	CASES (Minimum 2 Entries)		
STEP/TASK			
GETTING READY: Before proceeding further, check if the patient has recently taken cold or hot food/drink or smoked. Dip the thermometer in antiseptic (spirit) and wipe dry. If analogue thermometer, shake it until the normal temperature is pushed below 35°C. If digital thermometer, switch it on and it will show the room temperature on the display.			
SKILL/ACTIVITY PERFORMED SATISFACTORILY			
THE PROCEDURE: 1. Explain the procedure to the patient and get a verbal consent to proceed. 2. Keep the thermometer bulb/probe under the patient's tongue. Ask the patient to close the lips firmly around the thermometer but without biting it 3. Keep it in place for at least 2 minutes.			

4. Read the temperature as soon as you pull out the instrument			
5. After use, clean the instrument with antiseptic and wipe it off			
SKILL/ACTIVITY PERFORMED SATISFACTORILY			
Signatures of Supervisor			

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Date Observed: _____

CHECKLIST FOR WRIST JOINT EXAMINATION (Some of the following steps/tasks should be performed simultaneously.)	CASES (Minimum 3 Entries)		
STEP/TASK			
THE PROCEDURE:			
1. Explain the procedure to the patient and get a verbal consent to proceed.			
2. Adequately expose hands and wrists of the patient			
3. before starting with the examination, inquire about pain in any area.			
4. Observe both hands and wrists for any asymmetry, scars, and muscle wasting			
5. Palpate the wrists for evidence of any joint line irregularities or tenderness			
6. Ask patients to perform wrist extension “put the palms of your hands together and extend your wrists fully “. normal range of movement is 90 degrees			
7. Ask the patient to perform wrist flexion “put the backs of your hands together and flex your wrist fully”, normal range of motion id 90 degrees			
8. Ask the patient to fully relax and allow you to move their hand and wrist for them. Warn them that in case any pain is felt they should report immediately.			
9. Repeat movements 6 and 7 passively.			

SKILL/ACTIVITY PERFORMED SATISFACTORILY			
Signatures of Supervisor			

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Date Observed: _____

CHECKLIST FOR EXAMINATION OF UPPER LIMB STRENGTH (Some of the following steps/tasks should be performed simultaneously.)	CASES (Minimum 3 Entries)		
STEP/TASK			
THE PROCEDURE: 1. Explain the procedure to the patient and get a verbal consent to proceed. 2. Ensuring privacy, adequately expose the arms of the patient 3. Before starting the testing for power and strength, for each muscle group check: a. appearance of the muscle (wasted, highly developed or normal) b. Feel tone of muscle (flaccid, normal, clinic) 4. Observe both hands and wrists for any asymmetry, scars, and muscle wasting 5. Starting with the deltoids, ask the patient to raise both their arms in front of them simultaneously as strongly as then can while the examiner provides resistance to this movement. Compare the strength of each arm. 6. Ask the patient to extend and raise both arms in front of them as if they were carrying a pizza. Ask the patient to keep their arms in place while they close their eyes and count to 10. Normally their arms will remain in place. 7. Test the biceps muscle flexion by holding the patient's wrist from above and instructing them to "flex their hand up to their shoulder". Provide resistance at the wrist. Repeat and compare to the opposite arm. 8. Ask the patient to extend their forearm against the examiner's resistance. Make certain that the patient begins			

their extension from a fully flexed position because this part of the movement is most sensitive to a loss in strength. This tests the triceps. Note any asymmetry in the other arm			
9. Test the strength of wrist extension by asking the patient to extend their wrist while the examiner resists the movement. This tests the forearm extensors. Repeat with the other arm.			
10. Examine the patient's hands and test the patient's grip by having the patient hold the examiner's fingers in their fist tightly and instructing them not to let go while the examiner attempts to remove them. Normally the examiner cannot remove their fingers. This tests the forearm flexors and the intrinsic hand muscles. Compare the hands for strength asymmetry			
11. Test the intrinsic hand muscles once again by having the patient abduct or "fan out" all of their fingers. Instruct the patient to not allow the examiner to compress them back in. Normally, one can resist the examiner from replacing the fingers			
12. Test the strength of the thumb opposition by telling the patient to touch the tip of their thumb to the tip of their little finger. Apply resistance to the thumb with your index finger. Repeat with the other thumb and compare.			
SKILL/ACTIVITY PERFORMED SATISFACTORILY			
Signatures of Supervisor			

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Date Observed: _____

CHECKLIST FOR EXAMINATION OF LOWER LIMB STRENGTH (Some of the following steps/tasks should be performed simultaneously.)		CASES (Minimum 3 Entries)		
STEP/TASK				
THE PROCEDURE:				
1. Explain the procedure to the patient and get a verbal consent to proceed.				
2. Ask the patient to lie down and raise each leg separately while the examiner resists. Repeat and compare with the other leg. This tests the iliopsoas muscles.				
3. Test the adduction of the legs by placing your hands on the inner thighs of the patient and asking them to bring both legs together. This test the adductors of the medial thigh.				
4. Test the abduction of the legs by placing your hands on the outer thighs and asking the patient to move their legs apart. This tests the gluteus maximus and gluteus minimums.				
5. Test the extension of the hip by instructing the patient to press down on the examiner's hand which is placed underneath the patient's thigh. Repeat and compare to the other leg. This tests the gluteus maximus				
6. Test extension at the knee by placing one hand under the knee and the other on top of the lower leg to provide resistance. Ask the patient to "kick out" or extend the lower leg at the knee. Repeat and compare to the other leg. This tests the quadriceps muscle.				
7. Test flexion at the knee by holding the knee from the side and applying resistance under the ankle and instructing the patient to pull the lower leg towards their buttock as hard as possible. Repeat with the other leg. This tests the hamstrings				
8. Test dorsiflexion of the ankle by holding the top of the ankle and have the patient pull their foot up towards their face as hard as possible. Repeat with the other foot. This tests the				

muscles in the anterior compartment of the lower leg. Holding the bottom of the foot, ask the patient to "press down on the gas pedal" as hard as possible. Repeat with the other foot and compare. This tests the gastrocnemius and soleus muscles in the posterior compartment of the lower leg			
9. Ask the patient to move the large toe against the examiner's resistance "up towards the patient's face. This tests the extensor hallucis longus muscle.			
POST PROCEDURE:			
1. 'Wash your hands, thank the patient'			
SKILL/ACTIVITY PERFORMED SATISFACTORILY			
Signatures of Supervisor			

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Date Observed: _____

CHECKLIST FOR EXAMINATION OF LOWER LIMB STRENGTH (Some of the following steps/tasks should be performed simultaneously.)		CASES (Minimum 3 Entries)		
STEP/TASK				
THE PROCEDURE:				
1. Explain the procedure to the patient and get a verbal consent to proceed.				
2. Ensure adequate exposure of the knee joints while maintaining patient privacy.				
3. Inspect the alignment of both legs, both paellas. Check for varus/vulgus deformities, swellings. Inspect skin for any scars, plaques, erythema.				
4. Check swelling at level of joints				
5. simultaneously assess and compare knee joint temperature using the back of your hands.				
6. Measure quadriceps with an inch tape 20 cm diameter above the tibial tuberosity and compare with other side.				
7. Ask the patient regarding any pan and discomfort and then start examining normal side of patient (in supine position)				
8. Flex the knee to (0 degrees, then feel along the joint line (quadriceps tendon → patella → patella tendon → tibial tuberosity → tibial plateau → femoral epicondyles and over course of medial collateral ligament and lateral collateral ligament → popliteal fossa) for ant swelling/ thickness/tenderness				
9. Test active then passive movements, keeping one hand on the knee to feel for crepitus. 1.Flexion (140°) 2.Extension (0°)				
10. Passively raise leg at ankle and look for knee hyperextension				
11. Perform the patellar tap: with patients knee fully extended, empty the suprapatellar pouch by sliding your left hand down				

the thigh to the upper border of the patella.			
12. Keep your left hand in position and use right hand to press downwards on the patella with your fingertips. if there is fluid present you will feel a distinct tap as patella bumps against femur			
POST PROCEDURE:			
1. 'Wash your hands, thank the patient'			
SKILL/ACTIVITY PERFORMED SATISFACTORILY			
Signatures of Supervisor			

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CHECKLIST FOR EXAMINATION OF HIP JOINT EXAMINATION (Some of the following steps/tasks should be performed simultaneously.)		CASES (Minimum 3 Entries)		
STEP/TASK				
THE PROCEDURE:				
1. Explain the procedure to the patient and get a verbal consent to proceed.				
2. Ensure adequate exposure of the legs while maintaining patient privacy. Provide a covering sheet for the patient. (Students examining patients of an opposite gender must be with a chaperone.)				
3. Ask the patient if they have any pain before proceeding				
4. Inspect the joint and legs for any deformity, scarring or swelling				
5. Ask the patient to walk to the end of the examination room and then turn and walk back whilst you observe their gait				
6. Ask patient to lie down for next part pf the examination.				
7. With the patient still positioned supine on the clinical examination couch simultaneously assess and compare hip joint temperature using the back of your hands.				

8. Palpate the greater trochanter of each leg for evidence of tenderness			
9. To assess apparent leg length, measure and compare the distance between the umbilicus and the tip of the medial malleolus of each limb.			
10. To assess true leg length, measure from the anterior superior iliac spine to the tip of the medial malleolus of each limb.			
11. For active hip flexion Place your hand under the lumbar spine to detect masking of restricted hip joint movement by the pelvis and lumbar spine and ask the patient to <i>“bring your leg to your chest as much as you can”</i>			
12. For active hip extension ask the patient to extend their leg so that it lies flat on the bed.			
13. Perform passive hip flexion, Whilst supporting the patient's leg, flex the hip as far as you are able, making sure to observe for signs of discomfort.			
14. For passive hip internal rotation, Flex the patient's hip and knee joint to 90° and then rotate their foot laterally.			
15. For passive hip external rotation, flex the patients hip and knee joint to 90° and rotate the foot medially			
16. To perform passive hip abduction: a. With the patient's legs straight and flat on the bed, use one of your hands to hold the ankle of the hip being assessed and place your other hand over the contralateral iliac crest to stabilize the pelvis. b. Move the patient's ankle laterally to abduct the hip until the pelvis begins to tilt.			
17. To perform passive hip adduction: a. With the patient's legs straight and flat on the bed, use one of your hands to hold the ankle of the hip being assessed and place your other hand over the contralateral iliac crest to stabilize the pelvis. b. Move the patient's ankle medially to adduct the hip until the pelvis begins to tilt.			
18. To perform passive hip extension, ask the patient to lie in a prone position, use one hand to hold the ankle and the other should be placed on the pelvis.			
19. Thank and reassure the patient			
SKILL/ACTIVITY PERFORMED SATISFACTORILY			
Signatures of Supervisor			

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Date Observed: _____

CHECKLIST FOR EXAMINATION OF SHOULDER JOINT EXAMINATION (Some of the following steps/tasks should be performed simultaneously.)		CASES (Minimum 3 Entries)		
STEP/TASK				
THE PROCEDURE:				
1. Explain the procedure to the patient and get a verbal consent to proceed.				
2. Ensure adequate exposure of the shoulder and arm and provide blanket to patient for the time when they are not being examined.				
3. Position the patient standing for initial inspection and ask the patient if they have any pain before proceeding for examination.				
4. Perform a brief general inspection looking for scars, alignment, and muscle wasting				
5. Assess and compare shoulder joint temperature using the back of your hands.				
6. Palpate the various components of the shoulder girdle, noting any swelling, bony irregularities, and tenderness.				
7. To check for external rotation and abduction, ask the patient to put their hands behind their head and point their elbows out to the side				
8. To check internal rotation and adduction, ask the patient to place each hand behind their back and reach as far up their spine as they are able to				
9. For active shoulder flexion instruct the patient to raise their arms forward until they're pointing up towards the ceiling.				
10. For active shoulder extension, ask the patient to stretch their arms behind them.				

11. For active shoulder abduction, ask the patient to raise their arms out to the sides in an arc like mono until their hands touch above their head			
12. For active shoulder adduction, ask the patients to keep their arms straight and move them across the front of their body to the opposite side.			
13. For active internal rotation, ask the patient to place each hand behind their back and reach as far up the spine as they can.			
14. To check scapular movement, ask patient to abduct their shoulder while you simultaneously palpate inferior pole of the scapula.			
15. To judge passive movements, ask the patient to fully relax and allow you to move their arms for them. Go through steps 7-14 by moving the patients arm through those movements.			
16. Thank and reassure the patient			
SKILL/ACTIVITY PERFORMED SATISFACTORILY			
Signatures of Supervisor			

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Date Observed: _____

CHECKLIST FOR UPPER LIMB X-RAY (Some of the following steps/tasks should be performed simultaneously.)		CASES (Minimum 3 Entries)		
STEP/TASK				
THE PROCEDURE:				
1. Observe the ABC's: a. Alignment and joint space b. Bone texture c. Cortices				
2. Changes in alignment will suggest a fracture/ complete or partial dislocation				
3. Describe the position of the fragment distal to the fracture site				
4. Look around the outline of each bone to see any step in the cortex as it may indicate a fracture				
5. Once a fracture is identified, describe which bone is involved and where the fracture is located (proximal/middle distal)/				
6. Recognize a fracture extending all the way through the bone as a complete fracture.				
7. Identify type of complete fracture accordingly: a. Transverse: fracture at right angles to the shaft b. Oblique: fracture at an angle to the shaft c. Spiral: caused by twisting injury d. Comminuted: 2 or more bone fragments e. Impacted: fractured bone forced together				

8. Recognize an incomplete fracture as one not involving the whole cortex.			
9. Types of incomplete fractures include: a. Torus/Buckle: a bulge in the cortex b. Bowing: associated bend in the bone shaft c. Greenstick: bending of the shaft with a fracture on the convex surface Salter-Harris: involving the growth plate			
10. Identify an open fracture as having a puncture of the skin or an open wound identify closed fractures as not having any skin opening.			
11. Identify closed fractures as not having any skin opening.			
SKILL/ACTIVITY PERFORMED SATISFACTORILY			
Signatures of Supervisor			



MUSCULOSKELETAL AND LOCOMOTION-I

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

Total Hours = 06

Code	Domain	Topic	Specific Learning Objectives	Proposed Portfolio Entry
	Professionalism	Respect for the Human Body/Remain	Understand the ethical and professional significance of respecting the human body, especially in medical education settings such as anatomy labs, and appreciate the contributions of body donors to medical science.	Write a Code of Conduct of professional behaviours in Anatomy Hall, Laboratories /museums with human tissue/remains.
	Ethics	Virtues of a Medical Professional	- Analyse the key virtues expected from healthcare providers, including compassion, courage, integrity, humility, patience, altruism, professional responsibility, trustworthiness, and honesty, and their role in ethical medical practice. - Reflect on a case or scenario where healthcare professionals demonstrated one or more of these virtues, discussing how these traits influenced patient care and outcomes.	Write a reflective entry on a case or scenario where healthcare professionals demonstrated one or more of these virtues, discussing how these traits influenced patient care and outcomes
	Leadership	Written and Electronic Communication Skills	Appreciate effective written and electronic communication skills, focusing on clarity, professionalism, and accuracy in both academic and clinical contexts, including emails and electronic health records.	Submit a sample professional email or electronic communication (e.g., a message to a faculty member) that demonstrates clarity, appropriate tone, and adherence to

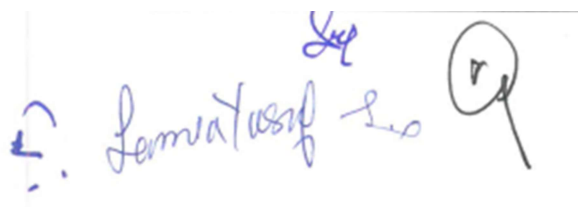
			Students will practice composing a clear and professional email to a faculty member or peer, ensuring correct format, tone, and content.	communication protocols.
	Leadership	Giving Feedback	- Appreciate the importance of giving constructive feedback - Discuss the principles using techniques like the Sandwich Technique and “2 Stars and a Wish” to promote improvement while maintaining positive communication. - Practice giving feedback to a peer using the Sandwich Technique (positive-constructive-positive) or ‘2 Stars and a Wish’ (two positive aspects and one area for improvement) during a group activity or simulated scenario.	Submit the feedback given to you by your peer during class activity with the identification of areas for improvement and an action plan.
	Research	Critiquing Scientific articles- Introduction	- Describe the steps to critique a research article. - Use any checklist, e.g. https://web2.qatar.cmu.edu/~mhhammou/15440-f16/assignments/Howtocritiqueajournalarticle.pdf for journal article critique	Submit an Article Critique report highlighting areas for improvement
	Ethics	Patient Autonomy in decision making	- Define patient autonomy and understand its foundational role in medical ethics, recognizing that every patient has the right to make informed decisions regarding their own healthcare. - Describe necessary components of informed decision-making,	Submit a reflective case study analyzing how patient autonomy was handled in a clinical situation. Discuss whether the patient was fully informed, how their preferences were respected, and the role of healthcare

			including the provision of accurate information, understanding of risks and benefits, patient comprehension, and the patient's ability to voluntarily make choices free from coercion. • Appreciate the responsibilities of healthcare providers in ensuring that patients receive all necessary information and support to make autonomous decisions, including effective communication and respecting cultural, religious, or personal values.	providers in ensuring the patient's right to make decisions about their own care.
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MBBS 1st Professional**Block-2**

Theme	Subject	Written Exam			Oral/Practical/Clinical Exam			
		MCQ (1 mark)	SEQ (5 mark each)	Marks	OSPE (8 marks each observed)	OSCE (5 marks each observed)	OSVE (14 marks each observed)	Marks
Normal Structure	Anatomy applied/clinical	35	04	55	05	-	01	54
Normal Function	Physiology applied/clinical	17	02	27	02	-	01	30
	Biochemistry applied/clinical	13	02	23	02	-	01	30
Disease Burden & Prevention	Community Medicine & Public Health	06	-	06	-	-	-	-
	Behavioral Sciences	04	-	04	-	-	-	-
Pathophysiology & pharmacotherapeutics	Pathology	10	01	15	01	-	-	08
	Pharmacology	05	01	10	01	-	-	08
CFRC	CF-I	-	-	-	-	01	-	05
PERLs	PERLs-I	-	-	-	-	01	-	05
Total		90	10x5=50	140	11 stations x 08 = 88	02 stations x 05 = 10	03 stations x 14=42	140





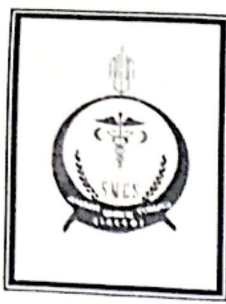


Internal Assessment Theory

Sr.	Scoring Parameter	Marks out of 20%	Marks Distribution
1	Attendance in Lectures	85-90%=1% , > 90%=2%	85-90%= 01 mark > 90%= 02 marks
		Remedial classes – re-sit exam allowed only after case endorsed and submitted by the college Principal and approval given by the Competent Authority . However, no marks given	
		Remedial classes – re-sit exam allowed only in genuine cases after approval from Competent Authority . However, no marks given	
2	Block Exam	15%	22
3	Continuous Internal Assessment/Class Quiz/Class participation/ Professional Behaviour/ Ethical practices/ Leadership traits/ Module Exam Discipline/Punctuality	3%	06

Internal Assessment Practical & Behavioral

Sr.	Scoring Parameter	Marks out of 20%	Marks Distribution
1	Attendance in Practicals & Rotations	85-90%=1% , > 90%=2%	85-90%= 01 mark > 90%= 02 marks
		Remedial classes – re-sit exam allowed only after case endorsed and submitted by the college Principal and approval given by the Competent Authority . However, no marks given	
		Remedial classes – re-sit exam allowed only in genuine cases after approval from Competent Authority . However, no marks given	
2	Block Exam (OSPE/OSCE/OSVE)	15%	26
3	CFRC Log Book / PERLs Portfolio	04%	07



Sialkot Medical College MSK &L- I Module

1st Year MBBS

2024-2025

From: Module organizer, Musculoskeletal & locomotion-IModule

To: All HODs

Subject: Nomination of Module representatives

Respected Faculty,

I am writing to request your assistance in nominating potential module representative from your respective departments for the upcoming MSK&L Module (Block 2), which will be for the duration of 08 weeks. May 5

Department	Name of representative	Signature
Physiology	Dr. Fatima M.	
Biochemistry	Dr. Sana Aslam	
Anatomy	Dr. Ayesha, Dr. Naila	Dr. Hafsa
Pharmacology	Dr. Neelam	neelam!
Pathology	Dr. Junaid	
Community medicine	Dr. Zaryab → Dr. Ayesha Razaq	Zaryab
Medical education	Dr. Sadia Zahoor	
Behavioural Sciences	Miss Recha Sarwar	

Kind Regards,

Cc;

- Academic Supervisor
- All HODs
- DME, Block Organizer

Dr. Ikhra Aiman
Module Organizer

Date: 17-03-25.



SLALKOT MEDICAL COLLEGE

MUSCULOSKELETAL & LOCOMOTION MODULE- I (2K25)

- YEAR-I MBBS WEEKLY SCHEDULE



(WEEK-8)

(Theme: Lower Limb)

WEEK 8	08:00am – 09:25am	09:25am – 10:15am	10:15am - 10:35am	10:35am – 11:25am	11:25am – 12:15pm	12:15pm – 01:05pm	01:05pm - 01:35pm	01:35pm – 03:00pm
MON 18-08-25	ASSESSMENT - 06 (MSK&L-1 Module)	L115 MS-A-059 Palpation of Arteries of L.L <i>Anatomy/Medicine</i>	SDL	L116 MS-CM-006 Risk factor assessment of MSD II <i>Community Medicine</i>	L117 MS-P-017 Smooth Muscle I <i>Physiology</i>	L118 Perls Professionalism <i>Medical Education</i>	PRAYER BREAK	LAB SESSION 07 A - Physiology B - Biochemistry C - Clinical Skills <i>Revision</i>
TUE 19-08-25	SGD 19 MS-A-053 Muscles of foot <i>Anatomy</i>	L119 MS-A-062 Topography of L.L <i>Anatomy/Radiology</i>	SDL	L120 MS-B-011 Inborn error of amino acid metabolism 2 <i>Biochemistry</i>	L121 MS-P-017 Smooth Muscle II <i>Physiology</i>	L122 MS-BhS-001 Psychosocial factors influencing chronic <i>Behavioral Sciences</i>	PRAYER BREAK	LAB SESSION 07 A - Clinical Skills B - Physiology C - Biochemistry <i>Revision</i>
WED 20-08-25	SGD 20 MS-A-058,060,062 Surface Marking of BVNL <i>Anatomy</i>	L123 MS-A-063,064 Fractures of lower limb <i>Anatomy/Orthopedic</i>	SDL	L124 MS-Ag-01 , 02 Aging of Bone & Cartilage <i>Aging/biochem</i>	L125 MS-P-017 Smooth Muscle III <i>Physiology</i>	L126 MS-BhS-002 Psychosocial impact of disease and its <i>Behavioral Sciences</i>	PRAYER BREAK	LAB SESSION 07 A - Biochemistry B - Clinical Skills C - Physiology <i>Revision</i>
THU 21-08-25	SGD 21 Models/specimens of Lower limb <i>Anatomy</i>	L127 MS-A-059 DVT <i>Anatomy/Surgery</i>	SDL	L128 MS-A-074 Metabolic role of bone <i>Anatomy/Medicine</i>	L129 MS-Ph-03 Local anesthetics <i>Pharmacology</i>	Students' Activity	PRAYER BREAK	SGD-08 A - Biochemistry B - Physiology <i>Revision</i>
FRI 22-08-25	Feedback Session for MSK&L Module <i>Block/Module Organizer</i>	L130 MS-A-063,064 Dislocation of Lower.L <i>Anatomy/Orthopedic</i>	SDL	L131 MS-Ag-03 , 04 Aging of Muscle , Effect of Estrogen on BMD <i>Aging/biochem</i>	0 Feedback session Assessment 06 Module organizer	L132 HOLY QURA'AN / ISLAMIAAT / PAK STD	JUMA'A PRAYER	SGD 08 A - Physiology B - Biochemistry <i>Revision</i>

Version 0

Lab Histology: -
Lab Physiology: Revision

Clinical Skills: Lower limb strength and power examination
Lab Biochemistry: Revision

Dr. Ikhra Aiman
MODULE ORGANIZER

Dr. Misbah Ishtiaq
BLOCK ORGNIZER

Dr. Muhammad Shamaun Razi
ACADEMIC COORDINATOR

Prof. Dr. Muhammad Sabir
PRINCIPAL



SIALKOT MEDICAL COLLEGE

MUSCULOSKELETAL & LOCOMOTION MODULE- I (2K25)

- YEAR-I MBBS WEEKLY SCHEDULE



(WEEK-7)

(Theme: Lower Limb)

WEEK 7	08:00am – 09:25am	09:25am – 10:15am	10:15am - 10:35am	10:35am – 11:25am	11:25am – 12:15pm	12:15pm – 01:05pm	01:05pm - 01:35pm	01:35pm – 03:00pm
MON 11-08-25	ASSESSMENT - 05 (MSK&L-1 Module)	L101 MS-P-016 Neuromuscular junction I <i>Physiology</i>	SDL	L102 MS-B-010 Protein metabolism 1 <i>Biochemistry</i>	L103 MS-A-056, 49 Retinecula of foot + (flexor ,extensor) <i>Anatomy</i>	L104 MS-Pa-03 Diseases of bone I <i>Pathology</i>	PRAYER BREAK	LAB SESSION 06 A - Histology B - Physiology C - Clinical Skills
TUE 12-08-25	SGD 17 MS-A-050 Tibiofibular joints <i>Anatomy</i>	L105 MS-A-048 Neurovascular supply of Legs <i>Anatomy</i>	SDL	L106 MS-P-016 Neuromuscular junction II <i>Physiology</i>	L107 MS-CM-006 Risk factor assessment of MSD I <i>Community Medicine</i>	L108 MS-B-010 Protein metabolism 2 <i>Biochemistry</i>	PRAYER BREAK	LAB SESSION 06 A - Clinical Skills B - Histology C - Physiology
WED 13-08-25	SGD 18 MS-A-054 Small joints of foot <i>Anatomy</i>	L109 Perls Research <i>Medical Education</i>	SDL	L110 MS-Pa-03 Diseases of bone II <i>Pathology</i>	L111 MS-B-011 Inborn error of amino acid metabolism 1 <i>Biochemistry</i>	Students' Activity	PRAYER BREAK	LAB SESSION 06 A - Physiology B - Clinical Skills C - Histology
THU 14-08-25	Independence Day							
FRI 15-08-25	PBL 3 I can't comb my hair Session II	L112 MS-A-051 Ankle joint <i>Anatomy</i>	SDL	L113 MS-Pa-03 Diseases of bone III <i>Pathology</i>	Feedback session Assessment 05 Module orgnizer	L114 HOLY QURA'AN / ISLAMIAT / PAK STD	JUMA'A PRAYER	SGD-07 A - Biochemistry B - Physiology A - Physiology B - Biochemistry

Version 0

Lab Histology:
Lab Physiology:

Revision
Revision

Clinical Skills:
Lab Biochemistry:

Knee joint examination

-

Dr. Ikhra Aiman
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Dr. Muhammad Shamaun Razi
ACADEMIC COORDINATOR

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SIALKOT MEDICAL COLLEGE

MUSCULOSKELETAL & LOCOMOTION MODULE- I (2K25)

- YEAR-I MBBS WEEKLY SCHEDULE



(WEEK-6)

(Theme: Pelvic girdle/Lower Limb)

WEEK 6	08:00am – 09:25am	09:25am – 10:15am	10:15am - 10:35am	10:35am – 11:25am	11:25am – 12:15pm	12:15pm – 01:05pm	01:05pm - 01:35pm	01:35pm – 03:00pm
MON 04-08-25	ASSESSMENT - 04 (MSK&L-1 Module)	L83 MS-A-034, 035 Femoral + Inguinal Hernias, Psoas Abscess <i>Anatomy/Surgery</i>	SDL	L84 MS-A-036 Neurovascular supply of ant. compartment of <i>Anatomy</i>	L85 MS-Pa-01 Muscle remodelling <i>Pathology</i>	L86 MS-A-034 Femoral canal <i>Anatomy</i>	PRAYER BREAK	LAB SESSION 05 A - Histology B - Biochemistry C - Clinical Skills
TUE 05-08-25	SGD 14 MS-A-038,39 Muscles + neurovascular supply of medial comp. <i>Anatomy</i>	L87 MS-A-046 Clinicals of knee joint <i>Anatomy/Orthopedic</i>	SDL	L88 MS-Ph-02 Drugs in Myasthenia Gravis <i>Pharmacology</i>	L89 MS-A-035 Muscles Anterior compartment of Thigh <i>Anatomy</i>	L90 MS-B-008 Urea cycle 1 <i>Biochemistry</i>	PRAYER BREAK	LAB SESSION 05 A - Clinical Skills B - Histology C - Biochemistry
WED 06-08-25	SGD 15 MS-A-045, 46 Popliteal fossa + Tibia,Fibula + Patella <i>Anatomy</i>	L91 MS-B-008 Urea cycle 2 <i>Biochemistry</i>	SDL	L92 MS-Pa-02 Diseases of muscles <i>Pathology</i>	L93 MS-A-042 neurovascular supply of post. compartment of Thigh <i>Anatomy</i>	L94 MS-P-012, 016 Nerve Degeneration & Myesthenia Gravis <i>Physiology/Medicine</i>	PRAYER BREAK	LAB SESSION 05 A - Biochemistry B - Clinical Skills C - Histology
THU 07-08-25	SGD 16 MS-A-047 Muscles + Neurovascular supply of leg <i>Anatomy</i>	L95 MS-A-052,055 Plantar fascitis, Flat foot + Clow foot <i>Anatomy/Orthopedic</i>	SDL	L96 MS-A-046 Knee joint <i>Anatomy</i>	L97 MS-B-009 Urea cycle 3 <i>Biochemistry</i>	Students' Activity	PRAYER BREAK	SGD 06 A - Physiology B - Biochemistry
FRI 08-08-25	PBL 3 I can't comb my hair Session I	L98 MS-A-046 Locking and Unlocking <i>Anatomy</i>	SDL	L99 Perls Leadership 2 <i>Medical Education</i>	Feedback session Assessment 04 <i>Module organizer</i>	L100 HOLY QURA'AN / ISLAMIAT / PAK STD	JUMA'A PRAYER	SGD 06 A - Biochemistry B - Physiology

Version 0

Lab Histology:

Lab Physiology:

Microscopic structure of elastic cartilage

-

Clinical Skills:

Lab Biochemistry:

Hip joint examination

Albumin / globulin

Dr. Ikhra Aiman
MODULE ORGANIZER

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BLOCK ORGNIZER

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SIALKOT MEDICAL COLLEGE

MUSCULOSKELETAL & LOCOMOTION MODULE- I (2K25)

- YEAR-I MBBS WEEKLY SCHEDULE



(WEEK-5)

(Theme: Pelvic Girdle)

WEEK 5	08:00am – 09:25am	09:25am – 10:15am	10:15am - 10:35am	10:35am – 11:25am	11:25am – 12:15pm	12:15pm – 01:05pm	01:05pm - 01:35pm	01:35pm – 03:00pm
MON 28-07-25	ASSESSMENT - 03 (MSK&L-1 Module)	L65 MS-A-40 Clinicals of Gluteal Region <i>Anatomy/Medicine</i>	SDL	L66 MS-P-015 Mechanics of muscle contraction I <i>Physiology</i>	L67 MS-B-005 Protein digestion & transport <i>Biochemistry</i>	L68 MS-A-040 Muscles of gluteal region <i>Anatomy</i>	PRAYER BREAK	LAB SESSION 04 A - Histology B - Biochemistry C - Clinical Skills
TUE 29-07-25	SGD 11 MS-A-031 Femur bone + muscle attachment <i>Anatomy</i>	L69 MS-A-032 Facia lata + femoral sheath <i>Anatomy</i>	SDL	L70 MS-P-015 Mechanics of muscle contraction II <i>Physiology</i>	L71 MS-B-006 Reaction involve in catabolism <i>Biochemistry</i>	L72 MS-A-033 Neurovascular supply of Thigh <i>Anatomy</i>	PRAYER BREAK	LAB SESSION 04 A - Clinical Skills B - Histology C - Biochemistry
WED 30-07-25	SGD 12 MS-A-034, 037 Femoral Triangle + Adductor canal <i>Anatomy</i>	L73 MS-A-041 Muscles of posterior of thigh <i>Anatomy</i>	SDL	L74 MS-B-007 Transpotation of ammonia to liver <i>Biochemistry</i>	L75 MS-P-015 Rigor Mortis <i>Physiology</i>	L76 MS-Ph-01 Drugs acting on NMJ I <i>Pharmacology</i>	PRAYER BREAK	LAB SESSION 04 A - Biochemistry B - Clinical Skills C - Histology
THU 31-07-25	SGD 13 MS-A-044 Hip Joint <i>Anatomy</i>	L77 MS-A-043,044 Sciatica + Clinicals of Hip joint <i>Anatomy/Surgery</i>	SDL	L78 MS-Ph-01 Drugs acting on NMJ II <i>Pharmacology</i>	L79 MS-CM-004 Ergonomics <i>Community Medicine</i>	Students' Activity	PRAYER BREAK	SGD 05 A - Physiology B - Biochemistry
FRI 01-08-25	PBL 2 Am I curable? Session II	L80 MS-A-043 Sciatic nerve <i>Anatomy</i>	SDL	L81 Perls Leadership 1 <i>Medical Education</i>	Feedback session Assessment 03 <i>Module orgnizer</i>	L82 HOLY QURA'AN / ISLAMIAT / PAK STD	JUMA'A PRAYER	SGD 05 A - Biochemistry B - Physiology

Version 0

Lab Histology:
Lab Physiology:

Microscopic structure of fibro cartilage
-

Clinical Skills:
Lab Biochemistry:

Upper limb strength and power examination
Albumin / globulin

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SLALKOT MEDICAL COLLEGE

MUSCULOSKELETAL & LOCOMOTION MODULE- I (2K25)

- YEAR-I MBBS WEEKLY SCHEDULE



(WEEK-4)

(Theme: Upper Limb)

WEEK 4	08:00am – 09:25am	09:25am – 10:15am	10:15am - 10:35am	10:35am – 11:25am	11:25am – 12:15pm	12:15pm – 01:05pm	01:05pm - 01:35pm	01:35pm – 03:00pm
MON 21-07-25	ASSESSMENT - 02 (MSK&L-1 Module)	L47 MS-A-063,064 Dislocation of upper.L <i>Anatomy/Orthopedic</i>	SDL	L48 MS-A-065 Development of Muscles <i>Embryology</i>	L49 MS-A-070 Histology of muscles <i>Histology</i>	L50 MS-B-003 Extracellular matrix 6 <i>Biochemistry</i>	PRAYER BREAK	LAB SESSION 03 A - Histology B - Physiology C - Clinical Skills
TUE 22-07-25	SGD 08 MS-A-025 Bones of hand <i>Anatomy</i>	L51 MS-A-029 Anatomical land marks of U.L <i>Anatomy/Radiology</i>	SDL	L52 MS-P-011 Conduction of Nerve impulse <i>Physiology</i>	L53 MS-CM-005 Non communicable disease <i>Community Medicine</i>	L54 MS-A-026 Blood supply of Hand <i>Anatomy</i>	PRAYER BREAK	LAB SESSION 03 A - Clinical Skills B - Histology C - Physiology
WED 23-07-25	SGD 9 MS-A-028 CMC Joints & clinicals <i>Anatomy</i>	L55 MS-A-029 Palpation of Arteries of U.L <i>Anatomy/Medicine</i>	SDL	L56 MS-A-027 Nerve supply of Hand <i>Anatomy</i>	L57 MS-P-013 Skeletal muscle <i>Physiology</i>	L58 MS-B-004 Glycolysis & TCA 1 <i>Biochemistry</i>	PRAYER BREAK	LAB SESSION 03 A - Physiology B - Clinical Skills C - Histology
THU 24-07-25	SGD 10 MS-A-030 Hip bone + muscle attachment <i>Anatomy</i>	L59 MS-A-063,064 Fractures of upper limb <i>Anatomy/Orthopedic</i>	SDL	L60 MS-B-004 Glycolysis & TCA 2 <i>Biochemistry</i>	L61 MS-A-024 Palmar fascia & its spaces <i>Anatomy</i>	Students' Activity	PRAYER BREAK	SGD 04 A - Physiology B - Biochemistry
FRI 25-07-25	PBL 2 Am I curable? Session I	L62 MS-A-068 Congenital anomalies of Limbs 2 <i>Embryology/Pediatrics</i>	SDL	L63 MS-P-014 Characteristics of whole muscle <i>Physiology</i>	Feedback session Assessment 01+ 02 Module organizer	L64 HOLY QURA'AN / ISLAMIAT / PAK STD	JUMA'A PRAYER	SGD 04 A - Biochemistry B - Physiology

Version 0

Lab Histology:

Lab Physiology:

Histology of skeletal, cardiac & smooth muscle

Locomotion

Clinical Skills:

Lab Biochemistry:

Upper limb strength and power examination

-

Dr. Ikhra Aiman
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SIALKOT MEDICAL COLLEGE

MUSCULOSKELETAL & LOCOMOTION MODULE- I (2K25)

- YEAR-I MBBS WEEKLY SCHEDULE



(WEEK-3)

(Theme: Upper Limb)

WEEK 3	08:00am – 09:25am	09:25am – 10:15am	10:15am - 10:35am	10:35am – 11:25am	11:25am – 12:15pm	12:15pm – 01:05pm	01:05pm - 01:35pm	01:35pm – 03:00pm
MON 14-07-25	ASSESSMENT - 01 (MSK&L Module)	L28 MS-A-14 Flexor compartment of forearm <i>Anatomy</i>	SDL	L29 MS-A-15 Extensor compartment of forearm <i>Anatomy</i>	L30 MS-P-007 Action Potential of neurons I <i>Physiology</i>	L31 MS-B-003 Extracellular matrix 4 <i>Biochemistry</i>	PRAYER BREAK	LAB SESSION 02 A - Histology B - Physiology C - Clinical Skills
TUE 15-07-25	SGD 05 MS-A-011, 012 Brachial Artery + Surface Marking <i>Anatomy</i>	L32 MS-A-070 Basis of myesthesia gravis <i>Anatomy/Medicine</i>	SDL	L33 MS-A-075 Histology of Cartilage <i>Histology</i>	L34 MS-Pa-04 Disease of cartilage <i>Pathology</i>	L35 MS-P-007 Action Potential of neurons II <i>Physiology</i>	PRAYER BREAK	LAB SESSION 02 A - Clinical Skills B - Histology C - Physiology
WED 16-07-25	SGD 06 MS-A-013,14,23 Radius + Ulna + interosseous membrane <i>Anatomy</i>	L36 MS-A-069 Development of Cartilage <i>Embryology</i>	SDL	L37 MS-A-018,19 Retinaculum of forearm, Carpal tunnel <i>Anatomy</i>	L38 MS-P-008 Role of other ions in action potential <i>Physiology</i>	L39 MS-B-003 Extracellular matrix 5 <i>Biochemistry</i>	PRAYER BREAK	LAB SESSION 02 A - Physiology B - Clinical Skills C - Histology
THU 17-07-25	SGD 07 MS-A-016,17,20 Neurovascular of forearm + Surface Marking <i>Anatomy</i>	L40 MS-A-019 Carpal tunnel syndrome <i>Anatomy/Surgery</i>	SDL	L41 MS-P-009 Local / Graded potentials <i>Physiology</i>	L42 MS-A-022 Radioulnar joint + Wrist joint <i>Anatomy</i>	Students' Activity	PRAYER BREAK	SGD 03 A - Physiology B - Biochemistry
FRI 18-07-25	PBL 1 A Heavy Step Session II	L43 MS-A-021 Carrying angle <i>Anatomy/Surgery</i>	SDL	L44 Perls Ethic 2 <i>Medical Education</i>	L45 MS-P-010 Synapses - types & transmission <i>Physiology</i>	L46 HOLY QURA'AN / ISLAMIAT / PAK STD	PRAYER BREAK	SGD 03 A - Biochemistry B - Physiology

Version 0

Lab Histology:

Microscopic structure of hyaline cartilage

Clinical Skills:

Shoulder joint examination

Lab Physiology:

Locomotion

Lab Biochemistry:

-

Dr. Ikhra Aiman
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SLALKOT MEDICAL COLLEGE

MUSCULOSKELETAL & LOCOMOTION MODULE- I (2K25)

- YEAR-I MBBS WEEKLY SCHEDULE



(WEEK-2)

(Theme: Pectoral Region & Axilla)

WEEK 2	08:00am – 09:25am	09:25am – 10:15am	10:15am - 10:35am	10:35am – 11:25am	11:25am – 12:15pm	12:15pm – 01:05pm	01:05pm - 01:35pm	01:35pm – 03:00pm
MON 07-07-25	Feedback Session Block-1 <i>Block orgnizer & DME</i>	L9 MS-B-002 Carbohydrates <i>Biochemistry</i>	SDL	L10 MS-A-009,10 Muscles (Rotator cuff + Ant com. of arm) <i>Anatomy</i>	L11 MS-P-003 Goldman Equation <i>Physiology</i>	L12 MS-A-008 Arterial anastomosis of shoulder joint <i>Anatomy</i>	PRAYER BREAK	LAB SESSION 01 A - Histology B - Biochemistry C - Clinical Skills
TUE 08-07-25	SGD 02 MS-A-007 Humerus with muscle attachment <i>Anatomy</i>	L13 MS-A-009 Clinicals of shoulder joint <i>Anatomy/Surgery</i>	SDL	L14 MS-P-004 Resting Membrane Potential in Neurons <i>Physiology</i>	L15 MS-A-002,6 Dermatomes of U.L + Axillary neurovascular <i>Anatomy</i>	L16 MS-B-003 Extracellular matrix 2 <i>Biochemistry</i>	PRAYER BREAK	LAB SESSION 01 A - Clinical Skills B - Histology C - Biochemistry
WED 09-07-25	SGD 03 MS-A-008 Shoulder Joint with clinicals <i>Anatomy</i>	L17 MS-B-003 Extracellular matrix 3 <i>Biochemistry</i>	SDL	L18 MS-A-072,73 Histology of bone <i>Histology</i>	L19 MS-CM-001 Back pain <i>Community Medicine</i>	L20 MS-A-011,12 Cubital fossa + Post. Comp. of arm <i>Anatomy</i>	PRAYER BREAK	LAB SESSION 01 A - Biochemistry B - Clinical Skills C - Histology
THU 10-07-25	SGD 04 MS-A-010,6 Brachial Plexus + Axilla <i>Anatomy</i>	L21 MS-A-068 Congenital anomalies of Limbs 1 <i>Embryology/Pediatrics</i>	SDL	L22 MS-CM-003 MSD related to mobile usage I <i>Community Medicine</i>	L23 MS-A-076 Mechanism of bone growth <i>Histology</i>	Students' Activity	PRAYER BREAK	SGD-2 A - Biochemistry B - Physiology
FRI 11-07-25	PBL 1 A Heavy Step Session I	L24 MS-A-003 Boundaries of Auscultation <i>Anatomy/Medicine</i>	SDL	L25 MS-CM-003 MSD related to mobile usage II <i>Community Medicine</i>	L26 Perls Ethic 1 <i>Medical Education</i>	L27 HOLY QURA'AN / ISLAMIAT / PAK STD	PRAYER BREAK	SGD-2 A - Physiology B - Biochemistry

Version 0

Lab Histology:

Lab Physiology:

Histological picture of compact & spongy bones

-

Clinical Skills:

Lab Biochemistry:

Body temperature & Wrist joint examination

Total proteins

Dr. Ikhra Aiman
MODULE ORGANIZER

Dr. Misbah Ishtiaq
BLOCK ORGNIZER

Dr. Muhammad Shamaun Razi
ACADEMIC COORDINATOR

Prof. Dr. Muhammad Sabir
PRINCIPAL



SIALKOT MEDICAL COLLEGE

MUSCULOSKELETAL & LOCOMOTION MODULE- I (2K25)

- YEAR-I MBBS WEEKLY SCHEDULE



(WEEK-1)

(Theme: Pectoral Region & Axilla)

WEEK 1	08:00am – 09:25am	09:25am – 10:15am	10:15am - 10:35am	10:35am – 11:25am	11:25am – 12:15pm	12:15pm – 01:05pm	01:05pm - 01:35pm	01:35pm – 03:00pm
MON 02-06-25	OSPE/OSVE/OSCE Block -1 Exam							
TUE 03-06-25								
WED 04-06-25	Welcome Address <i>Block/Module Organizer</i>	L1 MS-B-001 Classification of carbohydrates <i>Biochemistry</i>	SDL	L2 MS-A-066 Development of Limbs <i>Embryology</i>	L3 MS-P-005, 006 Neurons & its Classification <i>Physiology</i>	L4 MS-A-001 Pectoral region <i>Anatomy</i>	PRAYER BREAK	SGD-1 A - Physiology B - Biochemistry
THU 05-06-25	SGD 01 MS-A-003,4,5 Clavicle & Scapula, SC joint <i>Anatomy</i>	L5 MS-B-003 Extracellular matrix 1 <i>Biochemistry</i>	SDL	L6 MS-A-067 Development of Nerve supply of limbs <i>Embryology</i>	L7 MS-P-001, 002 Equilibrium & Nernst Potentials <i>Physiology</i>	L8 MS-B-003 Axio-Appendicular & back Muscles <i>Anatomy</i>	PRAYER BREAK	SGD-1 B - Physiology A - Biochemistry
FRI 06-06-25	EID ul Azha							
10 - 06 2025	Summer vacation							

Version 0

Lab Histology: -
Lab Physiology: -

Clinical Skills: -
Lab Biochemistry: -

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