
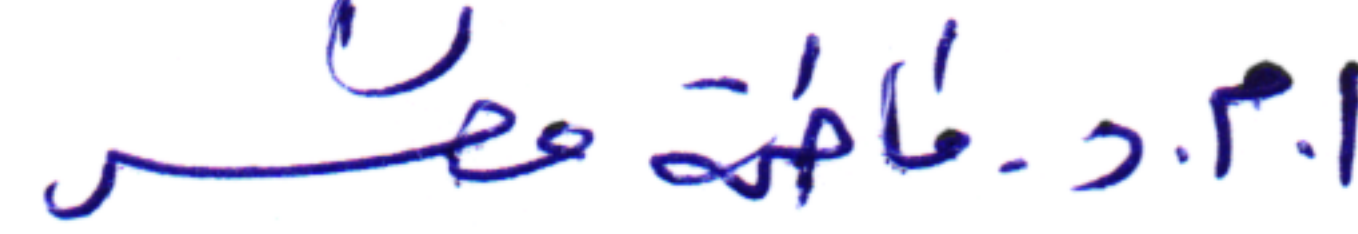
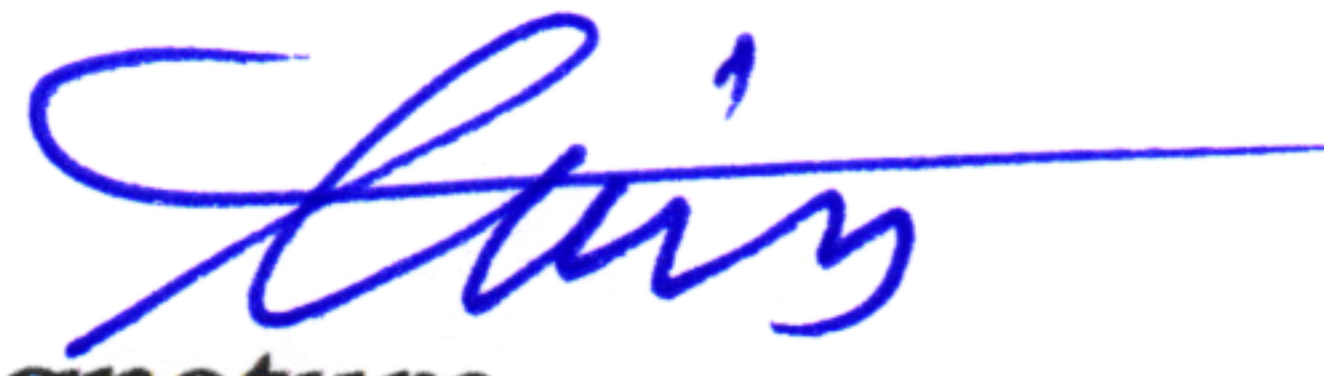


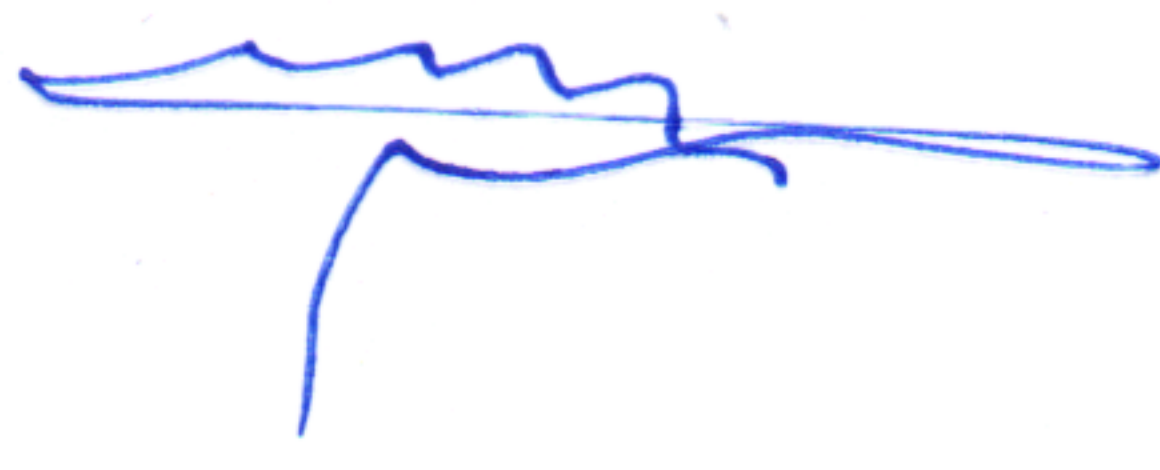
Course Description Template

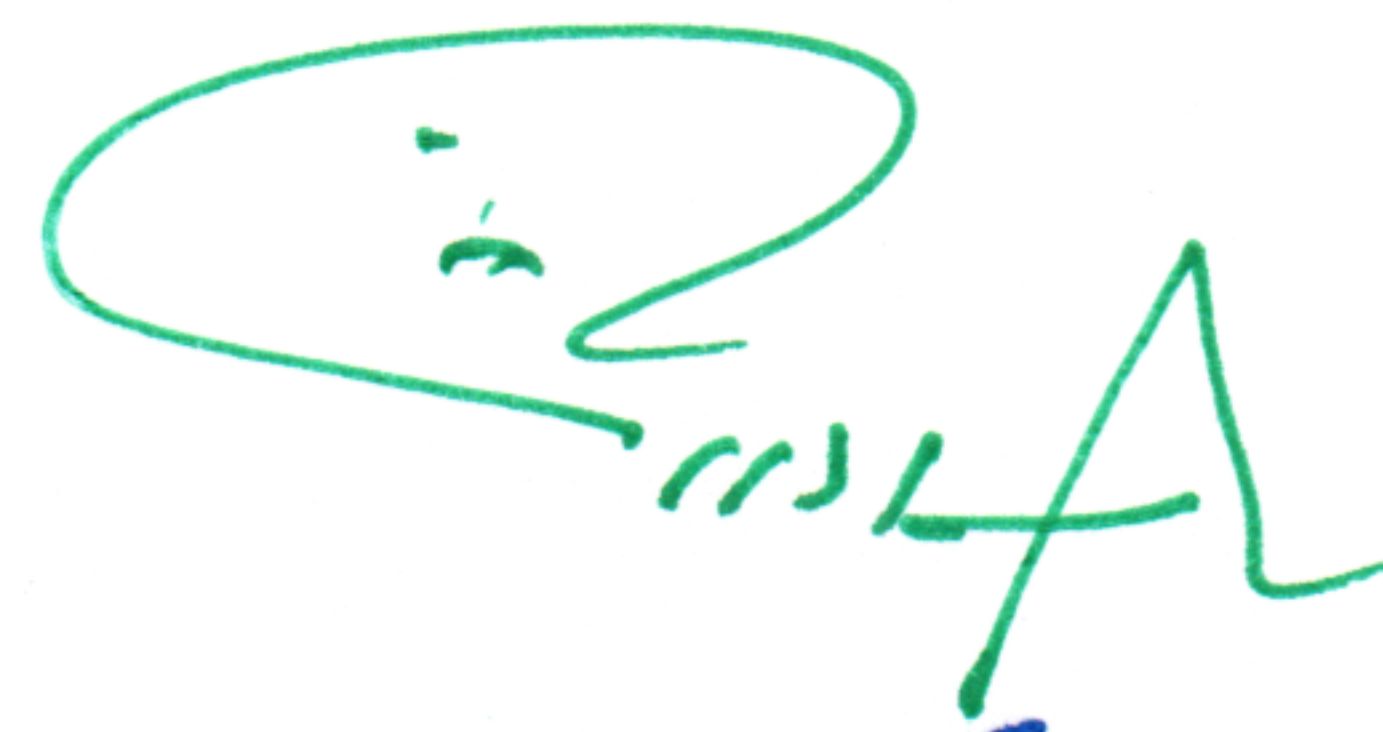
University Name: Warith Al-Anbiya
Faculty/Institute: College of medicine
Scientific Department: medical Education / 2nd stage
Academic or Professional Program Name: ...Integration System / 3rd unit
Final Certificate Name:
Academic System: ...Integration System
Description Preparation Date: 25/8/2025
File Completion Date: 25/8/2025

Signature: 
Head of Branch: 
Date: 27/8/2025

Signature: 
Signature:
Vice Dean for Scientific
Affairs: Dr. Loith M Abhay
Date: 25/8/2025

The file is checked by:

Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance
Department: professor Dr. Ali Al Mousawi
Date: 27.8.2025
Signature: 



Dean's approval
عبد شحاتة الخزي
عميد كلية الطب



Ministry of Higher Education and Scientific Research

UNIVERSITY OF WARITH ALANBAYAA

COLLEGE OF MEDICINE

Academic Program
and Course Description Guide

2025

Course Description Form

1. Course Name:

Unit 3 Musculoskeletal unit .

2. Course Code:

medu202

3. Semester / Year:

2025-2026

4. Description Preparation Date:

2025

5. Available Attendance Forms:

6. Number of Credit Hours (Total) / Number of Units (Total)

120 hours

7. Course administrator's name (mention all, if more than one name)

8. Course Objectives

- Describe the gross anatomy of bones, joints, and muscles with their blood supply & innervation.
- Explain the physiology of muscle contraction and the role of calcium & vitamin D.
- Understand bone growth, development, and remodeling.
- Recognize degenerative and inflammatory disorders (OA, RA, gout, osteoporosis).
- Identify common bone and soft tissue tumors.
- Discuss infectious diseases of bone and joints (osteomyelitis, septic arthritis) and causative microbes.

- Outline the pharmacology of NSAIDs, corticosteroids, DMARDs, and bisphosphonates (MOA, uses, adverse effects).
- Practice clinical skills: history taking, musculoskeletal examination, and movement assessment.
- Integrate basic sciences with clinical features for diagnosis and management.

9. Teaching and Learning Strategies

1. Theoretical lectures
2. Practical training and skill lab
3. Seminars and group discussion
4. PBL

10. Course Structure

A. curriculum map

week s	discipline	objectives	hours	Practical sessions & hours
1	Anatomy	1. Anatomy of shoulder region & joint 2. Axilla: walls & contents 3. Anatomy of the brachial plexus & its lesions	2	Practical lab Lab 1- anatomy (2 Hrs) Anatomy of shoulder region & joint
	Pathology	1- understand the Definition and types of cell injury. 2- recognize the causes and mechanisms of cell injury 3- explain the various mechanisms of cell adaptation to injury. 4- Discuss necrosis and its types. 5- Discuss apoptosis and its mechanism.	4	Practical lab Lab- pathology (2 Hrs) 1. Identify the morphological changes encountered in acute and chronic inflammatory states. 2. Recognize the morphological changes in different patterns of acute inflammation

	Biochemistry	6- Recognize the mechanism of acute inflammation. 7- Understand the chemical and cellular mediators of inflammation. 8- Understand the Sequence of events in acute inflammation. 9- Recognize morphological patterns of acute inflammation. 10- recognize the systemic effect of inflammation Eicosanoid metabolism: Phospholipases, cyclo-oxygenases & peroxidases	1	
	Pharmacology	Pharmacology of NSAIDs 1. Eicosanoids, synthesis and pharmacological effects 2. General pharmacology of NSAIDs 3. Pharmacology of aspirin & paracetamol 4. Pharmacology of other members	2	
	Radiology	Shoulder impingement syndrome 1. Basic imaging modalities 2. Basic imaging modalities of MSK system 3. Imaging modalities of shoulder region	1	
	Clinical	Shoulder pain	2	
2	Anatomy	1. Ant. & post. Compartments of the arm 2. Gross & micro structure of bone tissue & growth 3. Muscles of the back working on upper limb	4	Practical lab Lab 1- Anatomy (2 Hrs)

	<p><u>Physiology</u></p>	<ol style="list-style-type: none"> 1. Sensory receptors 2. Classification of Sensory receptors 3. Pathway and Cortical Representation 4. Type of sensation 5. Touch and pressure 6. Proprioceptive 7. Synthetic Senses, Two-Point Discrimination, Stereognosis, Vibratory Sensibility 	<p style="text-align: center;">2</p>	
	<p><u>Pathology</u></p>	<ol style="list-style-type: none"> 1- Definition and causes of chronic inflammation 2- Identify the cells of chronic inflammation 3- Understand the etiology and main features of granulomatous inflammation 4- Understand the mechanism of tissue healing (regeneration and repair). 5- Recognize the sequence of events in tissue repair. 6- Recognize the differences between primary and secondary intention healing. 7- Factors that could affect healing process. <p>Understand the healing process of bone fracture</p>	<p style="text-align: center;">3</p>	
	<p><u>Pharmacology</u></p>	<p><u>Pain management, pharmacology of Narcotic Analgesics</u></p> <ol style="list-style-type: none"> 1. General pharmacology of narcotic analgesics 2. Pharmacology of morphine 	<p style="text-align: center;">2</p>	

	Radiology	3. Opioids dependence (review) 4. Opioids poisoning 5. Pharmacology of other members 6. Opioids antagonists fracture in the arm with nerve injury Radiological identification of fractures	1	
	Clinical	Radial nerve Injury Fracture proximal humerus Axillary nerve injury	2	
3	Anatomy	1. Cubital fossa & elbow J. 2. Ant. & posterior compartments of forearm 3. Dorsum of hand 4. Sensory tracts of spinal cord 5. Dermatomes of upper limb	4	Practical lab Lab 1-anatomy (2 Hrs)
	Physiology	Definition of pain. Pain Receptors & pathway. Classification and Types of pain. Referred pain. Physiological inhibitor of pain and the mechanisms of analgesia. Management of neuropathic pain	2	
	Clinical	Herpes zaoster	2	
4	Anatomy	Anatomy of wrist joint & palm of hand	4	Practical lab Lab 1- anatomy (2 Hrs)
	Physiology			

		<ol style="list-style-type: none"> 1. The basic unit of reflexes and the Basic Neural Circuits 2. Type of reflexes 3. THE STRETCH REFLEX 4. Muscle Spindles 5. α-γ linkage 6. Reciprocal Innervation 7. Inverse Stretch Reflex 8. The withdrawal reflex 9. Property of reflexes 10. Factor affected in reflexes 	2	
	<u>Pathology</u>	<ol style="list-style-type: none"> 1- Understand the pathological changes of joints in Rheumatoid arthritis. 2- Understand the Pathological changes of joints in other types of arthritis 	1	
	<u>Pharmacology</u>	<ol style="list-style-type: none"> 1. Pharmacology of Immunosuppressant drugs 2. Pharmacology of DMARDs 	2	
	<u>Radiology</u>	<p>pain and swelling of the hand joints (rheumatoid arthritis)</p> <ol style="list-style-type: none"> 1. Basic principles of ultrasonography 2. Imaging modalities of the wrist and hand 	1	
5	<u>Anatomy</u>	<ol style="list-style-type: none"> 1. The structure and function of the vertebral column & IV disc 2. Dermatomes of the lower limb 	2	<u>Practical lab</u> Lab 1- anatomy (2 Hrs)
	<u>Physiology</u>	<ol style="list-style-type: none"> 1. Nerve conduction studies 2. types of nerve fibers 3. Electrical changes in skeletal muscles 4. The sarco-tubular system 	4	

	<u>Pharmacology</u>	<ol style="list-style-type: none"> 5. The E-C coupling & mechanism of muscle contraction 6. Mechanisms of muscle contraction & cross-bridge function 7. Types of contraction 8. The oxygen debt mechanism 9. Muscle fiber types and motor unit type 		
		Local anesthesia	1	
	<u>Radiology</u>	low back pain radiating to the leg (sciatica) 1. Imaging modalities of the spine.	1	
	<u>Clinical</u>	SCIATICA , cervical	2	
6	<u>Anatomy</u>	<ol style="list-style-type: none"> 1. Hip J. & blood supply of upper femur 2. Femoral region 3. Gluteal region 	4	Practical lab Lab 1- anatomy (2 Hrs)
	<u>Pathology</u>	<u>Metabolic bone disorders</u> <ol style="list-style-type: none"> 1. Understand the definition and types of osteoporosis. 2. Recognize the pathogenesis of osteoporosis. 3. Recognize the other forms of acquired developmental bone diseases 	2	
	<u>Biochemistry</u>	Calcium homeostasis		

	Pharmacology	Metabolic bone diseases Treatment of osteoporosis	3	
	Radiology	-osteoporosis + femoral neck fracture 1. Imaging modalities of the hip joint	1	
	Clinical	Osteoporosis	2	
7	Anatomy	1. Ant. & medial compartments of thigh 2. Back of thigh & popliteal fossa 3. Developmental anomalies of MSK system	4	Practical lab Lab 1- anatomy (2 Hrs)
	Pathology	Pathological changes of bone neoplasm 1- revise the nomenclature of various types of tumors 2- revise the characteristics of neoplastic proliferation and the differences between benign and malignant tumors. 3- Understand the etiology of cancer (carcinogenic agents). 4- Identify the preneoplastic disorders. 5- understand the molecular bases of cancer. 6- recognize the general principles in cancer grading and staging. 7- Understand different modalities of cancer diagnosis. 8- recognize the generalized effect of cancer on the body with emphasis on the paraneoplastic syndromes. understand the types of benign and malignant tumours of the bone	5	Practical lab Lab - pathology (2 Hrs) Recognize the gross and morphological changes in different types of benign and malignant tumors.

	<u>Pharmacology</u>	Anti cancer drugs: classification, mechanism of action, therapeutic uses, side effects	2	
8	<u>Anatomy</u>	1. Knee joint 2. Anatomy of the compartments of leg 3. Micro-& molecular structure & function of cartilage tissue	4	<u>Practical lab</u> Lab 1- anatomy (2 Hrs)
	<u>Physiology</u>	Physiology of the joint	1	
	<u>Pathology</u>	1- understand the pathological mechanism and morphological changes in osteoarthritis. 2- recognize the other forms of arthritis.	1	
	<u>Pharmacology</u>	Steroid drugs 1. Synthesis and regulation of adrenocorticosteroids 2. Pharmacology of glucocorticoids 3. Pharmacology of mineralocorticoids 4. Side effects of corticosteroid therapy 5. Inhibitors of adrenocorticoid biosynthesis or function	2	
	<u>Radiology</u>	-OA of the knee joint 1. Imaging modalities of knee joint	1	

	<u>Clinical</u>	Knee OA	2	
9	<u>Anatomy</u>	1.Normal gait cycle & disorders 2.Anatomy of foot and ankle 3.Motor tracts of spinal cord	4	<u>Practical lab</u> Lab 1- anatomy (2 Hrs)
	<u>Physiology</u>	Grading and strength of muscle contraction Muscle power and strength Factors responsible for grading muscular activity grading of muscle power gait cycle	2	
	<u>Biochemistry</u>	-Biochemistry of uric acid and its relation to gout	2	
	<u>Radiology</u>	Duchene muscular dystrophy. 1.imaging modalities of ankle and foot joints	1	
	<u>Clinical</u>	Myopathies	2	

Clinical skill theme

Week	Clinical skill	Clinical skill objectives
1	History	General History Taking (SOCRATES)
2	Examination	MSK (shoulder) exam & neuro exam
3	History & Exam	Elbow exam
4	History & Exam	Hand exam (radial , ulnar & median)
5	History & Exam	Spine exam
6	History & Exam	Hip and thigh exam
7	History & Exam	Knee exam
8	History & Exam	Leg and foot exam
9	History & Exam	Gait exam

Small Group PBL Tutorials:

Every week, students study a problem in a small group in the presence of a tutor. Students meet with the tutor on Sunday (first session) and Thursday (second session) every week. In the first PBL tutorial session, students: a) Read and interpret the case scenario (triggers) and define technical terms. b) Identify the key issues of the problem. c) Brainstorm, ask questions and generate hypotheses (possible causes and consequences). d) Indicate additional information, procedures, required to sort through the hypotheses and what you expect to learn from the additional information. e) Identify their learning needs i.e. objectives. 10 In between the first and second sessions, students follow a self-directed learning approach, using the relevant learning resources in studying the identified learning needs. In the second PBL tutorial session, students: - Present the newly gathered knowledge. - Relate it to the context of the problem. - Integrate the physical, biological and behavioral components in every problem. - Evaluate their tutorial performance

Summary of the Unit Problems

week	Case presentaion	Summary
1	A PAINFUL SHOULDER	21-year-old discus thrower with progressive right shoulder pain , worse at night, affecting sleep and throwing performance. Pain occurs with arm elevation and mid-range movement , with a catching sensation; daily activities like combing hair are painful.
2	Swelling in her left arm	Salima, a 65 year old grandmother, her left arm was broken after falling down while she was going to the kitchen to prepare breakfast at morning. The trauma resulted in fracture of the arm bone with possibility of involvement of the soft tissues around the fractured bone. The fracture was diagnosed and correctly managed without apparent complication.
3	PAIN IN THE ARM	68-year-old woman develops severe left arm pain , initially without rash, later accompanied by vesicular rash along C5–C6 dermatomes , after previous chickenpox. Diagnosis: Herpes zoster (shingles) with intense postherpetic neuralgia , causing sleep disturbance and functional impairment. Management: NSAIDs, narcotics, antivirals, antidepressants, sleep aid , but pain persists for weeks, highlighting chronic postherpetic neuralgia and reduced quality of life.
4	Aching pain in wrist	Qesmah is a 45-year-old teacher. She complains of pain and swelling in her hand joints, associated with morning stiffness and altered sensations of the fingers particularly at night. Symptoms have started 2 years ago with exacerbation in the last 3 weeks. Examination and investigations confirmed a chronic disease that might cause her hand disability, threatening her job. Good response has been observed by using anti-rheumatic medication
5	LOW BACK PAIN	Mr. Qasim is a 43-years-old taxi driver. He felt a sudden sharp low back pain after lifting heavy suitcase from the boot of his taxi. The pain spread to the back of his right thigh down to the leg. He was not able to move his body for many days during which his GP described him medications, however his friends advised him to see alternate therapist.
6	MUNA'S SOFT BONES	Muna is a 65-year-old woman with generalized pain in her bones and joints. Her GP discovered a silent generalized bone disease and advised her to take some food supplements. One night, she slipped in her bedroom, and suffered a bone fracture in her left leg. She underwent an operation with screws and plate to fix the fracture
7	SWELLING IN THE LEG	A 13-year-old boy developed a pain and swelling in lower part of his right thigh. He was properly examined by an orthopedist who asked for further investigations for provisional diagnosis. The possible lines of treatment have been explained to his family
8	<u>PAINFUL KNEE</u>	Fatima is a 55-year-old nurse aging with chronic pain in her left knee. Her GP discovers osteoarthritis. Despite medical treatment, the condition progresses until she requires a joint replacement
9	<u>I wish to run</u>	A 5-year-old boy has difficulty in running to catch up with his friends. He has 4/5 muscle strength in his extremities, with more apparent weakness of the proximal muscles .Gower's sign is positive. His muscle biopsy shows deficiency

		of dystrophin and variation in muscle fiber size. By age 9, he requires orthotic braces to assist his walking, and by age 11, he is confined to a wheelchair and undergoes a surgical correction for scoliosis. He also has a learning disability
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Summary of the Unit Mini-PBLs

week	Case presentation	Summary
2	confirms fracture of the surgical neck of the humerus	72-year-old woman fell on her left side, now unable to move left shoulder with bruising, swelling, and tenderness. Cutaneous anesthesia over upper lateral arm suggests axillary nerve involvement . Radiology confirms fracture of the surgical neck of the humerus ; main concern is nerve injury and pain management
2	confirms fracture of the surgical neck of the humerus	32-year-old woman with gestational diabetes delivered a large (5 kg) baby vaginally with shoulder dystocia . Newborn has a deformed, immobile right arm , but is otherwise vigorous.
3	Fracture in elbow	Wisam a 6-year-old boy referred to orthopedition due to an isolated injury to his left elbow after falling on his outstretched left arm. On examination, the left elbow joint was swollen and clinically deformed with diffuse tenderness. The skin was intact and there was a neurovascular deficit in the left upper limb.
4	CTS	55-year-old painter with diabetes presents with hand and wrist pain, tingling, and shooting pain up the arm , worsened by activity. Examination shows weak grip, difficulty grasping small objects, and thenar muscle wasting .

	Mallet finger	Volleyball player injures tip of index finger , with immediate pain, swelling, and inability to fully extend the distal joint. Examination shows drooping fingertip and limited active extension at the distal interphalangeal joint .
5	Cervical spondylosis	45-year-old carpenter with 2-month history of neck pain radiating to right shoulder and arm, worsening with movement. Exam shows limited neck flexion/rotation and recent tingling and numbness along right shoulder, arm, and forearm
6	- Ahmad has fracture of femur	12-year-old boy sustained an open mid-shaft femur fracture while playing football, initially managed with wound cleaning and surgery. A week post-discharge, he develops swelling and severe knee pain .
7	SWELLING IN THE LEG	Rana 12-year-old has complained of sudden onset of severe pain in her left knee that has awakened her from sleep on several occasions during the past 6 weeks. For each episode, her mother has given her acetylsalicylic acid (aspirin), and the pain has been relieved. On physical examination, there are no remarkable findings
8	AC; tear	20-year-old footballer sustains acute right knee injury after jump and collision, with swelling, severe pain, and inability to bear weight. Exam: positive anterior drawer test with excessive anterior tibial movement.
	Common peroneal nerve palsy	23-year-old woman develops right foot numbness, weakness, and foot drop after prolonged labor (3 hours in stirrups). Exam shows sensory loss and inability to dorsiflex foot , without

		back pain or contralateral symptoms.
9	LGMD)	<p>20-year-old woman with progressive proximal muscle weakness (difficulty rising, climbing stairs, arm elevation) and waddling gait.</p> <p>Muscle biopsy confirmed limb-girdle muscular dystrophy, later complicated by calf wasting and frequent falls.</p> <p>She eventually required a power wheelchair, which improved independence and reduced fatigue</p>
9	Dermatomyositis	<p>43-year-old man with progressive proximal muscle weakness, exercise-induced pain, lilac rash on eyelids, and high CK (3600 IU/L).</p> <p>Muscle biopsy shows perifascicular atrophy with inflammatory changes, EMG confirms myopathic process</p>

Course Evaluation

Evaluation of the students in this unit will consist of the following:

END OF UNIT SUMMATIVE ASSESSMENT

The exam will cover:

Unit 3: MSK Dates & timetables will be announced later.

The exam will comprise the followings:

Written paper: MCQ + lab materials

OSCE ASSESSMENT OF THE PBL SESSION PBL

assessment form is provided in Appendix

PORTFOLIO:

Detailed content of portfolio will be delivered to the students separately.

MASTERY SKILLS: Separate exams for the mastery skills will be assigned. Important note: students fail to pass the mastery skill exam with complete competency will not be allowed to enter the final year exam.

Learning and Teaching Resources

- Braunwald's Heart Disease
- Harrison's Principles of Internal Medicine
- Davidson's Principles and Practice of Medicine
- Kumar & Clark's Clinical Medicine
- Clinical Examination by Talley & O'Connor
- ESC Guidelines (European Society of Cardiology)

Appendix : PBL assessment form

	PBL	knowledge	Critical thinking /reasoning	Communication skill and participation	Attitude and collaborative work
unsatisfactory	1	Has no recall of previous knowledge	Identify problems(events) in the case	Not participating spontaneously most of the time	Negative influence • Interrupts others • does not respect others views • Does not help the group to identify the learning objectives
margina	2	• Has limited recall of previous knowledge	Priorterize patient problems • Differentiate important information from others	Rarely asks questions. • Limited participation in discussions	• rarely participates in identify the learning objectives • takes up tasks only one asked by others
satisfactory	3	Apply previous knowledge to the problem	• Give explanations to the patient problems	Occasionally ask questions. • Occasionally present ideas clearly	Sometimes participates in identify the learning objectives • Volunteer to perform tasks
good	4	Recognizes integration of knowledge and	Can identify interrelationship between	Regularly asks questions that stimulate	always participates in identify the

		its application to the case	different concepts with guidance • Can identify learning objectives with guidance	discussions. • Often present ideas and help in clarifying ideas	learning objectives
excellent	5	Can recognize knowledge gap	Can identify interrelationship between different concepts without guidance • Can identify learning objectives without guidance	Leads discussion most of the time • Present clear ideas • Give summaries on the subject	Help and encourage the engagement of other members. • Explain difficult concepts to others willingly