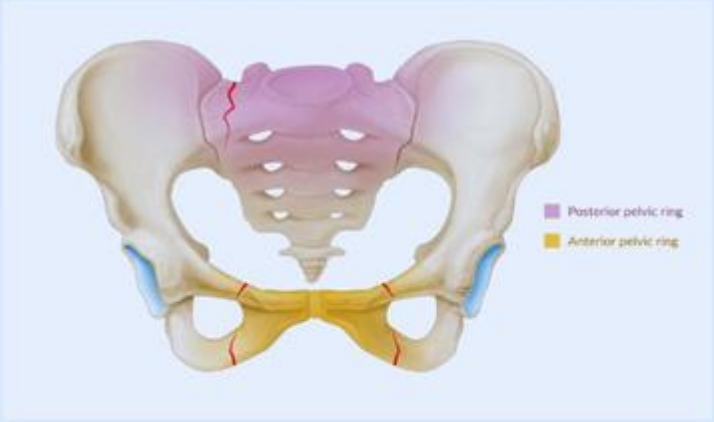
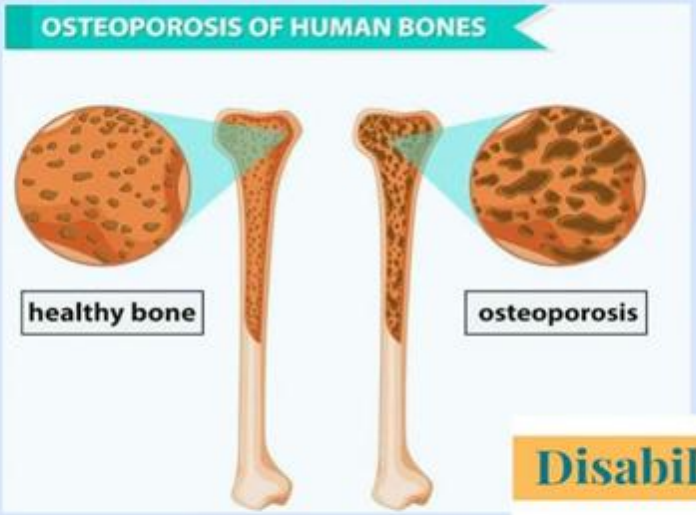
STUDY GUIDE-FOURTH YEAR MBBS

11th September - 7th October 2023

Duration: 4 Weeks

ORTHOPEDICS & REHABILITATION MODULE





LIAQUAT NATIONAL HOSPITAL AND MEDICAL COLLEGE
Institute for Postgraduate Medical Studies & Health Science

STUDY GUIDE FOR ORTHOPAEDICS & REHABILITATION MODULE

Module name: **Orthopedics and Rehabilitation**

Year: ***Four*** *Duration:* ***4 weeks (Sept. – October 2023)*** *Timetable hours:* **Lectures, Case-Based Discussion (CBD), Clinical Rotations, Demonstrations, Skills, Self-Study**

MODULE INTEGRATION COMMITTEE

MODULE COORDINATOR	Dr. Muhammad Sufyan (**Orthopedics**)
CO-COORDINATORS	Dr. Muhammad Ahsan Naseer

DEPARTMENTS AND RESOURCE PERSONS FACILITATING LEARNING

BASIC HEALTH SCIENCES	CLINICAL AND ANCILLARY DEPARTMENTS
COMMUNITY MEDICINE Dr. Saima Zainab	***ACCIDENT & EMERGENCY*** Dr. Shaesta Tabassum
FORENSIC MEDICINE Professor Syed Mukkaram Ali	***CARDIOLOGY*** Dr. Imran Sandeelo
	ENDOCRINOLOGY Dr. Aqiba Sarfraz
	MAXILLOFACIAL Dr. Tauqeer-ul-Islam
	NEURO-SURGERY Dr. Salman Yousuf Sharif
	ORTHOPAEDICS Prof. Syed Shahid Noor
	PHYSICAL MEDICINE Mr. Muhammad Ali
	RADIOLOGY Dr. Misbah Tahir
	RHEUMATOLOGY Dr. Tahira Perveen
	RESEARCH & SKILLS DEVELOPMENT CENTER Dr. Kahkashan Tahir

DEPARTMENT of HEALTH PROFESSIONS EDUCATION

- Professor Nighat Huda
- Dr. Sana Shah
- Professor Sobia Ali
- Dr. Muhammad Ahsan Naseer
- Dr. Afifa Tabassum
- Dr. Yusra Nasir

LNH&MC MANAGEMENT

- Professor KU Makki, Principal, LNH&MC
- Dr. Shaheena Akbani, Director A.A & R.T LNH&MC

STUDY GUIDE COMPILED BY: Department of Health Professions Education

INTRODUCTION

WHAT IS A STUDY GUIDE?

It is an aid to:

- Inform students how the student learning program of the module has been organized
- Help students organize and manage their studies throughout the module
- Guide students on assessment methods, rules and regulations

THE STUDY GUIDE:

- Communicates information on the organization and management of the module. This will help the student to contact the right person in case of any difficulty.
- Defines the objectives which are expected to be achieved at the end of the module.
- Identifies the learning strategies such as lectures, small group teachings, clinical skills, demonstration, tutorial, and case-based learning that will be implemented to achieve the module objectives.
- Provides a list of learning resources such as books, computer-assisted learning programs, web- links, and journals, for students to consult to maximize their learning.
- Highlights information on continuous and modular examinations' contribution to the student's overall performance.
- Includes information on the assessment methods that will be held to determine every student's achievement of objectives.
- Focuses on information about examination policy, rules, and regulations.

INTEGRATED CURRICULUM comprises system-based modules such as Orthopedics which links basic science knowledge to clinical problems. Integrated teaching means that subjects are presented as a meaningful whole. Students will be able to have a better understanding of basic sciences when they repeatedly learn about clinical examples.

LEARNING EXPERIENCES: Case-based integrated discussions, Task oriented learning followed by task presentation, skills acquisition in skills lab, computer-based assignments, and learning experiences in clinics, and wards.

MODULE 5: ORTHOPAEDICS AND REHABILITATION

INTRODUCTION TO THE ORTHOPAEDICS AND REHABILITATION MODULE

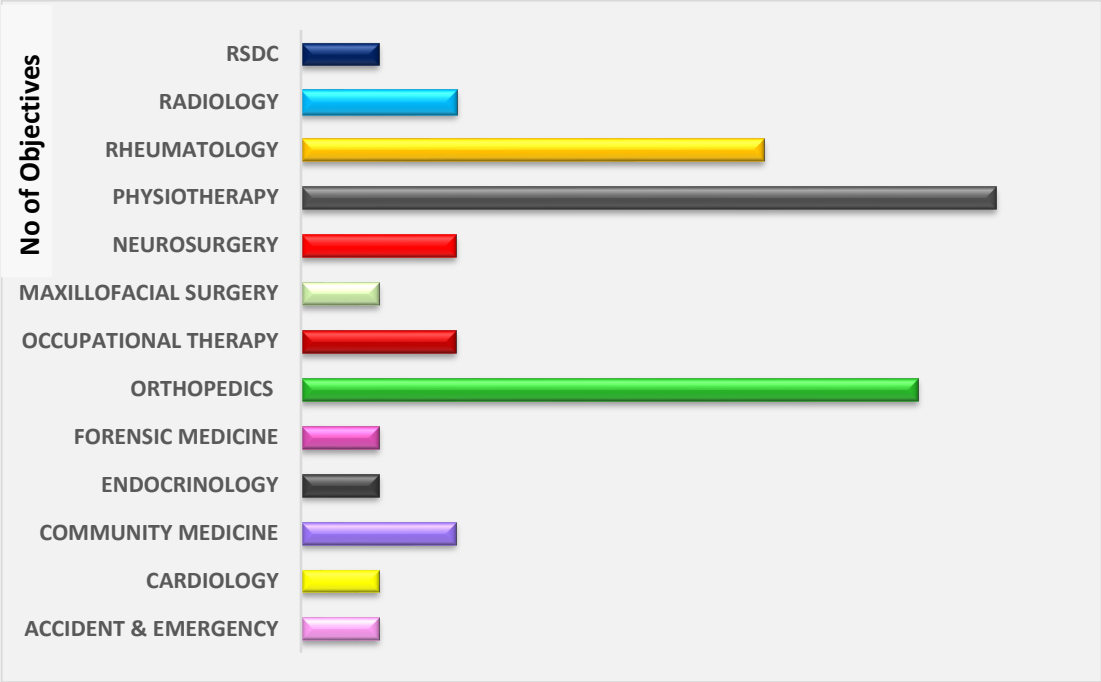
Orthopedics is a medical specialty that focuses on diagnosing, correcting, preventing, and treating patients with skeletal deformities - disorders of the bones, joints, muscles, ligaments, tendons, nerves, and skin.

An analysis of Global Burden of Disease (GBD) data in 2019 showed that globally approximately 1.71 billion people have musculoskeletal problems.

Rehabilitation Medicine deals with the use of all means aimed at reducing the impact of disabling and handicapped conditions and enabling disabled people to achieve optimal social integration.

This module will assist learners in learning the basics of knowledge related to the diagnosis, treatment & prevention of musculoskeletal diseases & injuries while also allowing them to explore rehabilitation for a variety of conditions

INTEGRATING DISCIPLINES OF ORTHOPAEDICS AND REHABILITATION MODULE



LEARNING METHODOLOGIES

The following teaching/learning methods are used to promote better understanding:

- Interactive Lectures
- Small Group Discussion
- Case- Based Discussion(CBD)
- Clinical Experiences
  - Clinical Rotations
- Skills session
- Self-Directed Learning

INTERACTIVE LECTURES

In large groups, the lecturer introduces a topic or common clinical conditions and explains the underlying phenomena through questions, pictures, videos of patients' interviews, exercises, etc. Students are actively involved in the learning process.

SMALL GROUP SESSION: This format helps students to clarify concepts, and acquire skills or desired attitudes. Sessions are structured with the help of specific exercises such as patient cases, interviews, or discussion topics. Students exchange opinions and apply knowledge gained from lectures, tutorials, and self-study. The facilitator asks probing questions, summarizes, or rephrases to help clarify concepts.

CASE-BASED DISCUSSION (CBD): A small group discussion format where learning is focused on a series of questions based on a clinical scenario. Students discuss and answer the questions by applying relevant knowledge gained previously in clinical and basic health sciences during the module and construct new knowledge.

CLINICAL LEARNING EXPERIENCES: In small groups, students observe patients with signs and symptoms in hospital wards, clinics, and outreach centers. This helps students to relate knowledge of basic and clinical sciences of the module and prepare for future practice.

- **CLINICAL ROTATIONS:** In small groups, students rotate in different LNH wards like Medicine, Pediatrics, Surgery, Obs Gynae, ENT, Orthopedics, Family Medicine clinics and outreach centers, and related community Medicine experiences are included as well. Here students observe patients, take histories, and perform supervised clinical examinations in outpatient and inpatient settings. They also get an opportunity to observe medical personnel working as a team. These rotations help students relate basic medical and clinical knowledge in diverse clinical areas.

SKILLS SESSION: Skills relevant to the respective module are observed and practiced where applicable in RSDC.

SELF-DIRECTED LEARNING: Students assume responsibilities for their learning through individual study, sharing and discussing with peers, and seeking information from the Learning Resource Center, teachers, and resource persons within and outside the college. Students can utilize the time within the college's scheduled hours of self-study.

COURSE OBJECTIVES AND STRATEGIES

By the end of the Orthopedics and Rehabilitation module, students should be able to:

ACCIDENT & EMERGENCY

OBJECTIVES	LEARNING STRATEGY
Triage	Tutorial
• Describe the sequence of evaluation of a trauma patient	
• Describe the criteria for triage of a trauma patient	

CARDIOLOGY

OBJECTIVES	LEARNING STRATEGY
Rehabilitative management of common cardiac conditions	Interactive Lecture
• Describe the method of comprehensive assessment of a patient presenting with common cardiac conditions, and evaluation for rehabilitation	
• Formulate differential diagnosis for common cardiac conditions	
• Justify a rehabilitation management plan that specifies appropriate modalities of assessment and treatment	

COMMUNITY MEDICINE

OBJECTIVES	LEARNING STRATEGY
1. Introduction to Rehabilitation	Interactive Lecture
• Define concepts of primary, secondary, and tertiary prevention in the context of rehabilitation medicine	
• Describe the potentially disabling consequences of diseases and injuries	
2. Levels of prevention	
• Explain the general concept of Primary, Secondary, and Tertiary prevention	

ENDOCRINOLOGY

OBJECTIVES	LEARNING STRATEGY
Hyper and Hypo Parathyroid & Clinical Manifestations	Interactive Lecture
• Diagnose hyper-and hypo-parathyroid disorders based on clinical manifestations and investigation findings	
• Develop treatment plans for hyper and hypoparathyroidism disorders	

FORENSIC MEDICINE

OBJECTIVES	LEARNING STRATEGY
Spinal Trauma	Tutorial
• Describe whiplash injuries, fractures of the cervical spine, and railway spine	
• Discuss the injuries to the thoracic and lumbar spine and sacrum	
• Describe the medico legal aspects of spinal injuries	

ORTHOPEDICS

OBJECTIVES	LEARNING STRATEGY
1. Presenting problems and investigations of Musculoskeletal diseases	Interactive Lecture
• Describe the presenting problems and investigations of Musculoskeletal diseases	
2. Fractures	
• Classify the different types of fractures	
• Describe the specific types of fractures (hip, Colles', and pelvic fractures)	
• Discuss the general principles of management of fractures	
• Describe the therapeutic measures for different fractures, the principles of fracture treatment in children, and common complications of fractures	
• Discuss the principles of fracture fixation	
• Describe the principles of non-operative and operative management of fractures in adults	
• Describe the principles of management of open fracture	
3. Torso Trauma	
• Develop a plan for diagnosis and treatment of patients with torso trauma	
• Describe the classification of pelvic fractures and the associated complications	
4. Rehabilitative Management of Arthritis	
• Explain the method of assessment of a patient presenting with complications of arthritis	
• Describe the rehabilitation interventions to improve joint range of movement (ROM), muscular strength, pain relief, balance and coordination	
5. Management of Fractures	
• Summarize the rehabilitation methods following surgical intervention for fractures	
6. Rehabilitative Management of Osteoporosis	Tutorial
• Justify a rehabilitation management plan for osteoporosis	
7. Osteoarthritis	Interactive Lecture
• Describe the prevalence, pathogenesis, morphological, and clinical features of osteoarthritis	
• Diagnose osteoarthritis based on clinical features, laboratory tests, and imaging results	
• Develop a treatment plan for osteoarthritis	
8. Bone tumors	
• Correlate the pathological findings of common bone tumors with their clinical presentation	
• Justify the diagnosis, investigations, and treatment plans for primary bone tumors	

OCCUPATIONAL THERAPY

OBJECTIVES	LEARNING STRATEGY
1. Rehabilitation evaluation	Tutorial
• Describe current tools and systems for the measurement of impairment, disability, and activity limitation or participation restriction	
2. Community-based rehabilitation	Interactive Lecture
• Define community-based rehabilitation	
• Describe the strategies for incorporating rehabilitation in the community	
• List the benefits of community-based rehabilitation	

MAXILLOFACIAL SURGERY

OBJECTIVES	LEARNING STRATEGY
Maxillo-facial injuries	Interactive Lecture
• Describe the mechanism, assessment, and management of maxillofacial injuries	

NEUROSURGERY

OBJECTIVES	LEARNING STRATEGY
1. Spinal Trauma	Interactive Lecture
• Describe the rapid assessment of a patient with spinal trauma	
• Describe the etiology, pathophysiology, and appropriate management of patients with spinal cord injury	
2. Non-Traumatic back pain	
• Identify the most common conditions causing back pain	
• Develop a plan for diagnosis and management of non-traumatic neck and back problems	

PHYSIOTHERAPY

OBJECTIVES	LEARNING STRATEGY
1. Impairment, disability and handicap	Tutorial
• Explain the purpose of rehabilitation	
• Discuss the rehabilitation journey following amputation considering the key physical and psycho-social perspectives	
• Describe the concepts of impairment, disability, activity limitation, and participation restriction	
• Explain the epidemiology, pathophysiology, clinical features, and complications of conditions that may lead to impairment and disability	
2. Rehabilitation of Amputee	
• Describe the epidemiology of major limb loss including etiology, incidence, morbidity, and mortality	
• Summarize surgical principles of limb amputation and levels of amputation including digit(s), thumb, partial hand, trans-carpal and trans-radial wrist disarticulation, elbow disarticulation, etc.	
3. Pediatric Rehabilitation	Interactive Lecture
• Summarize the theories of development and normal developmental milestones	
• Describe assessment methods and rehab interventions for pediatric conditions {Cerebral Palsy, talipes equinovarus (TEV), Duchenne muscular dystrophy, Myopathies, and Spina Bifida}	
4. Rehabilitative management of common musculoskeletal disorders	Tutorial
This includes disorders of:	
i. Spine -Cervical spondylitis, Lumbar Spine (Sciatica, Low Back Pain)	
ii. Upper Limb- Shoulder joint (Adhesive capsulitis, Impingement), Elbow joint (Epicodylitis), Wrist joint (Carpal tunnel syndrome, Dequervain's synovitis)	
iii. Lower Limb - Hip joint (Groin region pain), Knee joint (ligament tear, meniscal tear), Ankle joint (Plantar Fasciitis, Ankle Sprain)]	
• Describe the methods of assessment, and evaluation for the rehabilitation potential, of a patient presenting with musculoskeletal disease	
• Formulate differential diagnosis and therapeutic interventions for musculoskeletal conditions	
• Justify a rehabilitation management plan that specifies appropriate modalities of assessment and treatment	
5. Prosthesis of Upper and lower Limbs	Interactive Lecture
• Describe components, types, characteristics, and indications of the limb prosthesis	
• Explain relevant postoperative patient management	
• Justify the prescription of appropriate temporary and definitive prostheses	
6. Rehabilitative management of common neurological disorders (Spinal cord injuries, Traumatic brain injuries, Parkinson's disease)	Tutorial
• Describe a comprehensive assessment plan for a patient presenting with a neurological disease	
• Formulate differential diagnosis for neurological conditions	
• List the therapeutic interventions for neurological conditions	

• Justify a rehabilitation management plan that specifies appropriate modalities of assessment and treatment for neurological conditions	
7. Rehabilitative Management of Stroke	
• Explain the process of assessment, evaluation for potential of rehabilitation, and management of rehabilitation of patients presenting with cerebrovascular diseases	
• Summarize the rehabilitation management of stroke deficit	
8. Assessment of disabilities	Tutorial
• Describe the potential role and benefits of specific medical and rehabilitation therapies in the assessment and management of disability	
• Interpret relevant diagnostic investigations, including radiological and electro-diagnostic tests	

RHEUMATOLOGY

OBJECTIVES	LEARNING STRATEGY
1 Osteoporosis and Osteomalacia	Interactive Lecture
• Describe the prevalence and pathogenesis of osteoporosis and osteomalacia	
• Diagnose osteoporosis and osteomalacia based on clinical features, laboratory tests, and imaging results	
• Develop a treatment plan for osteoporosis and osteomalacia	
2. Crystal Induced Gout	
• Classify gout	
• Describe the pathogenesis, morphological, and clinical features of gout	
• Differentiate among various types of gout, based on clinical presentations	
• Develop a plan for treating acute gouty arthritis	
• Discuss the diagnosis and management of crystal-induced arthropathies (gout and pseudogout)	
3. Osteomyelitis and Septic arthritis	
• Name the major pathogenic organisms causing bone and joint infections	
• Describe the pathophysiology, clinical features, elements of prevention, and management of bone and joint infections	
• Outline the main clinical features and laboratory tests to diagnose bone and joint infections (Septic, Viral, Tuberculous arthritis)	
4. Vasculitis	
• Classify vasculitis	
• Describe the pathophysiology of vasculitis	
• Discuss the clinical manifestations and treatment of vasculitis	
5. Systemic connective tissue diseases	
• Describe briefly the pathophysiology, prevalence, clinical features, laboratory tests, and current management strategies of	
i. Systemic Lupus Erythematosus	
ii. Systemic sclerosis	
iii. Polymyositis and Dermatomyositis	
iv. Myotonic dystrophy and Duchenne muscular dystrophy	

6. Musculoskeletal diseases	
• Describe the clinical features, laboratory tests, and imaging of the following musculoskeletal diseases:	
i. Rheumatoid Arthritis	
ii. Seronegative Spondylo-arthropathies	

RADIOLOGY

OBJECTIVES	LEARNING STRATEGY
1. Imaging of musculoskeletal system	Tutorial
• Explain the role of radiologic imaging in musculoskeletal system diseases	
• Describe the principles of MRI, isotope bone scans, DEXA scans, and CT scans	
2. Imaging of bone tumors	
• List the techniques involved in the diagnosis of bone tumors	
• Identify common skeletal injuries on radiographic films (e.g. fractures and dislocations)	

RESEARCH & SKILLS DEVELOPMENT CENTER

OBJECTIVES	LEARNING STRATEGY
Intra-articular injections	Tutorial
• Perform Intra-articular injections on the given model	

Apart from attending daily scheduled sessions, students too should engage in self-study to ensure that all the objectives are covered

LEARNING RESOURCES

<table>
<tr><th>SUBJECT</th><th colspan="2">RESOURCES</th></tr>
<tr><td rowspan="2">GENERAL SURGERY, ORTHOPAEDIC, NEUROSURGERY</td><td colspan="2"><u>TEXTBOOK</u>
1. Bailey & Love's Short Practice of Surgery, 26th Edition</td></tr>
<tr><td colspan="2"><u>WEBSITES (ORTHOPAEDICS):</u>
www.orthobullets.com</td></tr>
<tr><td>NEUROLOGY, RHEUMATOLOGY & ENDOCRINOLOGY</td><td colspan="2">REFERENCE BOOKS:
1. Hutchison’s Clinical Methods, 23rdEdition
2. MacLeod's clinical examination 13thedition
3. Davidson's Principles and Practice of Medicine
4. Kumar and Clark's Clinical Medicine
5. HCAI guidelines CDC</td></tr>
<tr><td rowspan="10">PHYSICAL MEDICINE</td><td>TOPIC</td><td>REFERENCED BOOKS</td></tr>
<tr><td>Orthopedic Physical Assessment</td><td>Quick reference by David J. Maggee</td></tr>
<tr><td>Physical Rehabilitation</td><td>Quick reference by Susan B. O'Sullivan</td></tr>
<tr><td>Therapeutic Exercise</td><td>Foundations and Techniques Seventh Edition
Carolyn Kisner PT</td></tr>
<tr><td>Physiotherapy</td><td>Impairment, disability, and handicap</td></tr>
<tr><td>Basis of Pediatrics</td><td>Quick reference by Pervaiz akber.</td></tr>
<tr><td>Pediatric Rehabilitation</td><td>Principles and Practice by Alexander</td></tr>
<tr><td>Atlas of Limb Prosthetics</td><td>Surgical and Prosthetic Principles by the American
Academy of Orthopaedic Surgeons (AAOS)</td></tr>
<tr><td>Atlas of Orthoses and Assistive
Devices</td><td>Quick reference by AAOS</td></tr>
</table>

FORENSIC MEDICINE	**TEXTBOOKS** 1. Nasib R. Awan. Principles and practice of Forensic Medicine 1st ed.2002. 2. Parikh, C.K. Parikh's Textbook of Medical Jurisprudence, Forensic Medicine and Toxicology. 7th ed. 2005. **REFERENCE BOOKS** 3. Knight B. Simpson's Forensic Medicine. 11thed.1993. 4. Knight and Pekka. Principles of Forensic Medicine. 3rd ed.2004 5. Krishan VIJ. Textbook of forensic medicine and toxicology (principles and practice). 4th ed.2007 6. Dikshit P.C. Textbook of forensic medicine and toxicology. 1st ed.2010 7. Polson. Polson's Essential of Forensic Medicine. 4thedition. 2010. 8. Rao. Atlas of Forensic Medicine (latest edition). 9. Rao. Practical Forensic Medicine 3rd ed,2007. 10. Knight: Jimpson's Forensic Medicine 10th 1991,11thed.1993 11. Taylor's Principles and Practice of Medical Jurisprudence.15th ed.1999 **CDs:** 1. Lectures on Forensic Medicine. 2. Atlas of Forensic Medicine. **WEBSITES:** www.forensicmedicine.co.uk
COMMUNITY MEDICINE	**TEXTBOOKS** 1. Preventive and Social Medicine by K Park 2. Community Medicine by M. llyas 3. Basic *Statistics* for the Health Sciences by Jan W Kuzma

ASSESSMENT METHODS:

- **Best Choice Questions(BCQs)** also known as MCQs (Multiple Choice Questions)
- **Objective Structured Practical/Clinical Examination (OSPE or OSCE)**

Internal Evaluation

- Students will be assessed comprehensively through multiple methods.
- 20% marks of internal evaluation will be added to the JSMU final exam. That 20% may include class tests, assignments, practical, and the internal exam which will all have specific marks allocation.

Formative Assessment

Individual departments may hold quizzes or short answer questions to help students assess their learning. The marks obtained are not included in the internal evaluation

For the JSMU Examination Policy, please consult the JSMU website!

More than 75% attendance is needed to sit for the internal and final examinations

LNH&MC EXAMINATION RULES & REGULATIONS

- Student must report to examination hall/venue, 30minutes before the exam.
- **Exam will begin sharply at the given time.**
- No student will be allowed to enter the examination hall after 15 minutes of scheduled examination time.
- Students must sit according to their roll numbers mentioned on the seats.
- **Cell phones are strictly not allowed in the examination hall.**
- If any student is found with a cell phone in any mode (silent, switched off, or on) he/she will not be allowed to continue their exam.
- No students will be allowed to sit in an exam without a University Admit Card, LNMC College ID Card, and Lab Coat
- Students must bring the following stationary items for the exam: Pen, Pencil, Eraser, and Sharpener.
- In discipline in the exam hall/venue is not acceptable. Students must not possess any written material or communicate with their fellow students.

SCHEDULE:

WEEKS	4TH YEAR	MONTH
4 WEEKS	ORTHOPEDIC & REHABILITATION MODULE	September 11th , 2023
		October 7th, 2023