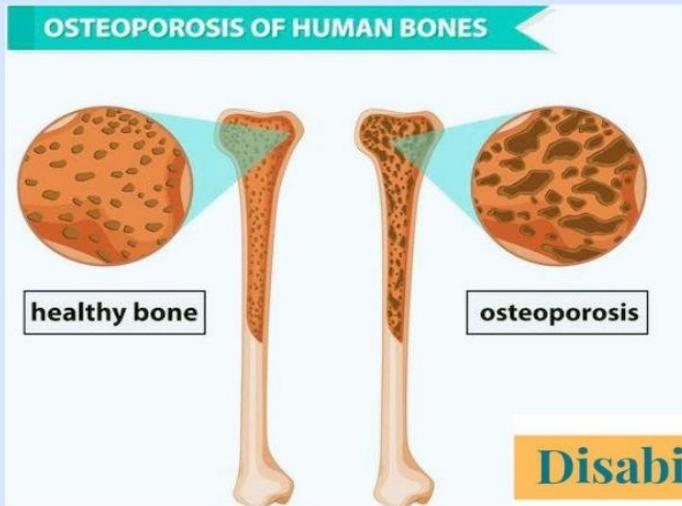
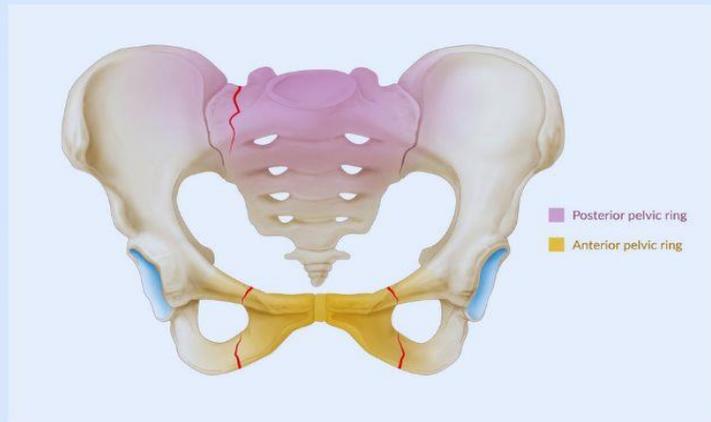


STUDY GUIDE-FOURTH YEAR MBBS

10th August - 1st September 2022

Duration: 4 Weeks

ORTHOPEDICS & REHABILITATION MODULE



Disability | Impairment | Handicap



LIAQUAT NATIONAL HOSPITAL AND MEDICAL COLLEGE

Institute for Postgraduate Medical Studies & Health Science



STUDY GUIDE FOR ORTHOPAEDICS & REHABILITATION MODULE

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Module name: Orthopaedics and Rehabilitation

Year: **Four**

Duration: **4 weeks (Aug - September 2022)**

Timetable hours: Lectures, Case-Based Discussion (CBD), Clinical Rotations,

Demonstrations, Skills, Self-Study

MODULE INTEGRATION COMMITTEE

MODULE COORDINATOR	Dr. Muhammad Sufyan (Orthopaedics)
CO-COORDINATORS	Prof. Sobia Ali (DHPE)

DEPARTMENTS' & 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	
<ul style="list-style-type: none"> • Professor Nighat Huda • Professor Sobia Ali • Dr. Afifa Tabassum • Dr. Sana Shah 	
LNH&MC MANAGEMENT	
<ul style="list-style-type: none"> • 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 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 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, journals, for students to consult in order to maximize their learning.
- Highlights information on the contribution of continuous and modular examinations on 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 pertaining to 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 better understanding of basics sciences when they repeatedly learn in relation to clinical examples.

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

MODULE 5: ORTHOPAEDICS AND REHABILITATION

INTRODUCTION TO THE ORTHOPAEDICS AND REHABILITATION MODULE

Orthopedics is a medical specialty that focuses on the diagnosis, correction, prevention, and treatment of patients with skeletal deformities - disorders of the bones, joints, muscles, ligaments, tendons, nerves and skin.

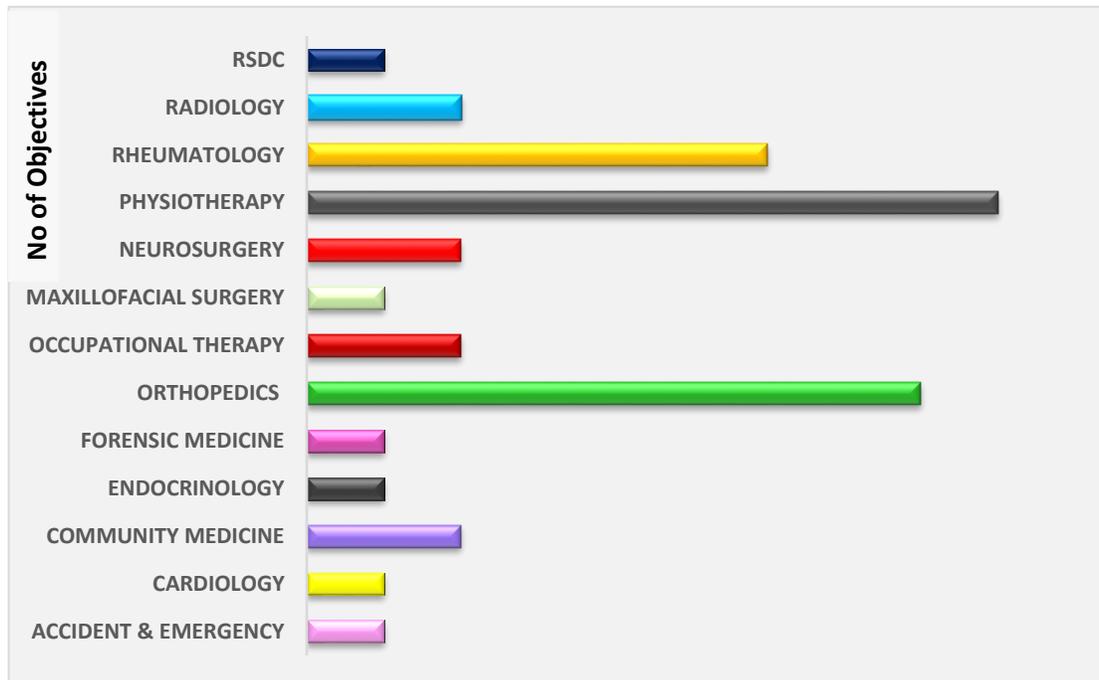
An analysis of Global Burden of Disease (GBD) data in 2019 showed that globally approximately 1.71 billion people have musculoskeletal problems.

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

This module will assist learner in learning the basics of knowledge related to diagnosis, treatment & prevention of musculoskeletal diseases & injuries while also giving them the opportunity 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 group, 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, acquire skills or desired attitudes.

Sessions are structured with the help of specific exercises such as patient case, interviews or discussion topics. Students exchange opinions and apply knowledge gained from lectures, tutorials and self study. The facilitator role is to ask probing questions, summarize, or rephrase to help clarify concepts.

CASE-BASED DISCUSSION (CBD): A small group discussion format where learning is focused around a series of questions based on a clinical scenario. Students' discuss and answer the questions 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, Orthopaedics, 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 respective module are observed and practiced where applicable in RSDC.

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

COURSE OBJECTIVES AND STRATEGIES

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

ACCIDENT & EMERGENCY

OBJECTIVES	LEARNING STRATEGY
Triage	Tutorial
<ul style="list-style-type: none"> Describe the sequence of evaluation of a trauma patient 	
<ul style="list-style-type: none"> Describe the criteria for triage of a trauma patient 	

CARDIOLOGY

OBJECTIVES	LEARNING STRATEGY
Rehabilitative management of common cardiac conditions	Interactive Lecture
<ul style="list-style-type: none"> Describe the method of comprehensive assessment of a patient presenting with common cardiac conditions, and evaluation for rehabilitation 	
<ul style="list-style-type: none"> Formulate differential diagnosis for common cardiac conditions 	
<ul style="list-style-type: none"> Justify a rehabilitation management plan that specifies appropriate modalities of assessment and treatment 	

COMMUNITY MEDICINE

OBJECTIVES	LEARNING STRATEGY
1. Introduction to Rehabilitation	Interactive Lecture
<ul style="list-style-type: none"> Define concepts of primary, secondary and tertiary prevention in the context of rehabilitation medicine 	
<ul style="list-style-type: none"> Describe the potentially disabling consequences of diseases and injuries 	
2. Levels of prevention	
<ul style="list-style-type: none"> Explain the general concept of Primary, Secondary and Tertiary prevention 	

ENDOCRINOLOGY

OBJECTIVES	LEARNING STRATEGY
Hyper and Hypo Parathyroid & Clinical Manifestations	Interactive Lecture
<ul style="list-style-type: none"> Diagnose hyper-and hypo-parathyroid disorders based on clinical manifestations and investigation findings 	
<ul style="list-style-type: none"> Develop treatment plans for hyper and hypoparathyroid disorders 	

FORENSIC MEDICINE

OBJECTIVES	LEARNING STRATEGY
Spinal Trauma	Tutorial
<ul style="list-style-type: none"> Describe whip lash injuries, fractures of cervical spine, and railway spine 	
<ul style="list-style-type: none"> Discuss the injuries to thoracic and lumbar spine, and sacrum 	
<ul style="list-style-type: none"> Describe the medicolegal aspects of spinal injuries 	

ORTHOPEDICS

OBJECTIVES	LEARNING STRATEGY
1. Presenting problems and investigations of Musculoskeletal diseases	Interactive Lecture
<ul style="list-style-type: none"> Describe the presenting problems and investigations of Musculoskeletal diseases 	
2. Fractures	
<ul style="list-style-type: none"> Classify the different types of fractures 	
<ul style="list-style-type: none"> Describe the specific types of fractures (hip, Colles', and pelvic fractures) 	
<ul style="list-style-type: none"> Discuss the general principles of management of fractures 	
<ul style="list-style-type: none"> Describe the therapeutic measures for different fractures, the principles of fracture treatment in children and common complications of fractures 	
<ul style="list-style-type: none"> Discuss the principles of fracture fixation 	
<ul style="list-style-type: none"> Describe the principles of non-operative and operative management of fractures in adults 	
<ul style="list-style-type: none"> Describe the principles of management of open fracture 	
3. Torso Trauma	
<ul style="list-style-type: none"> Develop a plan for diagnosis and treatment of patients with torso trauma 	
<ul style="list-style-type: none"> Describe the classification of pelvic fractures and the associated complications 	
4. Rehabilitative Management of Arthritis	
<ul style="list-style-type: none"> Explain the method of assessment of a patient presenting with complications of arthritis 	
<ul style="list-style-type: none"> Describe the rehabilitation interventions to improve joint range of movement (ROM), muscular strength, pain relief, balance and coordination 	
5. Management of Fractures	Tutorial
<ul style="list-style-type: none"> Summarize the rehabilitation methods following surgical intervention for fractures 	
6. Rehabilitative Management of Osteoporosis	Interactive Lecture
<ul style="list-style-type: none"> Justify a rehabilitation management plan for osteoporosis 	
7. Osteoarthritis	Interactive Lecture
<ul style="list-style-type: none"> Describe the prevalence, pathogenesis, morphological and clinical features of osteoarthritis 	
<ul style="list-style-type: none"> Diagnose osteoarthritis based on clinical features, laboratory tests and imaging results 	
<ul style="list-style-type: none"> Develop a treatment plan for osteoarthritis 	
8. Bone tumors	Interactive Lecture
<ul style="list-style-type: none"> Correlate the pathological findings of common bone tumors with their clinical presentation 	
<ul style="list-style-type: none"> Justify the diagnosis, investigations and treatment plans for primary bone tumors 	

OCCUPATIONAL THERAPY

OBJECTIVES	LEARNING STRATEGY
1. Rehabilitation evaluation	Tutorial
<ul style="list-style-type: none"> Describe current tools and systems for the measurement of impairment, disability and activity limitation or participation restriction 	
2. Community- based rehabilitation	Interactive Lecture
<ul style="list-style-type: none"> Define community based rehabilitation 	
<ul style="list-style-type: none"> Describe the strategies of incorporating rehabilitation in the community List the benefits of community based rehabilitation 	

MAXILLOFACIAL SURGERY

OBJECTIVES	LEARNING STRATEGY
Maxillo-facial injuries	Interactive Lecture
<ul style="list-style-type: none"> Describe the mechanism, assessment, and management of maxillo-facial injuries 	

NEUROSURGERY

OBJECTIVES	LEARNING STRATEGY
1. Spinal Trauma	Interactive Lecture
<ul style="list-style-type: none"> Describe the rapid assessment of a patient with spinal trauma 	
<ul style="list-style-type: none"> Describe the etiology, pathophysiology, and the appropriate management of patients with spinal cord injury 	
2. Non-Traumatic back pain	
<ul style="list-style-type: none"> 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	Interactive Lecture /Tutorial
<ul style="list-style-type: none"> • Explain the purpose of rehabilitation 	
<ul style="list-style-type: none"> • Discuss the rehabilitation journey following amputation considering the key physical and psycho-social perspectives 	
<ul style="list-style-type: none"> • Describe the concepts of impairment, disability, activity limitation and participation restriction 	
<ul style="list-style-type: none"> • Explain the epidemiology, pathophysiology, clinical features and complications of conditions that may lead to impairment and disability 	
2. Rehabilitation of Amputee	
<ul style="list-style-type: none"> • Describe epidemiology of major limb loss including etiology, incidence, morbidity and mortality 	
<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • Summarize the theories of development and normal developmental milestones 	
<ul style="list-style-type: none"> • 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)]	
<ul style="list-style-type: none"> • Describe the methods of assessment, and evaluation for rehabilitation potential, of a patient presenting with musculoskeletal disease 	
<ul style="list-style-type: none"> • 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 & Lower Limbs	Interactive Lecture
<ul style="list-style-type: none"> • Describe components, types, characteristics and indications of the limb prosthesis 	
<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • Describe a comprehensive assessment plan for a patient presenting with a neurological disease 	
<ul style="list-style-type: none"> • Formulate differential diagnosis for neurological conditions 	
<ul style="list-style-type: none"> • List the therapeutic interventions for neurological conditions 	

<ul style="list-style-type: none"> Justify a rehabilitation management plan that specifies appropriate modalities of assessment and treatment for neurological conditions 	
7. Rehabilitative Management of Stroke	
<ul style="list-style-type: none"> Explain the process of assessment, evaluation for potential of rehabilitation, and management of rehabilitation of patients presenting with cerebro-vascular diseases Summarize the rehabilitation management of stroke deficit 	
8. Assessment of disabilities	Interactive Lecture
<ul style="list-style-type: none"> Describe the potential role and benefits of specific medical and rehabilitation therapies in the assessment and management of disability 	
<ul style="list-style-type: none"> Interpret relevant diagnostic investigations, including radiological and electro-diagnostic tests 	

RHEUMATOLOGY

OBJECTIVES	LEARNING STRATEGY
1 Osteoporosis and Osteomalacia	Interactive Lecture
<ul style="list-style-type: none"> 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	
<ul style="list-style-type: none"> 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	
<ul style="list-style-type: none"> 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	
<ul style="list-style-type: none"> Classify vasculitis Describe the pathophysiology of vasculitis Discuss the clinical manifestations and treatment of vasculitis 	
5. Systemic connective tissue diseases	
<ul style="list-style-type: none"> Describe briefly the pathophysiology, prevalence, clinical features, laboratory tests, and current management strategies of <ol style="list-style-type: none"> 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 musculo-skeletal system	Tutorial
• Explain the role of radiologic imaging in musculo-skeletal 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 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

SUBJECT	RESOURCES	
GENERAL SURGERY, ORTHOPAEDIC, NEROSURGERY	TEXT BOOK 1. Bailey & Love's Short Practice of Surgery , 26 th Edition	
	WEBSITES (ORTHOPAEDICS): www.orthobullets.com	
NEUROLOGY, RHEUMATOLOGY & ENDOCRINOLOGY	REFERENCE BOOKS: 1. Hutchison's Clinical Methods, 23 rd Edition 2. MacLeod's clinical examination 13 th edition 3. Davidson's Principles and Practice of Medicine 4. Kumar and Clark's Clinical Medicine 5. HCAI guidelines CDC	
PHYSICAL MEDICINE	TOPIC	REFERENCED BOOKS
	Orthopedic Physical Assessment	Quick reference by David J Maggee
	Physical Rehabilitation	Quick reference by Susan B. O'Sullivan
	Therapeutic Exercise	Foundations and Techniques Seventh Edition Carolyn Kisner PT
	Physiotherapy	Impairment, disability and handicap
	Basis of Pediatrics	Quick reference by pervaiz akber.
	Pediatric Rehabilitation	Principles and practice by Alexander
	Atlas of Limb Prosthetics	Surgical and Prosthetic Principles by American Academy of Orthopaedic Surgeons (AAOS)
	Atlas of Orthoses and Assistive Devices	Quick reference by AAOS

FORENSIC MEDICINE	<p><u>TEXT BOOKS</u></p> <ol style="list-style-type: none"> 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. <p><u>REFERENCE BOOKS</u></p> <ol style="list-style-type: none"> 3. Knight B. Simpson's Forensic Medicine. 11thed.1993. 4. Knight and Pekka. Principles of forensic medicine. 3rd ed.2004 5. Krishan VIJ. Text book of forensic medicine and toxicology (principles and practice). 4th ed.2007 6. Dikshit P.C. Text book 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 <p><u>CDs:</u></p> <ol style="list-style-type: none"> 1. Lectures on Forensic Medicine. 2. Atlas of Forensic Medicine. <p><u>WEBSITES:</u></p> <p>www.forensicmedicine.co.uk</p>
COMMUNITY MEDICINE	<p><u>TEXTBOOKS</u></p> <ol style="list-style-type: none"> 1. Preventive and Social Medicine by K Park 2. Community Medicine by M. Ilyas 3. Basic <i>Statistics</i> 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 JSMU final exam. That 20% may include class tests, assignment, practicals and the internal exam which will all have specific marks allocation.

Formative Assessment

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

For JSMU Examination Policy, please consult 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 sharp 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 examination hall.**
- If any student is found with 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 exam without University Admit Card, LNMC College ID Card and Lab Coat
- Student 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	August 10 th , 2022
		September 1 st , 2022
2 WEEKS	DERMATOLOGY MODULE	September 5 th , 2022
		September 17 th , 2022*

*Final dates will be announced later