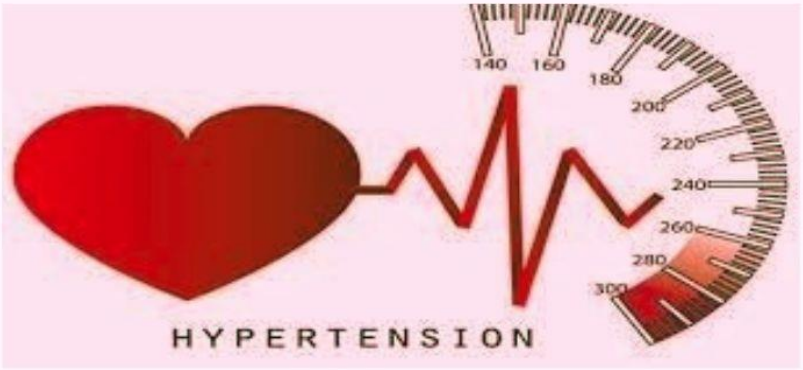
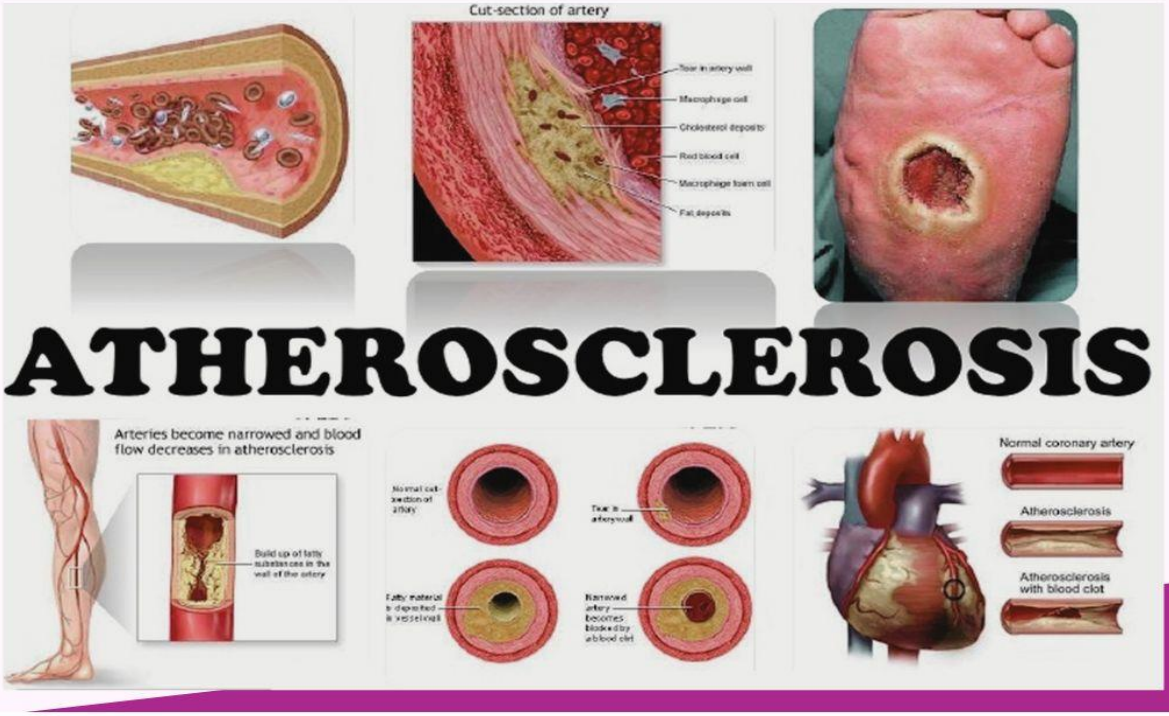
Study Guide-Third Year MBBS

12th September- 8th October 2022

Duration: 4 Weeks

CARDIOVASCULAR MODULE II





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

STUDY GUIDE FOR CARDIOVASCULAR SYSTEM II MODULE

Module name: **CVS II** *Year:* ***Three*** *Duration:* ***4 weeks (Sep- Oct 2022)***

Timetable hours: **Interactive Lectures, Case-Based Integrated Learning (CBIL), Clinical Rotations, Laboratory, Practical, Demonstrations, Skills, Self-Study**

MODULE INTEGRATED COMMITTEE

MODULE COORDINATOR:	• Prof. Syed Hafeezul Hassan (**Physiology**)
CO-COORDINATORS:	• Dr. Atif Ali Hashmi (**Pathology**) • Dr. Sana Shah (**DHPE**)

DEPARTMENTS' & RESOURCE PERSONS' FACILITATING LEARNING

BASIC HEALTH SCIENCES	CLINICAL AND ANCILLARY DEPARTMENTS
ANATOMY Professor Zia-ul-Islam	***CARDIOLOGY*** Dr. Hafeez Ahmed
COMMUNITY MEDICINE Dr. Saima Zainab	
FORENSIC MEDICINE Professor Syed Mukkaram Ali	
MICROBIOLOGY Professor Shaheen Sharafat	
PATHOLOGY Professor Naveen Faridi	
PHARMACOLOGY Professor Tabassum Zehra	
PHYSIOLOGY Professor Syed Hafeezul Hassan	
DEPARTMENT of HEALTH PROFESSIONS EDUCATION • Professor Nighat Huda • Professor Sobia Ali • Dr Afifa Tabassum • Dr. Sana Shah	
LNH&MC MANAGEMENT • Professor Karimullah 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 Interactive 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 module 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.

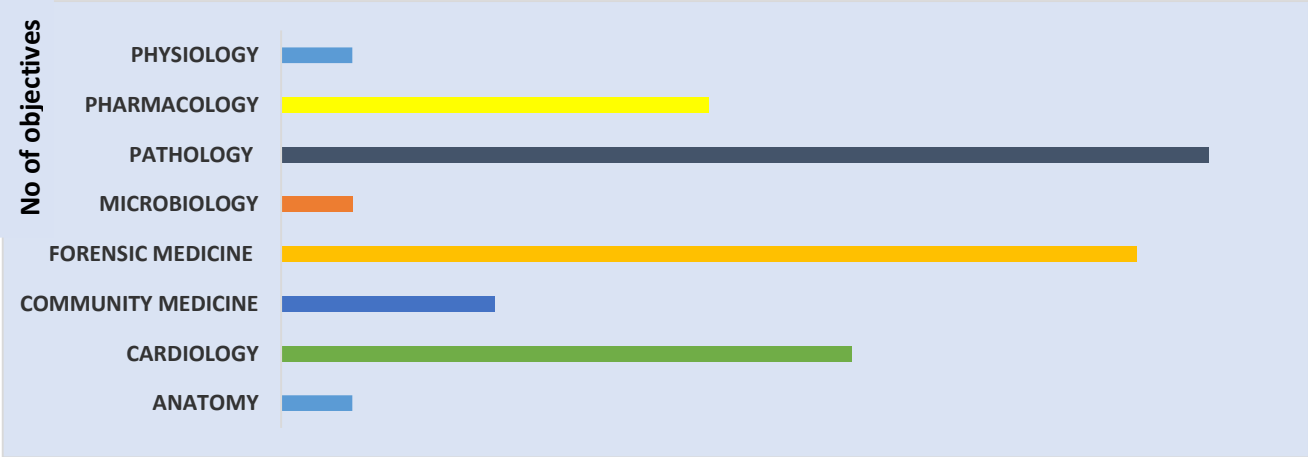
CURRICULUM FRAMEWORK

Students will experience integrated curriculum similar to previous modules**.**

INTEGRATED CURRICULUM comprises of system-based modules such as Foundation II, Blood II, Locomotor II, Respiratory system-II, CVS-II and GIT Liver II 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 basic sciences when they repeatedly learn in relation to clinical examples.

LEARNING EXPERIENCES: Case based integrated discussions, skills acquisition in skills lab. Computer-based assignments, learning experiences in clinics, wards and outreach centers

INTEGRATING DISCIPLINES OF CARDIOVASCULAR SYSTEM II



LEARNING METHODOLOGIES

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

- Interactive Lectures
- Small Group Discussion
- Case- Based Integrated Learning (CBIL)
- Clinical Experiences
  - Clinical Rotations
- Practicals
- Skills session
- Self-Directed Study

INTERACTIVE LECTURES: In large group, the Interactive Lectures 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 DISCUSSION: 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 Interactive Lectures, tutorials and self study. The facilitator role is to ask probing questions, summarize, or rephrase to help clarify concepts.

CASE- BASED INTEGRATED LEARNING (CBIL): 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. The CBIL will be provided by the concern department.

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 wards like Medicine, Pediatrics, Surgery, Obs & Gyne, ENT, Eye, Family Medicine clinics, outreach centers & Community Medicine experiences. 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.

PRACTICAL: Basic science practicals related to pharmacology, microbiology, pathology, forensic medicine, and community medicine have been schedule for student learning.

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

SELF-DIRECTED STUDY: 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.

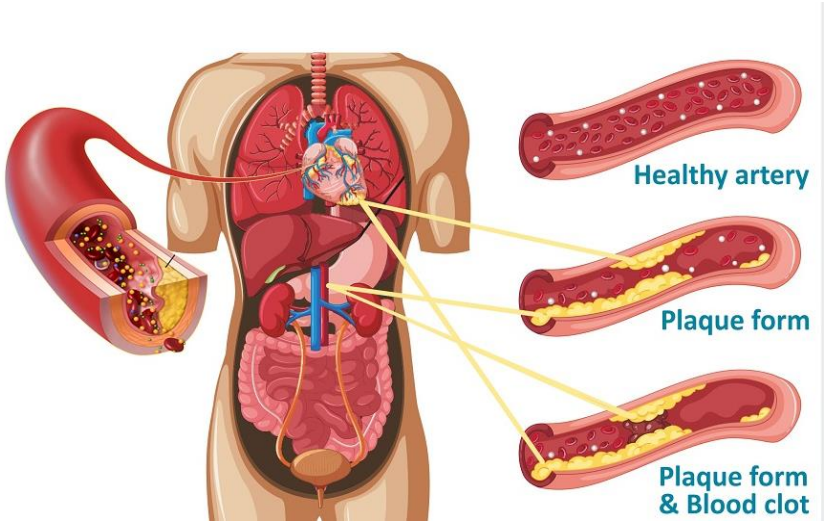
MODULE 5: CVS II

INTRODUCTION

Cardiovascular module (I) in year 1 covered basic medical sciences concepts for understanding the causes and treatment of diseases.

CVS (II) will now focus on common clinical presentations along with treatment options, relevant investigations and prevention. Students will have opportunities to relate their knowledge on the diseases such as congenital heart diseases, hyperlipidemia, hypertension, diseases of vessel wall, ischemic heart diseases, valvular heart diseases, arrhythmias, cardiac failure and infections. Sessions on preventive medicine and healthy life style will have significant importance. Students will be engaged in CVS history taking and physical examination both in adults and children to enhance the clinical examination skills of the students. The module will enable students to relate their theoretical learning through case-based learning, interactive Lectures, patient, simulated-based experiences and video-based learning.

Forensic Medicine will run parallel with the module.



http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/LearnHowHBPHarmsYourHealth/Health-Threats-From-High-Blood-Pressure_UCM_002051_Article.jsp#.WmwFXZKGPIU

COURSE OBJECTIVES AND STRATEGIES

At the end of the module the students will be able to:

ANATOMY

TOPICS & OBJECTIVES	LEARNING STRATEGIES
Functional Anatomy of CVS	Interactive Lecture
• Discuss coronary circulation and its clinical importance	
• Discuss the conducting system of heart and its blood supply	

CARDIOLOGY

TOPICS & OBJECTIVES	LEARNING STRATEGIES
1. Hypertensive Vascular Disease and Hypertensive heart disease	Interactive Lecture
• Discuss vascular wall injury response	
• Discuss the causes, pathogenesis and morphology of hypertensive vascular injury	
• Explain types of hypertensive heart disease	
2. History, Examination, Lab Investigation and Epidemiology Related To CVS	Small Group Discussion
• Demonstrate all the steps History Taking of Patient with Chest Pain and CVS examination	
3. Heart Failure	Interactive Lecture
• Define cardiac failure	
• Discuss the etiology, pathogenesis, morphology and clinical features of left sided and right sided heart failure	
4. Arrhythmias	
• Define Arrhythmias	
• Classify Arrhythmias	
• Discuss the clinical features of Arrhythmias	
• List the causes of Arrhythmias	
• List the investigations related Arrhythmias	
5. Valvular Heart Diseases	
• Define Valvular heart diseases	
• Classify Valvular heart diseases	
• Discuss the clinical features of Valvular heart diseases	
• List the causes of Valvular heart diseases	
• List the investigations related Valvular heart diseases	

6. ECG Interpretation	Small Group Discussion
• Interpret 12-lead electrocardiogram to determine the rate, rhythm, axis, intervals, and acute ischemic changes	
• Discuss the ECG changes of angina and myocardial Infarction	
7. Rheumatic Heart Disease	Interactive Lecture
• Describe the signs and Symptoms & diagnostic criteria of Rheumatic Heart Disease	
• Explain the process of control and prevention of Rheumatic heart disease	
8. Disorders of Blood Vessel Hyperreactivity, Veins and Lymphatics	
• Discuss various disorders of blood vessel hyperreactivity, veins and lymphatics including:	
i. Raynaud Phenomenon	
ii. Myocardial Vessel Vasospasm	
iii. Veins and Lymphatics	
iv. Varicose Veins	
v. Thrombophlebitis and	
vi. Phlebothrombosis	
vii. Superior and Inferior Vena Cava Syndromes	
viii. Lymphangitis and Lymphedema	

COMMUNITY MEDICINE

TOPICS & OBJECTIVES	LEARNING STRATEGIES
1. Coronary heart diseases and its prevention	Interactive Lecture
• Describe coronary heart diseases	
• Discuss the epidemiology of coronary artery diseases	
• Describe the prevention and control of coronary artery diseases	
2. Hypertension	Small Group Discussion
• Classify Hypertension	
• Describe epidemiology of hypertension	
• Discuss prevention and control	
3. Rheumatic Heart Disease	Interactive Lecture
• Describe Rheumatic Heart Disease	
• Describe the epidemiology, signs and symptoms & diagnostic criteria of Rheumatic Heart Disease	
• Discuss prevention and control of Rheumatic Heart Diseases	

FORENSIC MEDICINE

TOPICS & OBJECTIVES	LEARNING STRATEGIES
1. Forensic sexology I: Virginity & Pregnancy and their medico legal perspectives	Interactive Lecture
• Describe signs of virginity on medico legal examination	
• List the differences between true and false virgin on examination	
• Define defloration along with causes of rupture of hymen	

• State the method of estimation of duration of a torn hymen
• Calculate EDD (Expected date of delivery)
• List the signs of pregnancy (presumptive, probable and definite signs)
• Describe the diagnosis of pregnancy in medico legal cases
• List the motives of feigned pregnancy
• List the abnormal forms of pregnancy
• Define Legitimacy and legitimate child as per law
2. Forensic sexology II: Delivery and its medico legal aspects
• Describe signs of recent delivery in living and in dead
• Describe the signs of remote delivery in living and in dead
• State the medico legal aspects of delivery
3. Forensic sexology III: Impotence, Sterility & Artificial insemination
• Define consummation of marriage
• List the causes of nullity of marriage and divorce from legal aspects
• Describe Impotency and sterility with legal dictums
• List the causes of impotency and sterility
• Mention the steps of examination of a case of impotency and how to give opinion in such a case
• Discuss artificial insemination, its types, procedure, precautions in selecting a donor and legal implications, Surrogate birth
4. Forensic sexology IV: Abortion & its medico legal aspects
• Define the types of abortion
• List the grounds for abortion with special emphasis on pregnancy after rape
• Define criminal abortion, its type according to Pakistan Penal Code and unskilled, semi-skilled and skilled methods of criminal abortion
• List the complications of Criminal abortion
• List the causes of death in criminal abortion and autopsy findings
5. Forensic sexology V: Natural Sexual offenses (Rape & Incest)
• Classify sexual offenses
• State the legal definition of Rape
• Mention the procedure of examination of a victim of rape, collection of specimens during examination
• Mention the procedure of examination of an accused person
• Discuss rape in children
• List the complications following rape with special stress on Post-traumatic Stress Disorder
• List the problems in medico legal examination of victim of rape
• Define Incest and its legal aspects
6. Forensic sexology VI: Unnatural sexual offence
• Describe legal definition of sodomy and its types
• Discuss the steps of examination of a victim of Sodomy, a habitual passive agent (Catamite), and habitual active agent (Sodomite)
• Describe the method of collection of samples from passive and active agent
• Describe the following:
o Bestiality and the method of examination in such cases
o Tribadism or female homosexuality and its legal aspects
o Buccal coitus

7. Forensic sexology VII: Sexual Perversions	Tutorial
• Define a sexual pervert	
• List the various types of sexual perversions with special emphasis on Sadism, lust murder, necrophilia, necrophagia, Masochism, Transvestism and Transsexualism and other sexual perversions their medico legal aspects	
8. Aspirin and Paracetamol poisoning	
• Describe the mode of action, sign and symptoms, fatal dose, fatal period, treatment and medico legal importance of aspirin & paracetamol poisoning	
9. Toxicology- Cardiac poisons	Tutorial
• Describe the mode of action, signs and symptoms, treatment, postmortem findings and medico-legal importance of the Cardiac poisons; Digitalis, Aconite, and Nicotine	
10. Forensic Sexology: Medico legal Report of case of sexual assault	
• Describe the procedure of taking swabs in cases of victims of rape and sodomy	
• Write the medico legal report of rape and sodomy casesbased on given scenarios	
11. Forensic Lab Techniques	
• Describe the technique and medico legal importance Polygraph and Brain Finger Printing	
• Discuss the importance of questioned documents in Forensic investigation	
• Describe the Forensic Lab	
12. Cannabis & Cocaine Poisoning	
• Describe the mode of action, signs and symptoms, treatment, postmortem findings and medico-legal importance of Cannabis & Cocaine	

MICROBIOLOGY

TOPICS & OBJECTIVES	LEARNING STRATEGIES
Pathogens causing Cardiovascular diseases	Interactive Lecture
• List the pathogens causing cardiovascular diseases	
• Discuss in detail the organism Streptococcus viridians group Epstein bar virus, Trypanosoma	
• Discuss briefly the properties ,pathogenesis, transmission, clinical findings, laboratory diagnosis epidemiology, treatment and prevention of other pathogens causing CVS diseases	

PATHOLOGY

TOPICS & OBJECTIVES	LEARNING STRATEGIES
1. Hypertensive Vascular Disease & Hypertensive heart disease	Interactive Lecture
• Discuss vascular wall injury response	
• Discuss the causes, pathogenesis and morphology of hypertensive vascular injury	
• Explain types of hypertensive heart disease	

2. Atherosclerosis	Interactive Lecture/ Tutorial
• Define Arteriosclerosis & Atherosclerosis	
• Describe the epidemiology and risk factors of Atherosclerosis	
• Discuss in detail the pathogenesis, morphology and clinical consequences of Atherosclerotic disease	
• Discuss the risk factors and morphology of atherosclerosis	
3. Aneurysms and Dissection	Interactive Lecture
• Define aneurysm and dissection of vessel wall	
• Explain the pathogenesis, morphology & clinical features of aneurysms	
• Discuss Aortic dissection with relation to pathogenesis, morphology & clinical features	
4. Vasculitis	
• Define Vasculitis	
• List the types of vasculitis	
• Discuss the etiology, pathogenesis, morphology and clinical features of various types of Vasculitis	
5. Disorders of blood vessel hyper-reactivity, veins and lymphatics	
• Discuss various disorders of blood vessel hyper-reactivity:	
i. Raynaud Phenomenon	
ii. Myocardial Vessel Vasospasm	
• Discuss various disorders of veins and lymphatics including:	
i. Varicose Veins	
ii. Thrombophlebitis and	
iii. Phlebothrombosis	
iv. Superior and Inferior Vena Cava Syndromes	
v. Lymphangitis and Lymphedema	
6. Vascular Tumors	Interactive Lecture/ Tutorial
• Classify vascular tumors	
• Discuss benign, borderline and malignant vascular tumors with respect to etiology, pathogenesis and morphology	
• Discuss vascular tumors with special emphasis on morphological aspects	
7. Heart Failure	Interactive Lecture
• Define cardiac failure	
• Discuss the etiology, pathogenesis, morphology and clinical features of left sided and right sided heart failure	
8. Congenital Heart Disease	
• Classify congenital heart diseases	
• Explain the pathophysiology, morphology and clinical features of left to right, right to left diseases	
• Discuss briefly congenital obstructive lesions	
9. Ischemic Heart Disease 1	
• Define ischemic heart disease & myocardial infarction (MI)	
• Discuss the significance of time in diagnosing and treating acute MI	
• Describe the morphological features of MI	
• Discuss the clinical features of an acute attack of MI	
• Discuss the laboratory evaluation, consequences, complications and prognosis of MI	
• Discuss the morphological features of MI	

• Elaborate the clinical features of an acute attack of MI	
• Discuss its Laboratory evaluation	
10. Ischemic Heart Disease 2	
• Define Coronary Artery Disease (CAD)	
• Discuss its consequences and various clinical presentations	
• Explain its epidemiology and risk factors	
• Describe Angina and its types	
• Discuss the coronary blood supply and types of infarction	
• Discuss briefly the features of chronic IHD and sudden cardiac death	
11. Valvular Heart Disease & Non-infected vegetation	Interactive Lecture/ Tutorial
• Classify valvular defects of mitral and aortic valves valvular heart disease	
• Discuss the etiology, pathogenesis, morphology and clinical features of infective endocarditis, rheumatic fever and rheumatic heart disease	
• Discuss non-infected vegetation of heart	
12. Cardiomyopathies & Myocarditis	Interactive Lecture/ Tutorial
• Define cardiomyopathy	
• Discuss types of cardiomyopathies	
• List the conditions associated with cardiomyopathy	
• Explain the morphology and clinical features cardiomyopathy	
• List the causes of myocarditis	
• Discuss the morphology of myocarditis	
13. Pericardial diseases & tumors of heart	
• Define pericardial effusion & Hemopericardium	
• Discuss causes, pathogenesis & morphology of different types of pericarditis	
• Classify tumors of heart	
• Discuss the pathogenesis and morphology of primary tumors of heart	
• Discuss the clinical effects of non-cardiac neoplasms	

PHARMACOLOGY

TOPICS & OBJECTIVES	LEARNING STRATEGIES
1. Drug therapy of Acute Coronary Syndrome (ACS)	Tutorial
• Discuss classification, basic & clinical pharmacology of different drug groups used in ACS	
2. Drugs used in the treatment of Angina pectoris & Myocardial Infarction	Case- Based Learning
• Classify Anti-Anginal drugs	
• Explain basic & clinical pharmacology of Anti-Anginal drugs	
• Discuss treatment of ischemic heart diseases (IHD) including the basic & clinical pharmacology of these drugs	
3. Anti-hypertensive Drugs I & II	Interactive Lecture
• Discuss drugs of different classes used to treat HTN	
• Explain their basic & clinical pharmacology	

4. Drug therapy of Congestive Heart Failure (CCF)	
• Discuss classification of drugs used in cardiac failure	
• Explain their basic and clinical pharmacology	
5. Drug treatment of cardiac arrhythmia	Tutorial
• Classify anti-arrhythmic drugs	
• Explain the basic & clinical pharmacology of anti-arrhythmic drugs	
6. Anti-hyperlipidemic drugs	Interactive Lecture
• Classify Anti-hyperlipidemic drugs	
• Discuss their basic and clinical pharmacology	

PHYSIOLOGY

TOPICS & OBJECTIVES	LEARNING STRATEGIES
Modular introduction & review of CVS	Interactive Lecture
• Discuss the physiology of CVS (revisit)	

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

LEARNING RESOURCES

SUBJECT	*RESOURCES*
ANATOMY	**TEXT BOOKS** 1. K.L. Moore, Clinically Oriented Anatomy
COMMUNITY MEDICINE	**TEXT BOOKS** 1. Preventive and Social Medicine by K Park 2. Community Medicine by M Illyas 3. Basic *Statistics* for the Health Sciences by Jan W Kuzma
FORENSIC MEDICINE	**TEXT BOOKS** 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. 11th ed.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. 4th edition. 2010. 8. Rao. Atlas of Forensic Medicine (latest edition). 9. Rao.Practical Forensic Medicine 3rd ed ,2007. 10. Knight: Jimpson's Forensic Medicine 10th 1991,11th ed.1993 11. Taylor's Principles and Practice of Medical Jurisprudence. 15th ed.1999 **CDs:** 1. Interactive Lectures s on Forensic Medicine. 2. Atlas of Forensic Medicine. **WEBSITES:** www.forensicmedicine.co.uk
PATHOLOGY	**TEXT BOOKS** 1. Robbins & Cotran, Pathologic Basis of Disease, 9th edition. 2. Rapid Review Pathology, 4th edition by Edward F. Goljan MD **WEBSITES:** 1. http://library.med.utah.edu/WebPath/webpath.html 2. http://www.pathologyatlas.ro/
PHARMACOLOGY	**TEXT BOOKS** 1. Lippincot Illustrated Pharmacology 2. Basic and Clinical Pharmacology by Katzung

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, 30 minutes 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 be 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.
- Indiscipline in the exam hall/venue is not acceptable. Students must not possess any written material or communicate with their fellow students.

SCHEDULE:

WEEKS	3RD YEAR	MONTH
4 WEEKS	CARDIOVASCULAR II MODULE	12th September 2022
		8th October 2022
4 WEEKS	GIT & LIVER II MODULE	10th October 2022
		November 2022*
PRE PROF. EXAMINATION*		

*Final dates will be announced later