Dow University of Health Sciences

CVS II 2023

STUDY GUIDE

Third Year MBBS

S.No	TABLE OF CONTENTS	Page no.

INTRODUCTION

WHAT IS A STUDY GUIDE?

A study guide provides a focus for different educational activities in which the students are engaged. It equips students with information on the topic of study and assists in management of student learning. Furthermore, it imparts relevant information about the organization of the module and thus helps students organize their educational activities accordingly. Another important purpose of a study guide is the dissemination of information about rules and policies and teaching and assessment methods.

HOW DOES A STUDY GUIDE HELP LEARNERS?

- Includes information on organization and management of the module.
- Advises the learners about representatives (from various departments) who can be contacted in case of need.
- Defines the objectives which are expected to be achieved at the end of the module.
- Elaborates the learning strategies which will be implemented during the module.
- Informs learners about the learning resources in order to maximize their learning.
- Provides information on the assessment methods that will be held to determine every student's achievement of objectives.

CURRICULUM MODEL:

Integrated modular curriculum is followed at Dow University of Health Sciences for MBBS program. This implies that instead of studying basic and clinical sciences separate and apart, students will experience a balanced and integrated combination of basic and clinical sciences in the form of a system –based modules.
The modular curriculum followed by Dow University of Health Sciences is integrated both in the vertical and the horizontal directions. However, in order to prepare the students for clinical teaching with a sound background knowledge of the basic sciences, the curriculum has been divided in three spirals.
The three spirals are:

1. Spiral -1 Basic Sciences
2. Spiral -2 Clinical Sciences
3. Spiral -3 Integrated Supervised Practical Training

The Basic Sciences Spiral is spread over the first two years and clinical sciences spiral is distributed over the next two years. In the final year students are given practical hands-on training in the role similar to that of a shadow house officer. They are encouraged to refer to the theoretical teaching of the first four years for their practical training. The whole curriculum is divided into modules, each module being related to a particular system for example. Cardiovascular 1 module is in the Basic Sciences Spiral and Cardiovascular 2 module is in the Clinical Sciences Spiral.

TEACHING & LEARNING METHODOLOGIES:

The following teaching/ learning methods may be used to facilitate the learning process:

1. **Interactive Lectures**: Lectures are considered as an efficient means of transferring knowledge to large audiences.

2. **Small Group Discussion**: Small group discussion such as case- based learning (CBL) is a form of and interactive learning which helps students develop discussion skills and critical thinking.

3. **Practical**: Practical related to Basic Sciences are held to facilitate student learning.

4. **Skills**: Skills sessions are scheduled parallel with various modules at fully eqipped skills lab in which students observe and learn skills relevant to the respective modules.

5. **Self-Directed Learning**: Students have a measure of control over their own learning. They diagnose their needs, set objectives in accordance to their specific needs, identify resources and adjust their pace of learning

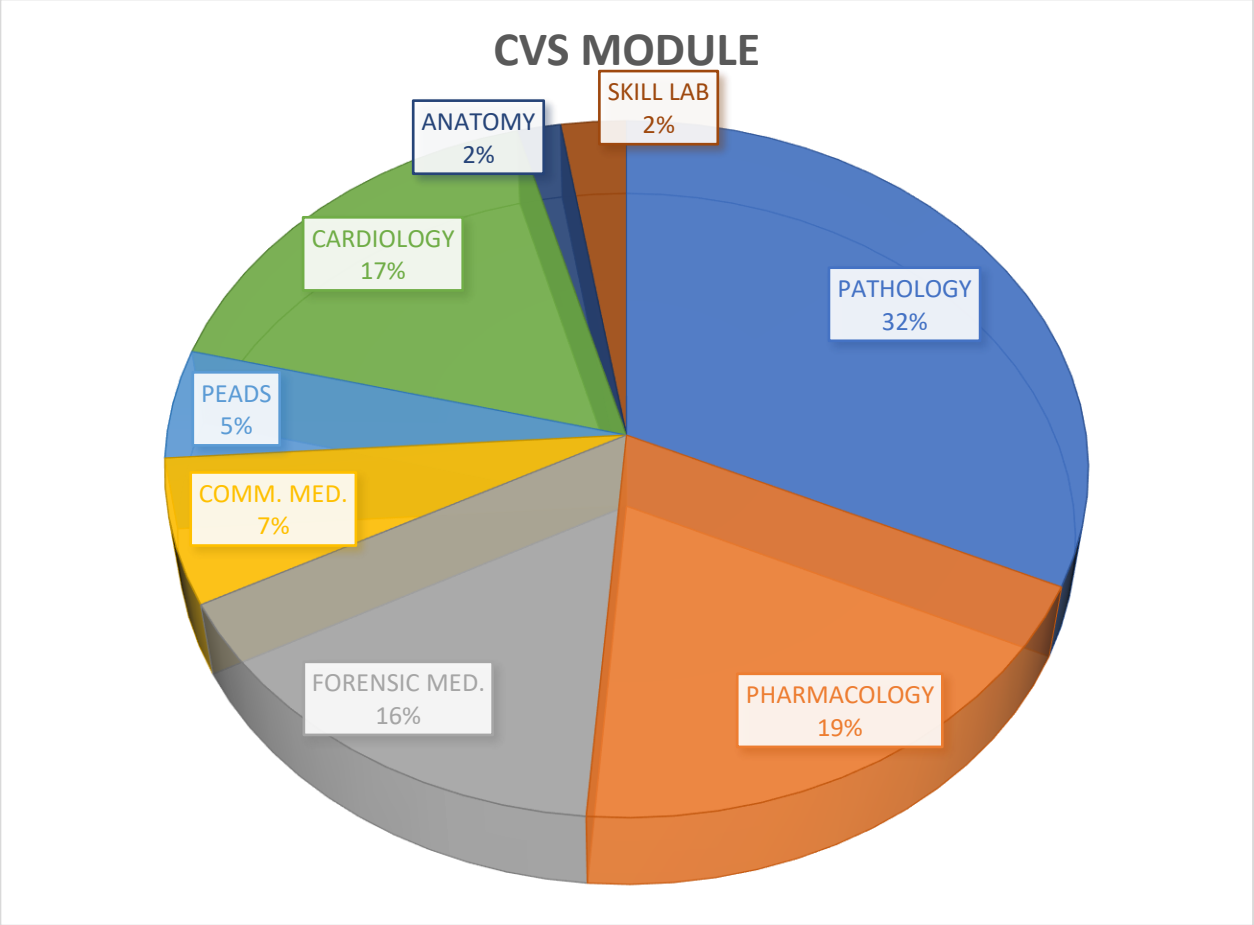
5YEAR CURRICULARORGANIZATION

<table>
<tr><th>Spiral</th><th>year</th><th colspan="5">Modules</th></tr>
<tr><td rowspan="5">First Spiral</td><td rowspan="3">I</td><td colspan="3">FND1- Foundation
Cell, Genetics & Cell Death
(Basics of Anatomy, Physiology, Biochemistry, Gen. Pathology, Gen. Pharmacology, Community Medicine & Behavioral Sciences,

9 Weeks</td><td colspan="2">HEM1- Blood Module
Immunity, Inflammation, Tissue repair, Antimicrobials & Neoplasia
9 Week</td></tr>
<tr><td colspan="3">LCM1- Locomotion
Bones, Joints, Nerves & Muscles, 9weeks</td><td>RSP1- Respiratory System 6 weeks</td><td>CVS1- Cardiovascular System 4 weeks</td></tr>
<tr><td colspan="3"></td><td></td><td></td></tr>
<tr><td rowspan="2">II</td><td colspan="3">NEU1- Nervous System
8 weeks</td><td>HNN1- Head & Neck & Special 6 weeks</td><td>END1- Endocrinology 5weeks</td></tr>
<tr><td colspan="3">GIL 1-GIT and Liver
8 weeks</td><td>EXC1- Renal and Excretory System</td><td>REP1- Reproductive System 5 weeks</td></tr>
<tr><td rowspan="4">Second Spiral</td><td rowspan="2">III</td><td>Foundation 2
2 weeks</td><td>IDD 1- Infectious diseases 6 weeks</td><td>HEM2- Hematology
5 weeks</td><td>RSP2- Respiratory System 5 weeks</td><td>CVS2- Cardiovascular System4 weeks</td></tr>
<tr><td colspan="3">GIL 2-GIT and Liver (including Nutritional Disorders)
8weeks</td><td>EXC2- Renal & Excretory System 4 weeks</td><td>END2- Endocrinology 5 weeks</td></tr>
<tr><td rowspan="2">IV</td><td colspan="2">ORT2- Orthopedics, Rheumatology, Trauma
7 weeks</td><td colspan="2">PMR-Physical Medicine & Rehabilitation
DPS-Dermatology Plastic Surgery / Burns
GEN-Genetics6 weeks</td><td>REP2- Reproductive System
8 Weeks</td></tr>
<tr><td colspan="3">NEU2- Neurosciences and Psychiatry
8 weeks</td><td>ENT*
4 weeks</td><td>OPHTHALMOLOGY/EYE
4 weeks</td></tr>
<tr><td>Third Spiral</td><td>V</td><td colspan="3">Clinical Rotation 9:45 to 3:00 (with Ambulatory, Emergency, Intensive care)
In Medicine, Pediatrics, Cardiology and Neurology units
▪ Lecture on problem-based approach, twice a week
▪ Ward tutorial twice a week
▪ Student research presentation once a week</td><td colspan="2">Clinical Rotation 9:45 to 3:00
(Inpatient, Ambulatory, Emergency, Intensive care and Operation Theatres)
In Surgery, Gynecology & Obstetrics, Orthopedics and Neurosurgery.
▪ Lecture on problem-based approach, twice a week
▪ Ward tutorial twice a week
▪ Student research presentation once a week</td></tr>
</table>

OVERVIEW

Program	MBBS	
Year	Three	
Module Title	CVS	
Module Code	CVS-2	
Credit Hours	4.5	
Duration	4 weeks	
	Pathology	19
	Pharmacology	11.5
	Forensic Medicine	9.5
	Community medicine	4
	Pediatrics	3
	Cardiology	10
	Radiology	1
	Anatomy	1
	Skill Lab	1.5
Total Hours	CVS Module	60.5


CVS MODULE
SKILL LAB 2%
ANATOMY 2%
CARDIOLOGY 17%
PATHOLOGY 32%
PEADS 5%
COMM. MED. 7%
FORENSIC MED. 16%
PHARMACOLOGY 19%

INTEGRATED MODULE COMMITTEE

RESPONSIBILITIES	NAMES	DESIGNATION	EMAILS
Chief Module coordinator	Prof Naheed Khan	Chairperson Anatomy	naheed.khan@duhs.edu.pk
Coordinator	Dr. Mehreen Fatima	Assistant Professor	mehreen.fatima@duhs.edu.pk
Co-coordinators	Dr. Sadia Iqbal	Assistant Professor	saadia.iqbal@duhs.edu.pk
Department	**RESOURCE PERSON**	**DESIGNATION**	**EMAILS**
	Dr Munizha Nisar	Medical Simulation Facilitator	munizha.nisar@duhs.edu.pk

MODULE DESCRIPTION:

This module has been designed for students to introduce them to the basic concepts of cardiovascular diseases. This module includes Pathology, Pharmacology, Forensic Medicine, Community medicine, Cardiology and Pediatrics.

Lectures, tutorials, small group sessions including tutorials and practical are important components of this module. Your co-operative and teamwork abilities will be improved by working in different teams. You will be able to develop problem solving skills to apply your medical knowledge to practical situations by means of group and individual tasks. This study guide has been developed to assist you and keep you focused to achieve your goals.

RATIONALE:

Diseases of the cardiovascular system are amongst the commonest causes of morbidity and mortality all over the world. With increasing urbanization, their incidence is increasing in Pakistan as well. Hypertension, ischemic heart disease, atherosclerosis and congenital and rheumatic valvular disorders are the diseases which a medical graduate shall be expected to manage after qualification. With the background knowledge of anatomy, physiology, pharmacology and the basics of cardiovascular diseases attained in the cardiovascular module of the first cycle the student shall be able to build on the knowledge of clinical presentation, diagnostic investigations and management of cardiovascular disorders.

LEARNING OUTCOMES

- Describe pathogenesis & clinical presentations of common cardiovascular disorders
- Take history, perform physical examinations of cardiovascular system and formulate appropriate plan of investigations for making a diagnosis.
- Interpret the investigations for diagnosis.
- Describe the pharmacology of drugs used in the management of cardiovascular disorders.
- Practice basic principles of management of cardiovascular disorders.
- Recognize preventive measures & prognosis for counseling the patients.

ANATOMY

Learning Objectives:

Topics:
Lectures: (1 hour each)

- Topographical anatomy of the heart, blood supply of the heart

PATHOLOGY

Learning Objectives:

Topics:

- Explain organization of vascular system and congenital anomalies associated with the vascular system.
- Describe the role of vascular endothelial cells in the pathogenesis of the diseases with the vascular component.
- Describe the pathological features and differential diagnosis of vasculitis.
- Characterize the tumors and tumor like conditions of the blood vessels.
- Describe the features of hypertensive cardiovascular disease, factors, causes, types and complications of hypertension and its associated lab investigations.
- Describe the lab investigations related to hyperlipidemias.
- Explain the features and pathogenesis of atherosclerosis and arteriosclerosis.
- Explain the clinical features of angina pectoris and myocardial infarction, and associated lab investigations.
- Describe the pathophysiology of cardiac hypertrophy and cardiomyopathy, their features and clinical consequences.
- Explain the etiology and complications of rheumatic heart disease and rheumatic fever.
- Explain the pathophysiology of the valvular heart disease, their causes, symptoms and consequences.
- Describe the features of cardiac tumors.
- Describe their pathogenesis and associated histopathological, clinical and lab findings of the pericardial diseases.

Lectures: (1 hour each)

- Arteriosclerosis and Atherosclerosis
- Vascular endothelial Cells: Activation and Role in Pathogenesis
- Vascular organization and Congenital Anomalies of the Vascular System
- Angina Pectoris and Myocardial Infarction
- Hypertensive Heart Disease
- Hypertensive Vascular Disease Pathogenesis, and Mechanism of Essential Hypertension, Types and Causes of Hypertension, Primary & Secondary Hypertension.
- Cardiac Hypertrophy Pathophysiology and Progression in Failure
- Rheumatic Fever and Rheumatic Heart Disease.

- Cardiomyopathy and Myocarditis: Types, Causes and Pathogenesis
- Aneurysms and Dissections
- Vasculitis
- Disorders of Veins and Lymphatics
- Tumors and Tumor like Conditions of the Vessels

Practicals: (1.5 Hour each)

- Atherosclerosis
- Lab Investigation Interpretation for Angina and MI
- Valvular heart diseases and pericardial diseases
- Pathology of blood vessels and cardiac tumors

CARDIOLOGY

Learning Objectives:

- Perform general physical examination (pulse, BP, cyanosis, clubbing, anemia, edema, JVP), examination of pericardium and interpretation of findings.
- Identify imaging techniques used in the evaluation and its interpretation.
- Interpret normal and abnormal ECG and can diagnose common Cardiac Arrhythmias / Blocks and their management.
- Define Atherosclerosis, its etiology, pathogenesis, vessels affected, and complications. Define role of lipids and platelets in atherosclerosis, role of lipid lowering drugs (statins) and antiplatelets in primary and secondary prevention.
- Identify causes & risk factors of IHD, pathogenesis, clinical presentation as angina. Enlist and classify drugs used for angina.
- Define pathogenesis of Rheumatic fever, clinical and lab criteria for diagnosis and complications.
- Diagnose Valvular heart diseases on the basis of examination, its complications like infective endocarditis and can manage these diseases along with its prevention.
- Describe the pathophysiology of cardiac hypertrophy and its management

Topics:

Lectures (1 hour each)

- Clinical examination of precordium along with relevant general physical examination
- Approach to patient with chest pain dyspnea, Palpitation and its clinical evaluation with differentials
- Clinical evaluation of IHD and its complications with management (Stable Angina)
- Dyslipidemias and its clinical value
- Clinical evaluation of ACS and its complications with management
- Cardiac imaging techniques and ETT

- Cardiomyopathy & pericardial diseases
- Interpretation of Arrhythmias
- Normal and non-arrhythmias ECG interpretation
- Aortic valve diseases Valvular Heart Diseases Mitral Valve disease

PHARMACOLOGY

Learning Objectives:

Topics:

- Describe the pharmacological aspects of drugs used in dyslipidemias
- Explain the mechanisms and therapeutic advantages and limitations of different classes of lipid lowering agents.
- Classify different anti-anginal drugs
- Describe the mechanism of action, side effects of anti-anginal drug
- Classify anti-hypertensive drugs
- Describe therapeutic uses, adverse effects, contraindications of antihypertensive drugs
- Describe the drugs used for treatment of arrhythmias.
- Recognize and categorize different anti-arrhythmic drugs by their mechanism of action

Lectures: (1 hour each)

- Drugs used to treat angina
- Drugs used in hypertension (HTN)-I
- Drugs used in hypertension (HTN)-II
- Anti-arrythmic drugs-I
- Anti-Arrythmic drugs-II
- Anti-hyperlipidemic drugs
- Drugs used in the treatment of congestive heart failure (CHF)

Practic**als: (1.5 hour each)**

- Effects of different drugs on heart of frog
- Drug treatment of hypertension and ischemic heart disease
- Drugs used to control arrhythmias

COMMUNITY MEDICINE.

Learning Objectives:
Topics:

- Appreciate the epidemiology of cardiovascular diseases and its impact on health and economy
- Enlist the non- modifiable risk factors for development of cardiovascular diseases

- Advise preventive strategies for modifiable risks of cardiovascular diseases
- Define DASH diet
- Advocate cardiovascular disease prevention and Life style modification
- Identify measures to support and rehabilitate patients and families with serious chronic cardiac illnesses
- Advise population level strategies for dealing with the burden of cardiovascular diseases
- Recommend strategies for the prevention of congenital heart disease, Rheumatic fever and infective endocarditis.
- Explain the importance of Geriatrics in Public Health
- Differentiate between Geriatrics and Gerontology
- Describe physiological and pathological aging
- Appreciate changing requirements of elderly

- Recognize the magnitude of problems of aging population and offer solutions
- Analyze cancer as a public health problem
- Enlist most common cancers in Pakistan and worldwide
- Recognize the importance of cancer registry
- Define IARC (International Agency for Research on Cancer) classification of Carcinogens
- Enlist environmental, occupational and other risk factors epidemiologically associated with cancer.
- Identify basic steps for efforts of cancer prevention at primary, secondary and tertiary level

Lectures: (1 Hour each)

- Non communicable diseases its risk factors and prevention
- Cardiovascular disease prevention and Life style modification
- Health of Elderly
- Cancer epidemiology

FORENSIC MEDICINE

Learning Objectives:

Topics:

- Define Injury, wound and hurt
- Classify injuries.
- Explain mechanics of wound production.
- Explain Mechanism of production of medico-legal injuries according to type of weapon
- Recognize cause-effect relationship in mechanical injuries.
- Describe medico legal aspects of mechanical injuries (cause or weapon/time/manner of infliction)
- Describe Patho-physiological effects of the injuries.
- Determine age of Injury.
- Determine nature of injuries whether ante-mortem/post-mortem (Vital Reaction)
- Interpret the pattern of injuries in simulated conditions and on real patients and certify them (MLC)

- Define Firearms
- Define Ballistics.
- Explain the basics of Ballistics (Interior, Exterior and Terminal ballistics).
- Describe effects of firearms' injury on the body and its Medico legal aspects.
- Explain Mechanics of blast injuries.
- Recognize effects of blast injuries.
- Describe Medico legal aspects of blast injuries
- Identify gun powders and ammunition used
- Interpret findings of injuries produced by different weapons
- Identify pattern/ characteristics of entry and exit wound

Lectures: (1 hour each)

- Traumatology I
- Traumatology II
- Traumatology III
- Firearms
- Mass Disasters

Practical's: (1.5 hour each)

- Cardiac Poison
- Medico legal report of trauma
- Crime scene investigation

PAEDIATRICS.

Topics:

Lectures (1hour each)

- Approach to Patient with Congenital Heart Diseases
- Clinical Manifestations, Diagnosis and Management of Rheumatic Fever
- Infective Endocarditis

RADIOLOGY

Topics:

Lectures (1hour each)

- Imaging modalities for evaluation of varicose veins and DVT

Study Skills

CARDIOVASCULAR SYSTEM EXAMINATION

- Enumerate the steps of examination of cardiovascular system (CVS).
- Demonstrate correct technique of auscultation of heart.
- Describe the different parts of stethoscope and its uses.
- Demonstrate the correct method of auscultation of heart.
- Identify different components of normal heart sounds viz.
  - S1
  - S2
- Identify common abnormalities of heart sounds viz.
- Murmur of
  - Mitral stenosis
  - Mitral regurgitation
  - Aortic stenosis
  - Aortic regurgitation
  - VSD

  Pericardial rub

The contents are subjected to be altered according to requirement of academic calendar

Learning Resources

PATHOLOGY

- Robbins Basic Pathology Kumar & Abbas 9th Edition
- Robbins &Cotran Pathologic Basis of Disease Kumar & Abbas & Aster 9th Edition

COMMUNITY MEDICINE

- Public Health and Community Medicine Shah, Ilyas, Ansari 7th Edition

PHARMACOLOGY

- Lippincott's Illustrated Review Pharmacology Karen Whalen 6th Or Latest Edition
- Basic And Clinical Pharmacology Bertram G. Katzung 11th Edition

FORENSIC MEDICINE

- Principles And Practice Of Forensic Medicine Nasib R.Awan 1 St Edition

MEDICINE

- Principles & Practice of Medicine Davidson's 22nd Or Latest Edition
- Essentials Of Kumar and Clark's Clinical Medicine Kumar & Clark 9th Or Latest Edition
- Macleod's Clinical Examination Douglas & Nicol & Robertson13th or Latest Edition
- Hutchison's Clinical Methods William M Drake & Michael Glynn 23rd Or Latest Edition

PAEDIATRICS

- Nelsons's Essentials of Pediatrics Marcdante & Kliegman 7th Or Latest Edition

ASSESSMENT

Assessment will be done in two parts

At the end of module

- Module Exam (Theory) -20%
- Module Exam Practical Internal Evaluation- 20%

At the end of Year

- Annual Exam (Theory) -80%
- Annual Exam (ospe, Viva)-80%

MCQs (Multiple choice questions), OSCE (Objective Structured Clinical Exam) and structured viva will be the main assessment tool.