

KING EDWARD MEDICAL UNIVERSITY LAHORE.

**Faculty of Basic Sciences
MBBS Program Curriculum**

Course Title: Cardiovascular System(CVS)

CVS Module:

DURATION	From 25.5.2015 To 20.6.2015
CONTACT HOURS	Lectures 83 Hours + Practical 14 Hours+ PBL session 16hrs =99+14 Hours
CREDIT HOURS	8 credit Hours
TEACHING METHODOLOGIES	lectures/Practical/ Tutorials/ SGD/Demonstrations/Dissection/ PBL Break : daily half an hour break.
	➤ PBL sessions
	<input type="checkbox"/> 1st part of the session one hour duration (general discussion of disease)
	<input type="checkbox"/> 2nd part of the session one hour duration (patient presentation and discussion)
	Topics for PBL
	<input type="checkbox"/> Hypertension
	<input type="checkbox"/> Ischemic heart disease angina pectoris
	<input type="checkbox"/> Myocardial Infarction
	<input type="checkbox"/> Left ventricular failure
	<input type="checkbox"/> Circulatory shock
	<input type="checkbox"/> Raised intracranial pressure/ intracranial hemorrhage

Objectives:

Upon completion of this course students should be able to:

1. Identify the anatomy of mediastinum, heart chambers, valves, great vessels and their distribution.
2. Describe the microscopic appearance of different parts of the cardiovascular system, normal embryological development with their common congenital abnormalities.
3. Describe and understand the anatomy and physiology of cardiac muscle, electrocardiogram ,cardiac cycle, hemodynamics, regulation of blood flow and blood pressure, microcirculations, and the mechanism of edema, cardiac failure and circulatory shock.
- 4- Explain the metabolism of the cardiac muscles and the value of the cardiac enzymes and their role in the diagnosis of acute myocardial disease.
5. Describe the role and types of lipoprotein disorders and the mechanism of formation of atherosclerosis.
6. Explain the characteristics of some of infection of cardiovascular system, endocarditis, myocarditis, pericarditis, vasculitis.
7. Define the more common types of cardiovascular diseases with emphasis on etiology, mechanism, morphology and briefly to correlate the pathological aspects of diseases with clinical manifestations.
8. Understand the mechanisms of action, pharmacokinetics, uses and adverse effects of commonly used drugs in the treatment of cardiac failure, cardiac arrhythmias, hypertension, angina and drugs used in hyperlipidemias.
9. Identify and discuss the major cardiovascular risk factors in health and diseases.
10. Describe the nutritional and dietetic components in the etiology, management, and prevention of cardiovascular diseases.

Departments	Course content	Learning outcomes .	Duration / time/Teaching Method	VENUE	Recommended books/other sources
Day 1 Monday 25.05.15					
Anatomy Dr Suhail	General anatomy of CVS. ➤Blood vascular system ➤Lymphatic system ➤Systemic pulmonary and portal circulation ➤CSF, peri& endo lymphatic Aqueous humor, synovial fluid	The student should be able to enumerate various divisions of circulatory system. Classify vessels and describe function of each type.define types of portal circulations.define and identify fluid types and their site of formation and drainage.	30 min / 8.00-8.30am/ Lecture	OLD AUDITORIUM	Comprehensive principles of general Anatomy by Dr. Ghulam Ahmad. General Anatomy By Dr. Tassaduq Hussain
Anatomy Dr Suhail	Anastomosis and their types End arteries and their significance.	The student should be able to:- 1. Define types of arterial and venous anastomosis,identify location where they are presentand explain their significance.	45 min/ 8.30-9.15/ Lecture	OLD AUDITORIUM	Comprehensive principles of general Anatomy by Dr. Ghulam Ahmad. General Anatomy By Dr. Tassaduq Hussain
Physiology . Dr M Shahid Saeed	Overview of CVS. Functions of each part of CVS.Blood flow distribution,blood pressures in different vessels,blood volume and C/S area to velocity relation .Receptors and neurotransmitters acting on CVS	The students should be able to:- 1. Describe the systemic and pulmonary circulation and their differences. 2. Explain the functional parts of CVS. 3. Discuss blood volume and pressure in different parts of CVS. 4. Describe the blood velocity and flow through different parts of CVS and its relation to cross sectional area. 5. Discuss the basic functions of CVS.	1 hr / 9.15-10.15/ Lecture	OLD AUDITORIUM	Text book of Physiology by Guyton & Hall Review of Physiology by Ganong.
BREAK 10.15-10.45					
Histology Dr Mahjabeen	Heart. 1-Histology of epicardium, myocardium and endocardium 2-Light and electron microscopic features of cardiac muscle	The Students must :- 1. identify the histological structure of layers of the heart 2.explain the light and E/M features of cardiac Muscle	45 min/ 10.45-11.30/ Lecture	OLD AUDITORIUM	Basic Histology by Junquiera Functional Histology by Wheater
	3-Histological structure of valves and interventricular septum.	3. Correlate the structure and functions of sarcoplasmic reticulum, T tubules and formation of diad. 4.enumerate the components of intercalated disc.			
Medicine	Examination of CVS on patient or	The students should be able to :-	1 hr/	OLD	Bedside clinical methods

Dr M Naeem Afzal EMW	subject.	1-To inspect palpate, percuss auscultate the precordium. 2-To distinguish the normal heart sound. 3-To differentiate between normal heart sound and abnormal heart sounds. 4-To measure the JVP	11.30-12.30/ Lecture	AUDITORIUM	
Physiology Practical. Taken by respective batch teachers.	Demonstration of Exposure of Frog,s Heart & Recording of NCG	Student should be able to dissect frogs by himself and exposure of heart and its mounting on kymograph, Student should be able to Record Normal Cardiogram& Study the Effects Of Temp.	2 hrs/ 12.30-2.30/ practical	Physiology & Biochem Labs	Practical book by Prof. M Akram

Day 2 Tuesday 26.5.15

Histology Dr Mahjabeen	Three layered structure of circulatory system. Macroscopic anatomy of elastic arteries,muscular Aa, arterioles,venules. Difference between veins and arteries.	The student should be able to 1-enumerate three layers of circulatory system and describe their composition.2-role of myointimal cells in atherosclerosis 3-functions of endothelial cells. 4-tunica media and associated collagenopathies.5-describe the histological structure of elastic and muscular arteries and differentiate between arteries and veins.	1 hr/ 8.00-9.00am/ Lecture .	OLD AUDITORIUM	Basic Histology by Junquiera Functional Histology by Wheater
Gross Anatomy Demonstration. Taken by Batch teachers	Gross anatomy of heart location of apex beat Anatomy of pericardium and its surface land mark's	The student should be able to locate apex beat, its importance and different areas of pericardium and their auscultation.	1hr/ 9.00-10.00am/ Demo	Anatomy DH	Clinically oriented anatomy by KLM Anatomy regional and applied by RJ Last.

BREAK 10.00-10.30

Physiology Dr M Shahid Saeed	Pericardium and pericardial fluid	The student should be able to describe the important functions of pericardium and pericardial fluid..	45 min/ 10.30-11.15/	OLD AUDITORIUM	Text book of Physiology by Guyton & Hall Review of Physiology by
Cardiology Dr. M. Aftab	Pericardial effusion Pericarditis. Cardiac tamponade and its treatments	The student should be able to explain the basis of pericarditis and its clinical manifestation.	30min/ 11.15-11.45/ LGD	OLD AUDITORIUM	Davidson's principles and practice of Medicine
Community Medicine	Epidemiology of CVS diseases	Student should be able to describe the	45 min/	OLD AUDITORIUM	PARK,S Text Book Of Community Medicine

Dr M N Tabassum		incidence, prevalence, and risk factors of CVS Diseases.	11.45-12.30pm/Lecture		
Anatomy Dissection Respective Batch Teachers	Layers of Pericardium. Pericardial cavity and sinuses Blood and nerve supply of pericardium Clinical anatomy of pericardium.	The student should be able to: 1.enumerate pericardial layers 2.describe oblique and transverse sinuses and importance. 3.describe pericarditis,pericardial effusion,pericardial rub, cardiac tamponade, pericardiocetesis.	2hr/12.30-2.30pm/dissection.	Anatomy Dissection hall.	Clinically oriented anatomy by KLM Snell's clinical Anatomy.
Day 3 Wednesday 27.5.15					
Gross anatomy Demonstration Respective Batch Teachers	External features of heart Surface, borders and chamber placement.Interventricular and interatrial grooves.Relation of various surfaces. Surface anatomy of heart.	The students should be able to place heart in anatomical position.2-identify chambers of heart.3-describe formation of surface, borders. Mark surface anatomy of heart on cadavers and living specimen.	1hr/ 8.00-9.00 am/ Demonstration	Anatomy DH.	Clinically oriented anatomy by KLM Snell's clinical Anatomy.
Histology Dr Mahjabeen	Structure and classification of capillaries. Pericytes and their functions	The student should be able to 1-enumerate types of capillaries continuous fenestrated sinusoidal etc.,2-Formation of blood thymic and blood brain barrier.	1hr /9.00-10.00 am/ Lecture	OLD AUDITORIUM	Basic Histology by Junquiera Functional Histology by Wheater
BREAK 10.00-10.30					
Biochemistry Dr Samia Naz	Metabolism of heart muscle	Students will know the special feature of metabolism of Glucose protein and fat in cardiac muscle and also will be able to compare the metabolic feature in cardiac and skeletal muscle.	30min/10.30-11.00 am/lecture	OLD AUDITORIUM	Harper's Biochemistry 28 th ed. Lippincott's illustrated reviews Biochemistry
Physiology Dr Imrana	Physiology of heart muscle Action potentials and refractory period and state of excitability during this	The student must be able to:- 1. Explain the mechanism of autorhythmicity and excitability.	1hr 15 min/11.00-12.15	OLD AUDITORIUM	Text book of Physiology by Guyton & Hall Review of Physiology by

	period.	2. Describe and draw action potential of nodes and muscle 3. Prepotential and effect of ANS on it.	pm/lecture		Ganong
Histology Practical in 3 Batches	cardiac muscle and conducting system of heart under the light microscope. Structure of intercalated discs.	The student should be able to recognize and draw cardiac muscle under the light microscope. Differentiate between skeletal and cardiac muscle under the light microscope in both longitudinal and cross section.	2 hr/ 12.15-2.15pm /practical.	HISTO LAB PHYSIO LABs Anatomy lecture theater.	Difoire atlas of Histology.
Day 4 Thursday 28.5.15					
Embryology Dr Zahra Haider	Development of pericardium and early development of heart. 1.angiogenesis 2.cardiogenic field 3.formation and position of heart tube. 4.external shape of the heart 5.cardiac loop 6.sinus venosus. 7.molecular regulation of cardiac development.	The student should be able to describe early development of pericardium and blood vessels. Under stand relation of cardiogenic field with pericardial cavity. Describe the effect of folding on heart tube. Enumerate various parts of cardiac lopp and structures derived from it. Veins draining into sinus venosus and left to right shunting Inducing and inhibitory factors in heart development.	1hr 8.00— 9.00 AM/lecture	OLD AUDITORIUM	The developing human Moore and Persaub Lang Mans Medical Embryology
Gross Anatomy Demonstration. Respective batch teachers.	Internal features of the heart. Right and left atria and ventricles. Inflow and outflow tracts. IVS., fibrous skeleton of heart and valves. Conducting system Auscultatory areas of heart.	The student should be able to describe the formation and internal features of left and right atria and ventricles. Openings and features of medial wall of right Atrium Formation and closure of foramen ovale Inflow and outflow tract of ventricles Structure of valves, papillary muscle and chordae tendinae Membranous and muscular parts of IVS.location of conducting system.	45min /9.00-9.45am /demonstration	Anatomy DH	Clinically oriented anatomy by KLM Anatomy regional and applied by R.J.Last.
BREAK 9.45-10.15					
Physiology Dr Imrana	Cardiac cycle and its events	The student should be able to 1- draw and define CC and enumerate its various phases.	1hr 30min 10.15-	Old auditorium	Text book of Physiology by Guyton & Hall

		2-explain the pressure changes in aorta pulmonary artery left ventricle and right ventricle and right atrium with clear understanding of JVP' 3- volume changes in the ventricles like EDV and ESV. 4-pressure-volume loop of LV. 5-Understand that turbulence and vibration of blood and vessel walls produce heart sounds. 6-Correlate the electrical and mechanical events during CC	11.45am Lecture		Review of Physiology by Ganong
Cardiology Dr. Waseem Ahmad	Concept of normal ECG and funny's current.	1. The student should be able to know the normal ECG and causes of Prolong and short P wave, prolong PR interval ST segment elevation and tall tented T wave and U wave and causes of axis deviation. 2. The student should know what Funny's current is, its role in automaticity and control of heart rate.	45min/ 11.45- 12.30pm/lecture	Old auditorium	Davidson's principles and practice of Medicine
Physiology Practical . Respective batch teachers.	Recording of normal cardiogram & Effectsof Temp on Frog,s Heart	Student Should be able to demonstrate the shifting of pace maker and vagal escape	2hr /12.30- 2.30 pm/practical	PHYSIOLOGY LABS PHYSIOLOGY LECTURE THEATER biochemistry lab	Practical book by Prof.M Akram
Day 5 Friday 29.5.15					
Embryology Dr Zahra Haider	Development of CVS 2 Internal specializations.Division of atrioventricular canal.Formation of IAS.Septum primum and secundum.Formation of right and left	The student should be able to describe 1-fate of r and L venous valves 2-formation and function of endocardial Cushions 3-partitioning of primordial atrium	1hr/ 8-9 am/ lecture	OLD AUDITORIUM	The developing human Moore and Persaub Lang Mans Medical Embryology

	atria. Formation of bulbar ridges and division of conus cordis into infundibulum and aortic vestibule	4- development of R and L atria and Ventricles 5- formation of aorta and pulmonary trunk.			
Gross Anatomy Demonstration in Respective Batches	Blood and nerve supply of heart. Coronary Aa, cardiac veins and coronary sinus Arterial supply and venous drainage of heart. Cardiac plexus Angina pectoris and MI	Student should be able to describe 1- origin, course, branches, area of distribution of coronary Aa. 2- Right dominance of heart. 3- underlying principles of CABG 4- most common sites of coronary artery occlusion 4- venous drainage of heart and coronary sinus.	1 hr/ 9-10 am/ demonstration	Anatomy DH	Clinically oriented anatomy by KLM Anatomy regional and applied by R.J. Last.
BREAK 10-10.30					
Physiology Dr Imrana	Conduction, normal and abnormal pacemakers of heart. Contraction and its control.	The student should be able to explain:- 1. The normal conducting system in heart 2. A-V nodal delay 3. Excitation contraction coupling. 4. Explain the role of Na-K ATPase and Na-Ca exchanger and use of digoxin as positive inotropic and -ve chronotropic agent. 5. Frank-Starling's law of heart. 6. effect of ANS on contractility of heart. 7. Normal vectorgram during conduction of cardiac AP.	1hr 30min/ 10.30-12.00 noon/lecture.	OLD AUDITORIUM	Text book of Physiology by Guyton & Hall Review of Physiology by Ganong
Medicine Dr Fawad Randhawa	Stokes- Adams syndrome, ventricular escape beats.	The student should be able to know the basis of Stokes-Adams syndrome, ventricular escape beats, PVC's.	30min / 12-12.30pm/ Lecture	OLD AUDITORIUM	Davidson's principles and practice of Medicine
Day 6 Saturday 30.5.15					
Gross Anatomy Demonstration	Anatomy of Mediastinum superior. Divisions, boundaries and contents of mediastinum.	The student should be able to define mediastinum, describe its divisions, describe the contents and relations of middle mediastinum.	45min / 8.15-9.00 am/ demonstration	Anatomy DH	Clinically oriented anatomy by KLM Anatomy regional and applied by R.J. Last.

Physiology Dr Amna Tahir	Normal ECG along with conduction Defects	The students should draw and describe the ECG paper ,its time and voltage criteria,normal waves,segments and intervals of ECG.ECG lead systems.Einthoven's law.Calculate heart rate from ECG. Classification of heart blocks.	1hr 15min/9.00- 10.15 am/lecture	OLD AUDITORIUM	Text book of Physiology by Guyton & Hall Review of Physiology by Ganong
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BREAK 10.15-10.45

Cardiology Dr. Waseem	Tachyrrhythmias,determination of normal cardiac axis and axis deviations.	The student should be able to describe and draw the basis of sinus tachycardias, SVT and ventricular tachycardias. And conditions associated with axis deviation.	1hr/ 10.45- 11.45am/ Lecture	Old auditorium	Davidson's principles and practice of Medicine
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Embryology Dr Zahra Haider	Development of CVS 2 Congenital abnormalities of heart.	The student should be able to:- Apply their knowledge of cardiac development to understand the basis of commonly occurring congenital abnormalities.	45min / 11.45- 12.30pm/ Lecture	Old auditorium..	The developing human Moore and Persaub Lang Mans Medical Embryology
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Physiology Practical batch teachers.	Effects of Drugs on frog's Heart	Student should demonstrate the effect of adrenaline, acetylchline, propranolol and atropine on heart performance and describe its physiological basis.	2hr/ 12.30-2.30 pm/ Practical	Physiology labs and theater.bioche mistry lab.	
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Day 7 Monday 1.6.15

Dissection. Respective batch teachers.	External and internal features of heart	The student should be able to know the structure of valves and their locations and functions and associated abnormalities.	45min/ 8-8.45 am/ Lecture	Anatomy dissection hall	Clinically oriented anatomy by KLM Anatomy regional and applied by R.J.Last.
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Embryology Dr Zahra Haider	Development of Vascular system 1 and 2 Development of intraembryonic, vitellineand placental networks.Development and fate of aortic arches.development of dorsal	The students should be able to name the NO. of aortic arched and structures derived from them.The effect of asymmetric development of 6 th aortic arch.Location of dorsal Aorta.Distribution of branches of Aorta.Apply this knowledge to understand commonly	1hr/ 8.45- 9.45 am/lecture	Old auditorium	The developing human Moore and Persaub Lang Mans Medical Embryology
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	aorta and its branches. PDA, Coarctation and other anomalies of vascular system	occurring congenital anomalies.			
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BREAK 9.45-10.15

Physiology Dr M Shahid Saeed	Normal functions of valves, normal heart sound, phonocardiogram	The student should be able to 1-describe the physiological basis of normal and abnormal heart sounds. 2- Features of s1,s2,s3 and s4. 3-Explain the physiological splitting of heart sounds.	1hr/ 10.15-11.15 am/lecture	Old auditorium	Text book of Physiology by Guyton & Hall Review of Physiology by Ganong
Medicine Dr Uzma Malik	Valvular heart diseases auscultation of heart sounds	The student should be able to EXPLAIN THE location of precordial auscultatory areas and conditions associated with valvular heart diseases.	1hr / 11.15-12.15pm/ Lecture	Old auditorium	Davidson's principles and practice of Medicine
Histology Practical Respective Batches	Elastic & muscular arteries	The student should be able to:- 1. Identify the layers and draw elastic and muscular arteries under light microscope. 2. Differentiate between the two arteries under the light microscope.	2hr / 12.15-2-15 pm/ Practical	Histology lab physiology labs . Anatomy lec theater.	Difoire atlas of Histology

Day 8 Tuesday 2.6.15

Gross anatomy Demonstration Respective Batches	Mediastinum Anterior and Posterior	The students should be able to apply their knowledge of cardiac development to understand basis of commonly occurring congenital anomalies.	1hr/ 8-9 am/ Demonstration	Anatomy hall	The developing human Moore and Persaub Lang Mans Medical Embryology
Cardiac surgery Dr. Aftab Younas	Treatment of congenital diseases	The students should know :- 1. The basis of treatment of VSD, ASD and PDA. 2. The principle steps in surgical treatment.	30min/ 9.00-9.30am/ Lecture	Old auditorium	

Break 9.30-10.00

Physiology Dr Amna Tahir	Pathophysiology of Arrhythmias and cardiac arrest	The students should be able to describe increased automaticity, ectopic foci, circus movements as cause of cardiac arrhythmias. Explain causes of cardiac arrest and its treatment.	1hr/ 10.0-11.00 am/ Lecture	Old auditorium	Text book of Physiology by Guyton & Hall Review of Physiology by Ganong
Cardiology Dr. Asma Sharif	Clinical presentation of arrhythmias and presentation on ECG along with treatment	The student should know about the clinical and ECG presentation of supraventricular, tachycardia, ventricular tachycardia and atrial fibrillation.	1hr/ 11.00-12.00 / Lecture	Old auditorium	Davidson's principles and practice of Medicine
Pharmacology Dr. Afzaal	Mechanism of action of anti arrhythmic drugs	The students should know to:- 1. Describe the main features of the major group of antiarrhythmic drugs. 2. Describe mechanism of action of each group. 3. Understand pharmacokinetics clinical uses and side effects of these drugs.	30min/ 12.0-12.30 pm/ Lecture	Old auditorium	Basis and clinical Pharmacology (Bertram G. Katzung) Lippincott's Illustrated Reviews of Pharmacology
Physiology Practical	Effect of inorganic ions on frog's heart	Student should demonstrate the effect of Sodium, Potassium & Calcium ions	2hr/ 12.30-2.30 pm/ Practical	Physiology lab and lecture theater, biochemistry lab.	Practical book by Prof.M.Akram

Day 9 Wednesday 3.6.15

Physiology Dr Syed M Zubair	Concepts of preload, after load, stroke volume, cardiac output and its regulation and venous return	The students must be able to:- 1. Define the cardiac output and cardiac index. 2. Factor affecting cardiac output. 3. Describe the role of right arterial pressure mean circulatory filling pressure. 4. To study the effect of in symphatic activity and blood volume on cardiac output.	2hr 8.00- 10.00am/ Lecture	Old auditorium	Text book of Physiology by Guyton & Hall Review of Physiology by Ganong.
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Break 10.00-10.30

Medicine Dr Dur M Khan	Heart failure and its type	The student should know to differentiate between the causes, types and treatment of preloaded, after loaded and pump failure.	1hr/ 10.30-11.30 am/ Lecture	Old auditorium	Davidson's principles and practice of Medicine
Pharmacology Dr. Fawad	Drugs involved in treatment of CCF and their mechanism of action		1hr/ 11.30-12.30 pm/ Lecture	Physiology lecture theater.	Bertram G. Katzung Lippincott's Illustrated Reviews of Pharmacology
Physiology Practical	Examination of Precordium	Student should be able to examine the Precordium Of the Given subject	2hr / 12.30-2.30 pm/ Practical	Physiology lab and lecture theater, biochemistry lab.	Practical book by.M.Akram

Day 10 Thursday 4.6.15

Clinical Anatomy of CVS Dr Lubna	.		1 Hr 15 min / 8.00-9.15 am/ Lecture	Old auditorium	Clinical anatomy by KLM and Snell.
Pathology Dr. Raana	Endothelial derived factors.	1. The student should know about the different factors and their mechanism of action. 2. The role of antagonist to endothelial derived growth factor in macular eye degeneration	15 min / 9.15-9.30 am/ Lecture	Old auditorium	Robin's pathology
Physiology Dr Imrana	Physical principles of circulation. Volume of blood in different part of circulation measurement of blood flow.	The students should:- 1. Study relationship between pressure, flow and resistance. 2. Discuss the laminar and turbulent blood flow. 3. Understand method of measurement of blood flow. Define blood pressure and its standard unit. 4. Discuss the resistance of blood flow,	45 min / 9.30-10.15 am/ Lecture	Old auditorium	Text book of Physiology by Guyton & Hall Review of Physiology by Gagnon

		peripheral and pulmonary resistance and effect of hematocrit on vascular resistance.			
Break 10.15-10.45					
PBL Medicine Dr Imran Mahfooz	Breathlessness (LVF/CCF)		2hr/ 10.45-12.45 pm/PBL	Old auditorium	Uploaded Material
PBL Cardiology Dr. M. Aftab	Myocardial infarction		2Hr/ 12.45 to 2.30	Old auditorium	Uploaded Material
Day 11 Friday 5.6.15					
Physiology Dr Imrana	Vascular capacitance and distensability, and arterial pulsation	<ol style="list-style-type: none"> 1. Describe the vascular distensability and its difference in arteries and veins. 2. Study and understand laplace law. 3. Discuss the vascular compliance and delayed compliance. 4. Describe arterial pressure pulsation and transmission of pressure pulses to the peripheral arteries. 5. Discuss the functions of the veins, venous pressure, venous resistance, venous valve and venous pump 	1hr/ 8-9 am/ Lecture	Old auditorium	Text book of Physiology by Guyton & Hall Review of Physiology by Gagnon
Cardiology Dr. Naveed	Abnormal pressure pulse contours	Student should be able to compare normal pressure pulse with aortic regurgitation, aortic stenosis, PDA.	30 min /9-9.30 am/ Lecture.	Old auditorium	Davidson's principles and practice of Medicine
Pathology Dr. Samina	Atherosclerosis	The student should know the basis of Atherosclerosis.	1hr/ 9.30-10.30 am/ Lecture	Old auditorium	Guyton's and Ganong's Physiology
Break 10.30-11.00					
Medicine Dr Suhail Bashir	Ischemia heart disease (IHD) and its treatment	The student should know about the clinical presentation and treatment of IHV.	1hr/ 11.00-12.00 /Lecture	Old auditorium	Davidson's principles and practice of Medicine

Pharmacology Dr. Afzal	Drugs involved in treatment of ischemia and their mechanism of action		30min / 12-12.30. pm/ Lecture	Old auditorium	Basis and clinical Pharmacology (Bertram G. Katzung) Lippincott's Illustrated Reviews of Pharmacology
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Day 12 Saturday 6.6.2015

Physiology Dr Syed Zubair	Veins and their functions venous pumps and their effects on venous pressure. Central venous pressure.	Student should know the function of veins and clinical importance of CVP.	1hr/8-9 am/lecture	Old auditorium	Text book of Physiology by Guyton & Hall Review of Physiology by Gagnon
Medicine Dr Adil Iqbal	Measurement of CVP and CVP line	Student should know the indications of CVP line.	1hr / 9-10 am/ Lecture	Old auditorium	Uploaded material

Break 10-10.30

General Surgery Dr. Ameer	Phlebothrombosis and concepts of varicose veins.	Student should know the clinical manifestations of in these diseases and causes.	1hr/ 10.30- 11.30am/ Lecture	Old auditorium	Uploaded material
Histology Practical in Batches	Arterioles veins and capillaries Light microscopic features of arterioles veins and capillaries.	The students should be able to:- 1. Differentiate between arterioles capillaries and venules under light micro scope and draw them.	2hr / 11.30-1.30 pm/ Practical	Histology lab physiology labs anatomy lecture theater.	Difoire Atlas of Histology
Tutorial Physiology. Respective Teachers	Preparation till course covered.	Student should be able to describe the concepts covered at completion of 50% module	1.30-2.30	Physiology lecture theater,LABs and biochemistry lab.	

Day 13 Monday 8.6.15

Anatomy. Dr Lubna	Radiology of CVS.	The student should be able to read the normal CXR relevant to CVS.	1hr/ 8-9 am/ Lecture	Old auditorium	Clinically oriented anatomy by KLM Anatomy regional and applied by R.J.Last.
Gross Anatomy Demonstration	Lymphatic drainage of thorax.	The student should know the lymphatic drainage.	1hr / 9-10 am/ Demonstration	Anatomy DH	Clinically oriented anatomy by KLM Anatomy regional and applied by R.J.Last.

Break 10.00-10.30

Physiology Dr Zubair	Microcirculation and its functions.Starlings forces and development of edema.edema safety factor.causes of edema.	Student should be able to 1- Differentiate b//w interstitium and interstitial fluid.2- Describe the mechanism of development of edema.3-describe the starling forces and net forces.	1hr 15min/ 10.30-11.45 am/ Lecture	Old auditorium	Text book of Physiology by Guyton & Hall Review of Physiology by Gagnon
Pathology Dr. Raana	Exudates and transudate	Differences and pathological diseases associated	30min/ 11.45-12.15 pm/ Lecture.	Old auditorium	
Physiology Practical	Examination of radial pulse and study the various characters of pulse.	Student should be able to describe the radial pulse in terms of rate, rhythm, volume, character, condition of vessel wall,radiofemoral delayshould know the pathophysiology of abnormal pulses.	2hr / 12.30-2.30 pm/ Practical	Physiology labs and theater.biochemistry lab.	Practical book by Prof.M.Akram

Day 14 Tuesday 09.6.15

Physiology Dr Amna	Lymphatic system	Student should know how lymphatics work and there important role in drainage of fluid.	1hr 15min/ 8-9.15 am/ Lecture	Old auditorium	Text book of Physiology by Guyton & Hall Review of Physiology by Gagnon
Medicine Prof Dr Irshad Hussain	Edema and its causes	1. The student should know about the edema due to decreased colloid	1hr/ 9.15-10.15	Old auditorium	Davidson's principles and practice of Medicine

osmotic pressure and increased hydrostatic pressure. am/ Lecture

2. Clinical features of diseases associated with increased tissue fluid.

Break 10.15-10.45

Pathology Dr. Jalees	Lymph-edema and lymphadenitis	The students should know the C/F of lymphatic Filariasis and elephantiasis.	45 min / 10.45-11.30am/ Lecture	Old auditorium	Uploaded lecture
Pharmacology Dr. Riaz	Role of diuretics and mineralocorticoid antagonist in edema and their mechanism of action.	The student should know:- 1. About the role and mechanism of diuretics in edema. 2. About the role and mechanism mineralocorticoid antagonist in treatmentof edema.	1hr / 11.30-12.30 pm/ Lecture .	Old auditorium	Katzung's pharmacology.
PBL Medicine	Postural Hypotension 1 HR (Dr Bilquis) 12.30-1.30 Raised Intra Cranial Pressure 1HR (Dr Athar Javaid) 1.30-2.30	Student should know the causes, treatment & Complications	2hr/ 12.30-2.30pm/	Old Auditorium	Uploaded Material

Day 15 Wednesday 10.6.15

Physiology Dr Zubair	Local control of blood flow by tissues. Effect of local metabolites. Reactive and active hyperemias.	Student should be able to explain the metabolic and nutrient demand theory of blood flow control.(autoregulation). Explain the long term blood flow control (angiogenesis)	1hr 15min/ 8-9.15 am/ Lecture	Old auditorium	Text book of Physiology by Guyton & Hall Review of Physiology by Gagnon
Pathology Dr. Hameed	Thormboembolism,overview of clotting cascade and platelet functions	1. Should know the mechanism of thrombosis and embolism and DVT.	1hr / 9.15-10.15	Old auditorium	Robbins & Cotran Pathlogic basis of disease 8 th ed

	,virchow's triad, hypercoagulation states.brief view of DVT.	2. Should know about the function of macrophages.	am/ Lecture		
Break 10.15-10.45					
General surgery Dr. Ameer	Peripheral vascular diseases	Definition Clinical presentation with management.	45min/ 10.45-11.30 am/ Lecture	Old auditorium	Uploaded material
Pharmacology Dr. Najam	Anticoagulents and thrombolytics.	Should know mach. Of action of drugs , indications and contrindications'.	1hr/ 11.30-12.30 pm/ Lecture	Old auditorium	Basis and clinical Pharmacology (Bertram G. Katzung) Lippincott's Illustrated Reviews of Pharmacology
Physiology Practical	Study of normal ECG and JVP	Student should be able to recognize different waves, segments and intervals of ECG and know the examination of Jugular Venous Pressure	2hr/ 12.30-2.30 pm/ Practical	Physiology labs and lecture theater.bioch emistry lab.	Practical physiology by M.Akram
Day 16 Thursday 11.6.15					
Surface Anat Demo in Respective Batches	Embryology CVS 3 Development of venous system Anamolies of venous system Fetal circulation and changes in circulation after birth..	The students should be able to 1.enumerate the fate of vitelline,umbilical and cardinal veins 2.describe the steps involved in the shift of originally symmetrical venous system to right side.	1 Hour/ 8-9 am/ Lecture	Old auditorium	The developing human Moore and Persaub Langmans Medical Embryology
Physiology Dr Amna	Cerebral Circulation	Student should be able to explain Physiological Basis of Cushing,s Reaction & Reflex Bradycardia	30 min/ 9.-9.30 am/	Old auditorium	Text book of Physiology by Guyton & Hall Review of Physiology by

Lecture

Physiology

Exercise Physiology of CVS

Should know 1. Types of Exercise 2. Basis of Exercise Physiology & Effect of Stress on Heart 3. Sympathetic Stimulation & Performance of Heart 4. TPR in Exercise 5. Responses of Intact & Transplanted Heart in Exercise

1 hr/
9.30-
10.30am/
Lecture

Old
auditorium

Davidson's principles and
practice of Medicine

Dr Imrana

Break 10.30-11.00 am

Pharmacology
Dr. Riaz

Role of Diuretics & Associated
drugs in Lowering ICP

Students should know the mechanism of
action, indications & Contraindications of
ICP Lowering drugs

45 min
11.00 to
11.45 am/
Lecture

Old
auditorium

Neurosurgery
Dr. Azam Niaz

Hydrocephalus & its Types. Role of
shunting

Students should know the types of
Hydrocephalus & Their Treatments

45 min
11.45-12.30
Lecture

Old
auditorium

Uploaded Material

Cardiology

Left Ventricular Failure (1hr PBL)
Dr. Asma / Dr. Tanvir
Exercise Tolerance Test (30 min
Lect) Dr. Naveed

Students should know causes & treatment
of LVF,
Students should know the indications &
interpretation of ETT

2hr /
12.30-1.30
(PBL)
1.30-2.00
Lect

Old
Auditorium

Uploaded Material

Community Medicine Dr M N Tabassum	Prevention of hypertension .		30 min / 12.00-12.30 / Lecture	Old auditorium	Uploaded material on website
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DAY 18 Saturday 13.6.15

Physiology Dr. Amna Tahir	Renal control of blood pressure, role of ADH and aldosterone.	The student should explain the renal-body fluid and renin angiotensin aldosterone mechanisms of long term BP control and	1hr.30 min/ 8-9.30 am/ Lecture	Old auditorium	Text book of Physiology by Guyton & Hall Review of medical Physiology by Gagnon
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Medicine/ Nephrology Dr M Anees	Chronic renal failure due to hypertension.	Students should know the causes, treatment & Complications of CRF	45 min/ 9.30- 10.15am/ Lecture	Old auditorium	Davidson and uploaded lecture
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Break 10.15 -10.45

Ophthalmology Dr. Ali Ayyaz	Retinal changes in chronic hypertension.	Students should know the retinal changes in Hypertension	30 min / 10.45-11.15 am/ Lecture	Old auditorium	Uploaded material on website
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Pharmacology Dr. Rubina	Ant-hypertensive drugs.	Students should know different classes mechanisms and contra indication of ant- hypertensive drugs.	1hr.15 min/ 11.15-12.30 pm/ Lecture	Old auditorium	katzung
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PBL Medicine Dr Mohsin Zaheer	Raised intracranial pressure and intracranial hemorrhage.	Student should know causes, symptoms and treatment of intracranial hemorrhage	2hr / 12.30-2.30 pm/ PBL	Old auditorium	website
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DAY 19 Monday 15.6.15

clinical Anatomy Dr Suhail	Blood supply of heart	Student should know coronary circulation and concept of end arteries and their role in infarction	1hr/ 8-9 am/ Lecture	Old auditorium	Clinically oriented anatomy by KLM Anatomy regional and applied by R.J.Last.
Physiology Dr. S. M. Zubair	Regulation of coronary circulation and effects of exercise	Autonomic regulation of blood flow along with effect of different types of stress eg. Exercise on heart and its blood flow	1hr/ 9-10 am/ Lecture	Old auditorium	Text book of Physiology by Guyton & Hall Review of Physiology by Gagnon
Break 10.00 -10.30					
Cardiology Dr. Balquees	MI and subendocardial infarction, angina and ECG correlation.	Student must know sign and symptoms of IHD and its different types with ECG changes	45min / 10.30- 11.15am/ Lecture	Old auditorium	Davidson's principles and practice of Medicine
Pathology Dr. Samina	Events and stages in development of MI.	Pathology of MI and development of atherosclerotic plaque	30min/ 11.15- 11.45am/ Lecture	Old auditorium	Robbins & Cotran Pathologic basis of disease 8 th ed
Pharmacology. Dr. Nawaz	Lipid lowering drugs and their mach. Of action.	Concept of hyperlipidemia and role of drugs in prevention of hyperlipidemic states and syndromes associated with them.	45min/ 11.45-12.30 / Lecture	Old auditorium	Basis and clinical Pharmacology (Bertram G. Katzung) Lippincott's Illustrated Reviews of Pharmacology
Cardiac Surgery Dr. Aftab	Coronary artery bypass.	Types of CABAG and role of extracorporeal circulation	30 min/ 12.30- 1.00pm	Old auditorium	

PBL cardiology dept .Dr. Balquees	Chest pain (Angina pectoris)		1.5hr/ 1.00-2.30 pm/ PBL	Old auditorium	website
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Day 20 Tuesday 16.6.15

Biochemistry Dr Samia Naz	Concept of hyperlipidemias Metabolic syndromes associated with it.	Student should know the risk factors and consequences of hyperlipidemia. the basis of VLDL,LDL,HDL, and their associated risk factors.	1 hr/ 8-9 am/ Lecture	Old auditorium	Lippincott
Pharmacology Dr. Nawaz	Anti- hyperlipidimic drugs	Student should know the mech. Of action, indications and contra indication of anti-hyperlipidemic drugs.	45 min/ 9-9.45am/ Lecture	Old auditorium	Basis and clinical Pharmacology (Bertram G. Katzung) Lippincott's Illustrated Reviews of Pharmacology

Break 9.45-10.15

Pathology Dr. Umar	Fasting lipid profile and Pathology of lipid storage diseases.	Student should know the importance of Fasting lipid profile and importance of lipid storage diseases	45 min/ 10.15-11.00 am/ Lecture	Old auditorium	Robbins & Cotran Pathlogic basis of disease 8 th ed
Medicine Dr Samar Firdous	Treatment of hyperlipidimas and obesity		45 min / 11.00- 11.45am/ Lecture	Old auditorium	
Community Medicine Dr M N Tabassum	Prevention of Obesity		45 min /11.45-12.30 pm/lecture	Old auditorium	
Physiology Practical	Measurement of arterial BP by palpatory and auscultatory methods.	Student must be able to determine the blood pressure of the given subject by palp and	2 Hrs /12.30- 2.00	Physiology labs, lecture	Physiology practical book.

	Effect of posture on blood pressure.	auscult methods and determine the difference in lying sitting and standing positions.	pm/Practical	theater and biochemistry lab	
Day 21 Wednesday 17.6.15					
Physiology Dr Syed Zubair	Hypotension, Types of shock , and its physiology	Student should know neurogenic ,hypovolemic and other types of shock	1hr 30min/ 8-9.30 am/lecture	Old auditorium	Text book of Physiology by Guyton & Hall Review of Physiology by Gagnon
Break 9.30-10.00					
Pathology Dr. Hameed	Pathology of all types of shock	Pathologic manifestations of shock with conditions associated.	1hr 15min/ 10.00-11.15am/ Lecture	Old auditorium	Robbins & Cotran Pathologic basis of disease 8 th ed
Medicine Dr Waseem	Treatment of cardiogenic,Anaphylactic, neurogenic and septic shocks.	Therapies required in circulatory shock management.	1hr/ 11.15-12.15am/ Lecture	Old auditorium	Davidson's principles and practice of Medicine
General Surgery Dr. Ameer	Treatment of hemorrhagic shock	Students should know hypovolemic shock and how it present after trauma.	15 Min/ 12.15-12.30/ Lecture	Old auditorium	Bailey and Love text book of surgery
PBL General surgery Department Dr. Ameer	Circulatory shock		2hr / 12.30-2.30pm/ PBL	Old auditorium	Bailey and Love text book of surgery

EVALUATION OF THE CVS MODULE. ON Thursday 18.6.2015

TIME 9.00am-12.00noon. TOTAL MARKS 100

PASS MARKS 50%

TIME ALLOWED 55 MINUTES FOR MCQ'S

2 HRS FOR SEQ'S 10 SEQ's of 5 mark each.

50 MCQ'S OF ONE BEST ANSWER TYPE OF 1 MARK EACH

NOTE: In case of any Holiday or change of venue the respective teachers will be informed by the Module Coordinator.