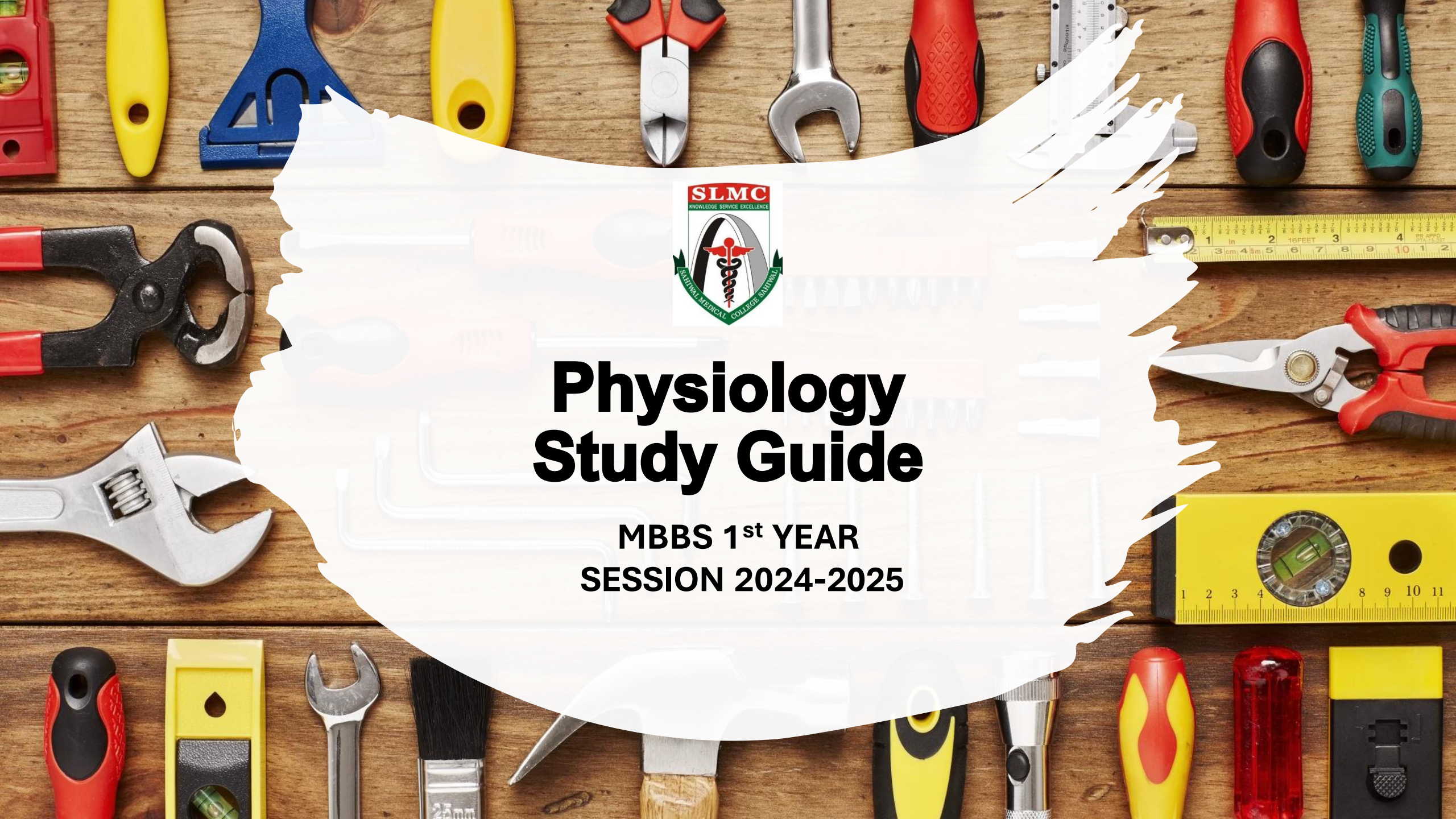

Physiology Study Guide

MBBS 1st YEAR

SESSION 2024-2025

BLOCK - I

- BLOCK DURATION: 11 WEEKS
- Number of Modules: 2

BLOCK MANAGEMENT TEAM	
HOD PHYSIOLOGY	Dr. Naima Shakeel
Assistant Professor	Dr. Nauman Aziz
Block Coordinator	Dr. Hafiza Swaiba Afzal
1st Year Team Members	Dr. Aroona Akhtar Dr. Ahsan Nazir Dr. Tahira

INTRODUCTION /RATIONALE	**Tomorrow's doctor is required to acquire competencies, which could align his knowledge base and skill set for his professional practices. The foundation of knowledge needs to commence from 'The Cell'. The cell is a structural and functional unit of life and has a role in normal homeostasis ensuring appropriate cellular functions. Hence, this module has been designed to introduce a blend of molecular, genetic, anatomical, physiological, and psychosocial information essential for developing a perspective on the function of the human body in health and disease. Besides, an initial orientation to pharmacology and pathology subject has been provided so that students are able to use this information in the coming modules.**
MODULE OUTCOMES	Appraise the functional characteristics of various components of cell membrane and organelles of cell. Differentiate between the dynamics of various transport mechanisms along the cell membrane. Compare the functional differences between RBCs, WBCs and blood groups. Explain the significance of homeostatic mechanisms in keeping body's internal environment nearly constant. Appraise the formation and functions of autonomic nervous system. Correlate the structural design of each organ to its function.

Themes

- Cell structure
- Cell transport and signaling
- Cell chemistry
- Homeostasis and blood
- Autonomic nervous system
- Body movement
- Muscles
- Growth and development

Learning Outcomes

NORMAL FUNCTION			
THEORY			
CODE	MEDICAL PHYSIOLOGY	TOTAL HOURS = 40	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
F-P-001	Define Homeostasis Explain control system of body by giving examples Differentiate between Extracellular and Intracellular Fluids Explain the positive and negative feedback mechanisms with examples Explain the significance of feed forward/ adaptive control/delayed negative feedback mechanisms Explain the structure of cell membrane Enlist the types of cell membrane proteins Enumerate the functions of membrane proteins Define and enumerate the functions of cell Glycocalyx Enlist membranous and non-membranous organelles Enlist the self-replicative organelles Differentiate between the functions of smooth and rough endoplasmic reticulum Explain the functions of Golgi apparatus Enlist the enzymes of lysosomes Explain the functions of lysosomes Enlist the enzymes of peroxisomes Explain the functions of peroxisomes Enumerate the components and functions of cytoskeleton Define and enlist types of endocytosis Explain the mechanism of pinocytosis Classify different transport mechanisms Compare the composition of Na (Sodium), K	Medical Physiology	Cell Biology

	(Potassium) and Cl (Chloride) in extracellular and intracellular fluid Define and enlist different types of diffusion Explain the process of facilitated diffusion with the aid of diagram Define and classify different types of active transport Describe primary and secondary active transport with examples Explain voltage and ligand gated channels with examples Name Na, K channel Blockers. Discuss functions and significance of Na/K ATPase pump.		
F-P-002	Enumerate the functions of blood Explain the composition of blood Enumerate the plasma proteins Discuss functions of plasma proteins Describe the pathophysiology of edema	Medical Physiology	Blood
F-P-003	Discuss the characteristics of red blood cells Explain different types of Bone marrows Enumerate the different sites of erythropoiesis at different ages Explain the stages of erythropoiesis Enumerate factors that regulate erythropoiesis Discuss the site and role of erythropoietin in red blood cell production Explain the significance of vitamin B12 and folic acid in maturation of red blood cell		Red Blood Cells
F-P-004	Enumerate the types of normal hemoglobin in different ages of life Explain the role of Iron in Hemoglobin formation. Define blood indices, give their normal values & enumerate the conditions in which these values are disturbed	Medical Physiology	Hemoglobin

	Enlist the abnormal types of hemoglobin		
F-P-005	Enumerate the types of white blood cells Describe the characteristics and functions of Neutrophils Explain the process of defense against invading agent by neutrophils Define leukocytosis and leukopenia Explain the effects of leukemia on body Explain the process of defense against invading agent by macrophages Discuss different lines of defense during inflammation	Medical Physiology	White Blood Cells
	Explain the functions of neutrophils and macrophages in spread of inflammation (walling off effect) Define the Reticuloendothelial system Enlist the different components of Reticuloendothelial system Explain the characteristics and functions of basophils Explain the characteristics and functions of eosinophils and enlist conditions in which these cells are raised.		
F-P-006	Enumerate different blood group types. Explain the basis of ABO and Rh blood system Explain the Landsteiner law	Medical Physiology	Blood Types
F-P-007	Discuss Components of ANS (Autonomic nervous system) Explain the physiological anatomy of sympathetic and parasympathetic nervous system Describe the types of adrenergic and cholinergic receptors and their functions Explain the effects of sympathetic and parasympathetic on various organs/ system of body	Medical Physiology Also Integrate with Anatomy part of ANS	Autonomic nervous system

PRACTICAL

CODE	PHYSIOLOGY	TOTAL HOURS = 12	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
F-P-008	Explain laboratory/clinical procedure to the subject. Obtain verbal consent from subject before starting a procedure. Reassure the subject after the procedure.	Medical Physiology	Consent
F-P-009	Determine Erythrocyte Sedimentation Rate and packed cell volume		RBCs (Red Blood Cells)
F-P-010	Determination of blood group		Blood Group
F-P-011	Interpret Total Leucocyte Count, Differential Leucocyte Count (normal & abnormal) in a CBC (Complete Blood Count) report generated by Automated Cell Counter Identify various types of WBCs in a prepared DLC (Differential Leukocyte Count)		WBCs (White Blood Cells)

NORMAL FUNCTION			
THEORY			
CODE	MEDICAL PHYSIOLOGY	TOTAL HOURS = 20	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
HL-P-001	Define, classify and explain anemia on the basis of morphology and cause	Medical Physiology	Anemia
	Discuss the effects of anemia on the body		
HL-P-002	Define polycythemia		Polycythemia
	Explain types of polycythemias		
	Discuss the effects of polycythemia on the body		
HL-P-003	Define hemostasis		Hemostasis
	Describe the mechanisms by which hemostasis is secured		
HL-P-004	Discuss the characteristics and functions of platelets		Platelets
	Explain the mechanism of formation of platelet plug		
HL-P-005	Enlist the clotting factors in blood		Coagulation factors
	Explain the conversion of Prothrombin to Thrombin & formation of Fibrin Fibers		
	Explain the Intrinsic & extrinsic clotting pathway.		
	Name & explain the mechanism of anticoagulants used in laboratory.		
	Explain the factors that prevent intravascular coagulation		
	Explain the role of Calcium ions in Intrinsic and Extrinsic pathways		
	Enlist the vitamin K dependent clotting factors		
	Explain the prothrombin time, International Normalized Ratio (INR), and its clinical significance.		

HL-P-006	Enlist and explain the conditions that cause excessive bleeding	Integrated with Medicine	Coagulation disorders
	Define thrombocytopenia		
	Enlist the causes and consequences of Thrombocytopenia		
HL-P-007	Define immunity	Medical Physiology	Immunity
	Classify immunity		
	Explain humoral immunity		
	Explain Innate immunity.		
	Elaborate cell mediated immunity.		
	Describe the structure of antigen and immunoglobulin		
	Describe the role of Helper T-cells in cell mediated immunity		
	Enlist the types of Immunoglobulins along with their functions		
	Explain the role of memory cells in enhancing antibody response (secondary response)		
	Describe the mechanism of action of antibodies		
	Elaborate the complement system.		
HL-P-008	Elaborate Immune tolerance	Medical Physiology	Tolerance
	Explain the process of clone selection during T cell processing		
	Discuss the failure of tolerance mechanism		
HL-P-009	Discuss immunization.	Medical Physiology Integrate with Pediatrics	Immunization
	Define passive Immunity		Immunization
	Explain features and physiological basis of delayed reaction allergy.		
	Explain features and physiological basis of Atopic Allergy		
	Explain features and physiological basis of Anaphylaxis, urticaria and Hay fever.		

HL-P-010	Discuss the pathophysiology, features and treatment of ABO and RH incompatibility. Enlist the changes that take place in the stored Blood.	Medical Physiology	Blood group Incompatibility
HL-P-011	Discuss the features and complications of mismatched blood transfusion reaction Describe the Hazards of blood transfusion.	Integrate with Pathology	Blood mismatch Transfusion reactions
	Elaborate the Transplantation of Tissues and Organs		
HL-P-012	Explain the process of tissue typing	Medical Physiology Integrate with Nephrology	Transplantation of tissues
	Explain the prevention of Graft Rejection by suppressing immune system		

BLOCK - II

- BLOCK DURATION: 08 WEEKS
- Number of Modules: 1

BLOCK MANAGEMENT TEAM	
HOD PHYSIOLOGY	Dr. Naima Shakeel
Assistant Professor	Dr. Nauman Aziz
Block Coordinator	Dr. Hafiza Swaiba Afzal
1st Year Team Members	Dr. Aroona Akhtar Dr. Ahsan Nazir Dr. Tahira

INTRODUCTION /RATIONALE

The musculoskeletal system comprises the bones, muscles, cartilage, tendons, ligaments, and other connective tissues that provide the framework, support, and movement of the body. The initial learning activities will help in understanding the normal structure, development, and normal physiological mechanisms of the organs of the system. This will help in better understanding the possible pathological conditions of the system, including common injuries, diseases, and disorders that affect it, followed by discussion on some important group of drugs used for treatment and/or prevention of these conditions (administration route, mechanism of action and side effects). The impact of musculoskeletal diseases on society and the effect of ageing on occurrence of musculoskeletal diseases will be discussed. Emphasis has been given to incorporate deranged laboratory and imaging findings into the clinical problem solving.

MODULE OUTCOMES

- Develop an understanding of the fundamental components of the musculoskeletal
- system.
- Describe how injury and disease alter the Musculoskeletal structure & function.
- Describe the types, formation, stability, function & clinical significance of joints of the
- upper and lower limb.
- Explain the mechanism of excitation and contraction of skeletal and smooth muscles.
- Discuss the psychosocial impact of musculoskeletal diseases in society.

Themes

- Concept of Action Potential
- Synapse
- Skeletal Muscle
- Smooth Muscle

Learning Outcomes

NORMAL FUNCTION			
THEORY			
CODE	MEDICAL PHYSIOLOGY	TOTAL HOURS = 32	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
MS-P-001	Explain the Physiological basis of membrane potential	Medical Physiology	Diffusion / Equilibrium Potentials
	Explain diffusion potentials of Na & K		
MS-P-002	Define Nernst potential		Nernst potential
	Explain Physiological Basis of Nernst potential		
	Write the Nernst equation.		
	Calculate Nernst potential for Na & K		
	Explain the effects of altering the concentration of Na+, K+, Ca on the equilibrium potential for that ion		

MS-P-003	Describe the normal distribution of Na+, K+, Ca and Cl- across the cell membrane	Medical Physiology Integrate with Anesthesiology	Goldman Equation
	Explain physiological basis of Goldman equation		
	Clarify the role of Goldman equation in generation of Resting Membrane Potential (RMP).		
MS-P-004	Describe the Physiological basis of generation of RMP.		Resting Membrane Potential in Neurons
	Explain the effects of hyperkalemia and Hypokalemia on the Resting Membrane Potential (RMP)		
	Name the membrane stabilizers		
	Explain the physiological basis of action of Local Anesthetics.		
MS-P-005	Describe the Physiological anatomy of Neurons	Medical Physiology	Neurons
	Discuss the axonal transport		
	Enlist & give functions of Neuroglial cells		
	Explain process of myelination in Central Nervous System (CNS) & Peripheral Nervous System (PNS)		
MS-P-006	Classify neurons functionally.		Classification of Neurons & Fibers
	Classify nerve fibers according to Erlanger & Gasser Classification		
MS-P-007	Define Action Potential		Action Potential of Neurons
	Enlist the Properties of action potential		
	Describe the ionic basis of an action potential.		
	Explain the phases of action potential.		
	Explain the effects of hyperkalemia and Hypokalemia on the action potential.		
	Draw monophasic action potential.		
	Explain absolute and relative refractory period		
MS-P-008	Explain the role of other ions in action potential.		Role of other Ions in action potential
	Elaborate the effect of hypocalcemia on neuron		

	excitability.		
MS-P-009	Explain Physiological basis& properties of Graded potential	Medical Physiology	Local / Graded potentials
	Draw & explain Physiological basis & properties of compound action potential.		
	Contrast between action potential and graded potential		
	Describe the ionic basis of excitatory Post Synaptic Potential (EPSP), Inhibitory Post Synaptic Potential (IPSP), End Plate Potential (EPP).		
MS-P-010	Classify and explain Physiological basis of different types of synapses		Synapse
	Elaborate how signal transmission takes place across chemical synapse		
MS-P-011	Explain the mechanism of conduction of Nerve impulse in myelinated and unmyelinated nerve fibers.		Conduction of Nerve Impulse
	Elaborate significance of saltatory conduction		
MS-P-012	Enlist the types of nerve injury		Nerve Degeneration
	Explain Wallerian degeneration.		
	Describe the process of regeneration of nerve fiber.		
	Describe the causes, features & pathophysiology of Multiple sclerosis, GB syndrome.	Medical Physiology Integrate with Medicine	
MS-P-013	Discuss the physiological anatomy of skeletal muscles.	Medical Physiology	Skeletal muscle
	Differentiate b/w skeletal, smooth, and cardiac muscle		
	Describe the structure of Sarcomere		
MS-P-014	Differentiate between isometric and isotonic contraction by giving examples.		Characteristics of whole muscle contraction
	Compare the fast and slow muscle fibers.		
MS-P-015	Explain the mechanism of summation and		Mechanics of

	Tetanization.	Medical Physiology	muscle contraction
	Describe staircase effect/Treppe phenomena		
	Discuss the mechanism of skeletal muscle fatigue.		
	Explain the remodeling of skeletal muscle to match the function. Describe the development of macro motor units in poliomyelitis.		
	Explain the physiological basis of rigor mortis	Medical Physiology Integrate with Forensic Medicine	
MS-P-016	Describe the physiological anatomy of Neuro Muscular Junction (NMJ)	Medical Physiology	Neuromuscular junction
	Mechanism of Neuromuscular transmission & generation of End Plate Potential		
	Explain features, pathophysiology & treatment of myasthenia Gravis	Medical Physiology Integrate with Medicine	
	Describe the enhancers or blockers of neuromuscular transmission at the neuromuscular junction.	Medical Physiology	
	Discuss the steps/ events of excitation contraction coupling in skeletal muscle.	Medical Physiology	
MS-P-017	Differentiate between types of smooth muscles.	Medical Physiology	Smooth Muscle
	Describe mechanism of smooth muscle contraction in comparison to skeletal muscle.		
	Explain the physiological anatomy of neuromuscular junction of smooth muscle		
	Explain the excitatory and inhibitory transmitters secreted at Neuro Muscular Junction (NMJ) of smooth muscles.		
	Explain the depolarization of multiunit smooth muscles without action potentials.		
	Explain the local tissue factors and hormones that		

	can cause smooth muscle contraction without action potential.		
	Explain the regulation of smooth muscle contraction by calcium ions.		
	Explain membrane potential and action potentials in smooth muscles.		
	Explain the phenomena of stress relaxation and reverse stress relaxation in smooth muscles.		
	Explain the LATCH mechanism		
	Describe the significance of LATCH mechanism.		
	Explain the nervous and hormonal control of Smooth Muscle Contraction.		

PRACTICAL

CODE	SPECIFIC LEARNING OBJECTIVES	TOTAL HOURS=06	
		DISCIPLINE	TOPIC
MS-P-018	Demonstrate and categorize the following movements: Pushing against the wall, Biceps curls, squats, yoga chair pose, standing on toes, running on an inclined treadmill, yoga tree pose, deadlift as isotonic and isometric skeletal muscle contraction.	Physiology	Locomotion

BLOCK - III

- BLOCK DURATION: 11 WEEKS
- Number of Modules: 2

BLOCK MANAGEMENT TEAM	
HOD PHYSIOLOGY	Dr. Naima Shakeel
Assistant Professor	Dr. Nauman Aziz
Block Coordinator	Dr. Hafiza Swaiba Afzal
1st Year Team Members	Dr. Aroona Akhtar Dr. Ahsan Nazir Dr. Tahira

INTRODUCTION /RATIONALE	The Cardiovascular system comprises the study of the heart & circulatory system. The initial learning activities will help in understanding the normal structure & development of the organs of the system. Understanding of anatomical details of each component of Cardiovascular System (CVS) will be accompanied by study of normal physiological mechanisms. This will help in better understanding the possible pathological conditions of the system, including some of the most prevalent conditions in society like ischemic heart disease, hypertension, shock, heart block, heart failure. This will be followed by discussion on some important group of drugs used for treatment and/or prevention of these conditions (administration route, mechanism of action and side effects). The impact of cardiovascular diseases on society and the effect of ageing on cardiovascular system will be discussed.
MODULE OUTCOMES	Define functions of cardiac muscle along with its properties Interpret pressure changes during cardiac cycle along with regulation of cardiac pumping. Interpret normal & abnormal Electrocardiogram (ECG), ST-T changes, and its abnormalities. Identify the risk factors and role of lipids in coronary blockage and atherosclerosis (hyperlipidemia/ dyslipidemia). Define cardiac output and its modulating/controlling factors. Differentiate left and right sided heart failure and correlate it with the importance of pressure differences. Enumerate different types of arrhythmias and describe the electrical events that produce them.

Themes

- Heart
- Circulation
- Respiration

Learning Outcomes

NORMAL FUNCTION			
THEORY			
CODE	MEDICAL PHYSIOLOGY	TOTAL HOURS = 68	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
CV-P-001	Explain the physiological anatomy of cardiac muscle.	Physiology	Cardiac Muscle
	Explain the functional importance of intercalated discs.		
	Discuss the properties of cardiac muscles.		
	Describe and draw the phases of action potential of ventricle.		
	Describe and draw the phases of action potential of SA node along with explanation of the mechanism of self-excitation/ Auto rhythmicity of SA node.		
	Define and give the duration of the Absolute and relative refractory period in cardiac muscle.		
	Describe the mechanism of excitation-contraction coupling and relaxation in cardiac muscle.		

	Draw & explain pressure & volume changes of left ventricle during cardiac cycle.		
	Explain & draw relationship of ECG (Electrocardiography) with cardiac cycle.		
	Explain & draw the relationship of heart sounds with cardiac cycle.		
	Enlist, draw, and explain the physiological basis of atrial pressure waves in relation to cardiac cycle.		
	Define & give the normal values of the cardiac output, stroke volume, end diastolic volume & end systolic volume	Integrate with Medicine	
CV-P-002	Describe the Frank starling mechanism.	Physiology	Regulation of heart pumping
	Describe the autonomic regulation of heart pumping.		
	Describe the effect of potassium, calcium ions & temperature on heart function.		
	Define chronotropic effect- positive and negative.		
	Define the inotropic effect: positive and negative.		
	Define dromotropic effect: positive and negative		
	Describe the location of adrenergic & cholinergic receptors in heart.		
	Name the receptors present in coronary arterioles.		
	Explain sympathetic & parasympathetic effects on heart rate & conduction velocity		
CV-P-003	Draw and explain the conducting system of heart	Physiology	Conducting system of heart
	Describe the physiological basis and significance of AV nodal delay.		
CV-P-004	Explain the ectopic pacemaker	Integrate with Cardiology/Medicine	Fundamentals of ECG
	Enlist, draw, and explain the physiological basis & give durations of waves, intervals, and segments of normal ECG.	Physiology	
	Describe the standard limb leads, Augmented limb		

	leads & precordial leads.		
	Define Einthoven's Triangle & Einthoven's law.		
	Explain the physiological basis of upright T wave in normal ECG.		
	Describe the location and significance of J point in ECG.		
	Explain the physiological basis of current of injury.		
	Enlist the ECG changes in angina pectoris.	Integrate with Medicine	
	Enlist the ECG changes in myocardial infarction.		
	Plot the mean cardiac axis.	Physiology	
	Enlist the physiological & pathological causes of right axis deviation of heart.		
	Enlist the physiological & pathological causes of left axis deviation of heart		
	Describe the abnormalities of T wave and their causes	Integrate with Medicine	
CV-P- 005	Describe the effect of hypokalemia and hyperkalemia on ECG	Integrate with Biochemistry	Effect of electrolyte on ECG
	Describe the effect of hypocalcemia and hypercalcemia on ECG.		
CV-P- 006	Define tachycardia and enlist its causes.	Integrate with Medicine	Cardiac arrhythmia
	Define bradycardia and enlist its causes.		
	Classify arrhythmias	Physiology	
	Explain the physiological basis of sinus arrythmia.		
	Explain the physiological basis of reflex bradycardia in Athletes.		
	Explain the carotid sinus syndrome.		
	Enlist the causes of atrioventricular block.	Integrate with Cardiology/ Medicine	
	Explain the types of atrioventricular blocks.		
	Explain the ECG changes in 1st, 2nd & 3rd degree heart block.		
	Explain the cause, physiological basis & ECG changes in Stokes Adam syndrome/ventricular	Physiology	

	escape.		
	Enlist the causes of premature contractions.	Integrate with Cardiology/ Medicine	
	Explain the causes and ECG changes of premature atrial contractions.		
	Explain the physiological basis of pulses deficit.	Physiology	
	Explain the causes and ECG changes in Premature Ventricular Contraction (PVC)	Integrate with Cardiology/ Medicine	
	Enlist the causes and ECG findings in Long QT syndrome.		
	Explain the causes, physiological basis, features, ECG changes & management of premature heartbeat.		
	Explain the causes, physiological basis, features, ECG changes & management of atrial fibrillation.		
	Explain the causes, physiological basis, features & ECG changes of ventricular fibrillation.		
	Explain the physiological basis, features & ECG changes of atrial flutter.	Physiology	
	Compare Flutter and Fibrillations	Physiology	
CV-P-007	Explain the functional parts of circulation (arteries, arterioles, capillaries, veins, venules).	Physiology	Organization of Circulation
CV-P-008	Explain the pressures in systemic & pulmonary circulation.	Physiology	Blood flow
	Explain the types of Blood flow and significance of Reynolds number.		
CV-P-009	Describe local control of blood flow according to tissue needs.	Physiology	Local & Humoral Control of Blood flow
	Discuss humoral control of local blood flow.		
	Explain long term control of local blood flow.		
	Describe vascular control by ions and other chemical factors.		
	Name the organs in which auto regulation of blood		

	flow occurs during changes in arterial pressure (metabolic & myogenic mechanisms).		
CV-P-010	Explain the role of autonomic nervous system for regulating the circulation.	Physiology	Nervous Regulation of circulation
	Explain the vasomotor center.		
	Explain the control of vasomotor center by higher nervous centers.		
	Explain emotional fainting/vasovagal syncope.		
	Identify vessels constituting micro-capillaries. Enumerate hydrostatic and osmotic factors that underlie starling's hypothesis for capillary function.		
CV-P-011	Explain the role of nervous system in rapid control of arterial blood pressure.	Physiology	Rapid control of arterial blood pressure
	Explain the regulation of arterial blood pressure during exercise.		
	Enlist different mechanisms for short term regulation of arterial blood pressure.		
	Explain the role of baroreceptors in regulation of arterial blood pressure.		
	Explain the role of chemoreceptors in regulation of arterial blood pressure.		
	Make a flow chart to discuss the role of Atrial volume reflexes/ Bainbridge reflex in control of blood pressure.		
	Make a flow chart to show the reflex responses to increased blood volume which increase blood pressure and atrial stretch.		
	Describe the role of CNS ischemic response in regulation of the blood pressure.		
	Explain the Cushing reflex		
	Explain the role of abdominal compression reflex to increase the arterial blood pressure.		

CV-P-013	Define cardiac output, cardiac index & venous return with their normal values.	Integrate with Cardiology/ Medicine	Cardiac output
	Discuss the factors regulating cardiac output		
	Discuss factors regulating venous return	Physiology	
CV-P-014	Explain the regulation of skeletal muscle blood flow at rest & during exercise.	Physiology	Skeletal muscle circulation
CV-P-015	Explain the physiological anatomy of coronary circulation.	Physiology	Coronary circulation
	Explain the regulation of coronary blood flow.		
	Explain the physiological basis of angina, myocardial & subendocardial infarction		
CV-P-016	Define & enlist different types of shock.	Physiology	Circulatory shock
	Explain the causes, features, and pathophysiology of hypovolemic/hemorrhagic shock.		
	Explain the causes, features, and pathophysiology of septic shock.		
	Explain the causes, features, and pathophysiology of neurogenic shock.	Integrate with Pathology	
	Explain the causes, features, and pathophysiology of anaphylactic shock.		
	Discuss the treatment of different types of shock.	Integrate with Medicine	
	Explain the different stages of shock.		

	Explain the mechanisms that maintain the cardiac output & arterial blood pressure in non-progressive shock.	Physiology	
	Enlist different types of positive feedback mechanisms that can lead to the progression of shock.		
CV-P-017	Enlist the different types of heart sounds and explain the physiological basis of each.	Physiology	Heart sounds
	Enlist the causes of 3rd and 4th heart sounds.		
	Explain the causes & physiological basis of murmurs caused by valvular lesions.		
	Enumerate abnormal heart sounds and describe the physiological basis of each.	Integrate with Medicine	

PRACTICAL

CODE	SPECIFIC LEARNING OBJECTIVES	TOTAL HOURS = 10+3=13	
		DISCIPLINE	TOPIC
CV-P-018	Record an electrocardiogram by correct lead placement and connections a to identify normal heart sound	Physiology	ECG
CV-P-019	Determine the effect of posture and exercise on blood pressure by auscultatory method.		Blood Pressure
CV-P-020	Measure the blood pressure of the subject by palpatory and auscultatory methods.		Blood Pressure
CV-P-021	Examine arterial pulse to recognize normal characteristics of pulse.		Arterial Pulse
CV-P-022	Examine neck veins to determine Jugular Venous Pulse (JVP)		JVP

NORMAL FUNCTION			
THEORY			
CODE	MEDICAL PHYSIOLOGY	TOTAL HOURS – 45	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
Re-P-001	Enlist the muscles of inspiration and expiration in quiet breathing	Integrate with Anatomy	Breathing
	Enlist the muscles of inspiration and expiration in labored breathing		
	Explain the components of the work of breathing	Medical Physiology	
	Discuss the mechanics of pulmonary ventilation		
	Explain periodic breathing		
	Explain the causes and pathophysiology of sleep apnea	Integrate with medicine	
Re-P-002	Define and explain lung compliance	Medical Physiology	Lung Compliance
	Enlist the factors that affect lung compliance		
	Draw the compliance diagram of air filled and saline filled lungs		
	Enlist the components of surfactant		
	Describe the role of surfactant in lung compliance		
	Explain the role of surfactant in premature babies	Integrate with Pediatrics	
Re-P-003	Define the different lung volumes and capacities and their clinical significance	Medical Physiology	Lung volumes and Capacities
	Discuss Forced Expiratory Volume 1/ Forced Vital Capacity (FEV1/FVC) ratio and its clinical significance		
	Enlist the lung volumes and capacities that cannot be measured by spirometer.		
	Define dead space & explain its types		
	Discuss FEV1/FVC ratio in relation to Bronchial Asthma.	Integrate with Pulmonology	
	Discuss FEV1/FVC ratio in relation to Chronic Obstructive Pulmonary disease/restrictive lung		

	diseases		
	Discuss Forced Expiratory Volume 1/ Forced Vital Capacity (FEV1/FVC) ratio in relation to pulmonary embolism	Integrate with medicine	
Re-P-004	Define alveolar ventilation.	Medical Physiology	Pulmonary ventilation
	Define minute respiratory volume		
	Describe the pressures in the pulmonary system.		
Re-P-005	Describe the blood volume of the Lungs	Medical Physiology	Pulmonary Circulation
	Describe the distribution and regulation of blood flow through the lungs.		
	Describe the mechanics of blood flow in the three blood flow zones of the lung		
	Describe the effect of heavy exercise on pulmonary arterial pressure.		
	Describe the function of pulmonary circulation when left atrial pressure rises as a result of left-sided heart failure.		
	Explain pulmonary capillary dynamics.		
Re-P-006	Discuss pathophysiology and common causes of pulmonary edema		Pulmonary Edema, and Pleural Fluid
	Explain the safety factors that prevent pulmonary edema.		
	Explain the physiological basis of the presence of fluid normally in the pleural cavity.		
	Define pleural effusion and give its causes.		
Re-P-007	Explain the ultrastructure of respiratory membrane	Medical Physiology	Principles of Gaseous Exchange
	Discuss the factors affecting diffusion of gases across the respiratory membrane		
	Explain the diffusion capacity of respiratory membrane for oxygen and carbon dioxide		
	Define alveolar, pleural and transpulmonary pressure.		
	Explain differences in the partial pressures of atmospheric, humidified, alveolar air and explain		

	physiological basis of change in each pressure		
Re-P-008	Explain the different forms of transport of oxygen in the blood	Medical Physiology	Transport of oxygen in the blood
Re-P-009	Draw and explain oxyhemoglobin dissociation curve	Medical Physiology	oxyhemoglobin dissociation curve
	Enlist the factors that cause the rightward shift of oxyhemoglobin dissociation curve		
	Enlist the factors that cause the leftward shift of oxyhemoglobin dissociation curve		
	Explain the Bohr's effect		Bohr's effect
	Define, enlist the types and causes of cyanosis	Integrate with Medicine	Cyanosis
Re-P-010	Enlist different forms in which Carbon dioxide CO_2 is transported in the blood	Medical Physiology	Transport of CO_2 in blood
	Explain carboxyhemoglobin dissociation curve		
	Explain the Haldane effect		
	Explain the chloride shift/Hamburger phenomenon		
	Define the respiratory exchange ratio (RER)		
Re-P-011	Explain the alveolar oxygen and carbon dioxide pressure when Pulmonary ventilation (V) and Perfusion (Q), VA/Q= infinity, zero, and normal	Medical Physiology	VA/Q (ventilation perfusion ratio)
	Explain the concept of physiological shunt when VA/Q ratio is above normal		
	Explain the concept of physiological dead space when VA/Q ratio is above normal		
Re-P-012	Enlist the respiratory and non-respiratory functions of the lung	Medical Physiology	Protective reflexes
	Explain the nervous control of bronchiolar musculature		
	Trace the reflex arc of cough reflex and sneeze reflex		
Re-P-013	Explain the principle means by which acclimatization occurs	Medical Physiology	Aviation and space
	Explain the events that occur during acute mountain sickness		
	Enlist the features of chronic mountain sickness		

Re-P-014	Explain the pathophysiology, features, prevention and treatment of decompression sickness.	Medical Physiology	Deep sea diving
Re-P-015	Draw and explain the effect of CO poisoning on oxyhemoglobin dissociation curve	Medical Physiology	Carbon monoxide poisoning
	Explain the pathophysiology, features, and treatment of CO poisoning.	Integrate with Medicine	
Re-P-016	Enumerate the components of respiratory centers and explain their functions.	Medical Physiology	Nervous regulation of respiration
	Explain the inspiratory RAMP signal		
	Explain the Herring Breuer reflex/lung inflation reflex and its clinical significance		
Re-P-017	Explain the location of chemo sensitive area (central chemoreceptors) and peripheral chemoreceptors	Medical Physiology	Chemical control of respiration
	Explain the effect of hydrogen ions & carbon dioxide on the chemo- sensitive area		
	Explain the role of oxygen in the control of respiration/peripheral chemoreceptors		
Re-P-018	Explain the regulation of Respiration during Exercise	Medical Physiology	Exercise and Respiration
Re-P-019	Enlist the effects of acute hypoxia	Medical Physiology	Hypoxia
	Explain the hypoxia inducible factor a master switch for body response to hypoxia		
	Define and explain different types of hypoxias	Integrate with Medicine	
Re-P-020	Explain the pathophysiology of Tuberculosis.	Integrate with Pathology	Tuberculosis
Re-P-021	Describe the pathophysiology of Pneumonia	Integrate with Pathology	Pneumonia
Re-P-022	Define Dyspnea	General Medicine	Dyspnea
	Enlist different causes of dyspnea		
	Differentiate between cardiac and respiratory dyspnea		
	Outline management strategies for dyspnea		
Re-P-023	Enlist the causes of Pneumothorax	Integration	Pneumothora

	Describe the signs and symptoms of Pneumothorax	with Surgery	x
Re-P-024	Enlist the causes of Pleuritis Describe the signs and symptoms of Pleuritis Discuss the management of Pleuritis		Pleuritis
Re-P-025	Enlist the causes of Bronchitis Discuss the signs and symptoms of Bronchitis Discuss the management of Bronchitis	Integration with General Medicine	Bronchitis
Re-P-026	Classify different types of pneumonia Discuss the sign symptoms of pneumonia Discuss the management of pneumonia		Pneumonia
Re-P-027	Classify different types of asthma Discuss the signs and symptoms of asthma Discuss the management of asthma		Asthma
Re-P-028	Classify different types of Tuberculosis Discuss the signs and symptoms of tuberculosis Discuss the management of Tuberculosis		Tuberculosis
Re-P-029	Classify different types of acute respiratory distress syndrome Discuss the signs and symptoms of acute respiratory distress syndrome Discuss the management of acute respiratory distress syndrome	Integration with General Medicine	Acute respiratory distress syndrome
Re-P-030	Define respiratory failure Describe various types of respiratory failure Enlist various causes of respiratory failure Outline management strategies of respiratory failure	Integration with General Medicine	Respiratory Failure
Re-P-031	Describe ABC in a trauma patient	Integration with Surgery	First Aid In Surgical Patients

PRACTICAL

CODE	SPECIFIC LEARNING OBJECTIVES	TOTAL HOURS = 10	
		DISCIPLINE	TOPIC
Re-P-039	Perform the clinical examination of chest for the respiratory system (inspection, palpation, percussion, Auscultation)	Medical Physiology	Clinical Examination of Chest
Re-P-040	Determine lung volumes and capacities with spirometer		Peak Expiratory Flow rate measurement
Re-P-041	Determine Blood Oxygen Saturation with finger Pulse Oximeter		Oxygen Saturation
Re-P-044	Perform Cardio pulmonary Resuscitation (CPR) on adult and infant.		CPR

Learning Resources

- Textbook of Medical Physiology by Guyton and Hall (14th edition).
- Human Physiology: From Cells to Systems by L Sherwood (9th-edition).
- Medical Physiology by Ganong (25th-edition).
- Human Physiology by Dee Unglaub Silverthorn (7th-edition).
- Essential of Medical Physiology by Jaypee (6th edition).

TIMETABLES

SAHIWAL MEDICAL COLLEGE SAHIWAL

TIME TABLE FOR 1st YEAR MBBS (S-14)

(FOUNDATION MODULE – 8 Weeks)

11th March till 31st March 2024

DAYS	08:00 to 09:00	09:00 to 10:30	10:30 to 11:00	11:00 to 12:00	12:00 to 01:00	01:00 to 02:00 pm
Monday	Physiology Lecture	**Practical** C: Anatomy A: Biochemistry B: Physiology	**B R E A K**	Biochemistry Lecture	Anatomy Lecture	SDL Biochemistry
Tuesday	Physiology Lecture	A: Anatomy B: Biochemistry C: Physiology		Anatomy Lecture	Pathology Lecture	SDL Physiology
Wednesday	Anatomy Lecture	B: Anatomy C: Biochemistry A: Physiology		Biochemistry Lecture	Pathology Lecture	Pharmacology Lecture
Thursday	***Community Medicine Lecture***	**SGD** Physiology		Anatomy Lecture	***Biochemistry Lecture***	SDL Biochemistry
Friday	Physiology Lecture	**SGD** Anatomy		Anatomy Lecture	Holy Quran (Oneness of Allah)	JUMA Prayers
Saturday	**08.00 – 08.45** Behavioral Sciences Lecture	**08.45 – 09.30** **PERLs** Lecture	**09:45 to 12:45 (Ward Rounds)** ***CSF*** Clinical Skills Foundation			SDL Anatomy

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SAHIWAL MEDICAL COLLEGE SAHIWAL

TIME TABLE FOR 1st YEAR MBBS (S-14)

(H & L MODULE – 3 Weeks)

15th April till 10th May 2024

DAYS	08:00 to 09:00	09:00 to 10:30	10:30 to 11:00	11:00 to 12:00	12:00 to 01:00	01:00 to 02:00 pm
Monday	Physiology Lecture	**Practical** C: Anatomy A: Biochemistry B: Physiology	**B R E A K**	Biochemistry Lecture	Anatomy Lecture	SDL Biochemistry
Tuesday	Physiology Lecture	A: Anatomy B: Biochemistry C: Physiology		Anatomy Lecture	Pathology Lecture	SDL Physiology
Wednesday	Anatomy Lecture	B: Anatomy C: Biochemistry A: Physiology		Biochemistry Lecture	Pathology Lecture	Pharmacology Lecture
Thursday	***Community Medicine Lecture***	**SGD** Physiology		Anatomy Lecture	***Biochemistry Lecture***	SDL Biochemistry
Friday	Physiology Lecture	**SGD** Anatomy		Anatomy Lecture	Holy Quran (Oneness of Allah)	JUMA Prayers
Saturday	**08.00 – 08.45** Behavioral Sciences Lecture	**08.45 – 09.30** **PERLs** Lecture	**09:45 to 12:45 (Ward Rounds)** ***CSF*** Clinical Skills Foundation			SDL Anatomy

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SAHIWAL MEDICAL COLLEGE SAHIWAL

TIMETABLE FOR 1st YEAR MBBS (S-14)

(MUSCULOSKELETAL & LOCOMOTION-1 MODULE – 8 Weeks)

29th July till 24th August 2024

DAYS	08:00 to 09:00	09:00 to 10:30	10:30 to 11:00	11:00 to 12:00	12:00 to 01:00	01:00 to 02:00 pm
Monday	Biochemistry Lecture	**Practical/Tutorial** C: Anatomy A: Biochemistry B: Physiology	**B R E A K**	Physiology Lecture	SDL Anatomy	SDL Biochemistry
Tuesday	***SDL Physiology***	A: Anatomy B: Biochemistry C: Physiology		Anatomy Lecture	***Biochemistry Lecture***	SDL Anatomy
Wednesday	Biochemistry Lecture	B: Anatomy C: Biochemistry A: Physiology		Anatomy Lecture	Pathology Lecture	SDL Physiology
Thursday	Anatomy Lecture	**09:00 to 10:00** Holy Quran (Oneness of Allah)	**10:00 to 11:00** Physiology Lecture	Anatomy Lecture	Community Medicine Lecture	SDL Biochemistry
Friday	Pharmacology Lecture	**SGD** Anatomy	**BREAK**	Pathology Lecture	JUMA Prayers	
Saturday	**08.00 – 08.45** Behavioral Sciences Lecture	**08.45 – 09.30** **PERLs** Lecture	**09:45 to 12:45 (Ward Rounds)** ***CSF*** Clinical Skills Foundation			SDL Anatomy

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SAHIWAL MEDICAL COLLEGE SAHIWAL

TIMETABLE FOR 1st YEAR MBBS (S-14)

(CVS & RESPIRATION MODULES – 11 Weeks)

2nd Sep till 16th Nov 2024

DAYS	08:00 to 09:30	09:30 to 10:00	10:00 to 11:00	11:00 to 12:00	12:00 to 01:00	01:00 to 02:00 pm
Monday	**Practical/Tutorial** C: Anatomy A: Biochemistry B: Physiology	**B R E A K**	Biochemistry Lecture	Physiology Lecture	Anatomy Lecture	SDL Anatomy
Tuesday	A: Anatomy B: Biochemistry C: Physiology		Physiology Lecture	Anatomy Lecture	Biochemistry Lecture	SDL Biochemistry
Wednesday	B: Anatomy C: Biochemistry A: Physiology		Biochemistry Lecture	Anatomy Lecture	Pathology Lecture	SDL Physiology
Thursday	**08:00 to 09:00** Anatomy Lecture	**09:00 to 10:00** Holy Quran (Oneness of Allah)	**10:00 to 11:00** Physiology Lecture	Anatomy Lecture	Community Medicine Lecture	SDL Biochemistry
Friday	Physiology Lecture	**SGD** Anatomy	**BREAK**	Pharmacology Lecture	JUMA Prayers	
Saturday	**08.00 – 08.45** Behavioral Sciences Lecture	**08.45 – 09.30** **PERLs** Lecture	**09:45 to 12:45 (Ward Rounds)** ***CSF*** Clinical Skills Foundation			SDL Anatomy

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Planners

PHYSIOLOGY DEPARTMENT

SAHIWAL MEDICAL COLLEGE, SAHIWAL
Medical College Road, Sahiwal-57000, Pakistan

No: ____/PHY/SLMC/SWL **Date: 24/07/2024**

Planner for Block 2 – Nerve & Muscle Module

1st Year MBBS (S – 14)

Week 1 - Tutorial **Dr. Aroona** **Dr. Ahsan**	***20th May*** Membrane Potential & Nernst Potential & Goldman's Equation **Dr. Nauman Aziz**	
Week 2 Demonstrate Pushing against the wall, Biceps curls, squats, yoga chair pose, standing on toes, running on an inclined treadmill, yoga tree pose, deadlift **Dr. Tahira**	***27th May*** Physiological Anatomy of Neurons, Classification of Nerve Fibers & Effect of Membrane Stabilizers **Dr. Nauman Aziz**	***31st May*** Action Potential/ Compound Action potential **Dr. Nauman Aziz**
Week 3 - Tutorial **Dr. Tahira** **Dr. Ahsan**	***3rd June*** Properties of Action Potential & Synapse **Dr. Nauman Aziz**	***7th June*** Nerve Injury & Wallerian Degeneration along with Multiple Sclerosis & GB Syndrome **Dr. Nauman Aziz**
Week 4 Demonstrate isometric skeletal muscle contraction. **Dr. Aroona**	***10th June*** Neuromuscular Junction, Excitation Contraction Coupling **Dr. Nauman Aziz**	
Week 5 - Tutorial **Dr. Aroona** **Dr. Ahsan**	***29th July*** Skeletal Muscle Fibres, Difference between muscle Fibers, Sarcomere **Dr. Nauman Aziz**	***1st Aug*** Staircase/ Trappe Phenomenon, Fatigue, Poliomyelitis **Dr. Nauman Aziz**
Week 6 Demonstrate isotonic Muscle Contraction **Dr. Ahsan**	***5th Aug*** Smooth Muscle Contraction Mechanism, Properties of Smooth Muscle, Latch Mechanism **Dr. Nauman Aziz**	
Week 7 - Tutorial **Dr. Aroona** **Dr. Ahsan**	***12th Aug*** **Class Test**	

Prof. Dr. Naima
Head of Department of Physiology
Sahiwal Medical College Sahiwal.

PHYSIOLOGY DEPARTMENT

SAHIWAL MEDICAL COLLEGE, SAHIWAL
Medical College Road, Sahiwal-57000, Pakistan

No: ____/PHY/SLMC/SWL Date: 29/08/2024

Planner for Block 3 – CVS Module

1st Year MBBS (S – 14)

Week 1 **Practical** Blood Pressure **Dr. Aroona**	**02 Sep**	**03 Sep**	**04 Sep**	**05 Sep**	**06 Sep**	**07 Sep**
	Fun Fair	Organization of Circulation **CV-P-007** **Dr. Javeria**		Blood Flow **CV-P-008** **Dr. Javeria**	Local & Humoral Control of Blood Flow **CV-P-009** **Dr. Javeria**	
Week 2 **Practical** Effect of Exercise on Blood Pressure **Dr. Tahira**	**09 Sep**	**10 Sep**	**11 Sep**	**12 Sep**	**13 Sep**	**14 Sep**
	Long Term Control of Blood Flow CV-P-009 **Dr. Javeria**	Nervous Regulation of Circulation **CV-P-010** **Dr. Javeria**		Rapid Control of Arterial Blood Pressure **CV-P-011** **Dr. Javeria**	Role of Kidneys in Long term Control of Blood Pressure **CV-P-012** **Dr. Javeria**	
Week 3 **Practical** Arterial Pulse **Dr. Aroona**	**16 Sep**	**17 Sep**	**18 Sep**	**19 Sep**	**20 Sep**	**21 Sep**
	EID MILAD-UN- NABI	Role of Renin Angiotensin System **CV-P-012** **Dr. Javeria**		Cardiac Muscle **CV-P-001** **Dr. Naima**	Rhythmical Circulation of the Heart **CV-P-001** **Dr. Naima**	
Week 4 **Practical** JVP **Dr. Tahira**	**23 Sep**	**24 Sep**	**25 Sep**	**26 Sep**	**27 Sep**	**28 Sep**
	Cardiac Output & its Regulation **CV-P-013** **Dr. Javeria**	Venous Return & its regulation **CV-P-014** **Dr. Javeria**		Cardiac Cycle **CV-P-001** **Dr. Naima**	Relationship of Cardiac Cycle & Heart Sound **CV-P-001** **Dr. Naima**	
Week 5 **Practical** CPR **Dr. Aroona**	**30 Sep**	**01 Oct**	**02 Oct**	**03 Oct**	**04 Oct**	**05 Oct**
	Coronary circulation and Ischemic Heart Disease **CV-P-015** **Dr. Javeria**	Cardiac output, Cardiac Index, Venous Return **CV-P-015** **Dr. Javeria**		Arterial Pressure waves in Relation to Cardiac Cycle **CV-P-001** **Dr. Naima**	Regulation of Heart Pumping & Conduction system of heart **CV-P-002 & 003** **Dr. Naima**	

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PHYSIOLOGY DEPARTMENT

SAHIWAL MEDICAL COLLEGE, SAHIWAL
Medical College Road, Sahiwal-57000, Pakistan

No: _____/PHY/SLMC/SWL Date: 02/10/2024

Planner for Block 3 – CVS Module

1st Year MBBS (S – 14)

Week 6 **Practical** CPR **Dr. Aroona**	**07 Oct**	**08 Oct**	**09 Oct**	**10 Oct**	**11 Oct**	**12 Oct**
	Circulatory Shock **CV-P-016** **Dr. Javeria**	Introduction to ECG + ECG leads **CV-P-016** **Dr. Javeria**		Frank Starling Law & Autonomic Effects on Heart **CV-P-004-005** **Dr. Naima**	Conduction System of Heart & Pacemaker of Heart **CV-P-006** **Dr. Naima**	
Week 7 **Practical** Examination of Chest **Dr. Ahsan**	**14 Oct**	**15 Oct**	**16 Oct**	**17 Oct**	**18 Oct**	**19 Oct**
	ECG & Cardiac Axis. Vectorial Analysis **CV-P-016** **Dr. Javeria**	ECH: Current of Injury, Changes in MI & Angina **CV-P-016** **Dr. Javeria**		Arrythmias **CV-P-017** **Dr. Javeria**	Arrythmias **CV-P-017** **Dr. Javeria**	
Week 8 **Practical** SPIROMETRY **Dr. Tahira**	**21 Oct**	**22 Oct**	**23 Oct**	**24 Oct**	**25 Oct**	**26 Oct**
	Integrated **Re-P-001** **Dr. Javeria**	Breathing **Re-P-001** **Dr. Swaiba**		Lung Compliance **Re-P-002** **Dr. Swaiba**	Lung volumes and Capacities **Re-P-003-004** **Dr. Swaiba**	
Week 9 **Practical** ECG **Dr. Aroona**	**28 Oct**	**29 Oct**	**30 Oct**	**31 Oct**	**01 Nov**	**02 Nov**
	Pulmonary Circulation **Re-P-005** **Dr. Swaiba**	Pulmonary Edema, and Pleural Fluid **Re-P-006** **Dr. Swaiba**		Principles of Gaseous Exchange **Re-P-007** **Dr. Swaiba**	Transport of O2 in Blood & Transport of CO2 in blood **Re-P-008** **Dr. Swaiba**	
Week 10 **Practical** Pulse Oximetry **Dr. Tahira**	**04 Nov**	**05 Nov**	**06 Nov**	**07 Nov**	**08 Nov**	**09 Nov**
	Oxygen hemoglobin dissociation curve **Re-P-009** **Dr. Swaiba**	VA/Q (Ventilation perfusion ratio) **Re-P-010** **Dr. Swaiba**		Protective Reflexes **Re-P-011** **Dr. Swaiba**	Aviation and space & Deep-Sea Diving **Re-P-012** **Dr. Swaiba**	
Week 11 **Practical** REVISION **Dr. Aroona**	**11 Nov**	**12 Nov**	**13 Nov**	**14 Nov**	**15 Nov**	**16 Nov**
	Nervous & Chemical control of respiration **Re-P-013** **Dr. Swaiba**	Carbon Monoxide Poisoning – Cyanosis - Hypoxia – Dyspnea – Bronchitis **Re-P-014** **Dr. Swaiba** **Integrated with Pulmonology**		Pneumonia – Tuberculosis – Asthma – ARDS – Respiratory Failure **Re-P-015** **Dr. Swaiba** **Integrated with Pulmonology**	Pneumothorax – Pleuritis **Re-P-016** **Dr. Swaiba** **Integrated with Surgery**	

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Assessment Methods

BLOCK I

Theme	Subject	Written Exam			Oral/Practical/Clinical Exam			
		MCQ (1 mark)	SEQ (5 mark each)	Marks	OSPE (8 marks each observed)	OSCE (8 marks each observed)	OSVE (16 marks each observed)	Marks
Normal Structure	Anatomy applied/clinical	20	03	35	03	-	01	40
Normal Function	Physiology applied/clinical	22	02	32	02	-	01	32
	Biochemistry applied/clinical	22	02	32	02	-	01	32
Disease Burden & Prevention	Community Medicine & Public Health	05	-	05	-	-	-	-
	Behavioral Sciences	05	-	05	-	-	-	-
Pathophysiology & pharmacotherapeutics	Pathology	06	-	06	-	-	-	-
	Pharmacology	05	-	05	-	-	-	-
CFRC	CF-1-2	-	-	-	-	01	-	08
PERLs	PERLs-1-2	-	-	-	-	01	-	08
Total		**85**	**7x5=35**	**120**	**07 stations x 08 = 56**	**02 stations x 08 = 16**	**03 stations x 16=48**	**120**

BLOCK II

MBBS 1st Professional
Block-2

Theme	Subject	Written Exam			Oral/Practical/Clinical Exam			
		MCQ (1 mark)	SEQ (5 mark each)	Marks	OSPE (8 marks each observed)	OSCE (8 marks each observed)	OSVE (16 marks each observed)	Marks
Normal Structure	Anatomy applied/clinical	35	04	55	05	-	01	56
Normal Function	Physiology applied/clinical	17	02	27	01	-	01	24
	Biochemistry applied/clinical	11	01	16	01	-	01	24
Disease Burden & Prevention	Community Medicine & Public Health	06	-	06	-	-	-	-
	Behavioral Sciences	04	-	04	-	-	-	-
Pathophysiology & pharmacotherapeutics	Pathology	07	-	07	-	-	-	-
	Pharmacology	05	-	05	-	-	-	-
CFRC	CF-1-2	-	-	-	-	01	-	08
PERLs	PERLs-1-2	-	-	-	-	01	-	08
Total		85	7x5=35	120	07 stations x 08 = 56	02 stations x 08 = 16	03 stations x 16=48	120

BLOCK III

MBBS 1st Professional
Block-3

Theme	Subject	Written Exam			Oral/Practical/Clinical Exam			
		MCQ (1 mark)	SEQ (5 mark each)	Marks	OSPE (8 marks each observed)	OSCE (8 marks each observed)	OSVE (16 marks each observed)	Marks
Normal Structure	Anatomy applied/clinical	16	02	26	01	-	01	24
Normal Function	Physiology applied/clinical	31	04	51	04	-	01	48
	Biochemistry applied/clinical	18	01	23	02	-	01	32
Disease Burden & Prevention	Community Medicine & Public Health	06	-	06	-	-	-	-
	Behavioral Sciences	02	-	02	-	-	-	-
Pathophysiology & pharmacotherapeutics	Pathology	07	-	07	-	-	-	-
	Pharmacology	05	-	05	-	-	-	-
CFRC	CF-1-3	-	-	-	-	01	-	08
PERLs	PERLs-1-3	-	-	-	-	01	-	08
Total		85	7x5=35	120	07 stations x 08 = 56	02 stations x 08 = 16	03 stations x 16=48	120

UHS BLUEPRINT

Dates	Week	BLOCKS	Year 1 (Graduating Class of 2027) Modules	Spirals			Year 2 (Graduating Class of 2028) Modules	Spirals		BLOCKS
12-Feb-24	1	Block 1	*Module 1 :* **Foundation-1**	PERLs	C FRC	Quran , Islamiyat & Pak Studies	*Module 6:* **GIT & Nutrition-1**	PERLs	C FRC	Block 4
19-Feb-24	2						*Module 7:* **Renal-1**			
26-Feb-24	3									
04-Mar-24	4									
11-Mar-24	5									
18-Mar-24	6									
25-Mar-24	7									
01-Apr-24	8									
08-Apr-24	9		Ramazan & Eid							
15-Apr-24	10									
22-Apr-24	11		*Module 2:* **Haematopoeitic & Lymphatic**	PERLs	C FRC	Quran , Islam & Pak Stud	*Module 7 (continues):* **Renal-1**	PERLs	C FRC	
29-Apr-24	12									
06-May-24	13		*Space for Spirals & CIA*				*Space for Spirals & CIA*			
13-May-24	14		**Block Exam 1**				**Block Exam 4**			
20-May-24	15	Block 2	*Module 3:* **Musculoskeletal & Locomotion-1**	PERLs	C FRC	Quran , Islam & Pak Studies	*Module 8:* **Endocrinology & Reproduction-1**	PERLs	C FRC	Block 5
27-May-24	16									
03-Jun-24	17									
10-Jun-24	18									
17-Jun-24	19									
24-Jun-24	20		Summer Break							
01-Jul-24	21									
08-Jul-24	22									
15-Jul-24	23		*Module 3 (continues):* **Musculoskeletal & Locomotion-1**	PERLs	C FRC	Quran , Islamiyat & Pak Studies	*(Continues)* **Endocrinology & Reproduction-1**	PERLs	C FRC	
22-Jul-24	24									
29-Jul-24	25						*Module 9:* **Head & Neck, Special Senses**			
05-Aug-24	26									
12-Aug-24	27		*Space for Spirals & CIA*				*Space for Spirals & CIA*			
19-Aug-24	28		**Block Exam 2**				**Block Exam 5**			
26-Aug-24	29	Block 3	*Module 4:* **Cardiovascular-1**	PERLs	C FRC	Quran , Islamiyat & Pak Studies	*Module 10:* **Neurosciences-1**	PERLs	C FRC	Block 6
02-Sep-24	30									
09-Sep-24	31									
16-Sep-24	32									
23-Sep-24	33									
30-Sep-24	34									
07-Oct-24	35									
14-Oct-24	36		*Module 5:* **Respiratory-1**				*Module 11:* **Inflammation**			
21-Oct-24	37									
28-Oct-24	38									
04-Nov-24	39									
11-Nov-24	40		*Space for Spirals & CIA*				*Space for Spirals & CIA*			
18-Nov-24	41		**Block Exam 3**				**Block Exam 6**			
25-Nov-24	42		Prep Leave							
02-Dec-24	43									
09-Dec-24	44									
16-Dec-24	45									
23-Dec-24	46		**Professional Exam**							
30-Dec-24	47									
06-Jan-25	48									
13-Jan-25	49									
20-Jan-25	50									
27-Jan-25	51									

Yearly Planner for 1st Year MBBS

Sahiwal Medical College Sahiwal

Academic Calendar 2024 (Integrated Modular) – 1st Year MBBS (S – 14)

Feb	March	April	May	June	July	August	September	October	November	December	January
01	01	01	01	01	01	01	01	01	01	01	01
02	02	02	02	02	02	02	02	02	02	02	02
03	03	03	03	03	03	03	03	03	03	03	03
04	04	04	04	04	04	04	04	04	04	04	04
05	05	05	05	05	05	05	05	05	05	05	05
06	06	06	06	06	06	06	06	06	06	06	06
07	07	07	07	07	07	07	07	07	07	07	07
08	08	08	08	08	08	08	08	08	08	08	08
09	09	09	09	09	09	09	09	09	09	09	09
10	10	10	10	10	10	10	10	10	10	10	10
11	11	11	11	11	11	11	11	11	11	11	11
12	12	12	12	12	12	12	12	12	12	12	12
13	13	13	13	13	13	13	13	13	13	13	13
14	14	14	14	14	14	14	14	14	14	14	14
15	15	15	15	15	15	15	15	15	15	15	15
16	16	16	16	16	16	16	16	16	16	16	16
17	17	17	17	17	17	17	17	17	17	17	17
18	18	18	18	18	18	18	18	18	18	18	18
19	19	19	19	19	19	19	19	19	19	19	19
20	20	20	20	20	20	20	20	20	20	20	20
21	21	21	21	21	21	21	21	21	21	21	21
22	22	22	22	22	22	22	22	22	22	22	22
23	23	23	23	23	23	23	23	23	23	23	23
24	24	24	24	24	24	24	24	24	24	24	24
25	25	25	25	25	25	25	25	25	25	25	25
26	26	26	26	26	26	26	26	26	26	26	26
27	27	27	27	27	27	27	27	27	27	27	27
28	28	28	28	28	28	28	28	28	28	28	28
29	29	29	29	29	29	29	29	29	29	29	29
	30	30	30	30	30	30	30	30	30	30	30
	31		31		31	31		31		31	31
MODULE 1 FOUNDATION MODULE	FOUNDATION MODULE	MODULE 2 H & L MODULE	MODULE 3 MUSCULO-SKELETAL & LOCO MOTION		SUMMER VACATION	MUSCULO-SKELETAL LOCOMOTION		CVS - 1 MODULE	RESPITATION 1	PREP LEAVES for PROF	PROF EXAMS (TENTATIVE)
	MODULE ENDS	MODULE ENDS		SUMMER VACATION	Module 3 cont.	MODULE ENDS	CVS-1 MODULE	MODULE ENDS	MODULE ENDS		
		BLOCK 1 EXAM				BLOCK 2 EXAM		MODULES RESPITATION 1	BLOCK 3 EXAM	PROF EXAMS (TENTATIVE)	
						MODULE 4			PREP LEAVES		

MODULE 6 - Quran, Islamic, and Pakistan Studies

MODULE 7 - PERLs & IT

MODULE – 8 - Clinical Skills Foundation

Module 1. Module 2. Module 3. Module 4. Module 5. Vacation. End of Module. Block Exam. Professional Exam (Tentative)

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