Thematic plan of seminar-type classes
in discipline «Normal Physiology»
for students of 2025 year of admission
under the educational programme
specialist degree in the specialty 31.05.01 General Medicine
specialisation (profile) General Medicine
form of study full-time
for the 2025-2026 academic year

№	Thematic blocks	Practical training within the thematic block	Hours (academic)
	2nd semester		
1.	**Introduction to the subject. Electrical phenomena in excitable tissue. Physiology of excitable tissue.** Introduction to the subject. Electrical phenomena in excitable tissues (part 1)[1] 1. Physiology as a science, its basic concepts and the subject of study. 2. Methods of physiological research. 3. Stimuli (definition and classification). 4. Excitable tissues. General properties of excitable tissues. 5. Electrical phenomena in excitable tissues. The history of their discovery. 6. Modern ideas about the mechanisms of the emergence of biopotentials: biological membranes, their structure and functions; ionic asymmetry between the external and internal environments of the cell; ion channels, their classification and role; types of ion transport through membranes, their role; state of functional rest. 7. Resting membrane potential, its origin. Registration of MPP using microelectrode technology[2.] Electrical phenomena in excitable tissues (part 2). [1] 1. Active state of tissues. Membrane action potential, its phases, their origin. 2. The concept of excitability. A measure of excitability. The ratio of the phases of excitability with the phases of the action potential. The concept of lability of excitable tissues. [2] The basic laws of irritation of excitable tissues. Physiology of excitable tissues (Part 1).[1] 1. The law of the forse of irritation. The threshold of irritation as a measure of excitability. 2. The "all or none" law, its relative nature. 3. The strength-duration law. The relativity of the law. The concept of utilization time, reobase, chronaxy. Chronaxia as a measure of excitability. Chronaximetry. 4. The law of the steepness of the growth of the stimulus (gradient). Accommodation, modern ideas about the mechanisms of its development. The speed of accommodation, the	PT	4

	critical slope. 5. The polar law of irritation. Features of electrotonic and local potentials. Physiological electrotone. Supplement to the law of B.F.Verigo. Cathodic depression. Anodic exaltation. Clinical application of the law. [2] The basic laws of irritation of excitable tissues. Physiology of excitable tissues (Part 2).[1] 1. Structure and physiological properties of nerve fibers. Types of fibers. 2. The mechanism of excitation by myelin and myelin-free fibers. 2 The rate of propagation of excitation and factors affecting its magnitude. 3. The laws of nerve excitation: the law of isolated excitation; the law of anatomical and physiological continuity of the nerve; the law of bilateral excitation. [2]		
2.	**Physiology of excitable tissues. Muscle contraction.** Muscle contraction (part1).[1] 1. The system of support and movement, its executive organs, the role in the body. 2. Bioelectric phenomena in muscle fiber. Features of the resting potential and the action potential. 3. Changes in the excitability of skeletal muscle during a single excitation cycle. 4. Ultramicroscopic structure of myofibrils at rest and during contraction. The concept of sarcomere. 5. The mechanism of muscle contraction and relaxation. The theory of «sliding filament» theory. Chemical and thermal changes in muscle fiber. 6. Single muscle contraction and its characteristics.[2] Muscle contraction (Part 2).[1] 1. Compare the phases of the action potential with the phases of changes in excitability and a single cycle of contraction. Note the features of the refractory period. 2. Summation of muscle contraction, types of summation. Summation conditions. 3. Tetanus, its types. Theories of tetanus. Optimum and pessimum of the frequency of irritation. 4. Morphofunctional features of smooth muscles.[2] Strength and muscle work. Fatigue. Parabiosis (Part 1). [1] 1. Motor synapses, structure, functional properties, mechanism of excitation transmission. Pharmacological correction of the myoneural synapse. 2. Structural and functional features of skeletal muscles. The concept of a motor unit. Types of motor units. 3. Modes of skeletal muscle contractions (isotonic, isometric, auxotonic). Ladder dependence between the intensity of irritation and the amplitude of skeletal muscle contraction. 4. Muscle strength. Factors affecting muscle strength. 5. Muscle work under different loads. The rule of average loads. [2] Strength and muscle work. Fatigue. Parabiosis (Part 2).[1] 1. Muscle fatigue, theory of fatigue. 2. Fatigue of the isolated muscle. 3. Fatigue of the neuromuscular preparation. 4. Fatigue of the motor unit in the conditions of the body. 5. Fatigue curve. Ergography. Local	PT	4

	and general fatigue. Passive rest. The role of active recreation according to Sechenov. 6. Adaptive-trophic phenomenon Orbeli-Ginetsinsky. The role of the higher departments of the central nervous system in the development of fatigue. [2]		
3.	**Control of knowledge, skills, skills on the topic "Physiology of excitable tissues"**		4
4	**General physiology of the central nervous system. Reflex and reflex arc. Properties of nerve centers** General physiology of the central nervous system. Reflex and reflex arc. Properties of nerve centers (part1).[1] 1. Methods of studying the functions of the central nervous system. Electroencephalography. 2. Neuron, its physiological properties, classification. Features of the appearance and propagation of excitation in the neuron. 3. Synapses in the central nervous system. Structure, classification, functional properties. 4. Chemical synapses. Mediator mechanisms of excitation transmission in the central nervous system. Pharmacological correction of the chemical synapse. 5. Electrical synapses. Functional properties, mechanisms of excitation transmission. 6. The concept of reflex. Classification of reflexes. The main components of the reflex arc. 7. Reflex time, factors affecting reflex time. Receptive field of reflex. [2]	PT	4
5	**Fundamentals of coordination of reflex activity. Private physiology of the central nervous system. Structure and functions of subcortical structures of the brain** General physiology of the central nervous system. Reflex and reflex arc. Properties of nerve centers. Private physiology of the Central nervous system [1](part 1) 1. Nerve centers and their properties. 2. The development of reflex theory in the works of I. M. Sechenov, I. P. Pavlov, P. K. Anokhin. 3. P. K. Anokhin's teaching on functional systems. Nodal mechanisms of FS. Central architectonics of the FS. Useful adaptive result as the main system-forming factor. The role of reverse afferentation. 4. Spinal cord: morpho-functional features, BellaMajandi law, properties of spinal cord neurons, the main functions of the spinal cord: conductive, reflex. The most important spinal reflexes (somatic and vegetative), (reflexes of clinical significance). Spinal shock, Brown-Secar syndrome, mechanisms of occurrence. 5. Physiology of the posterior brain, midbrain, cerebellum, intermediate brain, forebrain and cerebral cortex. [2] Fundamentals of coordination of reflex activity. Private physiology of the central nervous system. Structure and functions of subcortical structures of the brain (part 1). [1] 1. Inhibition in the central nervous system. The history of the discovery of braking by I. M. Sechenov. 2. Types of Inhibition. Inhibition mechanisms. Comparative	PT	4

	characteristics of EPSP and IPSP: postsynaptic inhibition, its mechanisms and physiological significance; presynaptic inhibition, its mechanisms and physiological significance; inhibition unrelated to the function of inhibitory synapses, its types, physiological significance. 3. The basic principles of coordination of reflex activity: Divergence and irradiation of excitation; Convergence and a common final path; positive feedback; dominant. 4. Posterior brain: medulla oblongata, Varolius bridge. The main functions of the posterior brain. 5. The middle brain. Motor centers of the brain stem (red nucleus, Deuters nucleus, some parts of the reticular formation). Decerebration rigidity, neural mechanisms. 6. Tonic reflexes of the brain stem. 7. Reticular formation of the brain stem. (Descending and ascending influences of the reticular formation of the brain stem). 8. The mechanism of maintaining muscle tone at the level of the spinal cord. [2] Fundamentals of coordination of reflex activity. Private physiology of the central nervous system. Structure and functions of subcortical structures of the brain (part 2). [1] 1. The cerebellum. Functions of the cerebellum. 2. The intermediate brain. The thalamus. 2 Hypothalamus. The main functions of the intermediate brain. 3. The most important subcortical (basal) nuclei. Functions of subcortical nuclei. 4. The limbic system of the brain. Functions of the limbic system. 5. Electrical phenomena in the cerebral cortex. Characteristics of EEG parameters and conditions for recording various EEG rhythms. [2]		
6	**The autonomic nervous system. Nervous regulation of autonomic functions** The autonomic nervous system. Nervous regulation of autonomic functions (part1). [1] 1. General plan of the structure and basic properties Sympathetic, parasympathetic, metasympathetic divisions of the ANS, their structural and functional differences. 2. Characteristics the sympathetic department of the ANS, its mediators, the role in the body. Adrenoreceptors. 3. Characteristics of the parasympathetic department ANS, its mediators, its role in the body. Holinoreceptors. 4. Synergism and relative antagonism of the effects of the sympathetic and parasympathetic divisions of the ANS on the functions of the body. 5. Metasympathetic department of the ANS, its mediators, role in the body. 6. Two-neuronal structure of efferent vegetative fibers. 7. Ganglia of the autonomic nervous system. 2 Features of the occurrence of excitation in the ganglia of the ANS. 8. Transmission of impulses in the synapses of the ANS. Adrenergic and cholinergic structures. [2] The autonomic nervous system. Nervous regulation of autonomic functions (part 2). [1] 1. Vegetative reflexes of clinical significance (ocular-cardiac reflex,	PT	4

	Goltz reflex, dermografism, respiratory-cardiac, etc.) 2. Adaptive-trophic effect of ANS on organs and tissues. 3. Segmental levels of regulation of autonomic functions (intramural, para- and prevertebral ganglia, spinal cord, brain stem). 4. Suprasegmental levels of regulation of autonomic functions (hypothalamus, limbic system, cerebral cortex). [2]		
7	**Hormonal regulation of physiological functions (Part 1)** Hormonal regulation of physiological functions (Part 1) [1] 1. The concept of endocrinology. 2. The concept of the endocrine gland (endocrine gland), endocrine and neuroendocrine systems. 3. Understanding of the main components of the endocrine system (local and endocrine systems, APUD system), as well as about the hypothalamicpituitary, sympathoadrenal systems. Synthesis, receptors and transport of hormones. [2] Hormonal regulation of physiological functions (Part 2). [1] 1. Functional signs of hormones that distinguish them from other biologically active substances. 2. The concept of the chemical nature of hormones (amino acid, protein, peptide, steroid). [2]	PT	4
8	**Hormonal regulation of physiological functions (Part 2)** Hormonal regulation of physiological functions (Part1). 1 1. Hypothalamic-pituitary system, its functions. 2. The pituitary gland and its hormones. Hyper- and hypofunction. 3. The parathyroid gland and its hormones, hyper- and hypofunction. 4. Thyroid gland and its hormones, hyper- and hypofunction. 5. Endocrine functions of the pancreas. [2] Hormonal regulation of physiological functions (Part 2). [1] 1. Brain functions 2 substances of the adrenal glands. The role of adrenaline in the body. 2. Hormones of the adrenal cortex. Their role in the regulation of metabolism and body functions. 3. Sex hormones. [2]	PT	4
9	**Control of knowledge, skills, skills on the topics "Mechanisms of regulation of physiological processes. Physiology of the central nervous system", "Hormonal regulation of physiological functions"**		4
10	**Physiology of analyzers. Visual analyzer. Auditory analyzer** Physiology of analyzers. Visual analyzer. Auditory analyzer (Part 1). [1] 1. I. P. Pavlov's teaching about analyzers. The structure of the analyzer. 2. General principles of the structure and functioning of analyzers. 3. The main functions of the analyzers. 4. Physiology of receptors. Classification of receptors. Adequate and inadequate receptor stimuli. The mechanism of receptor excitation. Receptor or generator potential.	PT	4

	Coding in receptors. 5. Distinguishing signals. Absolute and differential thresholds of sensation. Adaptation of analyzers. 6. Transmission and conversion of signals. Encoding of information. 7. Detection and identification of images. 8. Visual analyzer. The optical system of the eye. Perception and processing of signals in the retina. Accommodation. Refractive errors. Perception of color, light and dark adaptation, perception of space. 9. The receptor department of the auditory analyzer. The mechanism of perception of sound vibrations. The distinction between pitch and sound strength. 10. The conductor and cortical sections of the auditory analyzer. Central mechanisms of sound information processing. Vestibular analyzer. [2] Pain, tactile, temperature, taste and olfactory analyzers (Part 1). [1] 1. Pain analyzer: receptor, conductor and cortical divisions. 2. Tactile analyzer: receptor, conductor and cortical sections. 3. Temperature analyzer: receptor, conductor and cortical sections. 4. Taste analyzer: receptor, conductor and cortical divisions. 5. Olfactory analyzer: receptor, conductor and cortical divisions. [2]		
11	**Higher nervous activity. Physiology of conditioned reflex** Higher nervous activity. Physiology of conditioned reflex (Part 1). [1] 1. Structure and functions of the cerebral cortex. Localization of functions in the cortex. 2. Methods of cortical function research. Electroencephalogram. EEG forms and their diagnostic significance. 3. General characteristics and properties of conditioned reflexes, their difference from unconditional ones. Classification of conditional and unconditional reflexes. 4. Methodology and basic rules for the development of conditioned reflexes, their types. 5. Modern ideas about the mechanism of formation of a temporary connection. [2] Higher nervous activity. Physiology of conditioned reflex (Part 2). [1] 1. Inhibition of conditioned reflexes. Unconditional (external) and conditional (internal) inhibition, their main 2 differences. External inhibition mechanism. Protective (exorbitant) inhibition 2. Conditional inhibition: extinction of the conditioned reflex, differentiation, delay, conditional brake. Modern ideas about the mechanism of internal inhibition. 3. Irradiation and concentration of the excitation process and the cerebral cortex. Modern ideas about the "irradiation" of inhibition	PT	4
12	**Features of the human higher nervous activity** Features of the human higher nervous activity (part 1). [1] 1. Analytical and synthetic activity of the cerebral cortex. I. P. Pavlov's teaching about the dynamic stereotype. Conditional reflex switching. 2. Modern ideas about the mechanisms of sleep. Physiological changes during sleep. 3. I. P. Pavlov's teaching on the types of higher nervous activity. Disorders of higher nervous activity. Experimental neuroses. 4. I. P.	PT	4

	Pavlov's teaching on the first and second signaling systems. Features of the types of higher nervous activity of a person. 5. Functional asymmetry of the brain. Physiology of the "split brain".[2] Features of the human higher nervous activity (part 2).[1] 1. Neurophysiological aspects of speech. Speech centers. Speech disorders. 2. Mechanisms of purposeful human activity. 3. Physiology of emotions.[2]		
13	**Control of knowledge, skills, skills on the topics "Physiology of analyzers" and "Higher nervous activity"**		4
14	**Metabolism and energy. Thermoregulation.** Metabolism and energy. Thermoregulation. Food.1 (part1) [1] 1. Methods of studying the energy costs of the body: a) direct calorimetry; b) indirect calorimetry. 2. Respiratory coefficient and its significance in the study of metabolism. 3. The basal metabolic rate and the factors affecting its magnitude. 4. Methods for determining the proper values of the basal metabolic rate. 5. Body surface rule. 6. Energy exchange during physical and mental work. Distribution of the population by groups depending on the nature of work. 7. The specific dynamic effect of food. [2] Metabolism and energy. Thermoregulation. [1] (part 2) 1. Principles of body temperature regulation. 2. Physiology of 2 thermoreceptors. Thermoregulation centers. 3. Mechanisms of heat production. 4. Mechanisms of heat loss. 5. Muscle work and thermoregulation. Hardening. 6. Power mode. 7. Theories of nutrition 8. Classification of food. 9. The role of proteins, fats and carbohydrates in nutrition. 10. Physiological norms of nutrition. Principles of food ration preparation. 11. The concept of protein minimum and protein optimum. Proteins are complete and incomplete. 12. Caloric coefficients of nutrients. 13. Daily need for salts and water. 14. The importance of vitamins in nutrition. 15. Practical recommendations for students. [2]	PT	4
	Total		**56**
	3rd semester		
1	**The activity of the heart. Properties of the heart muscle** The activity of the heart. Properties of the heart muscle (part 1). [1] 1.Anatomical and histological features of the structure of the heart. 2. Basic physical and physiological properties of the heart. 3. Automatism. Anatomical substrate and the nature of Automatism. The action potential of the pacemaker cells. The leading role of the sinoatrial node. The gradient	PT	4

	of automation. 4. Features of excitation in the heart muscle. Cardiomyocyte action potential, its phases and origin. Features of excitability of the heart muscle. The refractory period. 5. Contractility. Coupling of the processes of excitation and contraction in the heart muscle, the role of extracellular calcium. Obeying the All-or-nothing law. The Frank-Starling Law. Mechanisms of ensuring the pumping function of the heart. Extrasystole. [2] The activity of the heart. Properties of the heart muscle (part 2). [1] 1. Conduction, its features, the rate of excitation in various parts of the heart. 2. The cardiac cycle, its phases. Blood pressure in the cavities of the heart in various phases of the cardiac cycle, the operation of valves. [2]		
2	**The activity of the heart. Methods of heart research. Electrocardiography** The activity of the heart. Methods of heart research. Electrocardiography (part 1). [1] 1. Electrocardiography (ECG) as a method of recording heart biopotentials. Biophysical foundations ECG. 2. The main leads of the ECG. 3. Normal human ECG, its genesis, clinical significance. [2] Heart activity. Methods of heart research. Electrocardiography (Part 2) [1] 1.The main indicators of heart activity: heart rate and strength, systolic and minute blood volumes at rest and during exercise. 2. Heart tones, apical push, their origin and characteristics. Phonocardiography, its clinical significance [2].	PT	4
3	**Regulation of heart activity. Humoral regulation of the heart** Regulation of heart activity. Humoral regulation of the heart (Part 1). [1] 1.Intracardiac mechanisms of regulation of the heart. 2. Intracardiac heterometric and homeometric mechanisms. 3. Intercellular regulation. The law of "All or nothing", creative connections. 4. Intracardiac nervous regulation. The concept of peripheral intracardiac reflexes. Cholinergic and adrenergic mechanisms. 5. Extra-cardiac regulation. 6. Innervation of the heart. The influence of sympathetic and parasympathetic nerves on the heart. [2] Regulation of heart activity. Humoral regulation of the heart (part 2). [1] 1. Central reflexes. The most important reflexogenic zones, chemo- and baroreceptive mechanisms. Conjugate reflexes – Danini-Ashner, Golts. 2 Humoral regulation. The effect of hormones, electrolytes, and metabolites on the work of the heart. 3. Interaction of nervous and humoral mechanisms. [2]	PT	4
4	**Основы гемодинамики** Fundamentals of hemodynamics (Part 1). [1] 1. Morpho-functional classification of blood vessels. 2. Volumetric blood flow rate. The factors it depends on. 3. Linear velocity of blood flow. Velocity in	PT	4

	arteries, capillaries, veins. The time of complete blood circulation. The significance of vascular elasticity for blood flow. 4. Vascular resistance. Factors affecting its value. Total peripheral resistance. [2] Fundamentals of hemodynamics (part 2). 1 1. Blood pressure in different parts of the vascular bed. 2. Blood pressure. Factors affecting its value. The main indicators of blood pressure: systolic, diastolic, pulse and mean hemodynamic pressure. Methods of registering blood pressure. 3. Arterial pulse, its origin, pulse characteristics, registration. 2		
5	**Regulation of vascular tone. Regional blood flow. Lymph and lymph circulation** Regulation of vascular tone. Regional blood flow. Lymph and lymph circulation (Part 1). [1] 1.The concept of vascular tone, its types. Basal tone, its origin. 2. Vascular innervation. Vasoconstrictive nerves. Neurogenic mechanisms of vasodilation. 3. Vasomotor center, its structure and functions. 4. Reflexogenic zones and depressive reflexes. Intrinsic and coupled reflexes of the cardiovascular system. [2] Regulation of vascular tone. Regional blood flow. Lymph and lymph circulation (Part 2). [1] 1.Humoral regulation of vascular tone. 2. Regional blood flow. Mechanisms of regulation. Features of coronary, cerebral blood flow, pulmonary blood flow. [2]	PT	4
6	**Physiology of the excretory system (Part 1).** Physiology of the excretory system (Part 1). [1] 1. Kidneys and their function. 2. Features of blood supply to the nephron. 3. The process of urination: glomerular filtration; tubular reabsorption; tubular secretion. 4. Osmotic dilution and concentration of urine. [2] Homeostatic kidney function (Part 2) [1] The role of the kidneys in osmoregulation and volumoregulation; the role of the kidneys in regulating the ionic composition of the blood; the role of the kidneys in regulating the acid-base state; excretory kidney function; endocrine kidney function; metabolic kidney function. [2]	PT	4
7	**Physiology of the excretory system (Part 2).** Physiology of the excretory system (part 1). [1] 1. Nervous regulation of kidney activity. 2. Diuresis. The composition of urine. 3. Urination and urination. 4. The results of a general urine test. [2]. Physiology of the excretory system (part 2). [1] 1. Age characteristics. 2. Hemodialysis. Artificial kidney. [2]	PT	4
8	**Control of knowledge, skills, skills on the topics "Physiology of the**		4

	cardiovascular system", "Physiology of the excretory system"		
9	**Physiology of the blood system. Physico-chemical properties of blood** Physiology of the blood system. Physico-chemical properties of blood (Part 1). [1] 1.Functions of blood. Blood composition. 2. The amount of blood in the body, its relative constancy. 3. Blood plasma, its quantity, composition. 4. Electrolyte composition. Osmotic pressure 2. Osmotic resistance of erythrocytes. Regulation of constancy. [2] Physiology of the blood system. Physico-chemical properties of blood (Part 2). [1] 1. Plasma proteins, their physiological role. Oncotic pressure, its role. 2. Erythrocyte sedimentation rate (ESR). Mechanism, clinical significance, 2 indicators. 3. Blood PH. Blood buffer systems. Regulation of blood pH constancy. [2]	PT	4
10	**Physiology of the blood system. Formed elements of blood** 1.Erythrocytes, structure and functions. Normal content in the circulating blood. 2. Hemolysis of erythrocytes, its types. 3. Erythropoiesis, its regulation. 4. Hemoglobin, physiological significance, types and compounds. 5. Color index, clinical significance, value. 6. The role of white blood in the body. Leukocytes, their characteristics. [2] Physiology of the blood system. Formed elements of blood (part 2). [1]. Specific and nonspecific immunity. Its mechanisms. 2. Leukopoiesis, its regulation. 3. Leukocyte formula, clinical significance. 4. Platelets. Structure and functions. [2]	PT	4
11	**Physiology of the blood system. Leukocyte formula. Blood types. Immune system.** Physiology of the blood system. Leukocyte formula. Blood types. Immune system (part 1).[1] 1.Leukocyte formula, clinical significance. 2. Specific and nonspecific immunity. Its mechanisms. 3. The system of regulation of the aggregate state of blood (RASB), its main elements. Clinical and physiological role. 4. The concept of hemostasis, the process of blood clotting, its phases. 5. Vascular-platelet hemostasis. 6. Coagulation hemostasis. External and internal pathways of coagulation. 7. Blood anticoagulation system. Physiological anticoagulants. Their role in maintaining the liquid state of the blood. [2] Physiology of the blood system. Leukocyte formula. Blood types. Immune system (Part 2). [1] 1. Fibrinolysis, its phases. 2. Blood types. System AB0. 3. Rh factor, its significance for medical practice. 4. Physiological and clinical foundations of blood transfusion. Blood-	PT	4

	substituting solutions. [2]		
12	**External respiration** External respiration (Part 1). [1] 1. Principles of the organization of the functional system of respiration. 2. Breathing, its main stages. 3. The mechanism of external respiration. Biomechanics of inhalation and exhalation. 4. Pressure in the pleural cavity and its origin and role in the mechanism of external respiration. Changes in pressure in the pleural cavity in different phases of the respiratory cycle. 5. VLC and its constituent components. Methods of their determination. Residual volume. 6. Minute volume of palmonary ventilation and its changes under various loads, methods of its determination. "Dead space" and effective pulmonary ventilation. Why rare and deep breathing is more effective. [2] External respiration (Part 2). [1] 1. Composition of atmospheric and exhaled air. Alveolar air as the internal environment of the body. The concept of partial pressure of gases. 2. Gas exchange in the lungs. The partial pressure of gases (O2 and CO2) in the alveolar air and the tension of gases in the blood. The main regularities of the transition of gases through the membrane. 3. Exchange of gases between blood and tissues. [2]	PT	4
13	**Regulation of respiration** Regulation of respiration (Part 1). [1] 1. Innervation of the respiratory muscles. 2. The respiratory center. Modern concepts of structure and localization. Automation of the respiratory center. 3. The dependence of the activity of the respiratory center on the gas composition of the blood. 4. The role of chemoreceptors in the regulation of respiration. 5. The role of mechanoreceptors in the regulation of respiration. 6. The role of carbon dioxide in the regulation of respiration. 7. The mechanism of the newborn's first breath. 8. The mechanism of periodic activity of the respiratory center. Theories of the emergence of periodic activity of the respiratory center. 9. The effect on the respiratory center of irritation of various receptors and departments of the central nervous system. [2] Regulation of respiration (part 2). [1] 1. Conditioned reflex regulation of breathing. 2. Protective respiratory reflexes. 3. Features of breathing in various conditions: a) breathing during muscular work; b) breathing at low atmospheric pressure (altitude sickness); c) breathing at high atmospheric pressure (caisson disease); d) artificial respiration; e) periodic respiration.[2]	PT	4
14	**Control of knowledge, skills, skills on the topics "Blood Physiology" and "Respiratory Physiology".**		4

15	**Digestion in the mouth and stomach** Digestion in the mouth and stomach (part 1). [1] 1. The essence of the digestive process. 2. A functional system that maintains a constant level of nutrients in the blood. 3. Methods of studying the functions of the digestive glands. The essence of the chronic research method created by I. P. Pavlov, its advantages. 4. The role of the oral cavity in the digestive process. 5. Composition and properties of saliva. 6. Schemes of the reflex arc of the unconditional salivation reflex. 7. Adaptive nature of salivation to various food and rejected substances. [2] Digestion in the mouth and stomach (part 2). [1] 1. General characteristics of digestive processes in the stomach. 2. Composition and properties of gastric juice. 3. Regulation of gastric secretion: a) the first phase of secretion - cephalic phase; b) the second (gastric) – neurohumoral phase: the main nutrients that stimulate gastric secretion; c) intestinal phase. [2]	PT	4
16	**Digestion in the intestine** 1. Composition and properties of pancreatic juice. 2. Regulation of pancreatic secretion: a) cephalic phase; b) neurohumoral phase. 3. The role of bile in digestion. The composition and properties of bile. 4. Regulation of bile formation. The main food products that enhance bile formation. 6. The mechanism of bile secretion, its neural and humoral regulation. 7. Intestinal juice, its composition and properties. [2] Digestion in the intestine (part 2). [1] 1.Types of contractions of the musculature of the gastrointestinal tract, their characteristics. 2. Regulation of the motor function of the gastrointestinal tract. 3. Absorption of basic nutrients, the mechanism of absorption, its regulation. 4. Food center. Modern ideas about the mechanisms of hunger, thirst, and satiety. [2]	PT	4
	Total		**64**

[1] – topic
[2] – essential content
[3] – PT (practical training)
[4] – one thematic block includes several classes, each lasting 45 minutes, with at least a 5-minute break between classes

Considered at the meeting of the department of Normal physiology "20" May 2025, protocol N 10

Head of the Department S.V.Klauchek