

Annotation
of the course to the catalog of elective courses
for 2nd year students of medical faculties

Course title	"Physiological fundamentals of fail-safe oxygen supply"
Specialty	222 Medicine
Level of education	Second level of education (master's)
Term of study (course)	2th year
Form of education	Full-time education
Department	Y.D. Kirshenblat Department of Physiology
Program implementation team (scientific-pedagogical staff)	Prof. Tkachuk S. Ass.prof. Yasinska O.
A brief description of the content of the course	<p>Purpose and tasks of the course</p> <p>The purpose of teaching the discipline "Physiological fundamentals of fail-safe oxygen supply" is to provide masters of medicine with a significant in-depth theoretical knowledge of functioning of oxygen delivery and assimilation system and factors, influencing it; clinical aspects of interaction between blood, circulatory and respiratory systems in process of adaptation to hypoxia in normal and in pathology; mechanisms of exploitation of functional reserves and compensatory capabilities according to the fail-safe oxygen supply concept in normal and in pathology; formation of theoretical basis for differential diagnosis, for choice of adequate tactics and strategies for disease prevention and treatment of patients with cardiovascular, respiratory desises, including Covid-19 associated conditions, as well as preparation for the study of the following medical disciplines and the use of theoretical knowledge in future professional activities.</p> <p>The task is a systematic approach to the study of the essence of physiological processes of oxygen supply, delivery and assimilation in the human body at the cellular, tissues and systemic levels, awareness of the importance of the functional interaction interaction between blood, circulatory and respiratory systems in process of complex fail-safe multi-level response to hypoxia in normal and in pathology; expanding the idea of the importance of studying human physiology for other medical disciplines.</p>

Learning outcomes:

-. to know the methods of further modern learning; the methods of information analysis and synthesis, algorithms for making informed decisions, the acquisition of modern knowledge.

To have specialized conceptual knowledge acquired in the learning process and use them to solve complex professional tasks and problems; for clear and unambiguous communication of own conclusions, knowledge and explanations that substantiate them to specialists and non-specialists;

To know the tactics and strategies of communication, laws and ways of communicative behavior for being able to draw a substantiated decision, choose ways and strategies to communicate to ensure effective teamwork.

To be able to assess information about the state of human organs and systems, using knowledge about human body, its organs and systems, based on the results of laboratory and instrumental research, according to certain algorithms.

To be able to identify and register deviation from the norm of physiological functions by drawing a substantiated decision, using preliminary data on the physiological state of human body, physical examination data, knowledge about human body, its organs and systems.

To be able to appoint laboratory and / or instrumental examination of the patient by drawing a substantiated decision, based on known data, according to standard algorithms, using knowledge about human body, its organs and systems, adhering to the relevant ethical and legal norms.

To be able to determine the probable cause of deviation from the norm of physiological functions by drawing a substantiated decision, according to a certain algorithm, using laboratory and instrumental examination of the patient, knowledge about human body, its organs and systems, following relevant ethical and legal norms.

To be able to assess the state of human physiological functions by drawing a substantiated decision and logical analysis, using laboratory and instrumental examination of the patient, knowledge about human body, its organs and systems, adhering to the relevant ethical and legal norms.

To be able to determine the necessary mode of work and rest in the treatment of the disease, in a health care facility, at the patient's home and at the stages of medical evacuation, including in the field, on the basis of a preliminary clinical diagnosis, using knowledge about the human body, its organs and systems, adhering to the relevant ethical and legal norms, by drawing a substantiated decision according to existing algorithms and standard schemes.

To be able to determine the availability of relationship between the state of the environment and the state of health of a particular contingent on the basis of data about them;

To be able to develop and to implement preventive measures on the basis of data on the relationship between the state of the environment and the state of health of a certain contingent;

To demonstrate:

	<p>mastery of moral and ethical principles of attitude to a living human and human body as an object of anatomical and clinical research</p> <p>the ability to explain the physiological basis of methods for studying the functions of the body</p> <p>the ability to explain the mechanisms of oxygen supply in the organism</p> <p>the ability to formulate a conclusion about the state of physiological functions of the organism, its systems and organs</p> <p>Learning outcomes for course.</p> <p>to apply knowledge of general and professional disciplines in professional activities.</p> <p>to use the results of independent search, analysis and synthesis of information from various sources to solve typical problems of professional activity; to use clinical, laboratory and instrumental research data for effective treatment; to determine the influence of factors influencing the vital processes of the human body; to provide home and professional medical care to patients in emergencies and victims in extreme situations.</p>
Approximate list of topics for training sessions (practical classes)	<ol style="list-style-type: none"> 1. The role of oxygen in functioning of human body. General physiological principles of oxygen delivery and assimilation. Respiratory cascade. 2. The ways of oxygen supply to the body. Structure and functions of the arohematic barrier (pulmonary membrane) in normal and in pathology. Diffusion capacity of lungs. 3. Role of blood in absorbtion and transport of oxygen in human body. Oxygen-binding capacity of blood, factors influencing it, role of haemostasis and endothelial functions. 4. Role of circulatory system in oxygen delivery. Role of vascular and tissue chemoreceptors in reflectory regulation of oxygen supple. 5. The fail-safe oxygen supply concept and its physiological fundamentals. Physiological mechanisms of hypoxia compensation in norm and pathology.
Competencies, which formation is contributed by the course	<p><i>Integral competence:</i> the ability to solve typical and complex specialized problems and practical problems in a professional activity in the field of health care, or in the learning process, which involves research and / or innovation and is characterized by complexity and uncertainty of conditions and requirements.</p> <p><i>common competences:</i></p> <p>GC1 - Ability to abstract thinking, analysis and synthesis, the ability to learn and to be modernly educated..</p> <p>GC2 - Ability to apply knowledge in practical situations.</p> <p>GC3 - Knowing and understanding of the subject sphere and understanding of professional activity.</p> <p>GC5 - Ability to draw a substantiated decision; to work in training detachment; skills of interpersonal cooperation</p> <p><i>Special competences:</i></p> <p>SC2 Ability to determine the necessary list of the laboratory and instrumental investigations and estimation of their results</p> <p>SC6 Ability to define principles and character of the diseases</p>

	treatment SC7 Ability to diagnose urgent conditions SC8 Ability to determine the approach of providing emergency cover
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The head of Y.D. Kirshenblat Department of Physiology

Professor

Svitlana Tkachuk