



Department of "Phthisiopulmonology and Radiology "
Working curriculum (Syllabus) of the discipline
"Visual diagnostics"
Educational program 6B10101 "General medicine"

1.	General information about the discipline		
1.1	Discipline code: VD 5303	1.6	Academic year: 2025-2026
1.2	Discipline name "Visual diagnostic"	1.7	Course: 5
1.3	Prerequisites: fundamentals of radiation diagnostics	1.8	Semester:9
1.4	Post requisites: phthsiatriya	1.9	Amount of credits(ECTS): 4
1.5	Cycle: PD	1.10	Component:UK
2.	Course description(50 words)		
X ray of organs and systems. Clinical and radiological syndromes, diagnostic algorithms for diseases and injuries of internal organs, features in children and adolescents. Possibilities of X-ray, ultrasound, CT, MRI in diagnostics of benign and malignant tumors of organs and systems. Preclinical radiation diagnostics. Main radiological symptoms and syndromes, differential diagnostics, image interpretation, occupational safety. Documentation of medical services processes.			
3.	Summative assessment form		
3.1	Testing ✓	3.5	Coursework
3.2	Writing	3.6	Essay
3.3	Oral	3.7	Project
3.4	SPE / OSKE or practical skills reception ✓	3.8	Another(specify)
4.	Summative assessment form		
To develop graduates' knowledge and skills in conducting effective events on radiological diagnostics of diseases and damage to organs and systems, observing measures to protect patients and health workers; to apply practical and communication skills to evaluate research results in accordance with the principles of the evidence base, ensuring further successful application in clinical practice.			
5.	Final learning outcomes (LO disciplines)		
LO1	Demonstrates patterns of imaging formation and differential radiologic diagnosis of diseases and injuries of various organs and systems; Demonstrates the properties and indications for the use of contrast media most commonly used in the study of various human organs and systems, including specifics of their use in children;		
LO2	Identifies specific anamnestic features and obtains necessary clinical information in adults and children of various ages; Determines the necessity of specialized imaging (X-ray, ultrasound, CT, MRI, and nuclear medicine) studies for adults and children of various ages;		
LO3	Capable of formulating imaging studies and analyzing radiograms in various standard and additional projections of organs and anatomical regions across different age groups, identifying morphological and functional symptoms of diseases; Capable of performing differential diagnosis, drafting imaging study protocols, and formulating and justifying clinical-radiological conclusions;		
LO4	Interacts with patients by establishing trusting relationships, provides information in a format understandable to the patient, and explains the essence of proposed procedures and imaging results;		



	Interacts with students, faculty, and medical professionals while adhering to medical ethics and deontology;					
LO5	Interacts with patients by establishing trusting relationships, provides information in a format understandable to the patient, and explains the essence of proposed procedures and imaging results; Interacts with students, faculty, and medical professionals while adhering to medical ethics and deontology;					
5.1	LO discipline	EP learning outcomes associated with the discipline learning outcomes;				
	LO 1 LO 2	LO 4 Performs effective measures aimed at the diagnosis, treatment, and prevention of common and early-stage diseases.				
	LO 3	LO 4 Performs effective measures aimed at the diagnosis, treatment, and prevention of common and early-stage diseases.				
	LO 4	LO 8 Complies with public health standards, sanitary and hygienic regimes of healthcare organizations, environmental epidemiological safety, and occupational safety standards within healthcare facilities;				
	LO 5	LO 10 Operates within the electronic databases of the healthcare system of the Republic of Kazakhstan and ensures the documentation of medical service delivery processes.				
6.	Detailed information about the discipline					
6.1	82/16 Ryskulov St., "Tynyk" Clinic, Shymkent; e-mail: el_nur2@mail.ru					
6.2	Number of hours	Lectures	Practical classes	Lab. classes	Student Independent Study (SIS)	Student Independent Study with Teacher (SIST)
		10	30	-	12	68
7.	Faculty information					
№	Full Name	Academic degrees and position	Email address	Research interests, etc.	Achievements	
1.	Seitova Alua Agitaevna	Assistant of the Departmen		Chest X-ray examinations	Highest category, Radiologist Author of more than 15 research papers	



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2.	Umiraliyev Asset Amiraliyevich	Assistant of the Department	Aset.umiraliyev.72@mail.ru	Abdominal Ultrasound	Highest category, Radiologist Author of more than 8 research papers
3.	Tulegenova Aigul Asanbaevna	Assistant of the Department	taa8009@mail.ru	Pediatric Ultrasound	Radiologist. Master's Degree. Author of more than 20 research papers
4.	Nazarbayeva Gulzhanat Nalikhannovna	Assistant of the Department	guljannat_naz91@mail.ru	Ultrasound	Radiologist. Master's Degree.

8. Thematic plan						
Week/day	Topic name	Summary	RO disciplines	Number of hours	Forms/Methods/learning technologies	Forms/assessment methods
1	Lecture. Radiation diagnostics of diseases and injuries of the lungs and mediastinum. Radiation research methods	Radiation diagnostics of diseases and injuries of the lungs and mediastinum. Radiation research methods	LO 1	1	Overview - illustrative, presentation	Feedback
	Practical lesson. Radiation diagnostics of diseases and injuries of the lungs and mediastinum. Radiation research methods. Native X-ray methods. Radiography. Fluorography. Fluoroscopy. General shadow picture of the chest. Special radiopaque techniques.	Radiation diagnosis of diseases of the lungs and mediastinum. Radiation research methods. Native X-ray methods. Radiography. Fluorography. Fluoroscopy. General shadow picture of the chest. Special radiopaque techniques. Bronchography. Angiopulmography. Pneumomediastinography. Pleurography.	LO 1	3	discussion, work with the provided images, work in small groups	oral questioning, description of pictures, solving test tasks, solving crosswords



	Bronchography. Angiopulmography. Pneumomediastinography. Pleurography. Fistulography	Fistulography				
	SIW. X-ray manifestations of chronic pneumonia.	X-ray manifestations of chronic pneumonia.	LO 4 LO 5	1/7	preparation of presentations, drawing up crosswords, test tasks, situational tasks, work with an electronic X-ray - radiological atlas.	protection of presentations, solving crosswords, test tasks, situational tasks, work with an electronic X-ray - radiological atlas
2	Lecture. The main radiological symptoms and syndromes of lung diseases.	The main radiological symptoms and syndromes of lung diseases.	LO 1	1	Overview - illustrative, presentation	Feedback
	Practical lesson. The main radiological symptoms and syndromes of lung diseases. Syndrome of extensive shading of the pulmonary field. Limited shading. Round shadow syndrome. Foci and limited focal dissemination. Syndrome of extensive focal dissemination. Syndrome of extensive focal enlightenment of the pulmonary field. Extensive pulmonary field enlightenment syndromem.	The main radiological symptoms and syndromes of lung diseases. Syndrome of extensive shading of the pulmonary field. Limited shading. Round shadow syndrome. Foci and limited focal dissemination. Syndrome of extensive focal dissemination. Syndrome of extensive enlightenment of the pulmonary field.	LO 1	3	discussion, work with the provided pictures, work in pairs	oral questioning, description of pictures, solving test tasks, solving crosswords
	SIW (with teacher). SIW. Some diagnostic aspects in X-ray detection of abscess and abscess pneumonia.	Some diagnostic aspects in the X-ray detection of abscess and abscess pneumonia.	LO 2 LO 3 LO 5	1/7	preparation of presentations, drawing up crosswords, test tasks, situational tasks, work with an electronic X-ray -	protection of presentations, solving crosswords, test tasks, situational tasks, work with an



					radiological atlas	electronic X-ray - radiological atlas
3	Lecture. Visual diagnostics of diseases and injuries of the lungs. Research methodology. X-ray semiotics of lung diseases. Visual diagnostics of tuberculosis and lung tumors.	Visual diagnostics of diseases and injuries of the lungs. Research methodology. X-ray semiotics of lung diseases. Visual diagnostics of tuberculosis and lung tumors.	LO 1	1	Overview - illustrative, presentation Feedback	Feedback
	Practical lesson. Radiation diagnosis of coronavirus disease. Organization. Research methods, interpretation of results. Radiation manifestations of a new coronavirus infection. The use of CT of the lungs for COVID-19.	Practical lesson. Radiation diagnosis of coronavirus disease. Organization. Research methods, interpretation of results. Radiation manifestations of a new coronavirus infection. The use of CT of the lungs for COVID-19.	LO 2	3	discussion, work with the provided images, work in small groups.	oral questioning, description of pictures, solving test tasks, solving crosswords
	SIW (with teacher). SIW. Information content of radiation methods in the diagnosis of tumors and cysts of the mediastinum.	Informativeness of radiation methods in the diagnosis of tumors and cysts of the mediastinum.	LO1 LO 5	1/7	preparation of presentations, drawing up crosswords, test tasks, situational tasks, work with an electronic X-ray - radiological atlas.	protection of presentations, solving crosswords, test tasks, situational tasks, work with an electronic X-ray - radiological atlas.
4	Lecture. Radiation diagnostics of nervous system pathology.		LO 2	1	Overview - illustrative, presentation	Feedback



	Practical lesson Radiation diagnostics of nervous system pathology. Radiation methods for examining the brain and spinal cord.	Radiation diagnostics of nervous system pathology. Radiation methods for examining the brain and spinal cord.	LO 2	3	discussion, work with the provided pictures, work in pairs	oral questioning, description of pictures, solving test tasks, solving crossword
	SIW (with teacher). SIW. Radiation diagnostics of diseases and injuries of the ear, throat, and nose. Radiation semiotics of diseases of the ear, throat, and nose	Radiation diagnostics of diseases and injuries of the ear, throat, and nose. Radiation semiotics of diseases of the ear, throat, and nose	LO 2 LO 3 LO 5	1/7	preparation of presentations, drawing up crosswords, test tasks, situational tasks, work with an electronic X-ray - radiological atlas	protection of presentations, solving crosswords, test tasks, situational tasks, work with an electronic X-ray - radiological atlas.
5	Lecture. Basic principles of ultrasound examination of the heart and Dopplerography of blood vessels, angiography, coronary angiography. CT and MRI of the heart.	The main radiation syndromes of cancer of the lungs and pleura.	LO 3 LO 4	1	Overview - illustrative, presentation	Feedback
	Practical lesson. Radiation diagnostics in therapeutic cardiology. X-ray and X-ray functional diagnostic methods for studying the heart and blood vessels.	Radiation diagnostics in therapeutic cardiology. X-ray and X-ray functional diagnostic methods for studying the heart and blood vessels.	LO 2 LO 3	3	discussion, work with the provided images, work in small groups.	oral questioning, description of pictures, solving test tasks, solving crosswords
	SIW. Some diagnostic aspects in radiological detection of symptoms of damage to the heart and pericardium. Mid-term control 1	Some diagnostic aspects in the X-ray detection of symptoms of heart and pericardial damage.	LO 2 LO 3 LO 5	1/7	preparation of presentations, drawing up crosswords, test tasks, situational tasks, work with electronic X-ray - radiological atlas	protection of presentations, solving crosswords, test tasks, situational tasks, work with electronic X-



						ray - radiological atlas
6	<p>Lecture. Basic radiological syndromes of the cardiovascular system. Basic principles of ultrasound examination of the heart and Dopplerography of blood vessels, angiography, coronary angiography. CT and MRI of the heart</p>	<p>Basic principles of ultrasound examination of the heart and vascular Doppler ultrasonography, angiography, coronary angiography. CT and MRI of the heart.</p>	<p>LO 2 LO 3</p>	1	<p>Overview - illustrative, presentation</p>	<p>Feedback</p>
	<p>Practical lesson. Radiation diagnostics of congenital and acquired heart defects.</p>	<p>Radiation diagnostics in therapeutic cardiology. X-ray and X-ray functional diagnostic methods for examining the heart and blood vessels. The main radiological syndromes of the cardiovascular system. Basic principles of ultrasound examination of the heart and vascular Doppler ultrasonography, angiography, coronary angiography. CT and MRI of the heart. Radiation diagnostics of congenital and acquired heart defects.</p>	<p>LO 3</p>	3	<p>discussion, work with the provided images, work in small groups</p>	<p>oral questioning, description of pictures, solving test tasks, solving crosswords</p>
	<p>SIW (with teacher). SIW. SIW. Visual methods for studying congenital and acquired heart defects.</p>	<p>Radiation anatomy of the esophagus and gastrointestinal tract with X-ray, CT, MRI, research, research methods.</p>	<p>LO 2 LO 3 LO 5</p>	1/7	<p>preparation of presentations, drawing up crosswords, test tasks, situational tasks, work with an electronic X-ray - radiological</p>	<p>. protection of presentations, solving crosswords, test tasks, situational tasks, work with electronic X-</p>



				atlas	ray - radiological atlas	
7	<p>Lecture. Radiation diagnostics for diseases of the gastrointestinal tract. X-ray semiotics. The role of ultrasound, CT in the diagnosis of pathology of the liver, pancreas, gallbladder and bile ducts.</p>	<p>. Imaging methods (MRI, CT, ultrasound, scintigraphy, arthroscopy, etc.) of the pathology of the bone and joint system, indications and rules, diagnostic value</p>	<p>LO 2 LO 3</p>	1	<p>Overview - illustrative, presentation</p>	<p>Feedback</p>
	<p>Practical lesson. Radiation methods for diagnosing the digestive organs. Radiation diagnostics for diseases of the gastrointestinal tract. X-ray semiotics. Basic radiological syndromes of the digestive system. The role of ultrasound, CT in the diagnosis of pathology of the liver, pancreas, gallbladder and bile ducts. Differential diagnosis of pathology of the digestive organs.</p>	<p>Visual diagnostics of bone and joint pathology. Methods of visual diagnostics in rheumatology. X-ray examination of the joints and spine, indications and rules for this study, X-ray (often with the use of artificial contrast) P-signs of arthritis and arthrosis, osteomyelitis, P stage of arthritis. Imaging methods (MRI, CT, ultrasound, scintigraphy, arthroscopy, etc.) of the pathology of the bone and joint system, indications and rules, diagnostic value.</p>	<p>LO 2</p>	3	<p>discussion, work with the provided images, work in small groups.</p>	<p>oral questioning, description of pictures, solving test tasks, solving crosswords</p>
	<p>SIW (with teacher). SIW. Radiation anatomy of the esophagus and gastrointestinal tract with X-ray, CT, MRI, studies, research methods.</p>	<p>Normal radial anatomy of the liver, research methods. Syndromes of lesion in X-ray, CT, MRI, research.</p>	<p>LO 2 LO 3 LO 5</p>	1/7	<p>preparation of presentations, drawing up crosswords, test tasks, situational tasks, work with an electronic X-ray - radiological atlas.</p>	<p>protection of presentations, solving crosswords, test tasks, situational tasks, work with an electronic X-ray - radiological atlas.</p>



8	Lecture. Imaging methods (MRI, CT, ultrasound, scintigraphy, arthroscopy, etc.) of pathology of the osteoarticular system, indications and rules, diagnostic value.	Radiation diagnostics for diseases of the gastrointestinal tract. X-ray semiotics. The role of ultrasound, CT in the diagnosis of pathology of the liver, pancreas, gallbladder and bile ducts.	LO 2 LO 3	1	Overview - illustrative, presentation	Feddback
	Practical lesson. Visual diagnosis of osteoarticular pathology. Methods of visual diagnosis in rheumatology. X-ray examination of joints and spine, indications and rules for conducting this study, X-ray (often using artificial contrast). P-signs of arthritis and arthrosis, osteomyelitis, P stage of arthritis. Imaging methods (MRI, CT, ultrasound, scintigraphy, arthroscopy, etc.) of pathology of the osteoarticular system, indications and rules, diagnostic value.	Radiation methods for diagnostics of the digestive system. Radiation diagnostics for diseases of the gastrointestinal tract. X-ray semiotics. The main radiological syndromes of the digestive system. The role of ultrasound, CT in the diagnosis of pathology of the liver, pancreas, gallbladder and bile ducts. Differential diagnosis of the digestive organs.	LO 3	3	discussion, work with the provided images, work in small groups.	oral questioning, description of pictures, solving test tasks, solving crosswords
	SIW(with teacher). SIW Basics of the radionuclide method and their application in practice	Radiation diagnosis of damage to the esophagus and gastrointestinal tract.	LO 2 LO 3 LO 5	1/7	preparation of presentations, drawing up crosswords, test tasks, situational tasks, work with electronic X-ray - radiological atlas	protection of presentations, solving crosswords, test tasks, situational tasks, work with electronic X-ray - radiological atlas
9	Lecture. Visual diagnosis of	The role of plain radiography, intravenous	LO 2	1	Overview - illustrative,	Feedback



	endocrine system diseases: CT, MRI, radionuclide studies.	excretory urography, pyelography, angiography, ultrasound, CT, MRI, radionuclide renography.			presentation	
	Practical lesson. Visual diagnosis of endocrine system diseases. Radiation methods for studying the thyroid and parathyroid glands	Radiation diagnostic methods in nephrology and urology - the role of plain radiography, intravenous excretory urography, pyelography, angiography, ultrasound, CT, MRI, radionuclide renography. X-ray diagnostics of diseases of the urinary system. Ultrasound diagnostics of pathologies of the urinary system. Methods of radioisotope and radionuclide research in nephrology.	LO 3	3	discussion, work with the provided images, work in small groups	oral questioning, discussion of research results, solving situational problems
	SIW (with teacher). SIW. Visual diagnosis of the adrenal glands: computed tomography, MRI, scintigraphy of the adrenal cortex, scintigraphy of the medulla, adrenal glands, positron tomography. Methods of visualization of the hypothalamic-pituitary system: radiodiagnosis, scintigraphy with octreotide.	Visual diagnosis of the adrenal glands: computed tomography, MRI, scintigraphy of the adrenal cortex, scintigraphy of the medulla, adrenal glands, positron tomography. Methods of visualization of the hypothalamic-pituitary system: radiodiagnosis, scintigraphy with octreotide.	LO 2 LO 3 LO 5	2/6	preparation of presentations, drawing up crosswords, test tasks, situational tasks, work with electronic X-ray - radiological atlas	protection of presentations, solving crosswords, test tasks, situational tasks, work with electronic X-ray - radiological atla.
10	Lecture. Radiation diagnostics of diseases of the urinary and reproductive system	Radiation diagnostics of diseases of the urinary and reproductive system	LO 3 LO 4	1	Overview - illustrative, presentation	Feedback
	Practical lesson. Radiation diagnostic	Radiation diagnostic methods in nephrology	LO 2 LO 4	3	discussion, work with the	oral questioning,



	methods in nephrology and urology - the role of survey radiography, intravenous excretory urography, pyelography, angiography, ultrasound, CT, MRI, radionuclide renography. X-ray diagnosis of diseases of the urinary system. Ultrasound diagnosis of pathologies of the urinary system. Methods of radioisotope and radionuclide research in nephrology.	and urology - the role of survey radiography, intravenous excretory urography, pyelography, angiography, ultrasound, CT, MRI, radionuclide renography. X-ray diagnosis of diseases of the urinary system. Ultrasound diagnosis of pathologies of the urinary system. Methods of radioisotope and radionuclide research in nephrology..			provided images, work in small groups.	description of pictures, solving test tasks, solving crosswords
	SIW (with teacher). SIW. Radiation diagnostics in urology and gynecology Midterm control 2	Radiation diagnostics in urology and gynecology	LO 2 LO 3 LO 5	2/6	preparation of presentations, drawing up crosswords, test tasks, situational tasks, work with an electronic X-ray - radiological atlas	. protection of presentations, solving crosswords, test tasks, situational tasks, work with electronic X-ray - radiological atlas
	Preparation and implementation of midterm assessment (10% of the total number of hours allocated to the discipline)			12		
9.	Teaching and Teaching Methods					
9.1	Lecture	Overview – illustrative				
9.2	Practical lesson	Discussion, work with the provided images, work in small groups. Oral questioning, discussion of research results, solving situational problems				
9.3	SWI	Shares opinions, discuss and evaluate				
9.4	Mid-term control	Testing, situational problem solving and oral questioning				
10.	Multi-point system of knowledge assessment					



10.1 Criteria for assessing the learning outcomes of the discipline

№ PO	Name of learning outcomes	Unsatisfactory	Satisfactorily	Fine	Great
LO 1	Demonstrates patterns in the formation of a radiation image and differential radiation diagnostics of diseases and injuries of various organs and systems.; It demonstrates the properties of indications for the use of contrast agents, which are most widely used in the study of various human organs and systems, especially in children.	1. It does not show patterns in the formation of the radiation image and differential radiation diagnostics of diseases and injuries of various organs and systems.; 2. Does not name the indications for the use of contrast agents, which are most widely used in the study of various human organs and systems, especially in children.	1. Shows patterns in the formation of a radiation image, but cannot perform differential radiation diagnostics of diseases and injuries of various organs and systems; 2. Does not name the indications for the use of contrast agents, which are most widely used in the study of various human organs and systems, especially in children.	1. Shows patterns in the formation of a radiation image, but cannot perform differential radiation diagnostics of diseases and injuries of various organs and systems; 2. Names the indications for the use of contrast agents, which are most widely used in the study of various human organs and systems, especially in children.	1. It shows patterns in the formation of a radiation image and differential radiation diagnostics of diseases and injuries of various organs and systems.; 2. Names the indications for the use of contrast agents, which are most widely used in the study of various human organs and systems, especially in children.
PO 2	It identifies specific anamnestic features in adults and children of different ages and provides the necessary information about the disease. Determines the	1. Cannot identify specific anamnestic features in adults and children of different ages and cannot collect the necessary information about the disease; 2. It does not	1. Identifies specific anamnestic features in adults and children of different ages, but cannot collect the necessary information	1. Identifies specific anamnestic features in adults and children of different ages and collects the necessary information	1. Identifies specific anamnestic features in adults and children of different ages and collects the necessary information about the disease.; 2. Determines the



	need for special radiation (X-ray, ultrasound, computed tomography, magnetic resonance, radiological) examinations in adults and children of different ages.	determine the need for special radiation (X-ray, ultrasound, computed tomography, magnetic resonance, radiological) examinations in adults and children of different ages.	about the disease; 2. It does not determine the need for special radiation (X-ray, ultrasound, computed tomography, magnetic resonance, radiological) examinations in adults and children of different ages.	about the disease; 2. It does not determine the need for special radiation (X-ray, ultrasound, computed tomography, magnetic resonance, radiological) examinations in adults and children of different ages.	need for special radiation (X-ray, ultrasound, computed tomography, magnetic resonance, radiological) examinations in adults and children of different ages.
PO 3	He is able to formulate radiation studies and analyze radiograms in various projections of organs and anatomical areas in standard and additional projections of various ages, identify morphological and functional symptoms of diseases.; He is able to carry out differential diagnosis, preparation of a radiation examination protocol, formulation and justification of a clinical and radiological	1. Cannot formulate radiation studies and analyze radiograms in various projections of organs and anatomical areas in standard and supplementary projections of different ages; 2. Cannot identify morphological and functional symptoms of various diseases; 3. Cannot carry out differential diagnosis, draw up a protocol of radiation examinations, formulation and justification of the clinical and radiological conclusion.	1. Able to formulate radiation studies and analyze radiograms in various projections of organs and anatomical areas in standard and supplementary projections of various ages; 2. Cannot identify morphological and functional symptoms of various diseases; 3. Cannot carry out differential diagnosis, draw up a protocol of radiation examinations,	1. Able to formulate radiation studies and analyze radiograms in various projections of organs and anatomical areas in standard and supplementary projections of various ages; 2. Identifies morphological and functional symptoms of various diseases; 3. Identifies morphological and functional symptoms of various diseases; 3. Cannot carry out differential diagnosis,	1. Able to formulate radiation studies and analyze radiograms in various projections of organs and anatomical areas in standard and supplementary projections of various ages; 2. Identifies morphological and functional symptoms of various diseases; 3. Performs a differential diagnosis, draw up a protocol of radiation examinations, formulation and justification of the clinical and radiological conclusion.



	conclusion.		formulation and justification of the clinical and radiological conclusion.	draw up a protocol of radiation examinations , formulation and justification of the clinical and radiological conclusion.	
PO 4	Interacts with patients to establish trusting relationships, provides information in a way that is understandable to the patient, explains to him the essence of the proposed measures and the results of radiation examinations.; Interacts with students, teachers, and medical professionals in compliance with ethics and deontology.	1. He cannot interact with patients to establish trusting relationships, does not provide information in a way understandable to the patient, does not explain to him the essence of the proposed measures and the results of radiation examinations; 2. Does not observe ethics and deontology when interacting with students, teachers, and medical professionals.	1. Interacts with patients to establish trusting relationships, but does not provide information in a way that is understandable to the patient, does not explain to him the essence of the proposed measures and the results of radiation examinations.; 2. Interacts with students, teachers, and medical professionals in compliance with ethics and deontology.	1. Interacts with the patient to establish a trusting relationship, provides information in a way that is understandable to the patient, but does not explain to him the essence of the proposed measures and the results of radiation examinations ; 2. Interacts with students, teachers, and medical professionals in compliance with ethics and deontology.	1. Interacts with patients to establish trusting relationships, provides information in a way that is understandable to the patient, explains to him the essence of the proposed measures and the results of radiation examinations.; 2. Interacts with students, teachers, and medical professionals in compliance with ethics and deontology.
PO 5	He is able to apply personal judgments based	1. Cannot apply personal judgments based	1. He is able to apply personal judgments	1. He is able to apply personal	1. He is able to apply personal judgments based



on the results of radiation diagnostics, make presentations, use personal judgment and collected information for the prevention of exposure to ionizing and non-ionizing rays and make electronic presentations on the topic, work with literature, electronic databases and computer training programs.

on the results of radiation diagnostics, make presentations; 2. Cannot use personal judgment and collected information for the prevention of exposure to ionizing and non-ionizing rays and does not make electronic presentations on the topic, does not work with literature, electronic databases and computer training programs.

based on the results of radiation diagnostics, make presentations; 2. Cannot use personal judgment and collected information for the prevention of exposure to ionizing and non-ionizing rays and does not make electronic presentations on the topic, does not work with literature, electronic databases and computer training programs.

judgments based on the results of radiation diagnostics, make presentations ; 2. Uses personal judgment and collected information for the prevention of exposure to ionizing and non-ionizing rays, but does not make electronic presentations on the topic, does not work with literature, electronic databases and computer training programs.

on the results of radiation diagnostics, make presentations; 2. Uses personal judgment and collected information to prevent exposure to ionizing and non-ionizing rays and compiles electronic presentations on the topic, works with literature, electronic databases and computer training programs.

10.2. Assessment methods and criteria

Checklists for practical training

Form of control	Evaluation	Evaluation criteria
Oral interview	Great A(4,0: 95-100%)	<ul style="list-style-type: none"> - The student did not make any mistakes or inaccuracies. - Deeply oriented in the theories, concepts and directions of the studied discipline. - Provides a reasoned critical assessment of the material. - Skillfully uses scientific achievements of related disciplines. - Completed the test tasks by 95-100%.



		<p>A(3,67; 90-94%)</p>	<ul style="list-style-type: none"> - The answer contains minor inaccuracies that do not distort the essence. - Understands the basic theories and concepts of the discipline. - Can provide elements of critical analysis. - Attracts materials from other disciplines, but not always consistently. - Completed the test tasks by 90-94%.
		<p>Well B+ (3,33; 85-89%);</p>	<ul style="list-style-type: none"> - The answer is generally correct, with minor inaccuracies. - The student demonstrates an understanding of the theories and concepts of the discipline. - Can perform analysis based on examples. - Uses additional sources, but not always deeply. - Completed the test tasks by 85-89%.
		<p>B (3,0; 80-84%)</p>	<ul style="list-style-type: none"> - There are individual errors or simplifications in the answer that do not distort the overall essence. - The student shows a general understanding of the material. - A teacher's hint is required to organize the material. - Completed the test tasks by 80-84%.
		<p>B- (2,67; 75-79%)</p>	<ul style="list-style-type: none"> - Noticeable mistakes are made, which the student can partially correct after clarifying questions. - Knowledge on the topic is superficial, but the basic concepts have been mastered. - The teacher's active help is required to understand the material. - Completed the test tasks by 75-79%.
		<p>C+ (2,33; 70-74%)</p>	<ul style="list-style-type: none"> - There are no gross errors, but there are unprincipled inaccuracies or fundamental errors corrected by the student himself. - The systematization of the material is possible only with the active help of the teacher. - The answer partially reflects the content of the topic. - Completed the test tasks by 70-74%.
		<p>Satisfactory C (2,0; 65-69%)</p>	<ul style="list-style-type: none"> - The answer contains noticeable inaccuracies and a superficial presentation of the material. - Only the basic provisions of the textbook are used without understanding the interrelationships. - The systematization of the material is impossible without the active help of the teacher. - Completed the test tasks by 60-64%.
		<p>C- (1,67; 60-64%)</p>	<ul style="list-style-type: none"> - The answer contains noticeable inaccuracies and a superficial presentation of the material. - Only the basic provisions of the textbook are used without understanding the interrelationships.



		<ul style="list-style-type: none"> - The systematization of the material is impossible without the active help of the teacher. - Completed the test tasks by 60-64%.
D+ (1,0; 50-54%)		<ul style="list-style-type: none"> - The answer is fragmentary, with many errors and simplifications. - Only individual elements of the material are used, without their analysis and generalization. - The student experiences significant difficulties when working with theoretical content. - Completed the test tasks by 50-54%.
Unsatisfactory Corresponds to the assessment: FX (0,5; 25-49%)		<ul style="list-style-type: none"> - The answer contains fundamental errors that distort the meaning. - The student has not completed the basic literature on the topic of the lesson. - Demonstrates poor command of scientific terminology. - The answer is accompanied by gross logical and stylistic errors. - There is a lack of understanding of key concepts and the connections between them. - Completed the test tasks by 25-49%.
F (0; 0-24 %)		<ul style="list-style-type: none"> - The answer does not correspond to the topic of the lesson, contains numerous fundamental errors. - Complete lack of knowledge on the topic. - Does not use scientific terminology and does not demonstrate an understanding of the structure of the educational material. - Test tasks are completed by 0-24% or missing.

Form of control	Evaluation	Evaluation criteria
Working with the provided radiological images	Great 90-100%	Selects the optimal method of radiation examination. Defines a complete list of indications and contraindications for radiation examination. He tells and shows the X-ray anatomy of the studied area, the projection of the image.
	Well 70-89%	Selects the optimal method of radiation examination. When determining indications and contraindications for radiation examination, he makes minor mistakes. Determines the X-ray anatomy of the area under study, the projection of the image.
	Satisfactory 50-69%	Selects the optimal method of radiation examination. When determining indications and contraindications for radiation examination, he makes gross mistakes. It does not fully determine the radiological anatomy of the area under study.
	Unsatisfactory Corresponds to the	He cannot find the optimal method of radiation examination. When determining indications and



	assessment: 0-49%	contraindications for radiation examination, he makes gross mistakes. When determining the X-ray anatomy and projection of the image, it makes gross errors.
Form of control	Evaluation	Evaluation criteria
Testing is assessed using a multi-point knowledge assessment system		

Checklists for SROP, SRO

Form of control	Evaluation	Evaluation criteria
Working with the provided radiological images	Great 90-100%	Selects the optimal method of radiation examination. Defines a complete list of indications and contraindications for radiation examination. He tells and shows the X-ray anatomy of the studied area, the projection of the image.
	Well 70-89%	Selects the optimal method of radiation examination. When determining indications and contraindications for radiation examination, he makes minor mistakes. Determines the X-ray anatomy of the area under study, the projection of the image.
	Satisfactory 50-69%	Selects the optimal method of radiation examination. When determining indications and contraindications for radiation examination, he makes gross mistakes. Does not fully determine the X-ray anatomy of the area under study.
	Unsatisfactory Corresponds to the assessment: 0-49%	He cannot find the optimal method of radiation examination. When determining indications and contraindications for radiation examination, he makes gross mistakes. When determining the X-ray anatomy and projection of the image, it makes gross errors.

Project evaluation criteria

The criterion of "Goal setting and project planning"	
The goal is not formulated	Unsatisfactory Corresponds to the assessment: 0-49%
The goal has been formulated, but there is no plan to achieve it.	Satisfactory 50-69%
The goal is formulated, justified, and a schematic plan for achieving it is given.	Well 70-89%
The goal is formulated, clearly justified, and a detailed plan for achieving it is given.	Great 90-100%



The criterion of "Formulation and justification of the project problem"

The problem of the project has not been formulated	Unsatisfactory Corresponds to the assessment: 0-49%
The formulation of the project problem is superficial	Satisfactory 50-69%
The problem of the project is clearly formulated and justified	Well 70-89%
The problem of the project is clearly formulated, justified and has a deep character	Great 90-100%

The criterion of "Diversity of information sources used"

Information that does not correspond to the topic and purpose of the project was used	Unsatisfactory Corresponds to the assessment: 0-49%
Most of the information provided does not relate to the topic of the work	Satisfactory 50-69%
The work contains a small amount of relevant information from a limited number of similar sources.	Well 70-89%
The work contains fairly complete information from a variety of sources	Great 90-100%

The criterion of "Depth of disclosure of the project topic"

The project topic has not been disclosed	Unsatisfactory Corresponds to the assessment: 0-49%
The topic of the project is revealed in fragments	Satisfactory 50-69%
The topic of the project has been disclosed, the author has shown knowledge of the topic within the framework of the work program on the discipline being studied.	Well 70-89%
The project topic has been comprehensively disclosed, and the author has demonstrated deep knowledge beyond the scope of the work program being studied.	Great 90-100%

Criterion "Analysis of the progress of work and the results obtained, conclusions"

No attempt has been made to analyze the progress and outcome of the work	Unsatisfactory
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	Corresponds to the assessment: 0-49%
The analysis has been replaced by a brief description of the progress and procedure of the work	Satisfactory 50-69%
The detailed result of the work on achieving the goals stated in the project is presented.	Well 70-89%
An exhaustive analysis of the work results is presented, the necessary conclusions are drawn, and work prospects are outlined.	Great 90-100%
Criterion "Achievement of the goal and compliance with the project content"	
The goals stated in the project have not been achieved	Unsatisfactory Corresponds to the assessment: 0-49%
A significant part of the working methods used do not correspond to the theme and purpose of the project	Satisfactory 50-69%
The methods of work used correspond to the theme and purpose of the project, but are insufficient.	Well 70-89%
The working methods are sufficient and used appropriately and effectively, and the project objectives have been achieved.	Great 90-100%
The criterion of "Personal involvement, creative approach to work"	
The work is patterned, showing the formal attitude of the author	Unsatisfactory Corresponds to the assessment: 0-49%
The author showed little interest in the topic of the project, but did not demonstrate independence in his work, did not use the possibilities of a creative approach.	Satisfactory 50-69%
The work is independent, demonstrating insufficient full participation, an attempt has been made to present a personal view on the project topic, and creative elements have been applied	Well 70-89%
The work is characterized by a creative approach, full participation and the author's own original attitude to the idea of the project.	Great 90-100%
The criterion of "Compliance with the requirements of the written part"	
The written part of the project does not meet the requirements, all sections of the work are not disclosed and the work is not submitted on time.	Unsatisfactory Corresponds to the assessment:



		0-49%
In the written part of the work, all sections are partially disclosed, fundamental errors		Satisfactory 50-69%
There are typos and incorrect expressions in the work.		Well 70-89%
The work fully reflects: the relevance of the topic, novelty and practical significance, conclusions, recommendations, the degree of problem solving and completion of the work, the correctness of its formulation, the author's familiarity with scientific literature, the depth of discussion, the literacy of presentation and the work was completed on time according to schedule.		Great 90-100%
The criterion of "Presentation quality"		
There are a lot of fundamental mistakes in the presentation and answering questions.		Unsatisfactory Corresponds to the assessment: 0-49%
There are minor fundamental errors and inaccuracies in the presentation; partial fundamental errors in answering questions		Satisfactory 50-69%
The presentation contains typos, incorrect expressions, some minor errors, inaccuracies in answering questions.		Well 70-89%
The presentation in terms of design style, presentation of information, content, and text meets the general requirements for presentation design. The author answers the questions confidently and accurately.		Great 90-100%
The criterion of "End product quality"		
The project product is missing		Unsatisfactory Corresponds to the assessment: 0-49%
The project product does not meet the quality requirements (aesthetics, ease of use, compliance with the stated goals)		Satisfactory 50-69%
The product does not fully meet the quality requirements		Well 70-89%
The product fully meets the quality requirements (aesthetic, user-friendly, meets the stated goals)		Great 90-100%

Промежуточная аттестация

Alphabetic grade	The digital equivalent of points	Percentage	Assessment according to the traditional system
A	4,0	95-100	GOOD
A -	3,67	90-94	
B +	3,33	85-89	FINE
B	3,0	80-84	
B -	2,67	75-79	



C +	2,33	70-74	Satisfactorily
C	2,0	65-69	
C -	1,67	60-64	
D+	1,33	55-59	
D-	1,0	50-54	Unsatisfactory
FX	0,5	25-49	
F	0	0-24	

11. Учебные ресурсы

Electronic resources, including, but not limited to: databases, animation simulators, professional blogs, websites, other electronic reference materials (for example: video, audio, digests)

- lib.ukma.kz
- www.aknurpress.kz.
- <https://www.youtube.com/channel/UC2KQ2vGectAWstvVXXKUL2Og>

Electronic textbooks

Diagnostic Radiology Physics D.R. Dance, S. Christofides/
Xray Film Reading Made Easy William F Hook
Introduction to Radiology (Article) Dr S P Tyagi
Effective Physics Knowledge for Diagnostic Radiologists (Article) Perry Sprawls
Radiological Anatomy Amr Attia Hewety, Abd Elhai said Abd Elhi
The Role of Diagnostic and Therapeutic Radiology in the Field of Public Health (Article)Cari Borrás
Early History of X Rays Alexi Assmus
Introduction to Medical Imaging (Presentation) Jeff Benseler
Introduction to Interventional Radiology (Presentation)TheaMoran
The Role of Interventional Radiology in the Diagnosis and Treatment of Solid Tumors (Presentation)
Victoria L Anderson,Dr Levy,Dr Chang

Laboratory physical resources

Special programs

Magazines (electronic magazines)

Literature

main: Medical radiology - Lindenbraten L.D, Koroluk I.P year of release 2000. Radiation therapy – Trufanov G.E, year of release 2010. Getting Started in Clinical Radiology – George W. Eastman. Christoph Wald. Jane Crossin
additional: sites – 24radiology.ru, Learning Radiology, Geeky Medics Radiology Tutorials, Radiology Cafe. Radiopaedia.org.

12. Discipline policy

Requirements you make

Penalty and incentive measures



to students	
It is not allowed to skip classes without a valid reason.	If a practical lesson is missed without a good reason, an NB is given, if a lecture is missed without a good reason, the assessment of the midterm control is reduced - 1 point for each missed lecture.
Timely work off missed classes for a good reason.	Working off a missed lesson for a good reason is carried out only with the permission of the dean's office (work sheet).
Attendance at classes and lectures on time.	If the student is late for more than 5 minutes, he will not be admitted to the lesson. Nb is exhibited in the educational journal and lecture journal.
The student must have an appropriate outfit (robe, cap, changeable shoes, etc.)	If the form is inappropriate, the student is not allowed to the lesson or lecture, in the educational journal or lecture journal is exhibited by the NB
The student has a medical sanitary book	Without a health book, a student is not allowed into the clinic's departments, the nb is displayed in the educational journal
Srop	If you miss the SRO without a valid reason, the mark for the SRO decreases - 2 points for each missed lesson
Timely fulfillment of tasks for SRO.	The assessment of the SRO is set in the SRO classes according to the schedule in the educational journal of progress and the electronic journal, taking into account the penalty points, are subtracted from the assessments of the SRO.
The student must treat teachers and fellow students with respect	. In case of disrespectful student behavior, the student's behavior is discussed at the cathedral meeting, this is reported to the dean's office and parents
Careful attitude of students to the property of the department	When the property of the department is destroyed, the student restores the property on his own.
Mid-term control	The midterm control of students' knowledge is carried out at least twice during one academic period on 8/15 weeks of theoretical training with putting down the results of midterm controls in the academic journal of progress and electronic journal, taking into account penalty points for missing lectures (missed lectures in the form of penalty points are deducted from the assessments midterm control). a student who does not show up for midterm control without a valid reason is not allowed to take the discipline exam. A student who does not appear for midterm control for a good reason, immediately after starting classes, submits an application to the dean, provides supporting documents (due to illness, family circumstances or other objective reasons), receives a work sheet, which is valid for the term specified in clause 12.4. The results of midterm control are provided to the dean's office in the form of a report by the end of the control week.
Assessment of the final control	A student who does not score a passing score (50%) in one of the types of control (current control, midterm control No. 1 and / or No. 2) is not allowed to take the exam in the discipline.



13. Academic policy based on the moral and ethical values of the academy

Academic policy. Clause 4 Code of honor of the student

The student of the Academy is a patriot of the Republic of Kazakhstan, highly respects the flag, coat of arms, anthem, the state language - the main attributes of sovereign Kazakhstan. The student treats with care and preserves the glorious traditions, moral values of the previous generation of the Academy.

The student is disciplined, polite, sociable, observes generally accepted moral and ethical norms of behavior in public places and in everyday life, is self-critical and demanding of himself and his actions.

The student condemns and actively promotes rejection and opposition to any manifestations of corruption, corrupt worldview and behavior in the Academy among students and teachers

Discipline Grading Policy

Current control: testing, assessment of solving situational problems, discussion assessment sheet, assessment sheet of work in small groups, round table assessment sheet, diagnostic algorithm and treatment regimens

Midterm control: Testing. Controlling the assimilation of practical skills.

Mid-term control of students' knowledge is carried out at least twice during one academic period on 7/12 days of theoretical training with the completion of midterm examinations in the educational progress journal and electronic journal, taking into account penalty points for missing lectures (lectures are skipped in the form of penalty points from the assessments of the intermediate control).

- the penalty point for missing one lecture without a valid reason is 1.0 point;

- a student who does not show up for midterm control without a valid reason is not allowed to take the discipline exam. A student who does not appear for midterm control for a good reason, immediately after starting classes, submits an application to the dean, provides supporting documents (due to illness, family circumstances or other objective reasons), receives a work sheet, which is valid for the term specified in clause 12.4. The results of midterm control are provided to the dean's office in the form of a report by the end of the control week.

- The assessment of the SRO is set in the classroom of the SRO according to the schedule in the educational journal of progress and the electronic journal, taking into account the penalty points, are subtracted from the assessments of the SRO).

- if you miss one lesson of the SSSP - a penalty point of 2.0;

- A student who does not score a passing grade (50%) in one of the types of control (current control, midterm control No. 1 and / or No. 2) is not allowed to take the exam in the discipline.

- The examination score is set based on the results of the current and midterm controls - the assessment of the admission rating (ORD) (60%) and the final control - the marks on the exam (40%).

- ORD (assessment of the rating of admission) is determined as the average value of points for practical training, SRO, and midterm control.

- A student who scored a minimum score of the ORD equal to 1 (15%) and above is allowed to take the exam.




Final control: exam including OSKE and testing.

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14. Approval, approval and revision			
Date of agreement with the Library and Information Center	Protocol No <u>7</u> « <u>25</u> » <u>06</u> 2025	Head of BIC Darbicheva R.I.	
Date of approval by the department	Protocol No <u>11</u> « <u>26</u> » <u>06</u> 2025	Head of the department Kasaeva L.T	
Date of approval for AC EP	Protocol No <u>6</u> « <u>27</u> » <u>06</u> 2025	Chairman of the AC EP Ayezkhankyzy D.A	
Date of approval by the department	Protocol No _____ « _____ » _____ 2025	Head of the department Kasaeva L.T	
Date of approval for AC EP	Protocol No _____ « _____ » _____ 2025	Chairman of the AC EP Ayezkhankyzy D.A	