№Стом-21-ИН

Federal State Budgetary Educational Institution of Higher education
" NORTH OSSETIAN STATE MEDICAL ACADEMY"
Ministry of Health of the Russian Federation

APPROVED
Rectorof FSBEI HE NOSMA
MOH Russia
O.V. Remizov
«24» May 2023

WORKING PROGRAM OF THE DISCIPLINE

"Radiation Diagnostics"

the main professional educational program of higher education - specialist's programs in the specialty 31.05.03 Dentistry ,
approved on March 30, 2022

The form learning full-time

Term of development OPOP VO 5

Department of Radiation Diagnostics and Radiation Therapy with oncology

Vladikavkaz, 2023

When developing the work program of the discipline, the following are taken as the basis:

1. Federal State Educational Standard of Higher Education in the specialty 31.05.03 Dentistry , approved by the Ministry of Education and Science of the Russian Federation on August 12, 2020 No. 984

2. Curriculum of the OPOP HE in the specialty 31.05.03 Dentistry
(Стом-21-01-21-**ИН**
Стом-21-02-22-**ИН**
Стом-21-03-23-**ИН**) ,

approved by the Academic Council of the FGBOU HE SOGMA of the Ministry of Health of Russia approved by the Academic Council of the FGBOU HE SOGMA of the Ministry of Health of Russia on May 24, 2022, Protocol No. 8

The work program of the discipline was approved at a meeting of the Department of Radiation Diagnostics and Radiation Therapy with Oncology on May 21, 2023, Protocol No. 10

The work program of the discipline was approved at a meeting of the central coordinating educational and methodological council on May 23, 2023, protocol No. 5.

The work program of the discipline was approved by the Scientific Council of the Federal State Budgetary Educational Institution of Higher Education SOGMA of the Ministry of Health of Russia dated May 24, 2022, Protocol No. 8

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Content of the work program

1. Name disciplines;
2. a list of planned learning outcomes in the discipline, correlated with the planned results of mastering the educational programs;
3. indication of the place of discipline in the structure of educational programs;
4. the volume of discipline in credit units indicating the number of academic or astronomical hours allocated for contact work of students with a teacher (by type of training) and for independent work students;
5. the content of the discipline, structured by topics (sections) indicating the number of academic or astronomical hours allocated to them and types of training classes;
6. a list of educational and methodological support for independent work of students in the discipline;
7. a fund of evaluation tools for conducting intermediate certification of students in the discipline;
8. a list of basic and additional educational literature necessary for mastering the discipline;
9. a list of resources of the information and telecommunications network "Internet" (hereinafter - the network "Internet"), necessary for the development disciplines;
10. guidelines for students on mastering disciplines;
11. a list of information technologies used in the implementation of the educational process in the discipline, including a list of software and information reference systems (with need);
12. description of the material and technical base necessary for the implementation of the educational process for discipline.
13. conducting educational activities using e-learning and distance learning technologies.

The list of planned learning outcomes in the discipline and the results of mastering the educational program
"Radial diagnostics" 31.05.03 Dentistry

2.

No. p/p	Number / index competencies	Content competencies (or parts thereof)	Topic of the lesson (section)	Indicators achievement of competencies	Development results		
					know	be able to	own
1	2	3	4	5	6	7	8
1.	GPC-5	Capable of examining the patient in order to establish a diagnosis when solving professional problems	Introduction. General issues of radiation diagnostics.	ID-1 GPC-5 Own the algorithm of clinical examination of the patient. ID-2 GPC -5 Be able to draw up a plan for laboratory and instrumental diagnostics. ID-3 GPC-5 Own the algorithm of clinical laboratory and functional diagnostics in solving professional problems. ID-4 OPK-5Be able to evaluate the results of clinical, laboratory and functional diagnostics in solving professional problems.	The history of the development of radiology, the structure of the x-ray tube, office, radiation protection methods, methods: X- ray, CT, MRI, ultrasound, dental methods panoramic tomography, VCT , etc. Radiation registration methods. Radiopharmaceutical preparations, requirements for them.	To be able to recognize the method of radiation examination of patients with various pathologies, media and image quality, applied or not contrast agent, organ research.	Own the beam method patient studies (X-ray,radiography) forvarious pathologies, methods of protecting patientsand staff (leaded aprons, diapers and etc.)
2.	PC-1	Holding surveys patient in order to establish diagnosis	Radiation diagnostics in neurology Lungs in the beam image Radiation diagnostics of the heart and large vessels. Methods of radiation	ID-7 PK-1 substantiates need and scope additional examinations of patients (including radiographs, teleroentgenograms, radiovisiograms,	Know x-ray anatomy skull and spine, brain and spinal cord, methods of radiation diagnostics (renography,	Be able to recognize method research, projection, pathological symptoms, draw up a protocol for	Methods of beam diagnostics - radiography analyze andinterpret results contemporary diagnostic technologies

			diagnostics diseases of the esophagus, stomach, intestines. Complex X-ray diagnostics diseases of the hepato-pancreato-biliary system. Complex X-ray examination of the kidneys and urinary tract Osteo-articular system in the X-ray image in children. Mammography. Radiation diagnostics of the genital organs. Radiation diagnostics in otorhinolaryngology and endocrine system, in dentistry	orthopantomograms, tomograms (on film and digital media)) tomograms (on film and digital media. ID-10 PC-1 Analyzes the results of the survey. ID-11 PC-1 Justifies and plans amount of additional research. ID-19 PK-1 Interprets data additional examinations of patients (including radiographs, teleroentgenograms, radiovisiograms, orthopantomograms, tomograms (on film and digital media)). ID-20 PC-1 Diagnoses dentoalveolar deformities and anomalies of teeth and jaws; identify risk factors for oncopathology (including various background processes, precancerous conditions). ID-21 PK-1 Uses personal protective equipment.	CT, MRI, etc.), contrast agents used in special research methods, pathological symptoms.	describing the image according to the scheme and draw a conclusion.	differential diagnosis, methods of medical documentation.
3.	PC-4	Conduct and control effectiveness of sanitary and anti-epidemic and other preventive measures to protect public health	x-ray semiotics diseases of the maxillofacial area, and observation in dynamics	ID-1 PC-4 Conduct preventive examinations of various categories of citizens ID-2 PC-4 Carry out preventive measures diseases of the teeth,	Knowledge of x-ray bone anatomy systems, methods of radiation diagnostics (renography, CT,	recognize method research, projection, pathological symptoms, draw up a protocol for	Radiation methods diagnostics - analyze and interpret the results of modern

				periodontium, oral mucosa, lips, jaw bone tissue, peripheral nervous system maxillofacial areas, temporal jaw joint, salivary glands ID-4 PC-4 Uses methods of primary and secondary prevention ID-5 PC-4 Applies methods of organizing primary prevention of dental diseases in any age group ID-6 PC-4 Uses personal protective equipment	MRI, etc.), contrast agents used in special methods research, pathological symptoms.	describing the image according to the scheme and draw a conclusion.	diagnostic technologies, differential diagnosis, methods reference medical documentation.
4.	PC-6	Organizational and managerial activity.	Physical foundations of radiation diagnostics and radiology.	ID-1 PC-6 Analyzes the quality of medical care. ID-3 PC-6 Fills in the medical documentation and control the quality of medical documentation. ID-4 PC-6 Prepares the documentation necessary for medical social expertise. ID-6 PC-6 Draws up a work plan and a report on his work. ID-7 PC-6 Analyzes quality and efficiency maintaining medical records	Know the basics of completing medical records	Fill out a medical documentation and quality control reference	working methods in information and analytical systems

3. The place of discipline in the structure of educational programs

The discipline "Radial diagnostics" is a discipline of the obligatory part of Block 1 Federal State Educational Standard of Higher Education in the specialty " **31.05.03 Dentistry** ".

4. Volume disciplines

No. p / p	Type of work		Total credits	Total hours	Semester
					5
					Number of hours
1	2		3	4	5
one.	**Contact work of students with a teacher (total), including including:**		-	**48**	**48**
2.	Lectures (L)		-	12	12
3.	Clinical Practice (PP)		-	36	36
4.	Seminars (C)		-	-	-
5.	Laboratory work (LR)		-	-	-
6.	**Student Independent Work (SIW)**		-	**24**	**24**
7.	**Type of intermediate certification**	credit (G)	+	+	+
		exam (E)	-	-	-
8.	**TOTAL: Total labor intensity**	**hours**	-	**72**	**72**
		Z	**2**	-	**2**

5. Content disciplines

No./n	semester number	Name of the topic (section) of the discipline	Types of learning activities (in hours)					Forms of current progress control
			L	LR	PZ	SRS	Total	
1	2	3	4	5	6	7	8	9
1	5	Introduction. General issues beam diagnostics and radiology.	2	-	3	2	7	S, TS .
2	5	Radiation diagnostics in neurology	2	-	3	2	7	S, TS .
3	5	Lungs in the ray image	2	-	3	3	8	S,TS.SZ ,UZ
4	5	Radiation diagnosis of the heart and large vessels.	-	-	3	2	5	S,TS.SZ ,UZ
5	5	The osteoarticular system in the ray image adults and children.	2	-	3	3	8	S,TS.SZ
6	5	Methods of radiation diagnostics of diseases of the esophagus, stomach, intestines. Malformations and developmental anomalies in children.	2	-	3	3	8	S,TS.SZ ,UZ

7	5	complex radiation diagnosis of diseases of the hepato-pancreato-biliary system.	-	-	3	2	5	S,TS.SZ ,UZ
8	5	Comprehensive radiological examination of the kidneys and urinary tract	2	-	3	3	8	S,TS.SZ ,UZ
9	5	Mammography. Radiation genital diagnostics.	-	-	3	2	5	S,TS.SZ
10	5	Radiation diagnostics in dentistry. Methods research. Anomaly of development	-	-	3	2	5	S,TS.SZ
11	5	Radiation diagnostics diseases of the teeth, maxillofacial area.	-	-	3	-	3	S,TS.SZ
12	5	Modular lesson offset	-	-	3	-	3	S,TS.SZ
TOTAL:			**12**		**36**	**24**	**72**	

6. The list of educational and methodological support for independent work of students in the discipline

No. p / p	**semester number**	**Name of educational and methodical development**
1.	5	Methodical manual: "Physical bases of radiation diagnostics and radiation therapy". Vladikavkaz 2020 (Khasigov A.V., Koraeva I.Kh., Krivov A.A.).
2.	5	Methodological guide: “Physical foundations of radiology. Radioactivity, radioactive radiation, their characteristics. Radionuclide diagnostics.» Vladikavkaz 2020 (Khasigov A.V., Koraeva I.Kh., Krivov A.A.).
3.	5	Methodological guide:. « Radiodiagnostics of diseases pancreas and spleen, spinal cord and brain. Vladikavkaz 2020 (Khasigov A.V., Koraeva I.Kh., Krivov A.A.).
4.	5	Methodical manual: "Radial diagnosis of diseases of the esophagus, stomach, intestines "Vladikavkaz 2020. (Khasigov A.V., Koraeva I.Kh., Krivov A.A.).
5.	5	Methodological guide : . Radiation diagnostics of diseases of the urinary system, liver and biliary tract and reproductive system of women. Toolkit. Vladikavkaz 2020 (Khasigov A.V., Koraeva I.Kh., Krivov A.A.).
6.	5	Methodical manual: "Radial diagnosis of diseases of the musculoskeletal system." Toolkit. Vladikavkaz 2020 (Khasigov A.V., Koraeva I.Kh., Krivov A.A.).
7.	5	Methodical manual: "Radial diagnosis of lung diseases." Toolkit. Vladikavkaz 2020 (Khasigov A.V., Koraeva I.Kh., Krivov A.A.).
8.	5	Methodical manual: "Radiation diagnosis of the heart and vessels . "Methodological guide. Vladikavkaz 2020 (Khasigov A.V., Koraeva I.Kh., Krivov A.A.).

9.	5	Methodological guide: *Biological bases of radiation therapy. Classification and planning of radiation therapy.* Vladikavkaz 2020 (Khasigov A.V., Koraeva I.Kh., Krivov A.A.).
10.	5	Methodological guide : . *Technological foundations of radiation therapy. Radiation therapy of malignant tumors The body's response to radiation treatment.* Vladikavkaz 2020 (Khasigov A.V., Koraeva I.Kh., Krivov A.A.).
11.	5	Methodological recommendations for performing independent extracurricular work of students on the cycle of radiation diagnostics and radiation therapy. Vladikavkaz 2020 (Khasigov A.V., Koraeva I.Kh., Krivov A.A.).
12.	5	Methodological developments for practical exercises on radiation diagnostics and radiotherapy Vladikavkaz 2020 (Khasigov A.V., Koraeva I.Kh., Krivov A.A.).
13.	5	Thematic laminated tables

7. Fund of assessment tools for conducting intermediate certification of students in the discipline

No. p / p	List of competencies	No. semester	Assessment indicator(s)	Evaluation criterion(s)	Evaluation scale	FOS name
1	2	3	4	5	6	7
1	GPC-5 PC-1 PC-4 PC-6	5	see the standard for assessing the quality of education, approved. By order of FGBOU VO SOGMA Ministry of Health of Russia dated 10.07.2018 G., №264/o	see quality standard education, approved. By order of FGBOU VO SOGMA Ministry of Health of Russia dated 10.07.2018 G., №264/o	see education quality assessment standard, approved By order of FGBOU VO SOGMA Ministry of Health of Russia dated 10.07.2018 G., №264/o	Questions to offset; Test tasks; Control tasks

8. The list of basic and additional educational literature necessary for mastering the discipline

No. p / p	Name	The authors)	Year, place of publication	Number of copies		EBS name / EBS link
				in library	at the department	
1	2	3	4	5	6	7
Main literature						
1.	Radiation diagnostics : textbook. T.1	ed. G. E. Trufanov	M. : GEOTAR-Media, 2009 2011	198	one	"Consultant student" http://www.studmedlib.ru/en/book/ISBN9785970419274.ht

						ml
2.	Radiation diagnostics: textbook	ed. G. E. Trufanov	M. : GEOTAR-Media, 2010 2015	one	-	Student Advisor http://www.studmedlib.ru/ru/book/ISBN9785970425152.html
3.	Radiation therapy: textbook. T.2	Trufanov G. E., Asaturyan M. A., Zharinov G. M.	M. : GEOTAR-Media, 2009, 2010	197	one	Student Advisor http://www.studmedlib.ru/ru/book/ISBN9785970415658.html
4.	Radiotherapy : textbook	Trufanov G. E., Asaturyan M. A., Zharinov G. M.	M. : GEOTAR-Media, 2013	-	-	Student Advisor http://www.studmedlib.ru/ru/book/ISBN9785970425145.html
5.	Radiation diagnostics and therapy. General radiation diagnostics	S. K Ternovoy . and etc.	M. : GEOTAR-Media, 2014	-	-	"Student Advisor" http://www.studmedlib.ru/book/ISBN9785970429891.html
6.	Radiology : studies. allowance	ed. A.Yu. Vasiliev	M. : GEOTAR-Media, 2008	-	-	"Student Advisor" http://www.studmedlib.ru/book/ISBN9785970409251.html
7.	Radiation diagnostics in dentistry: textbook. allowance	Vasiliev A.Yu., Vorobyov Yu.I., Serova N.S.	M. : GEOTAR-Media, 2010	-	-	"Student Advisor" http://www.studmedlib.ru/book/ISBN9785970415955.html
additional literature						
8.	Medical radiology and radiology (fundamentals of radiation diagnostics and radiation therapy): textbook	Lindenbrate and L. D.	M. : Medicine, 1993	278	one	"Student Advisor" http://www.studmedlib.ru/book/ISBN9785970415955.html
9.	Brief Atlas by digital	ed. A. Yu. Vasiliev	M. : GEOTAR-Media, 2008	7	one	"Consultant student"

	radiography II: textbook. allowance					http://www.studmedlib.ru/book/ISBN9785970415955.html
10.	Topographic anatomy and operative surgery: textbook. AT 2nd t.	Sergienko V.I. Petrosyan E. A, Frauchi I. V.	M. : GEOTAR-Media, 2010	T. 1–147 T.2 - 148	-	"Student Advisor" http://www.studmedlib.ru/book/ISBN9785970415955.html
11.	Radiation mammology	Ternovoy S. K.	M. : GEOTAR-Media, 2007.	5	-	"Student Advisor" http://www.studmedlib.ru/book/ISBN9785970415955.html
12.	X-ray diagnostics of dental diseases: textbook. allowance	Vodolatsky M. P., Vodolatsky V. M., Samokhina N. V.	Stavropol: SGMA, 2006	one	-	"Student Advisor" http://www.studmedlib.ru/book/ISBN9785970415955.html
13.	Radiation diagnostics of liver diseases (MRI, CT, ultrasound, SPECT and PET)	ed. G. E. Trufanov	M. : GEOTAR-Media, 2007. -	2		"Student Advisor" http://www.studmedlib.ru/book/ISBN9785970415955.html
14.	Radiation diagnostics: study guide	Ilyasova E. B., Chekhonatskaya M. L., Priezzheva V.N.	M. : GEOTAR-Media, 2013			"Student Advisor" http://www.studmedlib.ru/book/ISBN9785970427200.html
15.	Atlas of Radiation Human Anatomy	Filimonov V.I., Shilkin V.V., Stepankov A.A., Churakov O.Yu.	M. : GEOTAR-Media, 2010			"Student Advisor" http://www.studmedlib.ru/book/ISBN9785970413616.html
16.	Magnetic Resonance Imaging: A Guide for Physicians	ed. G. E. Trufanov	St. Petersburg: Folio, 2007	one		Student Advisor http://www.studmedlib.ru/ru/book/ISBN9785970419274.html
17.	Magnetic	ed. S.K.	M. : GEOTAR-			"Consultant

	resonant tomography: study guide	Ternovoy	Media, 2008			student" http://www.studmedlib.ru/book/ISBN9785970408353.html

9. List of resources of the information and telecommunications network "Internet" required for mastering disciplines

1. Information and legal system "Garant" 2. Information and legal system "Consultant" 3. Information system "State Register LS"
4. - "Student Advisor " .

Radiation therapy [Electronic resource] / Trufanov G.E., Asaturyan M.A., Zharinov G.M. - M. : GEOTAR-Media, 2013. - http://www.studmedlib.ru/book/ISBN9785970425145.html

Radiation diagnostics. In 2 volumes. Volume 1 [Electronic resource] / Akiev R.M., Ataev A.G., Bagnenko S.S. and others. Ed. G.E. Trufanov. - M. : GEOTAR-Media, 2011. - http://www.studmedlib.ru/book/ISBN9785970419274.html

Radiation diagnostics in dentistry [Electronic resource]: textbook / Vasiliev A.Yu., Vorobyov Yu.I., Serova N.S. and others - 2nd ed., add. and reworked. - M. : GEOTAR-Media, 2010. - http://www.studmedlib.ru/book/ISBN9785970415955.html

Radiation diagnostics and therapy. General radiation diagnostics [Electronic resource] / Ternovoy S. K. et al. - M.: GEOTAR-Media, 2014. - http://www.studmedlib.ru/book/ISBN9785970429891.html

5. - Bulletin of radiology and radiology http://www.russianradiology.ru/jour
6. - Russian Electronic Journal of Radiation Diagnostics http://www.rejr.ru/perviy-nomer/vol-6-3-2016.html
7. National School of Roentgen Radiology http://www.radiology-school.ru

10. Guidelines for students on mastering disciplines

Training consists of contact work (48 hours), including a lecture course (12) and practical exercises (36), and independent work (24 hours). The main study time is allocated to practical work on the study of x-ray anatomy of organs, methods of radiation diagnostics, x-ray symptoms and differential diagnosis of various diseases. When studying the discipline, it is necessary to use the basic and additional recommended literature and master practical skills in radiation diagnostics of pathological processes.

Practical classes are held in the form of answers to tests, oral questioning, analysis and description of radiographs, presence in the X-ray room during an X-ray examination of patients, solving situational problems. In accordance with the requirements of the Federal State Educational Standard for Higher Education, active and interactive forms of conducting classes (video films, situational tasks, independent extracurricular work) are widely used in the educational process. The proportion of classes conducted in interactive forms is at least 5% of the classroom classes.

Independent work of students implies the preparation of the formation of a systematic approach to the analysis of medical information, includes the study of additional literature, work with medical documentation, writing x-ray protocols In chapter SRS).

Each student is provided with access to the library funds of the academy and the department. During the study of the discipline, students independently draw up protocols for describing images of various organs and are present during radiological examination in offices.

The work of a student in a group forms a sense of collectivism and sociability.

11. The list of information technologies used in the implementation of the educational process for discipline

- Microsoft word
- •Microsoft excel
- •Microsoft Power point
- Adobe photoshop
- Adobe Acrobat
- Adobe finereader

12. Description of the material and technical base necessary for the implementation of the educational process for discipline

No. p/p	equipment identification	Quantity	Technical condition
1	2	3	4
Special equipment			
1.	classrooms (19.1 sq.m , 22.7 sq.m, 13.6 sq.m)	3	good
2.	staff room (18 sq.m)	1	satisfactory
3.	lecture hall (141.8 sq.m)	1	good
4.	computers	3	satisfactory
5.	notebook	1	good
6.	multimedia complex (laptop, projector, screen)	1	good
7.	negatoscope	10	satisfactory
8.	slidescope	1	satisfactory
9.	set of radiographs, CT and MR	370	good
10.	radiograph description protocols	90	good
11.	vidio movies		good
12.	situational tasks		good
13.	tests		good
14.	laminated tables	200	good
15.	X-ray diagnostic devices ROD	4	good
16.	Radiation therapy devices GENUS	3	good
office equipment			
17.	-	-	-

13. Conducting educational activities using e-learning and distance learning technologies

In the context of the introduction of restrictive measures (quarantine) associated with an unfavorable epidemiological situation, the threat of the spread of a new coronavirus infection and other force majeure events that do not allow training sessions in full-time mode, it is possible to study this discipline or part of it using e-learning and distance learning technologies.

Teaching discipline in the situations described above will be carried out through the development of an electronic course with access to video lectures and interactive course materials: presentations, articles, additional materials, tests and various tasks. When conducting training sessions, current monitoring of progress, as well as intermediate certification of students, the platforms of the electronic information and educational environment of the academy and / or other e-learning systems recommended for use in the academy, such as Moodle, Zoom, Webinar, etc., can be used.

Lectures can be presented in the form of audio, video files, "live lectures", etc.

Conducting seminars and practical classes is possible on-line in both synchronous and asynchronous modes. Seminars can be held in the form of web-conferences