№ЛД-16-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

EDUCATIONAL TRAINING PROGRAM OF DISCIPLINE

" Oncology, radiotherapy "

the main professional educational program of higher education - specialist's programs
in the specialty 31.05.01 General Medicine,

approved on May 24, 2023

The form learning full-time
(full-time, part-time (evening), part-time)

Development period BRI IN 6 years
(normative training period)

department 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 31.05.01 General Medicine, approved by the Ministry of Education and Science of the Russian Federation from 09.02.2016 No. 95

2. The curriculum of the OPOP HE in the specialty 31.05.01 General Medicine
ЛД-16-03-18 ИН
ЛД-16-04-19 ИН
ЛД-16-05-20 ИН

approved by the Academic Council of the Federal State Budgetary Educational Institution of Higher Education SOGMA of the Ministry of Health of Russia on May 24, 2023, 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 Academic Council of the Federal State Budgetary Educational Institution of Higher Education SOGMA of the Ministry of Health of Russia on May 24, 2023, Protocol No. 8

Developers:

Job title : head of department professor A.V. Khasigov

Job title docent PhD I.H. Koraeva

Reviewers :

L.M. Voronkova, head Department of Chemotherapy, GBUZ ROD of the Ministry of Health of the Republic of North Ossetia - Alania,
V.Z. Totikov MD prof. Head of the Department of Surgical Diseases No. 2, FGBOU VO SOGMA of the Ministry of Health of the Russian Federation,

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 sessions;
6. a list of educational and methodological support for independent work of students on 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 referred to as the "Internet" network) necessary for mastering the discipline;
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

No. No. p / p	Number/Index EU competencies	Content of competence	The content of the discipline (or part of it)	Development results		
				know	be able to	own
1		2	3	4	5	6
1	OPK-1 PC-16 PC-17	Readiness to perform standard tasks, professional activities With use Of information bibliographical resources, medical biological terminology informational technologies and taking into account major requirements information Noah security.	1.Physical Basics of x ray therapy. 2. Radiobiologistscal foundations ray therapy malignant s diseases. 3. Radiobiologistscal foundations ray therapy non-tumor diseases.	1. History discoveries x-ray gamma, alpha, beta radiation, 2.stages Development/ physical and technical basics of x ray therapy. 3.subject, structure and tasks of x ray therapy.	1.Interpre tamper results clinically X. 2.rentgenological. 3.endoscopy and others methods explored and I cancer-nyh. 4. Used vat medical Yu terminalogogue June.	1.Methods of deontology for working with oncology sick 2.Methods for reference medicine documentations. 3.Medicine Russian terminalogy.

				penetrating her radiation. 5. essence of biochemical and pathomorphological processes occurring under the influence of penetrating radiation sensitivity radiosensitivity 6. Medical terminology.		
2.	OPK-4 PC-1 PC-5 PC-16 PC-17	Ready for collection and analysis patient complaints, his medical history, examination results, laboratory , instrumental, patho-anatomical and other studies in order to recognize the condition or establish the fact of the presence or absence of a disease	1.Methods of radiation therapy. 2.Technical support of radiation therapy.	1. Organization radiology department. 2. classification of methods of radiation therapy. 3. devices of the gamma therapeutic apparatus. 4. radioactive preparations 4methods of irradiation of patients.	1Recognize the method of radiation therapy. 2. determine the indications and contraindications for radiation therapy. 3. Recognize the equipment used in various methods of radiation therapy.	1.Method of mi-radiation therapy, 2.apparatus uroy. 3.methods and management of medical documentation.
3.	GPC4 GPC6 GPC8 PC-1 PC-2 PC-5 PC-6 PC-8 PC-6	Ability to Definition in patients with their main pathological conditions, symptoms, syndromes of diseases, their nosological forms in accordance with International Statistical Classification of Diseases and Related Health Problems, revised by the 43rd World Assembly Healthcare, Mr.	1.Methods exposure of patients remote , contact). 2. Planning of radiation therapy. 3. Beam periods -reactions to radiation (local and general). 3. Complications in radiation therapy.	1. Build a plan remoteth irradiation (X-ray therapy, tele-gamma therapy). 2.Correct about determine the method of radiation therapy. 3. Prepare patient for treatment, 4. Draw up a treatment	1.Select correct method irradiation. 2.Build a topometric map, calculate dose and exposure time, fields, etc. 3. Prescribe treatment for reaction and damage and after radiation treatment.	1.Method mi irradiation patients (remote, contact). 2.Mi method rehabilitation classification of radiation therapy. 3. Methods for the treatment of reactions and injuries

		Geneva 1989		plan. 5.prevention of radiation reaction tics		after radiation treatment,
4	GPC4 GPC6 GPC8 PC-1 PC-2 PC-5 PC-6 PC-8 PC-6 PC-16 PC-17	ability to apply basic organization and strengthening in the field of protection health of citizens in medical organizations and their structural divisions	Fundamentals of radiation therapy of malignant tumors.	1. Research methods for cancer patients sick. 2. Principles of treatment. 3. Methods for the prevention and treatment of radiation reactions and complications .	1. Interpret the results of clinical x-ray, x-ray, and other research methods for cancer patients. 2. Calculate the specific and total activity of the radioactive source. 3.determine power doses with roentgenometer. 4. Calculate the time and patient radiation dose.	1.Mi method deontology when working with oncological sick 2.technical safety when working with radioactive sources; 3.Mi method rehabilitation classification radiation therapy. 4.Methods of treatment of reactions and injuries after radiation treatment, 5.Methods of mi medical management documentation.

4	GPC4 GPC6 GPC8 PC-1 PC-2 PC-5 PC-6 PC-8 PC-6 PC-16 PC-17	ability to apply basic organization and strengthening in the field of protection health of citizens in medical organizations and their structural divisions	Fundamentals of radiation therapy of malignant tumors.	1. Research methods for cancer patients sick. 2. Principles of treatment. 3. Methods for the prevention and treatment of radiation reactions and complications .	3. Interpret the results of clinical x-ray, x-ray, and other research methods for cancer patients. 4. Calculate the specific and total activity of the radioactive source. 3.determine power doses with	1.Mi method deontology when working with oncological sick 2.technical safety when working with radioactive sources; 3.Mi method rehabilitation classification radiation therapy. 4.Methods of treatment of reactions and injuries after radiation treatment, 5.Methods of mi medical management documentation .

3. The place of discipline in the structure of the OBOR VO.

1. The discipline "Radiation therapy" belongs to Block 1 of the Federal State Educational Standard of HE in the specialty
"Medicine".

Types of professional activity that underlie the teaching of this discipline **:**

1. Preventive.
2. Diagnostic.
3. Research.

4. Volume disciplines

No. No. p / p	**Type of work**		**Total credits**	**Total hours**	**Semesters**
					12
					hours
1	2		3	4	5
1	**Contact work of students with teacher (total), including:**				
2	Lectures (L)		1	22	22
3	Clinical Practice (PP)		1	50	50
4	Seminars (C)				
5	Laboratory work (LR)				
6	**Student Independent Work (SIW)**		1	36	36
7	**Type of intermediate certification**	credit (G)	+	+	+
		exam (E)	-	-	-
8	**TOTAL:** Total labor intensity	hours		108	108
		Z	3		

5. The content of the discipline

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	12	Organization of oncological care for the population.	2		5	3	10	C,TS.SZ,UZ
2	12	Cancer and precancerous skin diseases. Cancer of the oral mucosa. Tumors of bones and soft tissues.	2		5	3	10	C,TS.SZ,UZ
3	12	Precancerous diseases and cancer mammary gland.	2		5	3	10	C,TS.SZ,UZ
4	12	Precancerous diseases and cancer lung.	2		5	3	10	C,TS.SZ,UZ
5	12	Cancer of the esophagus, cancer of the stomach. malignant lymphomas. Myeloma.	2		5	3	10	C,TS.SZ,UZ
6	12	Cancer of the colon and rectum. Tumors hepatopancreatoduodenal zone. Modular activity. Offset.	2		5	6	13	C,TS.SZ,UZ
7	12	Physical basis of radiation therapy. Radiobiological bases of radiation therapy of malignant and non-tumor diseases	2	-	3	2	7	C,TS.SZ,UZ
8	12	Methods of radiation therapy. Technical support of radiotherapy	2	-	3	2	7	C,TS.SZ,UZ
9	12	Radiation therapy planning. Prebeam period. Beam period. Reactions of the body to therapeutic radiation exposure. Post-beam period. Radiation Protection of Organs and Tissues During Radiation Therapy	2	-	3	3	8	C,TS.SZ,UZ
10	12	Fundamentals of radiation therapy of malignant tumors of the maxillofacial region.	-	-	3	2	5	C,TS.SZ,UZ
11	12	Fundamentals of radiation therapy of malignant tumors of the chest and abdominal cavities	2	-	3	3	8	C,TS.SZ,UZ
12	12	Fundamentals of radiation therapy of malignant tumors of the central nervous system, thyroid gland, Retroperitoneal space, skeletal system ,	2	-	3	3	8	C,TS.SZ,UZ
13	12	Modular lesson offset	-	-	2	-	2	C,TS.SZ,UZ
TOTAL:			**22**		**50**	**36**	**108**	

Note: S - interview, TK - test tasks, SZ - situational tasks, KZ - training tasks

5. The list of educational and methodological support for independent work of students on discipline

No./n	No. semester	Name of educational and methodical development
1	12	**Khasigov A.V., Alborov S.V. General questions of oncology.**
2	12	**Khasigov A.V., Sautieva M.G. Tumors of the head and neck**
3	12	**Khasigov A.V., Kokoev L.A. Tumors of the chest**
4	12	**Khasigov A.V., Urumov G.A. Tumors of the abdominal organs**
5	12	**Khasigov A.V., Kozyreva S.M. Oncogynecology**
6	12	**Khasigov A.V., Tlatov T.K. Oncourology**
7	12	**Khasigov A.V. Tumors of the skin, soft tissues and musculoskeletal system**

No./n	semester number	Name of educational and methodical development
1	12	Methodical manual: "Physical bases of radiotherapy". Vladikavkaz 2020 Khasigov A.V., Koraeva I.Kh., Krivov A.A.
2.	12	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.	12	Methodological guide: Biological bases of radiation therapy. Classification and planning of radiation therapy. Vladikavkaz 2020 Khasigov A.V., Koraeva I.Kh., Krivov A.A.
4.	12	Methodological guide: .«Technological foundations of radiation therapy. Radiation therapy of malignant tumors The reaction of the body to radiation treatment". Vladikavkaz 2020 Khasigov A.V., Koraeva I.Kh., Krivov A.A.
5.	12	Methodological developments for practical exercises in radiation diagnostics and radiation therapy No. 10. Vladikavkaz 2020 Khasigov A.V., Koraeva I.Kh., Krivov A.A.
6	12	Thematic laminated tables

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

No./p	List of competencies	semester number	Assessment indicator(s)	Evaluation criterion(s) I	Evaluation scale	Name FOS
1	**2**	**3**	**4**	**5**	**6**	**7**

1	OPK-1 OPK-4 OPK-6 OPK-8 PC-1 PC-2 PC-5 PC-6 PC-8 PC-16 PC-17	**12**	see the standard for assessing the quality of education, approved. By order of GBOU VPO SOGMA Health of Russia dated 20.08.2014, №211/o	see quality standard education, approved. By order of GBOU VPO SOGMA Ministry of Health of Russia dated 20.08.2014. , №211/o	see education quality assessment standard , approved By order of GBOU VPO SOGMA Ministry of Health of Russia dated 20.08.2014. , №211/o	Questions to offset; Test tasks; Control tasks

7. The list of basic and additional educational literature necessary for mastering disciplines

Main literature

p / no.	Name	The authors)	Year, place of publication	Number of copies		EBS name
				in library	on the department	Link to EBS
1	2	3	4	5	6	7
	Radiation diagnostics: textbook. T.1	ed. G. E. Trufanov	M. : GEOTAR-Media, 2009 2011	198	one	"Student Advisor" http://www.studmedlib.ru/ru/book/ISBN9785970419274.html
	Radiation diagnostics: textbook	ed. G. E. Trufanov	M. : GEOTAR-Media, 2010 2015	one		"Student Advisor" http://www.studmedlib.ru/ru/book/ISBN9785970425152.html
	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
	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
	Radiation diagnostics and therapy. General radiology	S. To Ternova. and others	M. : GEOTAR-Media, 2014			"Student Advisor" http://www.studmedlib.ru/book/ISBN9785970429891.html
	Radiology: textbook. allowance	ed. A.Yu. Vasiliev	M. : GEOTAR-Media, 2008			"Student Advisor" http://www.studmedlib.ru/book/ISBN9785970409251.html
	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

p / no.	Name	The authors)	year, place publications	Number of copies		EBS name
				in library	at the department	Link to EBS
1	2	3	4	5	6	7
	Medical radiology and radiology (fundamentals of radiation diagnostics and radiation therapy): textbook	Lindenbraten L. D.	M. : Medicine, 1993	278	one	
	Brief Atlas of Digital radiography: textbook. allowance	ed. A. Yu. Vasiliev	M. : GEOTAR-Media, 2008	7	one	
	Topographic anatomy and operative surgery: textbook. AT 2 t.	Sergienko V.I. Petrosyan E. A, Frauchi I.V.	M. : GEOTAR-Media, 2010	T. 1–147 T.2 - 148	-	
	Radiation mammology	Ternovoy S. K.	M. : GEOTAR-Media, 2007.	5		
	X-ray diagnosis of dental diseases: textbook. allowance	Vodolatsky M. P., Vodolatsky V. M., Samokhina N. V.	Stavropol: SGMA, 2006	one		
	Radiation diagnostics of liver diseases (MRI, CT, ultrasound, SPECT and PAT)	ed. G. E. Trufanov	M. : GEOTAR-Media, 2007. -	2		
	Analysis of the data of radiation research methods based on the principles of evidence-based medicine	Vasiliev A.Yu., Malyi A.Yu., Serov N.S.	GEOTAR-Media, 2008			"Student Advisor" http://www.studmedlib.ru/book/ISBN9785970408698.htm
	Radiation diagnostics: textbook	Ilyasova E. B., Chekhonatskaya M. L., Priezzheva V. N.	M. : GEOTAR-Media, 2013			Student Advisor http://www.studmedlib.ru/book/ISBN9785970427200.html

	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
	Magnetic resonance imaging: guide for doctors	ed. G. E. Trufanov	SPb.: Folio, 2007	one		
	Magnetic Resonance Imaging: Tutorial	ed. S.K. Ternovoy	M. : GEOTAR-Media, 2008			"Student Advisor" http://www.studmedlib.ru/book/ISBN9785970408353.html

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 of Medicines"
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 classroom lessons (72), including a lecture course (22) and practical classes (50), and independent work (36 hours). The main study time is allocated for practical work on the study of methods of radiation therapy, technical support of radiation therapy, planning of radiation therapy, the basics of radiation therapy for malignant tumors. When studying the discipline, it is necessary to use the basic and additional recommended literature and master practical skills in radiation therapy.

Practical classes are conducted in the form of answers to tests, oral questioning, analysis and preparation of a radiation therapy plan, topometric map, presence in the X-ray room during radiation therapy 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 protocols. Work with educational literature is considered as a type of educational work on the discipline of radiation therapy is performed within the hours allotted for its study (in the IWS section).

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 the radiation treatment plan for malignant tumors of various organs and are present during radiation therapy in the 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

Semester	Type of occupation L, PR, S,	Used educational technologies (active, interactive)	Number of hours	% of classes in an interactive form	Software List
12	L	presentations, videos on lecture topics	10		Microsoft Office PowerPoint; Internet Explorer
12	PR	A set of questions and tasks for practical tasks, a set of situational tasks for APs, X-ray set	20	5	Microsoft office
12	S	Questions and tasks for self-study work	15		Microsoft office Internet Explorer

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

No./p	**equipment identification**	**Quantity**	**Technical condition**
1	**2**	**3**	**4**
Special equipment			
one.	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
four.	computers	3	satisfactory
5.	notebook	1	good
6.	multimedia complex (laptop, projector, screen)	1	good
7.	negatoscope	10	satisfactory
eight.	slidescope	1	satisfactory
9.	set of radiographs, CT and MR	370	good
ten.	radiograph description protocols	90	good
eleven.	vidio movies		good
12.	situational tasks		good
13.	tests		good
fourteen.	laminated tables	200	good
fifteen.	X-ray diagnostic devices ROD	4	good
16.	Radiation therapy devices GENUS	3	good
phantoms			
17.	-		
dummies			
eighteen.	-		

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

In the context of the introduction of restrictive measures (quarantine) associated with the unfavorable epidemiological situation, the threat of the spread of a new coronavirus infection and other forced

major events that do not allow for full-time training sessions, 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.