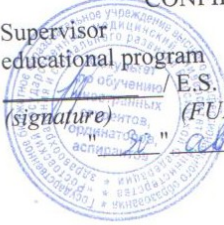


FEDERAL STATE BUDGET EDUCATIONAL INSTITUTION
OF HIGHER EDUCATION
"ROSTOV STATE MEDICAL UNIVERSITY"
MINISTRY OF HEALTH OF THE RUSSIAN FEDERATION

Faculty of Education of foreign students, residents and postgraduates

CONFIRM
Supervisor
educational program
(signature) E.S. Belousova /
(FULL NAME.)
" 2023"



DISCIPLINE WORKING PROGRAM

RADIATION DIAGNOSTICS

Speciality 31.05.01 General medicine

Form of education full-time

Rostov-on-Don
2023

I. GOALS AND OBJECTIVES OF MASTERING THE DISCIPLINE

1.1. **Target** mastering the discipline “Radiation diagnostics” consists of mastering knowledge about the nature, properties and biological effects of ionizing, non-ionizing radiation and the clinical application of electromagnetic, ultrasonic, magnetic and corpuscular fields for diagnostic purposes.

1.2. **Tasks** disciplines within medical activities are:

- Conducting preventive medical examinations, medical examinations, and follow-up;
- diagnosis of diseases and pathological conditions of patients;
- diagnosis of emergency conditions;

within the framework of scientific activities is:

- analysis of scientific literature and official statistical reviews, participation in statistical analysis and public presentation of the results obtained;
- participation in solving individual research and scientific-applied problems in the field of health care in diagnosis, treatment, medical rehabilitation and prevention.

II. REQUIREMENTS FOR THE RESULTS OF MASTERING THE DISCIPLINE

The process of studying the discipline is aimed at developing the following competencies in accordance with the Federal State Educational Standard of Higher Education and the EP of Higher Education in this specialty:

Professional competencies: PC – 3

III. THE PLACE OF DISCIPLINE IN THE STRUCTURE OF EP VO

3.1. The academic discipline is basic.

IV. CONTENT AND STRUCTURE OF DISCIPLINE

Labor intensity of the discipline in 3: 2 hour: 72 hours

4.1. Sections of the discipline studied in the 5th semester

No. section	Section name	Number of hours					
		Total	Contact Job				SRS
			L	WITH	ETC	LR	
Semester 5							
1.	Physical and biological basis of radiation diagnostic methods.	8	2	-	4	-	2
2.	Radiation diagnostics of the respiratory system.	16	2	-	8	-	6
3.	Radiation diagnostics of the musculoskeletal system.	16	2	-	8	-	6
4.	Radiation diagnostics of the cardiovascular system.	10	2	-	4	-	4
5.	Radiation diagnostics of the gastrointestinal tract.	12	2	-	4	-	6

6.	Radiation diagnostics of the urinary system.	10	2	-	4	-	4
Total for the semester		72	12	-	32	-	28
Interim certification form: test							
<i>Total for the discipline:</i>		72	12	-	32	-	28

L- lectures

ETC- practical lessons(in accordance with the RUP)

SRS- independent work of students

4.2. Contact work

Lectures

No. section	No. lectures	Lecture topics	Number of hours
Semester 5			
1.	1.	Physical and biological basis of radiation diagnostic methods.	2
2.	2.	Radiation diagnostics of lung diseases.	2
3.	3.	Radiation diagnostics of injuries and diseases of the musculoskeletal system.	2
4.	4.	Radiation diagnostics of diseases of the gastrointestinal tract.	2
5.	5.	Radiation diagnostics of heart diseases. Clinical angiography.	2
6.	6.	Radiation diagnostics in urology.	2
<i>Total hours discipline:</i>			12

Seminars, practical work

No. section	No. ETC	Themespractical work	Number of hours	Forms of current control
Semester 5				
1.	1.	Introduction. Physical and biological basis of radiation diagnostic methods. Principles of radiation protection.	4	test control
2.	2.	Radiation anatomy, main radiological syndromes of lung diseases.	4	solving situational problems, interviews
2.	3.	Radiation diagnostics of lung diseases.	4	solving situational problems
3.	4.	Radiation anatomy, main radiological syndromes of bone and joint diseases.	4	solving situational problems

No. section	No. ETC	Themespractical work	Number of hours	Forms of current control
		Radiation diagnostics of damage to the musculoskeletal system and healing of fractures.		
3.	5.	Radiation diagnostics of diseases of the musculoskeletal system.	4	solving situational problems
3.	6.	Radiation diagnostics of diseases of the gastrointestinal tract. Radiation diagnostics of emergency conditions.	4	solving situational problems
4.	7.	Radiation diagnostics of heart diseases. Clinical angiography.	4	solving situational problems
6.	8.	Radiation diagnostics of the urinary system.	4	solving situational problems
<i>Total hours discipline:</i>				32

4.3. Independent work of students

No. section	Type of independent work of students	Number of hours	Forms of current control
Semester 5			
1.	Physical and biological basis of radiation diagnostic methods.	2	Survey
2.	Radiation diagnostics of the respiratory system.	6	Survey
3.	Radiation diagnostics of the musculoskeletal system.	6	Survey
4.	Radiation diagnostics of the cardiovascular system.	4	Essay
5.	Radiation diagnostics of the gastrointestinal tract.	6	Survey
6.	Radiation diagnostics of the urinary system.	4	Essay
<i>Total hours discipline:</i>		28	

V. ASSESSMENT FUND FOR CURRENT CONTROL AND INTERMEDIATE CERTIFICATION

The fund of assessment tools for determining the level of development of competencies as a result of mastering the discipline is an appendix to the work program.

VI. EDUCATIONAL AND METHODOLOGICAL SUPPORT OF DISCIPLINE

6.1. Printed publications

1. Radiation diagnostics [Electronic resource]: textbook / Trufanov G.E. and others - M.: GEOTAR-Media, 2018. - 484 p. - ISBN 978-5-9704-4419-1 - Access mode:<http://www.studmedlib.ru/book/ISBN9785970444191.html>
2. Radiation diagnostics and therapy. General radiation diagnostics [Electronic resource] / Ternovoy S.K. et al. - M.: GEOTAR-Media, 2014. - 232 p. - ISBN 978-5-9704-2989-1 - Access mode:<http://www.studmedlib.ru/book/ISBN9785970429891.html>
3. Radiation diagnostics and therapy. Private radiation diagnostics [Electronic resource] / Ternovoy S.K. et al. - M.: GEOTAR-Media, 2014. - 356 p. - ISBN 978-5-9704-2990-7 - Access mode:<http://www.studmedlib.ru/book/ISBN9785970429907.html>
4. Atlas of human radiation anatomy [Electronic resource] / Filimonov V.I., Shilkin V.V., Stepankov A.A., Churakov O.Yu. - M.: GEOTAR-Media, 2010. - 452 p. - ISBN 978-5-9704-1361-6 - Access mode:<http://www.studmedlib.ru/book/ISBN9785970413616.html>
5. Propaedeutics of internal diseases with elements of radiation diagnostics [Electronic resource]: textbook / I. A. Shamov. - M.: GEOTAR-Media, 2019. - 512 p. - 512 s. - ISBN 978-5-9704-5182-3 - Access mode:<http://www.studmedlib.ru/book/ISBN9785970451823.html>
6. Radiation diagnostics [Electronic resource]: textbook / Ilyasova E. B., Chekhonatskaya M. L., Priezzheva V. N. - M.: GEOTAR-Media, 2016. - 280 p. - ISBN 978-5-9704-3789-6 - Access mode:<http://www.studmedlib.ru/book/ISBN9785970437896.html>
7. Fundamentals of radiation diagnostics [Electronic resource] / D. A. Lezhnev [et al.] - M.: GEOTAR-Media, 2018. - 128 p. - ISBN 978-5-9704-4397-2 - Access mode:<http://www.studmedlib.ru/book/ISBN9785970443972.html>
8. Radiology [Electronic resource] / Ed. A.Yu. Vasilyeva - M.: GEOTAR-Media, 2008. - 128 p. (Series "Pocket atlases on radiology diagnostics") - ISBN 978-5-9704-0925-1 - Access mode:<http://www.studmedlib.ru/book/ISBN9785970409251.html>
9. Multislice computed tomography [Electronic resource] / Ed. S.K. Ternovogo - M.: GEOTAR-Media, 2009. - 112 p. (Series "Library of a medical specialist") - ISBN 978-5-9704-1020-2 - Access mode:<http://www.studmedlib.ru/book/ISBN9785970410202.html>
10. Magnetic resonance imaging [Electronic resource]: textbook / Sinitsyn V.E., Ustyuzhanin D.V. Ed. S.K. Ternovogo - M.: GEOTAR-Media, 2008. - 208 p. (Series "Pocket atlases on radiation diagnostics") - ISBN 978-5-9704-0835-3 - Access mode:<http://www.studmedlib.ru/book/ISBN9785970408353.html>
11. Ultrasound diagnostics [Electronic resource] / N. Yu. Markina, M. V. Kislyakova; edited by S.K. Ternovoy. - 2nd ed. - M.: GEOTAR-Media, 2015. - 240 p. - ISBN 978-5-9704-3313-3 - Access mode:<http://www.studmedlib.ru/book/ISBN9785970433133.html>
12. Radionuclide diagnostics [Electronic resource] / S.P. Pasha, S.K. Ternovoy - M.: GEOTAR-Media, 2008. - 208 p. - ISBN 978-5-9704-0882-7 - Access mode:<http://www.studmedlib.ru/book/ISBN9785970408827.html>
13. Contrast agents [Electronic resource] / Shimanovsky N.L. - M.: GEOTAR-Media, 2009. - 464 p. (Series "Library of a medical specialist") - ISBN 978-5-9704-1270-1 - Access mode:<http://www.studmedlib.ru/book/ISBN9785970412701.html>
14. Radiation diagnostics of damage to the maxillofacial region [Electronic resource] / Vasiliev Yu.V., Lezhnev D.A. - M.: GEOTAR-Media, 2010. - 80 p. - ISBN 978-5-9704-1698-3 - Access mode:<http://www.studmedlib.ru/book/ISBN9785970416983.html>

15. MSCT of the heart [Electronic resource] / Ternovoy S.K., Fedotenkov I.S. - M.: GEOTAR-Media, 2013. - 112 p. (Series "Library of a medical specialist") - ISBN 978-5-9704-2685-2 - Access mode:<http://www.studmedlib.ru/book/ISBN9785970426852.html>

16. Radiation diagnostics (MRI, CT, ultrasound, SPECT and PET) of liver diseases [Electronic resource]: manual / Trufanov G.E., Ryazanov V.V., Fokin V.A. Ed. G.E. Trufanova. - M.: GEOTAR-Media, 2008. - 264 p. - ISBN 978-5-9704-0742-4 - Access mode:<http://www.studmedlib.ru/book/ISBN9785970407424.html>

17. Analysis of data from radiation research methods based on the principles of evidence-based medicine [Electronic resource] / Vasiliev A.Yu., Maly A.Yu., Serov N.S. - M.: GEOTAR-Media, 2008. - ISBN 978-5-9704-0869-8 - Access mode:<http://www.studmedlib.ru/book/ISBN9785970408698.html>

6.2. Internet resources

	ELECTRONIC EDUCATIONAL RESOURCES	Access to the resource
1.	Electronic library RostGMU. – URL: http://109.195.230.156:9080/opac/	Access is not limited
2.	Student Advisor: EBS. – Moscow: LLC “IPUZ”. - URL: http://www.studmedlib.ru	Access is not limited
3.	Doctor's consultant. Electronic medical library: EBS. – Moscow: LLC GC “GEOTAR”. - URL: http://www.rosmedlib.ru	Access is not limited
4.	Scientific electronic library eLIBRARY. - URL: http://elibrary.ru	Open access
5.	Medical Bulletin of the South of Russia. - URL: https://www.medicalherald.ru/jour or from the RostSMU website	Open access
6.	World Health Organization. - URL: http://who.int/ru/	Open access

6.3. Guidelines for students on mastering the discipline

- **Planning and organizing the time needed to study the discipline.**

An important condition for successful mastery of the discipline is the creation of a system of proper organization of work, which makes it possible to distribute the educational load evenly in accordance with the schedule of the educational process. Drawing up a work plan can be of great help in this. Its presence will allow you to subordinate your free time to study purposes and work more successfully and efficiently. In the evening you should always distribute work for tomorrow. At the end of each day, it is advisable to summarize the work: carefully check whether everything was completed according to the plan, whether there were any deviations, and if there were, then for what reason they occurred. Self-control is a necessary condition for successful study, so if something is left undone, it is necessary to find time to complete this part of the work. It is recommended to complete all tasks for practical classes, as well as tasks assigned for independent work, immediately after the corresponding topic of the lecture course,

which contributes to better assimilation of the material, allows you to promptly identify and eliminate “gaps” in knowledge, systematize previously covered material, and proceed on its basis to mastering new knowledge and skills.

- **Preparation for lectures.**

Acquaintance with the discipline occurs already at the first lecture, where the student is required not only to pay attention, but also to independently prepare notes. When working with lecture notes, it is necessary to take into account the fact that some lectures provide answers to specific questions on the topic, while others only reveal the relationships between phenomena, helping the student understand the deep processes of development of the subject being studied, both in history and at the present time.

Lecture note-taking is a complex type of university classroom work that involves intense mental activity of the student. A note is useful when the most essential things are written down and done by the student himself. There is no need to try to write down the entire lecture verbatim. This kind of “note-taking” does more harm than good. It is advisable to first understand the main idea presented by the lecturer and then write it down. It is advisable to record on one page of the sheet or leave fields on which later, when working independently with notes, you can make additional notes and mark unclear places.

It is better to divide the lecture notes into points, observing the red line. This will be greatly facilitated by the lecture plan questions proposed to the teachers. You should pay attention to the accents and conclusions that the lecturer makes, marking the most important points in the lecture material with remarks “important”, “remember well”, etc., emphasizing terms and definitions using multi-colored markers or pens,

It is advisable to develop your own system of abbreviations, abbreviations and symbols. However, when further working with notes, it is better to replace the symbols with ordinary words for quick visual perception of the text.

When working on lecture notes, it is always necessary to use not only the textbook, but also the literature that the lecturer additionally recommended. It is this kind of serious, painstaking work with the lecture material that will allow you to deeply master the theoretical material.

- **Preparation for practical classes.**

The student must begin preparing for each practical lesson by familiarizing himself with the practical lesson plan, which reflects the content of the proposed topic. Careful thinking through and study of the plan's issues is based on studying the current lecture material, and then studying the required and additional literature recommended for this topic. All new concepts on the topic being studied must be memorized and included in a glossary, which should be kept from the very beginning of the course.

The result of such work should be manifested in the student's ability to freely answer theoretical questions of the workshop, his speech and participation in a collective discussion of issues on the topic being studied, the correct completion of practical assignments and tests.

In the process of preparing for practical classes, students need to pay special attention to independent study of the recommended literature. Despite the completeness of the lecture notes, it is impossible to present all the material in it due to the limit of classroom hours. Therefore, independent work with textbooks and manuals, scientific and reference literature, materials from periodicals and the Internet is the most effective method of obtaining additional knowledge, can

significantly intensify the process of mastering information, contributes to a deeper assimilation of the material and the formation of students' own attitude to the problem.

- **Recommendations for working with literature.**

It is advisable to start working with literature by studying general works on the topic, as well as textbooks and teaching aids. Next, it is recommended to move on to the analysis of monographs and articles that consider individual aspects of the problems studied in the course, as well as official materials and unpublished documents (research papers, dissertations), which may contain the main issues of the problem being studied.

Work with sources should begin with introductory reading, i.e. view the text, highlighting its structural units. During introductory reading, bookmarks mark those pages that require more careful study.

Depending on the results of the introductory reading, a further method of working with the source is chosen. If solving the problem requires studying certain fragments of the text, then the selective reading method is used. If the book does not have a detailed table of contents, the student should pay attention to the subject and name indexes.

Selected fragments or the entire text (if it is entirely related to the topic) require thoughtful, leisurely reading with "mental elaboration" of the material. Such reading involves highlighting: 1) the main thing in the text; 2) main arguments; 3) conclusions. Particular attention should be paid to whether the thesis follows from the arguments or not.

It is also necessary to analyze which of the author's statements are problematic, hypothetical in nature and to grasp hidden issues.

It is clear that the ability to work with text in this way does not come immediately. The best way to learn to highlight the main points in a text, to grasp the problematic nature of statements, and to evaluate the author's position is comparative reading, during which the student gets acquainted with different opinions on the same issue, compares the weight and evidence of the arguments of the parties and draws a conclusion about the greatest persuasiveness of that one. or other position.

If in the literature there are different points of view on a particular issue due to the complexity of past events and legal phenomena, they cannot be rejected without understanding them. If there are discrepancies between the authors, it is necessary to find a rational grain in each of them, which will allow a deeper understanding of the subject of study and a more critical assessment of the issues being studied. Getting acquainted with the special positions of the authors, you need to identify their similar judgments, arguments, conclusions, and then compare them with each other and apply the one that is more convincing.

The next stage of working with literary sources is the creation of notes that capture the main theses and arguments. You can make notes on separate sheets of paper, which can then be easily organized into individual topics of the course being studied. Another way is to keep thematic notebooks on one topic. It is advisable to take notes on large specialized works of a monographic nature in separate notebooks. Here it is important to remember that notes are written on one side of the sheet, with margins and sufficient line spacing for corrections and remarks (these rules are observed for ease of editing). If quotations are given in the notes, then an indication of the source (author, title, imprint, page number) must certainly be given. Subsequently, this information can be used when writing the text of an essay or other assignment.

Thus, when working with sources and literature, it is important to be able to:

- compare, compare, classify, group, systematize information in accordance with a specific educational task;
- summarize the information received, evaluate what you listened to and read;
- record the main content of messages; formulate, orally and in writing, the main idea of the message; draw up a plan, formulate theses;
- prepare and present detailed reports such as a report;
- work in different modes (individually, in pairs, in groups), interacting with each other;
- use abstracts and reference materials;
- control your actions and the actions of your comrades, objectively evaluate your actions;
- seek help, additional explanations from the teacher, other students.
- use linguistic or contextual guesses, dictionaries of various kinds, various kinds of hints, supports in the text (keywords, text structure, preliminary information, etc.);
- use periphrases, synonymous means, words that describe general concepts, explanations, examples, interpretations, “word creation” when speaking and writing;
- repeat or paraphrase the interlocutor’s remark to confirm understanding of his statement or question;
- seek help from your interlocutor (clarify the question, ask again, etc.);
- use facial expressions, gestures (in general and in cases where linguistic means are not enough to express certain communicative intentions).

- **Preparation for intermediate certification.**

When preparing for intermediate certification, it is advisable to:

- carefully study the list of questions and determine which sources contain the information necessary to answer them;
- carefully read the recommended literature;
- make short notes of answers (answer plans).

1. X-ray analysis of the spine in normal and pathological conditions: a methodological manual / compiled by: M.V. Babaev, E.V. Kharlamov, A.V. Kondrashov, K.V. Prokhorskaya.- Publisher: RostGMU. Rostov-on-Don, 2003, 39 p.

2. X-ray diagnosis of scoliotic spinal deformities / comp.: M.V. Babaev, G.P. Volkov, A.I. Lukash, 2010.- 56 p.

3. Radiation anatomy of the lungs. Textbook / compilation: M.V. Babaev, B.V. Vinogradov, G.P. Volkov – Publisher: State Budget Educational Institution of Higher Professional Education Rost State Medical University of the Ministry of Health and Social Development of Russia. Rostov-on-Don, 2011, 54 p.

4. X-ray diagnosis of diseases and injuries of the spine: textbook. manual / comp.: V.D. Sikilinda, M.V. Babaev, G.P. Volkov [and others]; Height. state honey. univ. – Rostov n/d: publishing house Rostov State Medical University, 2013. – 101 p.

5. X-ray diagnosis of osteochondrosis: textbook / M.V. Babaev, G.P. Volkov, V.D. Sikilinda [etc.]; Height. state honey. university, department Ray. diagnostics and beam. therapy – Rostov n/d: publishing house Rostov State Medical University, 2014. – 84 s. -access from ERB.

6. Babaev M.V. X-ray diagnostics of acute nonspecific inflammatory lung diseases: textbook. allowance / M.V. Babaev, G.P. Volkov; Height. state honey. university, department radiation diagnostics and radiation therapy. – Rostov n/d: publishing house Rostov State Medical University, 2015. – 72 p.

7. Babaev M.V. Radiation diagnostics and differentiation of pulmonary tuberculosis: textbook. allowance / M.V. Babaev, B.V. Vinogradov, G.P. Volkov; edited by M.V. Babaeva; Height. state honey. university, department radiation diagnostics and radiation therapy. - Rostov n/d: publishing house Rostov State Medical University, 2015. – 92 p. -access from ERB.

8. Research methods in traumatology, orthopedics and neurosurgery: textbook. allowance / V.D. Sikilinda, V.A. Balyazin, M.V. Babaev; FSBEI HE Rostgmu Ministry of Health of Russia. – Novochoerkassk: Lik, 2019. – 218 p.

9. Situational tasks in traumatology-orthopedics, radiology and neurosurgery: educational-practical. allowance / V.D. Sikilinda, I.V. Balyazin-Panferov, M.V. Babaev; FSBEI HE Rostgmu Ministry of Health of Russia. – Novochoerkassk: Lik, 2019. – 99 p.

VII. MATERIAL AND TECHNICAL SUPPORT OF DISCIPLINE

For students' work it is expected to use the information educational environment of RostSMU.