

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

УТВЕРЖДАЮ

Ректор ФГБОУ ВО СОГМА Минздрава России

«17» april 2024 г.

**WORKING PROGRAM OF THE DISCIPLINE
DENTISTRY: MATERIALS SCIENCE**

the main professional educational program of higher education is the specialty program in the specialty 31.05.03 Dentistry, approved on 17.04.2024.

Form of education _____ full - time _____

Term of development МРЕР HE _____ 5 years _____

Chair _____ dentistry № 1 _____

Vladikavkaz, 2024

When developing the educational training programme, the discipline is based on:

1. Federal State budget educational standards of Higher Education on specialty 31.05.03 Dentistry, approved by the Ministry of Education and Science of the Russian Federation. August «12», 2020 N984

2. The curriculum for specialty 31.05.03 Dentistry,

СТОМ-21-01-21

СТОМ-21-02-22

СТОМ-21-03-23

СТОМ-21-04-24

approved by the Academic Council of the Federal State Budgetary Educational Institution of Higher Education «North-Ossetia State Medical Academy» of the Ministry of Healthcare of the Russian Federation, 17.04.2024, protocol № 6

The educational training programme of the discipline was approved at the meeting of the department on 27.03.2024, protocol №7

The educational training programme of the discipline was approved at the meeting of the central coordinating training and methodological council from 02.02.2024, Protocol № 4

The educational training programme is approved by the Academic Council of the Federal State Budgetary Educational Institution of Higher Education «North-Ossetia State Medical Academy» of the Ministry of Healthcare of the Russian Federation, 17.04.2024, protocol № 6

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CONTENT OF THE WORK PROGRAM

1. name of the discipline;
2. a list of planned results of training in the discipline, correlated with the planned results of mastering the educational program;
3. indication of the place of the discipline in the structure of the educational program;
4. the volume of the discipline in credit units with an indication of the number of academic or astronomical hours allocated for contact work of students with the teacher (by type of training sessions) and for independent work of students;
5. the content of the discipline is structured according to topics (sections) with an indication of the number of academic or astronomical hours allocated to them and the types of training sessions.
6. the list of educational and methodological support for independent work of students in the discipline;
7. fund of assessment funds for conducting intermediate certification of students in the discipline;
8. a list of basic and additional educational literature required for mastering the discipline;
9. the list of resources of the information and telecommunication network "Internet", necessary for mastering the discipline;
10. methodological guidelines for mastering the discipline for students;
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 (if necessary);
12. description of the material and technical base necessary for the implementation of the educational process in the discipline.
13. conducting educational activities using e-learning and distance learning technologies.

2. The list of planned results of training in the discipline and the results of mastering the educational program

№ n /	a Number / index of competence	Content of the competence (or part thereof)	Topic of the lesson (section)	Indicators of achievement of competencies	Results of mastering		
					know	be able	to master
1	2	3	4	5	6	7	8
1.	OPK-6	is able to prescribe, monitor the effectiveness and safety of non-drug and drug treatment in solving professional problems	<ol style="list-style-type: none"> 1. Subject of dental materials science. Classification of dental materials. Properties of materials. 2. Basic construction materials in orthopedic dentistry. 3. Auxiliary materials in dentistry. 4. Clinical materials 	ID-1 OPK-6 Be able to conduct effective, safe therapy based on the clinical recommendations of the Ministry of Health of the Russian	<ol style="list-style-type: none"> 1. Federation Definition, purpose, tasks and methods of dental materials science. 2. Classification of basic structural materials 3. Classification of auxiliary materials 4. Classification of clinical materials 	<ol style="list-style-type: none"> 1. Apply specialized terminology and conceptual apparatus 2. Choose the most optimal structural materials 3. Choose the most optimal auxiliary materials 4. Choose the most optimal clinical materials 	<ol style="list-style-type: none"> 1. The basics of evaluating the resistance of materials. 2. Skills of comparative analysis of the properties of various structural materials. 3. Skills of comparative analysis of the properties of various auxiliary materials 4. Skills of comparative analysis of the properties of various clinical materials
2.	OPK-6	is able to prescribe, monitor the effectiveness and safety of non-drug and drug treat-	<ol style="list-style-type: none"> 1. Basic requirements for dental materials used in the clinic of therapeutic den- 	ID-1 OPK-6 Be able to conduct effective, safe therapy based on	<ol style="list-style-type: none"> 1. Federation Properties of dental amalgam 	<ol style="list-style-type: none"> 1. Determine indications for the use of dental amal- 	<ol style="list-style-type: none"> 1. Apply dental amalgam in practice 2. Apply dental

							<p>posites by the algorithm of application in practice of dental composites by the algorithm of application in practice of dental composites</p> <p>4. by the algorithm practical application of obturation materials</p> <p>5. by the algorithm of practical application of materials for surgical dentistry</p>
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3. Place of the discipline in the structure of educational programs

The academic discipline "Materials Science" belongs to the basic part of Block 1 of the Federal State Educational Standard for Higher Education in the specialty "Dentistry"

Types of professional activities underlying the teaching of this discipline:

1. Medical service
2. Organizational and managerial support
3. Scientific research organization

4. Scope of the discipline

№ n /	a Type of work	Total credits	Total hours	Semesters
				3
				hours
1	2	3	4	5
1	Contact work of students with the teacher (total), including:	-78	78	78
2	Lectures (L)	-18	18	18
3	Clinical practical classes (PZ)	-60	60	60
4	Seminars (S)	--	-	-
5	Laboratory work (LR)	-	-	-
6	Independent work of the student (SRS)	-30	30	30
7	Type of intermediate certification	credit (Z)	-	-
		exam (E)	-36	36
8	TOTAL: Total labor	intensity of hours	-	144
		Z	4-4	-

5. Content of the discipline

№п	Semester number	a no. semesra Module section name	Types of educational activities, including independent work of students (in hours)				Current performance monitoring forms (by semester week)
			L	PZ	SRS	Only	
1	3	Subject of dental materials science. Classification of dental materials. Properties of materials.	2	4	4	10	S, TK, NW, UZ
2	3	Main structural materials in orthopedic dentistry.	6	18	4	28	S, NW, UZ
3	3	Auxiliary materials in dentistry.	6	18	8	32	S, TK, NW, UZ
4	3	Basic requirements for dental materials used in the clinic of therapeutic dentistry.	0.5	3	2	5.5	S, TK, NW,
US 5	3	Dental amalgam.	0.5	2	2	4.5	S, TK, NW, UZ
6	3	Dental cements.	0.5	3	2	5.5	S, TK, NW, UZ
7	3	Polymer materials for tooth restoration. Polymer composites, general characteristics and classification. Adhesives and sealants.	1	4	2	7	S, NW, UZ
8	3	Dental materials used for filling root canals.	0.5	4	2	6.5	S, NW,
US 9	3	Materials for surgical dentistry. General characteristics of materials for reconstructive surgery of the face and dental implants.	0,5	2	2	4,5	S, NW,
US 10	3	Temporary materials in dentistry.	0.5	2	2	4.5	S, TK, NW, UZ
Total			18	60	30	108	

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

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

No. /p	№ Semester number	Name of the educational and methodological development
1	3	Guidelines for students to prepare for independent training in the discipline "Materials Science" 2 course 3 semester. Khetagurov S. K. SOGMA, 2022
2	3	"Materials Science" Guidelines for practical classes for students of the 2nd year 3 semester. Khetagurov S. K. SOGMA, 2022
3	3	Methodological guidelines for students to self-study in the discipline "Materials Science" 2 course 3 semester. Khetagurov S. K., Kabaloeva D. V SOGMA, 2022
4	3	"Materials Science" Guidelines for practical classes for students of the 2nd year of the 3rd semester. Khetagurov S. K., Kabaloeva D. V. SOGMA, 2022

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

n/	a List of competencies	№ Semester No	. Assessment indicator(s) Assessment	criterion (s) Assessment	scale	Name of the FOS
1	2	3	4	5	6	7
1	OPK-6	3	see standard for assessing the quality of education, approved by the Ministry of Education of the Russian Federation. By Order No. 264 / o of the SOGMA Federal State Budgetary Educational Institution of Higher Education of the Ministry of Health of	the Russian Federation dated 10.07.2018, see standard for assessing the quality of education, approved by the Ministry of Education of the Russian Federation. By Order No. 264 / o of the SOGMA Federal State Budgetary Educational Institution of Higher Education of the Ministry of Health of	the Russian Federation dated 10.07.2018, see standard for assessing the quality of education, approved by the Ministry of Education of the Russian Federation. By Order No. 264 of the Federal State Budgetary Educational Institution of Higher Professional Education of the Ministry of Health of the Russian Federation dated 10.07.2018 / o	Test tasks; Control tasks.
2	OPK-6	3	cm. standard for assessing the quality of	the Russian Federation dated 10.07.2018,	the Russian Federation dated 10.07.2018,	Test tasks; Control tasks.

			<p>education, approved by the Ministry of Education of the Russian Federation. By Order No. 264 / o of the SOGMA Federal State Budgetary Educational Institution of Higher Education of the Ministry of Health of</p>	<p>see standard for assessing the quality of education, approved by the Ministry of Education of the Russian Federation. By Order No. 264 / o of the SOGMA Federal State Budgetary Educational Institution of Higher Education of the Ministry of Health of</p>	<p>see standard for assessing the quality of education, approved by the Ministry of Education of the Russian Federation. By Order No. 264 of the Federal State Budgetary Educational Institution of Higher Professional Education of the Ministry of Health of the Russian Federation dated 10.07.2018 / o</p>	
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8. List of basic and additional educational literature required for mastering the discipline

Basic literature

n / №	a no. Name	Author(s)	Year, place of publication	Number of copies.		Names. EBS, link in the EBS
				in the bible	to the caf.	
1.	Orthopedic dentistry. Applied Materials Science: textbook	by V. N. Trezubov [et al.].	Moscow: MEDpress-inform, 2008, 2014.40	copies.	-	
2.	Propaedeutical dentistry: textbook	edited by E. A. Bazikyan.	Moscow: GEOTAR-Media, 2008, 2010	. ЭКЗ.- http://www.studmedlib.ru/book/ISBN9785970414804.html	-	http://www.studmedlib.ru/book/ISBN9785970414804.html

Additional literature

n / №	a no. Name	Author(s)	Year, place of publication	Number of copies.		Names. EBS, link in the EBS
				in the bible	to the caf.	
1.	Orthopedic dentistry : a national guide	ed. by I. Y. Lebedenko	Moscow: GEOTAR-Media, 2016	2 copies.	-	
2.	Propaedeutical dentistry: textbook	by E. S. Kalivrajyan [et al.].	Moscow: GEOTAR-Media, 2013	. ЭКЗ.- http://www.studmedlib.ru/book/ISBN9785970426388.html	-	http://www.studmedlib.ru/book/ISBN9785970426388.html
3.	Orthopedic dentistry. Propaedeutics and fundamentals of a private course: textbook	by V. N. Trezubov, A. S. Shcherbakov, and L. M. Mishnev.	Moscow: MEDpress-inform Publ., 2003, 2008	36 copies.	-	
4.	Encyclopedia of orthopedic dentistry	V. N. Trezubov, L. M. Mishnev,	St. Petersburg: Foliant, 2007	1 copy.	-	
5.	Dental materials science: textbook. manual	V. A. Popkov et al	. Moscow: MEDpress-inform, 2006	5 copies.	-	
6.	Dental instruments: color atlas	by E. A. Bazikyan.	Moscow: GEOTAR-Media Publ., 2007	. ЭКЗ.- http://www.studmedlib.ru/book/ISBN9785970405918.html	-	http://www.studmedlib.ru/book/ISBN9785970405918.html



B. Logman

9 List of resources of the information and telecommunication network "Internet" required for mastering the discipline

#	Resource name	Address
1	ModernLib-Electronic Library	modernlib.ru
2	Archive of Poly Media Press Publishing	stomgazeta.ru
3	Information resource for medical university	studmedlib.ru
4	Dental Information	denta-info.ru
5	Medical literature on стоматологии.mmbook.ru	mmbook.ru
6	Russian Dental Institute Портал.stom.ru	stom.ru
7	eDentWorld Dental Portal	edentworld.ru
8	Federal Electronic Medical Library (FEMB)	feml.scsmml.rssi.ru/feml
9	Electronic books on dentistry.	web-4-u.ru/stomatinfo

10. Guidelines for students on mastering the discipline

Training consists of classroom sessions (78 hours), including a lecture course and practical exercises, and independent work (30 hours). The main academic time is allocated for practical work on mastering theoretical knowledge, acquiring practical skills and abilities.

When studying an academic discipline, it is necessary to use the entire resource of basic and additional educational literature, lecture material, visual aids and demonstration material, and master practical skills acquired during working with visual demonstration aids, working with patients and solving situational problems.

Practical classes are conducted in the form of preclinical and clinical practice. Preclinical practice is carried out in classrooms with the use of video and photo materials, and situational tasks are solved. Then the analysis of clinical patients is carried out.

In accordance with the requirements of the Federal State Educational широко используются Standard for Higher Education, interactive forms of teaching are widely used in the educational process (developing and problem-based learning in the form of role-playing games, mastering practical skills on phantoms, analyzing a specific situation, discussing a theoretical analysis of a topic, multimedia training). The share of classes conducted in interactive forms is at least 10% of classroom classes.

Independent work of students implies preparation for seminars and practical classes and includes: working with visual materials, educational basic and additional literature, Internet resources, writing a medical history, an abstract.

Working with educational literature is considered as a type of educational work in the specialty "Dentistry" and is performed within the hours allotted for its study (in the section SRS).

Each student is provided with access to the library collections of the Academy and the Department.

Methodological recommendations for students and guidelines for teachers have been developed for each section of the discipline.

During the study of the academic discipline, patients are examined independently, a medical history is drawn up, and an abstract is submitted.

Writing an abstract contributes to the formation of skills in working with educational literature, systematization of knowledge and contributes to the formation of general cultural and professional skills.

Writing an educational medical history forms the ability to analyze medical problems, contributes to mastering the culture of thinking, the ability to correctly formulate its results in writing, the formation of a systematic approach to the analysis of medical information, and the perception of innovations.

The student's work in a group creates a sense of teamwork and sociability.

The training of students contributes to the development of communication skills with the patient, taking into account the ethical and deontological features of pathology and patients. Independent work with patients contributes to the formation of professional behavior, responsibility, accuracy, discipline.

The initial level of knowledge of students is determined by testing, the current control of mastering the subject is determined by an oral survey during classes, during clinical reviews, when solving typical situational problems and answering test tasks.

11. List of information technologies used in the implementation of the educational process in the discipline

The educational technologies used in the study of this discipline include at least 15% of interactive classes from the total volume of classroom classes.\

- simulation, a) non-game simulation technologies, contextual learning; b) game simulation technologies, role-playing business games.

- non-simulation technologies: problem lectures.

Semester	Type of classes L, PR,S,	Educational technologies used (active, interactive)	Number of hours	% of interactive classes	Software list
3	L	Set of slides, videos for a traditional lecture	18		Microsoft Office PowerPoint; Internet Explorer
3	PR	Set of questions and tasks for practical tasks, a set of situational tasks for emergency situations, a set of case histories for analyzing clinical cases.	60	20	Microsoft Office Test Program
3	S	Questions and tasks for independent work	30		Microsoft Office Internet Explorer

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

The Department of Dentistry No. 1 is located on the basis of the dental polyclinic of SOGMA (66 Kirova St.). The total area used by the department for the educational process is 61 sq. m².

Part of the classes are held in the educational building No. 2 on the territory of the Federal State Budgetary Educational Institution of Higher Education of the Russian State Medical Academy, in the classrooms allocated for this purpose.

The department has three rooms:

- an orthopedic office equipped with a dental unit, combined with the office of the head of the department (9 sq. m²), in which classes are also held with students,
- one phantom class for 5 phantoms and 8 computers (32 sq. m²),
- orthopedic office for 3 dental units (20 sq. m²), which also provides practical classes for students.

n/ p	a Equipment Name	Quantity	Technical condition
1	2	3	4

Special equipment			
1	laptop	1	Good
2	projector	1	satisfactory
3	Camera	1	Good
4	PC	6	Good
5	Dental installations	3	satisfactory
Phantoms			
1	Dental phantoms	5	satisfactory
Dummies			
1	Jaws for preparation	20	satisfactory

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 conducting face-to-face training sessions, it is possible to study this discipline or part of it using e-learning and distance educational technologies.

Teaching the 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 academic performance, as well as intermediate certification of students, 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.

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