

Документ подписан простой электронной подписью
Информация о владельце:
ФИО: Кубанов Сергей Исмаилович
Должность: и.о. декана медико-биологического факультета
Дата подписания: 20.10.2026 10:11:25
Уникальный программный ключ:
bbc0243907972fc80f279c67afb4501106151a7d

MINISTRY OF SCIENCE AND HIGHER EDUCATION

RUSSIAN FEDERATION

Federal State Autonomous Educational Institution of Higher Education

NORTH-CAUCASUS FEDERAL UNIVERSITY

APPROVED

Assoc. Prof. Kubanov S.I.

PhD in Medical Sciences

Dean

Faculty of Medicine and Biology

COURSE OUTLINE OF THE DISCIPLINE (MODULE)

Topographic Anatomy and Operative Surgery

- Specialty: 31.05.01 General Medicine
- Mode of training: Full-time
- Year of commencement of studies: 2026
- Delivered in 6,7 Semester

Developed by:

Associate Professor of Anatomy and Histology

Puzanov O.I.

Stavropol 2026

1. Aim and Objectives of Mastering the Discipline (Module)

Aim of mastering the discipline. Acquisition of scientific knowledge by students about the structure of the human body and the development of practical skills in performing medical procedures and surgical interventions.

Objectives of mastering the discipline. Study of the layered structure of various regions of the body.

Investigation of the spatial orientation and relationships of anatomical structures (holotopy — the area where organs, nerves, and vessels are located; skeletotopy — the relation of organs, nerves, and vessels to the bones of the skeleton; syntopy — the relationships between vessels, nerves, muscles, and bones). Analysis of typical and age-related anatomy, taking into account individual body composition characteristics. Qualitative and quantitative assessment of the contours of body regions (surface anatomy).

2. Place of the Discipline (Module) in the Structure of the Training (educational) Program

The discipline refers to the mandatory subjects of the core curriculum, and its study occurs in the 6th and 7th semesters.

3. List of Potential Learning Outcomes for the Discipline (Module), Correlated with the Outcomes of Mastering the Educational Program

Code and definition of the competence	Code and definition of the indicator	Planned learning outcomes for the discipline (module) describing the stages of competency and indicator development
PC 4. Capable of determining the tactics for managing patients with various nosological forms.	ID-1 PC-4 Determines the management tactics for patients with different nosological forms.	Acquisition of specialized medical skills and their application in practical healthcare.
	ID-2 PC-4 Develops a treatment plan for the patient's disease and condition, taking into account the diagnosis, the patient's age, and the clinical picture of the disease, in accordance with current medical care protocols and clinical recommendations (treatment protocols) regarding the provision of medical assistance, considering the standards of medical care.	

4. Volume of the Academic Discipline (Module) and Control *

Volume of classes: Total: _____ ECTS credits, _____ academic hours.	Full-time type of study, in academic hours
Face-to-face work	154
Lectures / including practical training	52
Laboratory works / including practical training	102
Practical classes / including practical training	80
Forms of control	
Examination	54

* The discipline (module) provides for the use of e-learning and remote learning technologies (unless otherwise set by the educational standard).

5. Content of the Discipline (Module), Structured by Topics (Sections) with an Indication of the Hours and Types of Classes

#	Section (topic) of the discipline and brief content	Competencies and indicators to be developed	Full-time training				Forms of current control of academic progress
			Contact work of students with the teacher / of them practical skills training, hours			Independent work, hours	
			Lectures	Practical classes	Laboratory work		
1	Introduction to Topographic Anatomy and Surgical Techniques. The subject and objectives of topographic anatomy and surgical techniques, the place of the discipline within the system of higher medical education. The role of Russian scientists in the establishment and development of the domestic school of topographic anatomy and surgical techniques. Domestic schools of topographic anatomists and surgeons.	ID-1 PC-4 ID-2 PC-4	2		2/0	44	Interview

2	Introduction to Topographical Anatomy and Surgical Procedures. Key concepts of topographical anatomy: region and its boundaries, projection of anatomical structures onto the surface, holotopy, skeletotopy, syntopy of organs, fascial sheaths, vascular-nerve formations, cellular spaces, collateral circulation. The study of individual variability of human organs and systems. Modern methods for researching topographical anatomy in clinical settings and on human cadavers.	ID-1 PC-4 ID-2 PC-4	2		4/0		Interview
3	Introduction to topographic anatomy and operative surgery. Operative surgery and its tasks. Teaching about surgical operations. Classification of surgical operations. Basic surgical actions, surgical techniques, and stages of the operation. Terminology. Surgical instruments and their classification, modern diagnostic and therapeutic equipment. Characteristics of the suture material. Methods of local anesthesia.	ID-1 PC-4 ID-2 PC-4			4/0		Interview
4	Topographic anatomy and operative abdominal surgery Topographic anatomy of the anterior abdominal wall. Borders, division into regions, layers functional topography, structure of the rectus vaginus, inguinal and femoral canals. Classification of abdominal hernias. Operative access, treatment of hernial sac and hernial gate plastic surgery for inguinal, femoral and umbilical hernias. Hernia repair for a pinched hernia.	ID-1 PC-4 ID-2 PC-4	2		4/0		Interview

5	Topographic anatomy and operative surgery of the abdomen Topography of the abdominal organs. Intestinal sutures, formation of inter-intestinal anastomoses ("end -to-end", "side -to-side", "end-to-side"), general principles of operations on the hollow organs of the abdomen.	ID-1 PC-4 ID-2 PC-4	2		4/0		Interview
6	Topographic anatomy and operative surgery of the pelvis Topographic and anatomical justification of operations on the pelvic organs. Three floors of the basin. Operative access to pelvic organs.	ID-1 PC-4 ID-2 PC-4			4/0		Interview
7	Topographical anatomy and operative surgery of the pelvis Puncture, high cross-section of the bladder, cystostomy, adenomectomy, posterior arch puncture, tubal pregnancy surgery, supravaginal amputation, uterine extirpation, hemorrhoid ligation, amputation, resection and extirpation of the rectum	ID-1 PC-4 ID-2 PC-4			4/0		Interview
8	Topographic anatomy and operative breast surgery. Chest wall. Borders, external landmarks, and layers. Topography of intercostal spaces, internal thoracic vessels, pleural sacs, sinuses, and interpleural spaces. The diaphragm, its structure, and weak points of the diaphragm.	ID-1 PC-4 ID-2 PC-4	2		4/0		Interview

	Topographic anatomy and operative breast surgery. Mammary gland: its structure, cellular spaces, blood supply, innervation, regional lymph nodes (pathways of lymph outflow from the breast). The thoracic cavity. Projection of organs, heart valves, and aorta, of the pulmonary trunk and large vessels on the chest wall. Topography of the lungs, trachea and bronchi, and the roots of the lungs. Segments of the lungs. Mediastinum, borders, division. Clinical anatomy of organs and vessels of the anterior mediastinum and posterior mediastinum. Mediastinal lymph nodes. Anatomical and physiological justification of surgical interventions.	ID-1 PC-4 ID-2 PC-4					Interview
9	Topographic anatomy and operative breast surgery. Types of thoracotomies. Lung suture. Extrapleural and transpleural access to the heart. Pericardial puncture. Heart suture. Principles of operations for coronary heart disease. Autopsy of purulent mediastinitis. Breast surgery for malignant and benign tumors. Incisions for purulent mastitis. Pleural puncture, thoracocentesis, rib resection, primary surgical treatment of penetrating chest wall wounds, operations for valvular pneumothorax.	ID-1 PC-4 ID-2 PC-4			4/0		Interview

10	Operations on the head and their topographical and anatomical justification of the boundaries and external landmarks of the head, its division into facial and brain divisions, individual differences. Brain region, brain regions, layered structure of regions. Clinical significance. Primary surgical treatment of penetrating head wounds. Bone-plastic and resection trepanations of the skull.	ID-1 PC-4 ID-2 PC-4	2		4/0		Interview
11	Operations on blood vessels, nerves, and tendons. Amputations and exarticulations of vascular surgery. Vascular suture, plastic and reconstructive vascular surgery, surgery for aneurysms, varicose veins. The concept of microsurgical techniques in vascular surgery.	ID-1 PC-4 ID-2 PC-4	2		4/0		Interview
TOTAL for the 6th semester/ 7 cembre							
13	Operations on blood vessels, nerves, and tendons. Amputation and exarticulation of the nerve and tendon suture. Amputations of limbs. General principles of limb truncation. Types of amputations depending on the time of execution, the shape of the incision, the composition of the tissues that make up the flaps. Methods of treatment of blood vessels, nerves, bone and periosteum. Main stages of the operation, principles of amputation stump formation. General principles of exarticulations	ID-1 PC-4 ID-2 PC-4	2		4/0		Interview

14	Topographic anatomy and operative surgery of the head. Osteoplastic cranial trepanation: indications, tools, technique. 2. Decompressive trepanation of the skull according to Cushing. 3. Plastic surgery of skull defects. 4. Primary surgical treatment of penetrating and non-penetrating injuries of the frontal-parietal-occipital region. 5. Methods of stopping bleeding in case of damage to soft tissues and bones of the cranial vault, middle tunica artery, venous sinuses. 6. Lumbar puncture technique.	ID-1 PC-4 ID-2 PC-4	2		4/0		Interview
15	Topographic anatomy and operative surgery of the head. 1. Drainage operations for dropsy of the brain. 2. Ligation of the middle meningeal artery. 3. Operations for tongue cancer (2 stages). 4. Maxillectomy. 5. Uranoplasty. 6. Local anesthesia in maxillofacial surgery. 7. Abscess of the parotid gland: possible complications, autopsy technique. 8. Trepanation of the mastoid process. 9. Operations on the paranasal cavities of the nose (puncture and trepanation). 10. Caldwell-Luke maxillary sinus autopsy	ID-1 PC-4 ID-2 PC-4	2		4/0		Interview

16	Topographic anatomy and operative neck surgery. 1. Surgical access to the neck organs (longitudinal, oblique, transverse, combined). 2. Especially methods of primary surgical treatment of neck wounds. 3. Exposure of the carotid arteries. Ligation of the external carotid artery. 4. Vagosympathetic blockade by Vishnevsky. 5. Vanach and Krail operations. 6. Anesthesia of the cervical plexus. 7. Kulenkampf brachial plexus block 8. External drainage of the thoracic lymphatic duct, lymphosorption.	ID-1 PC-4 ID-2 PC-4	2		4/0		Interview
17	Topographic anatomy and operative neck surgery. 1. Operations on the thyroid gland (for nodular goiter, thyrotoxicosis, cancer). 2. Upper tracheostomy: indications, surgical technique. 3. Lower tracheostomy. 4. Conicotomy. 5. Access to the neck of the esophagus. 6. Ligation of the common carotid artery. 7. Ligation of the subclavian artery. 8. Subclavian vein puncture and catheterization.	ID-1 PC-4 ID-2 PC-4	2		4/0		Interview

18	Topographic anatomy and operative breast surgery 1. Puncture of the pleural cavity. 2. Pericardial puncture. 3. Drainage of the pleural cavity. 4. Types of pneumothorax and operations for them. 5. Surgical interventions for penetrating wounds of the thoracic cavity. 6. Anterolateral and posterolateral access to the lungs. Indications and methods of performing radical operations on the lungs (segmentectomy, lobectomy, pneumonectomy). 7. Access to the heart. 8. Vascular bypass surgery. 9. Suturing the open ductus arteriosus. 10. Surgical treatment of left atrioventricular foramen stenosis (valvulotomy). 11. Suturing the heart wound. 12. The concept of extracorporeal circulation and heart transplantation. 13. Breast surgery for malignant and benign tumors. 14. Mastectomy. Removal of retrosternal lymph nodes. 15. Surgical treatment of purulent mastitis. 16. Operative access to the thoracic esophagus. 17. Ru-Herzen-Yudin esophageal plastic surgery (5 stages).	ID-1 PC-4 ID-2 PC-4					Interview
			4		4/0		

19	Topographic anatomy and operative abdominal surgery 1.Laparotomy, types of comparative assessment. Abdominal puncture (paracentesis). 2. Classification of abdominal hernias. 3. The main stages of operations for hernias of the anterolateral abdominal wall. 4. Hernia repair for inguinal hernia. 5. Hernia repair for femoral hernia. 6. Treatment of the hernial sac in congenital and acquired inguinal hernia. 7. Methods of hernia gate plastic surgery for umbilical hernias and white abdominal line hernias. Plastic aponeurosis by Lexer , Mayo. 8. Surgical instruments used for appendectomy. 9. Methods and techniques of applying manual and mechanical intestinal sutures. Suturing of the intestinal wound. 10. Surgical treatment of acute intestinal obstruction. 11. Types of small intestinal fistulas: food intake and discharge.	ID-1 PC-4 ID-2 PC-4						Interview
			2		4/0			

20	Topographic anatomy and operative abdominal surgery 1. Features of operations on the small and large intestines. 2. Formation of the intestinal stump according to Doyen. Types of intestinal fistulas, instruments, the order of sutures when applying anastomoses. 3. Application of fecal fistula and unnatural anus. 4. Appendectomy. Stages of worm-like process removal. Operational accesses of Volkovich-Dyakonov, Lenander - Dobrotvorsky. Methods of processing the stump. Retrograde appendectomy. Laparoscopic methods of removing the appendix. 5. Technique of suturing a perforated stomach ulcer. 6. Gastrostomy, its types. 7. Gastrointestinal fistulas, their types. The vicious circle and the reasons for its development. 8. Gastric resection according to Billroth-1, Billroth-2, their modern modifications. 9. Stem, selective and proximal selective vagotomy. Drainage operations.	ID-1 PC-4 ID-2 PC-4	4		4/0		Interview
21	Topographic anatomy and operative pelvic surgery 1. Puncture of the posterior vaginal arch, colpotomy. 2. Methods of drainage of cellular spaces of the small pelvis. 3. Surgical interventions for intraperitoneal and transperitoneal bladder wounds. 4. Extraperitoneal puncture of the bladder. Cystotomy and cystostomy. 5. Operations for breast hypertrophy. 6. Operations for ectopic pregnancy. 7. Operations for testicular dropsy according to Winkleman and BergmanWinkleman.	ID-1 PC-4 ID-2 PC-4	2		4/0		Interview

22	Topographic anatomy and operative pelvic surgery 1. Operations for cryptorchidism, phimosis and paraphimosis. 2. The concept of radical operations for rectal cancer , perineal amputation of the rectum, abdominalperineal extirpation of the rectum. 3. Operations on the uterus (cervical amputation, supravaginal amputation, simple extirpation and radical Wertheim surgery). 4. Operations for hemorrhoids, opening of pararectal abscesses.	ID-1 PC-4 ID-2 PC-4	4		4/0		Interview
23	Topographic anatomy and operative surgery of the extremities 1. Principles and techniques of primary surgical treatment of limb wounds. 2. Incisions for phlegmon of the upper arm, shoulder, forearm, hand and panaritria 3. Incisions for phlegmon of the gluteal region, thigh, lower leg, and foot. 4. Technique of temporary and final stopping of bleeding. 5. Seldinger catheterization of the main vessels.	ID-1 PC-4 ID-2 PC-4	2		4/0		Interview

24	Topographic anatomy and operative surgery of the extremities 1. Exposure of arteries, ligation of arteries in the wound and throughout , taking into account the collaterblood circulation disorders. Ligation of the femoral artery. 2. Exposure of the arteries, ligation of the arteries in the wound and throughout , taking into account the collateral circulation. Ligation of the lower leg vessels. 3. Exposure of the arteries, ligation of the arteries in the wound and throughout , taking into account the collateral circulation. Ligation of shoulder vessels. 4. Exposure of the arteries, ligation of the arteries in the wound and throughout , taking into account the collateral circulation. Ligation of the axillary artery. 5. Requirements for the vascular suture. Carrel and Morozova seam. Microsurgical equipment. 6. Access to the nerves. Principles of operations on peripheral nerves: neurolysis, nerve suture. 7. Tendon surgery. Types and techniques of tendon suture . Requirements for the tendon suture. Lange and Bennell Tendon Suture. The concept of tendoplasty.	ID-1 PC-4 ID-2 PC-4					Interview
			4		4/0		

25	Topographic anatomy and operative surgery of the extremities 1. Principles of treatment of bone fractures. 2. Osteosynthesis: extramedullary, intramedullary. 3. Definition of the concept: amputation, exarticulation, resection. 4. Classification of amputations. Primary, secondary, late and repeated amputations (re-amputations). General principles of limb truncation. 5. Methods of amputation: circular, oval, patchwork. Methods of hiding an amputated stump. A vicious stump. 6. Methods of treatment of skin, muscles, blood vessels, nerves, periosteum and bone during amputation. Selecting the amputation level and calculating the flap length	ID-1 PC-4 ID-2 PC-4	2		4/0		Interview
26	Topographic anatomy and operative surgery of the extremities 1. Amputation of the shoulder. 2. Rules for truncating the fingers of the hand. Amputation and sclarticulation in the interphalangeal and metacarpophalangeal joints. 3. The concept of finger and foot replantation for injuries. 4. TrePirogov double-step circular hip amputation. 5. Pirogov bone-plastic amputation of the lower leg.	ID-1 PC-4 ID-2 PC-4	2		2/0		Interview
	TOTAL for the 7th semester		36		54/0	36	
	total		52		102	80	

Interview (discussion),

Colloquium

Presentation of laboratory work

Presentation of abstract

Presentation of report

Presentation of project

Testing

6. Assessment Tools Fund for the Discipline (Module)

The Assessment Fund (FOS) for the discipline (module) is based on the list competencies being developed with indicators. The feedback form provides an objective monitoring the achievement of planned learning outcomes. The feedback form includes: - description of indicators and criteria for assessing competencies at various stages their formation, description of assessment scales; - methodological materials that define the procedures for assessing knowledge and skills, skills and (or) experience of activity that characterize the stages of formation competencies (included in the guidelines for the types of work that are required to be performed). they are provided by the curriculum and provide for an assessment of the formation of competencies); - standard assessment tools required for assessing knowledge, skills, and level of formation of competencies. The feedback form is an appendix to this discipline program.

7. Methodological Guidelines for Students on Mastering the Discipline

When starting work, each student should take into account the following: regulations. The discipline is based on a thematic principle, each topic represents it is a logically complete section. The lecture material is devoted to the consideration of key, basic provisions courses and explanation of training tasks submitted for independent work students. Laboratory work is aimed at gaining practical experience in the following areas: the corresponding subject area. Independent work of students is aimed at independent study additional material, preparation for practical and laboratory classes, and as well as performing all types of independent work. To successfully master the discipline, you must perform all the following tasks: independent work, using recommended sources of information.

8. Educational, Methodological, and Informational Support for the Discipline

8.1.1. List of main literature: 1. Volkov, A.V. Praktikum po topograficheskoy anatomii i operativnoy khirurgii [Practice on topographic anatomy and operative surgery]. textbook / A.V. Volkov, G. M. Ryngach. Novosibirsk: NSMU Publ., 2019, 440 p. (in Russian) ISBN 978-5-85979-284-9. – Text: electronic // Lan: electronic library system. – URL: <https://e.lanbook.com/book/145045> 2. Kabak, S. L. Kratkiy kurs topograficheskoi anatomii [Short course of topographic anatomy]. manual / S. L. Kabak. - Electron. text data. Minsk: Vysheyschaya shkola Publ., 2014 – 224 p – - 978-985-06-2313-3. - Available at: <http://www.iprbookshop.ru/35491.html> 3. Fundamentals of operative surgery / O. B. Begishev, A. N. Bubnov, A.V. Gulyaev [et al.]; under edited by S. A. Simbirtsev. Saint Petersburg: Foliant Publ., 2015, 728 p. ISBN 978-5. 93929-256-6. - Text: electronic // Electronic library system IPR BOOKS: [site]. – URL: <http://www.iprbookshop.ru/60933.html> 8.1.2. List of additional literature: 1. Bogdanov, V. G. Guide to practical exercises in topographic anatomy and surgery. Bogdanov V. G., Khokhlov P. G., Bedrinsky L. A. Operational surgery: a textbook. 17 Kemerovo: Kemerovo State Medical Academy, 2009, 204 p. (in Russian) 2227-8397. - Text: electronic // Electronic library system IPR BOOKS: [website]. – URL: <http://www.iprbookshop.ru/6208.html> 2. Methodological recommendations for preparing for practical classes on topographical anatomy and operative surgery / A. G. Goncharov, E. V. Namokonov A. Kashafeeva, A. V. Potopin. - Chita: Chita State Medical Academy, 2011. - 90 p. - ISBN 2227-8397. - Text: electronic // Electronic library system IPR BOOKS: [website]. – URL: <http://www.iprbookshop.ru/55318.html> 3. Workshop on operative surgery. Laparoscopic surgery: a textbook / A.V. Protasov, E. D. Smirnova, D. L. Titarov, Z. S. Kaitova. - Moscow: Russian peoples' Friendship University, 2013. - 128 p. - ISBN 978-5-209-05476-4. - Text: Electronic library system IPR BOOKS: [website]. - URL: <http://www.iprbookshop.ru/22214.html> 8.2. List of educational and methodological support for independent work students in the discipline (module) 1. Educational and methodical manual: Guidelines for students on organization and conduct of independent work in the discipline "Topographical engineering". anatomy and operative surgery". Stavropol: NCFU Publ., 2026. 2.

Training manual: Guidelines for performing laboratory tests works on the discipline "Topographic anatomy and operative surgery".— Stavropol: NCFU, 2026. 8.3. List of information and telecommunication network resources "Internet" required for mastering the discipline (module) 1 <http://rudocor.net/> - Medical portal 2 <http://www.e-reading.club/> - Large online library 3 <http://www.pubmed.com/> - database of full-text medical articles 4 <http://www.spravocnikpolekarstvam.ru/> - free pharmacological service yandex business directory online 5 <https://dic.academic.ru/> - Dictionaries and encyclopedias 6 <https://www.rmj.ru/> - Russian Medical Journal

9. List of Information Technologies Employed through the Discipline (Module), Including a List of Software and Information Reference Systems

When delivering lectures, computer equipment and demonstrations of multimedia presentation materials are used. In seminars and practical classes, students deliver presentations prepared by them during the hours of independent work.

Information Reference Systems:

Information-reference and information-legal systems used in the study of the discipline:

1.	Electronic library system "University Library online" www.biblioclub.ru (Agreement No. 50-04 / 19 on the provision of information services on 13.05.2019)
2.	Electronic library system "IPRbooks" (LICENSE AGREEMENT 5168/19 dated 13.05.2019 for providing access to the electronic library system IPRbooks. Organization: AI Pi Ar Media Company LLC)
3	"eLIBRARY.RU": [Scientific Electronic Library]. – URL: http://elibrary.ru
4	Information and legal portal "Garant" - http://www.garant.ru/
5	Reference and legal system Russian legislation and judicial practice in the public domain - http://www.pravo.ru/

Software:

1.	Alt Workstation 10
2.	Alt Workstation K
3.	Alt Server
4.	Office software package – P7-Office

10. Description of the Material and Technical Resources Required for the Educational Process for the Discipline (Module)

Lecture classes	A classroom for conducting training sessions, equipped with multimedia equipment and technical training tools
Laboratory classes	Training laboratory "Human Anatomy", equipped with equipment and technical means of training: a set of educational furniture for 16 seats with the necessary set of macro-preparations: an angio-neurological corpse, a set of individual bones of the human skeleton, a human skeleton, a set of individual bones of the skull, a classic skull, a skull with separate bones, a skull in sections, macro-preparations contained in 10% formalin solution, prepa kitsratov joints. Complex of internal organs. Virtual anatomical table "Pirogov's Table".
Independent work	A room for independent work of students equipped with computer equipment with the ability to connect to the Internet and access the electronic information and educational environment of the university

11. Specific Features of Mastering the Discipline (Module) by Persons with Disabilities

Students with disabilities shall be provided with special textbooks, teaching aids, and didactic materials, special technical training facilities for collective and individual use, the services of an assistant (helper) providing the necessary technical assistance to the students, as well as the services of sign language interpreters and tactile sign language interpreters.

The mastery of the discipline (module) by students with disabilities may be organized jointly with other students, as well as in separate groups.

Mastering the discipline (module) by students with disabilities is to be carried out taking into account the peculiarities of psychophysical development, individual capabilities, and health status.

In order to ensure the accessibility of higher education under the educational program for persons with disabilities, the following is provided during the mastery of the discipline (module):

- 1) for persons with visual impairments:
 - the presence of an assistant offering the student the necessary technical assistance, taking into account individual features (help taking the workplace, moving around, reading and formatting the task, including writing under dictation),
 - written tasks, as well as instructions on the procedure for their execution, are formatted in an enlarged font,
 - special textbooks, teaching aids, and didactic materials (having a large font or audio files), individual uniform lighting of at least 300 lux, if necessary, a magnifying device is provided to the student to complete the task;
- 2) for persons with hearing impairments:
 - the presence of an assistant providing the student with the necessary technical assistance, taking into account individual characteristics (helps to take a workplace, move around, read and format the task, including writing with dictation),
 - the availability of sound-amplifying equipment for collective use is ensured; if necessary, sound-amplifying equipment for individual use is provided to the student;
 - provision with proper sound means of reproducing information is ensured;
- 3) for persons with musculoskeletal disorders (including severe motor function impairments of the upper limbs or the absence of upper limbs):
 - written tasks are performed on a computer with specialized software or are dictated to an assistant;
 - at the request of the student, tasks may be performed verbally.

12. Specific Features of Implementing the Discipline with the Use of Distance Learning Technologies and E-Learning

According to part 1 of Article 16 of the Federal Law of December 29, 2012. No. 273-FZ "On Education in the Russian Federation" e-learning is defined as: organization of educational activities using the information contained in the databases and information used in the implementation of educational programs and ensuring its processing of information technologies, technical means, and as well as information and telecommunication networks that provide data transmission over the Internet. communication lines of the specified information, interaction of students and teachers employees. Distance learning technologies are defined as: educational technologies implemented mainly with the use of information and communication technologies. telecommunications networks with indirect (long-distance) interaction students and teachers. The implementation of the discipline can be carried out using distance learning methods. educational technologies and e-learning in whole or in part. Components of the discipline's QMS (working

program of the discipline, assessment and evaluation programs). methodological materials, forms of certification) implemented with the use of distance learning technologies and e-learning, contain an indication of to use them. When organizing educational activities using distance learning tools educational technologies and e-learning may include: asynchronous and synchronous ways of implementing interaction between participants 20 educational relations through the information and telecommunications network "Internet". When using distance learning technologies and e-learning training schedule for the discipline includes:: implementation methods interaction of participants in educational relations through informazionetelecommunications network "Internet" (VKS-video conferencing, ET-electronic testing); links to the NCFU electronic information and educational environment, to educational platforms and resources of other organizations to which access is provided open access via the information and telecommunications network "Internet"; for simultaneous learning - the time of online classes and teachers. asynchronous learning - authors of online courses. When organizing an interim certification using distance learning tools educational technologies and e-learning methods are used. recommendations for the use of technical tools that ensure objectivity results obtained during the interim and state final attestation in the following areas: educational programs of higher education - bachelor's degree programs, specialty programs and master's programs with the use of distance learning technologies. educational Technologies (Letter of the Ministry of Education and Science of the Russian Federation No. MN dated 07.12.2020-19/1573-AS "On the direction of methodological recommendations"). Implementation of the discipline using e-learning and distance learning educational technologies are carried out using an electronic platform. NCFU information and educational environment that students have access to via the information and telecommunications network "Internet", or with the use of resources of other organizations, including platforms that provide services for conducting video conferences, online meetings, and distance learning (MTS-Link), and also, using the capabilities of social networks to implement communication between students and teachers. Educational and methodological support of the discipline implemented with pnaming convention e-learning and distance learning technologies, includes the work program and teaching aids presented in electronic form or a course of lectures, guidelines for performing various types of training activities. activities of students provided for in the discipline, and other educational and practical activities. methodological materials posted in the NCFU information and educational environment.