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Medical institute

EDUCATION PROGRAM OF THE DISCIPLINE

«Maxillofacial Prosthodontics»

Recommended by MSSN\MO for the course of specialty

31.05.03 Dentistry

The discipline is carried out within the framework of the basic professional educational program of higher education (EP HE):

«Dentistry»

2024 г.

1. AIM OF THE DISCIPLINE

The purpose of mastering the discipline "Maxillofacial Prosthodontics" is the acquisition by students of theoretical knowledge and practical skills in maxillofacial prosthetics in the section of the discipline of prosthetic dentistry in the specialty "Dentistry", necessary for a dentist in clinic and hospital.

2. REQUIREMENTS OF THE RESULT OF MASTERING DISCIPLINE

The process of studying the discipline "Maxillofacial Prosthodontics" is aimed at the formation of the following competencies (parts of competencies):

Table 2.1 List of competencies which are formed while studying the discipline (result of mastering the discipline)

Code	Competence	Signs of acquiring the competence (in framework of the given discipline)
UC-1	Being able to implement critical analysis of problem situations based on systems approach, develop an action strategy.	UC-1.1. Analysing the problem situation as a system identifying its components and links between them.
GPC-5	Being able to examine a patient to determine a diagnosis while solving professional tasks	GPC-5.1. Gathering anamnesis by analyzing the patient's complaints, making a physical examination at a dental appointment.
		GPC-5.2. Formulating a preliminary diagnosis and deciding on laboratory and instrumental examinations of a dental patient.
		GPC-5.3. Compiling medical documentation for a dental patient in accordance with regulatory requirements.
		GPC-5.8. Conducting differential diagnosis with other diseases/conditions, including the urgent ones.
		GPC-5.9. Making a diagnosis according to the current international classification of diseases and health problems.

GPC-6	Being able to prescribe non-drug and drug treatment, monitor its efficacy and safety when solving professional tasks	GPC-6.1. Developing a plan for dental disease treatment considering the diagnosis, age, and clinical picture in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care considering the medical care standards.
		GPC-6.2. Selecting medical products (including dental materials) for drawing up a comprehensive plan for dental disease treatment. Following up the treatment of a patient.
PC-1	Being able to make an examination of a patient to determine a diagnosis.	PC-1.1. Making an initial examination and/or reexamination of a patient to make a preliminary diagnosis.
		PC-1.2. Receiving information from patients (their relatives/legal representatives); conducting a questionnaire survey of patients regarding their general health status; identifying concomitant diseases to make a preliminary diagnosis.
		PC-1.3. Detecting if patients have dentoalveolar, facial anomalies, deformities and prerequisites for their development, defects in the crowns of teeth and dentition based on the patient examination; laboratory, instrumental, and additional examinations in order to make a preliminary/final diagnosis.
		PC-1.4. Detecting if patients have risk factors for oncopathology (including various background processes, precancerous conditions) based on laboratory, instrumental and additional examinations to make a preliminary/final diagnosis.
		PC-1.5. Making a preliminary/final diagnosis based on the patient examination; laboratory and instrumental examinations.

PC-2	Being able to prescribe, monitor the efficacy and safety of non-drug and drug treatment	PC-2.6. Providing prosthetic treatment for persons with defects in teeth, dentition within the temporization procedure, rehabilitation of single defects in the dentition, dental prostheses of up to three units (excluding dental implants prosthetics), partial and complete removable laminar denture using modern treatment methods approved for use in medical practice.
PC-6	Being able to analyze and present in public medical information based on evidence-based medicine, participate in scientific research, introduce new methods and techniques aimed at protecting public health	PC-6.1. Searching for medical information based on evidence-based medicine, interpreting data from scientific publications and/or preparing a presentation to make medical information, the results of scientific research public.

3. THE PLACE OF THE DISCIPLINE IN THE STRUCTURE EP HE

The discipline “Maxillofacial prosthetics” refers to the basic part of block 1 of the curriculum.

Within the EP HE students also study other disciplines and undergo trainings which contribute to achievement of planned results after studying of the discipline “Maxillofacial prosthetics”.

Table № 3.1. List of components of EP HE aimed at the formation of the competences of the discipline.

Code	Title of competence	Preceding disciplines	Subsequent disciplines (groups of disciplines)
CC-1.	Able to carry out a critical analysis of problem situations based on a systematic approach, to develop an action strategy.	<ul style="list-style-type: none"> • Prosthodontics (simple prosthetics) • Prosthetics of edentulous patient • Prosthodontics (complex prosthetics) • Gnathology and functional diagnostics of the temporomandibular joint 	
GPC-5.	Able to conduct a patient examination in order to establish a diagnosis in solving	<ul style="list-style-type: none"> • Dental prosthetics (simple prosthodontics) • Prosthetics of edentulous patient 	

	professional problems	<ul style="list-style-type: none"> • Prosthetics (complex prosthodontics) • Gnathology and functional diagnostics of the temporomandibular joint 	
GPC-6.	Able to prescribe, monitor the effectiveness and safety of non-drug and drug treatment in solving professional problems	<ul style="list-style-type: none"> • Prosthodontics (simple prosthetics) • Prosthetics of edentulous patient • Prosthodontics (complex prosthetics) • Gnathology and functional diagnostics of the temporomandibular joint 	
PC-1.	Able to conduct examination of the patient to establish a diagnosis.	<ul style="list-style-type: none"> • Prosthodontics (simple prosthetics) • Prosthetics of edentulous patient • Prosthodontics (complex prosthetics) • Gnathology and functional diagnostics of the temporomandibular joint 	
PC-2.	Capable of prescribing, monitoring the efficacy and safety of non-drug and drug treatments	<ul style="list-style-type: none"> • Prosthodontics (simple prosthetics) • Prosthetics of edentulous patient • Prosthodontics (complex prosthetics) • Gnathology and functional diagnostics of the temporomandibular joint 	
PC-6.	Able to analyze and publicly present medical information based on evidence-based medicine, to participate in scientific research, to introduce new methods and	<ul style="list-style-type: none"> • Prosthodontics (simple prosthetics) • Prosthetics of edentulous patient • Prosthodontics (complex prosthetics) • Gnathology and functional diagnostics of 	

	techniques aimed at protecting public health	the temporomandibular joint	
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4. THE SCOPE OF THE DISCIPLINE AND TYPES OF EDUCATIONAL WORK

The overall complexity of the discipline “Maxillofacial prosthetics” ___ 3 ___ credits.

Table № 4.1 Types of educational work by periods of mastering the EP HE for full-time education

Type of study	Total hours	Semesters
		5
Classroom tutorials (total)	45	45
Including:		
<i>Lectures</i>		
<i>Practical classes (PC)</i>		
<i>Seminars (S)</i>		
<i>Laboratory research (LR)</i>	45	45
<i>Independent work (total)</i>	24	24
<i>Control (exam)</i>	3	3
Total labor intensity	hours	72
	credits	2

5. CONTENT OF THE DISCIPLINE

Table 5.1. Content of the discipline sections

Title of section of the discipline	Section Topics	Type of study work
Section 1. Diagnostic methods in maxillofacial prosthetics.	Topic 1.1. General ideas about maxillofacial prosthetics. Basic principles. Methods of clinical examination of patients with injuries and defects of the jaws and face. CBCT and MRI in maxillofacial trauma. Getting a face mask.	LR
	Topic 1.2. Classification of dento-maxillary and maxillofacial prostheses, retention methods	
	Topic 1.3. The main clinical symptoms of jaw fractures. Typical displacement of fragments of the jaws in non-gunshot trauma. Reading radiographs with fractures and defects of the jaws.	
Section 2. Features of prosthetic treatment of patients with injuries and	Topic 2.1. Aims of the prosthetic stage in the complex rehabilitation of patients with injuries of the maxillofacial region. Immobilization of the fractured jaws for transportation. Various types of dentition and prostheses: repositioning, fixing, replacing and combined for the upper, lower jaws and for both (edentulous) jaws.	LR

post-traumatic defects of the maxillofacial region.	Topic 2.2. Clinical and laboratory methods of prosthetics for incorrectly fused fractures, for false joints, for microstomy.	
	Topic 2.3. Features of care for patients with defects of the maxillofacial region. Timing of examinations. Functional disorders in injuries of the maxillofacial region. Fundamentals of therapeutic gymnastics, mechanotherapy.	
Section 3 Features of prosthetic treatment of patients with congenital defects of the alveolar process and palate.	Topic 3.1. Features of congenital partial and complete cleft lip and palate, clinical symptoms, stages of complex treatment, features of prosthetics for adult patients with congenital palate defects according to the concept of an artificial external skeleton.	LR
Section 4 Features of prosthetic treatment of patients with postoperative palate defects in cancer patients.	Topic 4.1. Classification of palatal defects. The place and significance of the prosthetic stage of complex treatment of patients with palatal defects of oncological (postoperative) genesis. Obtaining an impression of the upper jaw with a defect in the palate.	LR
	Topic 4.2. Features of the obturating part of the prosthesis for palate defects, its structure, functions, indications and contraindications for use. Production of a hygienic obturator	
Section 5 Facial prostheses. Basic principles of nose, eye, ear prosthetics.	Topic 5.1. Obtaining an impression (scanning) of the auricle. Methods of manufacturing silicone prostheses and methods for attaching facial prostheses and caring for them.	LR
	Topic 5.2. Technologies for the manufacture of prosthetic eyes, nose. retention methods. Materials for the manufacture of facial prostheses.	
	Topic 5.3. Computer technique for determining the color of the skin of the face. Rules for the care of facial prostheses.	
Section 6 Prevention of sports injuries of teeth and jaws.	Topic 6.1. Types of splints for the prevention of dental sports injuries. Methods for the manufacture of a boxing splint, a prophylactic tooth splint made using hot molding.	LR

6. MATERIALS AND TECHNICAL SUPPORT OF THE DISCIPLINE

Table 6.1. Material and technical support of the discipline

Classroom type	Equipment of the classroom	Specialized educational / laboratory equipment, software and materials for mastering the discipline (if necessary)
Lecture	An auditorium for lecture-type classes, equipped with a set of specialized furniture; board (screen) and technical	

Classroom type	Equipment of the classroom	Specialized educational / laboratory equipment, software and materials for mastering the discipline (if necessary)
	means of multimedia presentations.	
Laboratory №1	<p>An auditorium for laboratory work, individual consultations, current control and intermediate certification, equipped with a set of specialized furniture: a double student desk -13, a chair for a teacher, a metal cabinet for storing equipment, a built-in cabinet for materials and tools -6 pcs, a sink, a mobile a trash can with a lid of at least 200 liters, a glass cabinet for visual aids, a four-section metal safe for storing tips and burs.</p> <p>Technical means used to present educational information: LCD panel, personal computer-monoblock, video camera on a tripod,</p> <p>sets of teaching and visual aids, X-ray MRI and CBCT images on paper and on CD, providing thematic illustrations.</p>	<p>Specialized educational/laboratory equipment and materials: Stands with types of splints and dento-jaw prostheses.</p> <p>Instruments and materials: Diagnostic models with various jaw defects – 14 sets. Samples of splints and dentoalveolar splints - 14 sets Silicone base impression material 900 g per group</p>
Laboratory №2	<p>An auditorium for laboratory work, individual consultations, current control and intermediate certification, equipped with a set of specialized furniture and equipment.</p>	<p>15 sets of specialized furniture - tables under simulators and dental simulators Saratoga S.p.a , Venturi aspiration system with a centralized electric pump, FRASAKO dental phantoms (Germany) on a minitorso with an articulator, models of the upper and lower jaws of the ChVN 28 type (Zarnitsa, Russia) with a face mask and pneumatic or mechanical adjustment of the phantom position along 2 axes in the form of a long table for 12 vis-a-vis and 2 quadruple modules in the shape of a "chamomile" Wooden chair with a back on wheels for a dental technician -20 pcs.</p> <p>Special sink made of stainless steel with two sinks and a gypsum trap.</p> <p>Gypsum tables for 14 jobs. Mobile with a cover a tank for garbage on 250 liters. Wall screen and multimedia projector Epson.</p>

Classroom type	Equipment of the classroom	Specialized educational / laboratory equipment, software and materials for mastering the discipline (if necessary)
		<p>Dell LCD panel with a diagonal of at least 120 cm.</p> <p><i>Specialized educational/laboratory equipment and materials:</i> Head dummies - 14 pieces • Portable vibrating table - 4. • Trimmer -1. • Vacuum plaster mixer - 1. • Scales for plaster - 1 • Steam-jet apparatus for cleaning dentures - 1. • Vacuumformer-1.</p> <p><i>Instruments and materials:</i> • Spatulas for kneading gypsum -14 • Silicone flasks for mixing gypsum-14, • Knife for plaster - 14 • Dental spatula - 14 pcs. • Vacuum former plates – 1 for a student • Plaster 2nd class 250 g per student • C-silicone – set 900 grams basic</p>
Seminar	An auditorium for conducting seminar-type classes, group and individual consultations, current control and intermediate certification, equipped with a set of specialized furniture and technical means for multimedia presentations.	List of specialized equipment, stands, visual posters, etc.
Computer classroom	A computer class for conducting classes, group and individual consultations, current control and intermediate certification, equipped with personal computers (in the amount of <u>15</u> pcs.), a board (screen) and technical means of multimedia presentations.	<p>Software:</p> <ul style="list-style-type: none"> • Microsoft Office: PowerPoint, Word
For independent work of students	An auditorium for independent work of students (can be used for seminars and consultations), equipped with a set of specialized furniture and computers with access to the EIOS.	

7. METHODOLOGICAL AND INFORMATIONAL SUPPORT FOR THE DISCIPLINE

Main literature:

1. Orthopedic dentistry [Electronic resource]: Textbook / Ed. I.Yu. Lebedenko, E.S. Kalivrajyan. - M. : GEOTAR-Media, 2016. - 640 p. - ISBN 978-5-9704-3722-3.
2. Dental technology [text]: Textbook for universities / Ed. M.M.Rasulova, T.I.Ibragimova, I.Yu.Lebedenko, . - M. : MIA, 2005. - 448 p. : ill. - ISBN 5-89481-311-5: 320.00.
3. Maxillofacial orthopedic dentistry. Zhulev E.N., Arutyunov S.D., Lebedenko I.Yu. M.: Medical Information Agency, 2008. - 160 p.

Additional literature

1. Bulgakov Vsevolod Sergeevich. Rol' dispanserizacii k klinike ortopedicheskoy stomatologii pri protezirovanii s ispol'zovaniem implantatov / V.S. Bulgakov, T.V. Lukyanova, I.I. SHakerov // Vestnik Rossijskogo universiteta druzhby narodov: Medicina. - 2010. - №1. - S. 125 - 129.
2. Obsledovanie bol'nogo v klinike ortopedicheskoy stomatologii. Testy [Tekst] : Uchebnometodicheskoe posobie / RUDN; Sost. V.S.Bulgakov, SH.H.Saakyan. - M. : Izd-vo RUDN, 2007. - 20 s.

Resources of the information and telecommunications network "Internet":

1. RUDN ELS and third-party ELS, to which university students have access based on concluded agreements:

- RUDN Electronic Library System - RUDN EBS <http://lib.rudn.ru/MegaPro/Web>
- ELS "University Library Online" <http://www.biblioclub.ru>
- EBS Yurayt <http://www.biblio-online.ru>
- ELS "Student Consultant" www.studentlibrary.ru
- EBS "Lan" <http://e.lanbook.com/>
- EBS "Trinity Bridge"

2. Databases and search engines:

- electronic fund of legal and normative-technical documentation <http://docs.cntd.ru/>
- Yandex search engine <https://www.yandex.ru/>
- Google search engine <https://www.google.ru/>
- abstract database SCOPUS <http://www.elsevierscience.ru/products/scopus/>

Educational and methodological materials for independent work of students in the development of the discipline of the discipline "Maxillofacial prosthetics":

1. Electronic versions of textbooks
2. Presentations on the topics of the classes
3. Video materials

posted in accordance with the current procedure on the discipline page in TUIS!

1. A course of lectures on the discipline "_____".
2. Laboratory workshop on the discipline "_____" (in the presence of laboratory work).
3. Guidelines for the implementation and execution of a term paper / project in the discipline "_____" (if there is a CG / CP).
- 4.

* - all educational and methodological materials for independent work of students are placed in accordance with the current procedure on the page of the discipline in TUIS!

8. EVALUATION MATERIALS AND SCORE-RATING SYSTEM FOR ASSESSING THE LEVEL OF FORMATION OF COMPETENCES IN THE DISCIPLINE

Evaluation materials and a score-rating system* for assessing the level of competency formation (parts of competencies) based on the results of mastering the discipline of the discipline "Maxillofacial prosthetics" are presented in the Appendix to this Work Program of the discipline.

* - OM and BRS are formed based on the requirements of the relevant local normative act of the Peoples' Friendship University of Russia. Sections of disciplines and types of classes

DEVELOPERS:

Professor of the Department
of prosthetic dentistry

Bykova M. V.

Head of the Department
of prosthetic dentistry,
professor

Lebedenko I. Yu.

The head of EP HE,
Deputy director MI
on the specialty "Dentistry"
professor

Razumova S. N.

**Fund of assessment tools for carrying out the intermediate certification for the discipline
(module)**

Table № 1.

Assessment tools	Quantity
Control questions	15
Tasks in the test form	50
Case study	14

Standard control tasks or other materials necessary for the assessment of knowledge and skills that characterize the stages of the formation of competencies.

Tasks in test form (example)(UC-1, GPC-5,6, PC-1,2,6)

1. Which contraforce function is impaired by patients with congenital cleft palate?

- 1) palatal
- 2) zygomatic
- 3) intermaxilar

2. Which methods are present today to restore the anatomy of the palate by cleft patients?

- 1) Bone augmentation with bony blocks and titanium plates
- 2) Bone augmentation with Bio-Oss
- 3) Fabrication of casted palatal appliance for providing an external frame

3. In case of oronasal junction an sufficient number of teeth, the therapy of choice would be

- 1) Do not close the junction for drainage
- 2) To fabricate a prosthesis with obturator
- 3) To fabricate an appliance to close the defect

4. In case of oronasal junction an sufficient number of teeth, the therapy of choice would be

- 1) To perform a surgical closure
- 2) To make an abturator
- 3) Do not close the junction for drainage

Case studies (example) (PC-2, PC-5, PC-6, PC-8, PC-9)

Case study №1

Patient K., 56 years old, appealed to the orthopedic department with complaints about the lack of frontal teeth on the lower jaw, aesthetic defect, the difficulty with chewing food.

In the anamnesis – hypertensive disease of I degree, chronic colitis, the fracture of the lower jaw in the chin, which occurred 4 years ago as a result of injury. The patient's front teeth were removed from the lower jaw and the fracture was treated.

Objectively: at the external examination the retraction of the lower lip in the chin area is revealed. The violation of diction at speaking. There is a little mobility of bone fragments in the fracture region in the middle of the chin area.

When examining the oral cavity, the mucous membrane is pale pink, moderately moist.

Absent: 4.3, 4.2, 4.1, 3.1, 3.2, 3.3, 3.4.

Occlusion – orthognathic.

On the radiograph there is a fusion of bone fragments of the lower jaw.

1. Make a diagnosis.

2. What kind of orthopedic structure may be manufactured in this clinical situation?

Case study № 2.

Patient K., 35 years old, was sent to the clinic of orthopedic dentistry from Hertsen Oncology Research Center for orthopedic preparation for the surgery on removal a malignant tumor localized on the palatine surface of the alveolar process of the upper jaw in the area of 1.5, 1.6 teeth.

In anamnesis – cancer of the upper jaw, gastritis, colitis.

Objectively: at the external examination a facial asymmetry was not detected. During the inspection of the mouth on the alveolar ridge of the upper jaw from the cervix of teeth 1.5, 1.6 before switching to the hard palate there is a tumor sized 1×1 cm; hyperemia of the mucous membrane of the gums of teeth 1.4, 1.5, 1.6, 1.7 from the palatal side.

The dentition on the upper and lower jaws is intact.

Occlusion – orthognathic.

Diagnosis: cancer of the upper jaw.

The diagnostic models were used to mark the boundaries of surgical intervention, which pass through the middle of the hard palate between the central incisors, along the transitional fold and cover the maxillary tubercle.

Which postoperative prosthesis should be manufactured for this patient?

Test questions / tasks

Question: classification of acquired defects of the upper jaw according to V.Yu.Kurlyandskiy

Answer:

- Grade I - defects of the hard palate in the presence of abutment teeth on both halves of the jaw
- Class II - defects of the hard palate in the presence of abutment teeth on one side of the jaw
- Class III - defects of the sky in the absence of teeth in the jaw
- Class IV - defects of the soft palate or hard and soft palate.

Topics for the presentations

1. General concepts of maxillofacial prosthetics. Basic principles.
2. Classification of maxillofacial and facial prostheses, retention methods.
3. Methods of obtaining impressions and features of making a plaster model of the face, ear, intraocular space.
4. Specificity of hygienic care for prosthesis and prosthetic bed.
5. Planning the retention of prostheses using dental implants. Principles, stages of rehabilitation of patients, clinical and laboratory stages of manufacturing implant-supported prostheses.
6. Main bioadaptive polymeric materials used in the manufacture of facial prostheses.
7. Specifics of care for patients with maxillofacial defects.
8. Functional disorders in injuries of the maxillofacial area.
9. Basics of therapeutic gymnastics, mechanotherapy.
10. Complications at maxillofacial prosthetics.
11. Principles of complex rehabilitation of patients with maxillofacial defects.

12. Purposes of the orthopedic stage in complex rehabilitation of patients with diseases and injuries of the maxillofacial area.
13. Orthopedic stage of complex treatment of patients with oncological diseases of organs and tissues of the oral cavity.
14. Types and clinical and laboratory stages of manufacturing prostheses for the treatment of patients with oncological diseases of organs and tissues of the oral cavity.
15. Specifics of orthopedic treatment of patients with congenital and obtained defects of soft and hard palate
16. 3D printing methods for facial prostheses fabrication

12.2 The procedure, criteria and evaluation scale of intermediate certification

Students study the discipline «Maxillofacial prosthetics» in X semester.

To assess the quality of mastering the curriculum, a point-rating system and ECTS assessment are used.

Points are accumulated by students in the process of training sessions, monitoring progress and interim assessment during semester.

Academic discipline is considered mastered if a student has scored more than 50% of the possible number of points. The maximum mark for a discipline studied during the semester is 100 points, regardless of its volume.

A student does not receive these credits if during the course of study, working with a teacher and independently, gaining less than 51 points (out of 100 possible) for each semester.

Intermediate certification for the discipline in the X semester is carried out in the form of offset.

Test consists of: testing, evaluation of practical skills of the student and interview.

The procedure for intermediate certification:

1. Conducting student testing
2. Evaluation of practical skills
3. Interview

The test is held at the end of the study of discipline in the semester.

The points scored by the student during the semester or at the end of the study of the discipline are translated into assessment according to the rules established in Table No. 9.

Таблица

Балльная система оценки знаний

Credit points	Traditional notes in RF	Final credit points	Notes	Notes ECTS
86 – 100	5	95 – 100	5+	A
		86 – 94	5	B
69 – 85	4	69 – 85	4	C
51 – 68	3	61 – 68	3+	D
		51 – 60	3	E
0 – 50	2	31 – 50	2+	FX
		0 – 30	2	F
51 – 100	Passed	51 – 100	Passed	Passed

Description of ECTS grades

A — Excellent (5+)

The theoretical content of the course has been mastered completely without gaps. The necessary practical skills with the mastered material have been formed. All the training tasks provided by the training program have been fulfilled, the quality of their implementation is assessed by the number of points close to the maximum. Student has a command of supplementary material that is not included in the training course.

B — Very good (5)

The theoretical content of the course has been mastered completely without gaps. The necessary practical skills of working with the mastered material have been basically formed. All the training tasks provided by the training program have been fulfilled, the quality of performance of most of them is assessed by the number of points close to the maximum. Command of some additional information not included in the training course.

C — Good (4)

The theoretical content of the course has been mastered completely, without gaps. Some practical skills of working with mastered material have not been sufficiently formed. All training tasks provided by the training program have been fulfilled, the quality of performance of none of them has been assessed by the minimum number of points. Some types of tasks have been completed with mistakes. Confident knowledge, limited curriculum material.

D — Satisfactory (3+)

The theoretical content of the course has been partially mastered, but the gaps are not significant. The necessary practical skills of working with the mastered material have been basically formed. Most of the training tasks included in the training program have been completed. Some of the completed tasks may contain mistakes.

E — Mediocre (3)

The theoretical content of the course has been partially mastered. Some practical skills are not formed. Most training tasks provided by the training program have not been fulfilled, or the quality of performance of some of them was estimated by the number of points close to the minimum.

FX — Conditionally unsatisfactory (2+)

The theoretical content of the course has been partially mastered. The necessary practical skills are not formed. Most educational tasks provided by the training program have not been fulfilled, or the quality of their implementation is assessed by the number of points close to the minimum. With additional independent work on the course material it is possible to improve the quality of the performance of educational tasks.

F — Certainly unsatisfactory (2)

The theoretical content of the course has not been mastered. The necessary practical skills have not been formed. All completed assignments contain blunders. Additional independent work on the course material will not lead to any significant improvement in the quality of the training tasks.