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**Medical institute** 

#### EDUCATION PROGRAM OF THE DISCIPLINE

#### «PROSTHODONTICS OF EDENTULOUS PATIENT»

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 is the training of a dentist with deep knowledge and skills in the field of prevention, diagnosis, prosthetic methods of treatment of dentoalveolar diseases; ability of providing outpatient prosthetic care for patients with complete absence of teeth.

#### 2. REQUIREMENTS OF THE RESULT OF MASTERING DISCIPLINE

The process of studying the discipline «Prosthodontics of edentulous patient» 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-5.1. Gathering anamnesis by analyzing the patient's complaints, making a physical examination at a dental appointment.
GPC-5	Being able to examine a	GPC-5.2. Formulating a preliminary diagnosis and deciding on laboratory and instrumental examinations of a dental patient.
	patient to determine a diagnosis while solving professional tasks	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.
		(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 «Prosthodontics of edentulous patient» 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 «Prosthodontics of edentulous patient».

Table  $N_{2}$  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.	Cariesology and the disease of hard dental tissues.	<ul> <li>Prosthodontics of edentulous patient</li> <li>Prosthodontics (complex prosthetics)</li> </ul>
GPC-5.	Able to conduct a patient examination in order to establish a diagnosis in solving professional problems	Cariesology and the disease of hard dental tissues.	<ul> <li>Prosthodontics of edentulous patient</li> <li>Prosthodontics (complex prosthetics)</li> </ul>

GPC-6.	Able to prescribe, monitor the effectiveness and safety of non-drug and drug treatment in solving professional problems	Cariesology and the disease of hard dental tissues.	<ul> <li>Prosthodontics of edentulous patient</li> <li>Prosthodontics (complex prosthetics)</li> </ul>
PC-1.	Able to conduct examination of the patient to establish a diagnosis.	<ul> <li>Cariesology and the disease of hard dental tissues.</li> <li>Propaedeutics of dental diseases</li> </ul>	<ul> <li>Prosthodontics of edentulous patient</li> <li>Prosthodontics (complex prosthetics)</li> </ul>
PC-2.	Capable of prescribing, monitoring the efficacy and safety of non-drug and drug treatments	<ul> <li>Cariesology and the disease of hard dental tissues.</li> <li>Propaedeutics of dental diseases</li> </ul>	<ul> <li>Prosthodontics of edentulous patient</li> <li>Prosthodontics (complex prosthetics)</li> </ul>
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 techniques aimed at protecting public health	<ul> <li>Cariesology and the disease of hard dental tissues.</li> <li>Propaedeutics of dental diseases</li> </ul>	<ul> <li>Prosthodontics of edentulous patient</li> <li>Prosthodontics (complex prosthetics)</li> </ul>

# 4. THE SCOPE OF THE DISCILINE AND TYPRES OF EDUCATIONAL WORK

The overall complexity of the discipline « Prosthodontics of edentulous patient» \_\_\_\_\_3\_\_\_\_ credits.

Table  $N_{2}$  4.1 Types of educational work by periods of mastering the EP HE for full-time education

Type of study	Total hours	Semesters
		6
Classroom tutorials (total)	54	54
Including:		

Lectures			
Practical classes (PC)			
Seminars (S)			
Laboratory research (LR)		54	54
Independent work (total)		51	51
Control (exam)		3	3
Total labor intensity	hours	108	108
	credits	3	3

# 5. CONTENT OF THE DISCIPLINE

Title of discipline section	Section content (themes)	
Section 1. Methods of examination, diagnosis of patients with complete absence of teeth.	Topic 1.1. Peculiarities of clinical survey of patiens with edentulous jaws. Definition of morphological peculiarities hard and soft tissues of prostetic field, the degree of atrophy of the bone tissue of the alveolar processes and the body of the jaws, compliance of mobility of the mucosa. Stucture and relation of edentulous jaws. Classification of edentulous jaws. Compliance and mobility of the oral cavity mucosa. Classification of mucosa by Supple. Zones by Lund. Buffer zones by Gavrilov.	LR
Section 2. Methods of prosthetic treatment of patiens with edentulous jaws	Topic 2.1. Fixation and stabilization of complete dentures. Biophysical and functional factors laying in the basis of fixation of complete dentures on edentulous jaws. Meanning of flap zone. Anatomical impressions, method of taking impression, materials. Individual trays, characteristics, methods of fabrication and materials that are used. Adjustment of individual trays by Gerbst. Impression materials. Obtaining and assessment of functional impressions. Justification of the choice of impression material for getting functional impressions. The borders of denture's basis with edentulous jaws.	LR

Table 5.1. Content of the discipline sections

	Topic 2.2. Fabrication of wax rims. Determination of centric relation with edentulous jaws. Anatomic – physiological method of recovery of jaws relation of lower part of the face. Rules of occlusion and articulation of teeth. Design of dentition with edentulous jaws in orthognatic bite. Features of setting teeth in orthognatic and progenic relations of alveolar processes. «Spherical» theory of articulation, it's realisation in practical recovery of dentitions with edentulous jaws. Try-in of wax construction of complete dentures. Topic 2.3. Analysis and correction of doctors' and dental technician mistakes in determination of centric relation. Delivery of full dentures. Rules of maintenance and adjustments of full dentures. Patient follow- up. Adaptation to complete dentures	
	Topic 3.1. Compression and injection molding of plastics, computer milling and 3D printing of bases and artificial teeth.	
Section 3. Clinical and laboratory stages of manufacturing	Topic 3.2. Methods of flasking of dentures. Types of resin for denture base. Polymerization mode. The consequences of violating the polymerization mode. Clinical and laboratory stages of manufacturing of complete denture with various base (acrylic, double-layered, replication of palatal rugae).	LR
complete dentures	Topic 3.3. The peculiarities of prosthetic treatment of toothless patients with the decreased vertical dimension of occlusion (VDO), secondary prosthetic treatment, mucosal diseases and gag reflex. Bilayer basis of complete dentures with edentulous jaws. Indications, manufacturing procedure.	

# 6. MATERIALS 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 means of multimedia	

Table 6.1. Material and technical support of the dicipline

Interessary         presentations.         student's double desk -13, teacher's chair -2; LCD panel, personal computer-monoblock, video camera on a tripod, metal cabinet for storing equipment, built-in cabinet for storing equipment, built-in cabinet for attest 200 liters, glass cabinet with visual aids - types of dentures.         Safe metal four-section for storing tips and burs         Specialized         educational/laboratory         equipment and materials.         Photopolymerizer for individual spoons -7.         Dental motors - 14.         Dental electric spatulas - 14 pcs.         viands with types of dentures and tools.         equipmed with a set of specialized furniture and equipment.         Instruments:         Diagnostic models with complete absence of teeth -14 sets each. Samples of complete removable dentures: -14 sets         Base wax -12 sets         Silicone corrective impression mass, 300 g per group Impression trays for edentulous upper and lower jaws, 14 each Light-curing plates for individual spoons, 2 per student         Vaseline oil -14 bottles with brushes         Glass for kneading silicone mass - 14         Plasticine in different colors -7 sets per group Cutters for plasic processing -14	Classroom type	Equipment of the classroom	Specialized educational / laboratory equipment, software and materials for mastering the discipline
Laboratory №1       student's double desk -13, teacher's chair -2; LCD panel, personal computer-monoblock, video camera on a tripod, metal cabinet for storing equipment, built-in cabinet for materials and tools -6 pcs, sink, mobile trash can with a lid for at least 200 liters, glass cabinet with visual aids - types of dentures. Safe metal four-section for storing tips and burs Specialized educational/laboratory equipment and materials:. Photopolymerizer for individual spoons -7. Dental electric spatulas - 14 pcs. Water baths -4 pcs.         Laboratory №1       An auditorium for laboratory work, individual consultations, current control, and intermediate certification, equipped with a set of specialized furniture and equipment.       Naish apparatus - 7         Naparatus Larina -7       Functionograph - 1 per group Instruments: Diagnostic models with complete absence of teeth - 14 sets each. Samples of complete removable dentures: - 24 sets Silicone corrective impression mass, 300 g per group Impression trays for edentulous upper and lower jaws, 14 each Light-curing plates for individual spoons, 2 per student Vaseline oil - 14 bottles with brushes Glass for kneading silicone mass - 14		presentations	(II necessary)
Laboratory No2 An auditorium for laboratory work, 15 sets of specialized furniture -	Laboratory №1	An auditorium for laboratory work, individual consultations, current control, and intermediate certification, equipped with a set of specialized furniture and equipment.	student's double desk -13, teacher's chair -2; LCD panel, personal computer-monoblock, video camera on a tripod, metal cabinet for storing equipment, built-in cabinet for materials and tools -6 pcs, sink, mobile trash can with a lid for at least 200 liters, glass cabinet with visual aids - types of dentures. Safe metal four-section for storing tips and burs <b>Specialized</b> educational/laboratory equipment and materials:. Photopolymerizer for individual spoons -7. Dental motors - 14. Dental electric spatulas - 14 pcs. Water baths -4 pcs. Stands with types of dentures and tools. Naish apparatus - 7 Apparatus Larina -7 Functionograph – 1 per group <i>Instruments:</i> Diagnostic models with complete absence of teeth - 14 sets each. Samples of complete removable dentures: – 14 sets Base wax - 12 sets Silicone corrective impression mass, 300 g per group Impression trays for edentulous upper and lower jaws, 14 each Light-curing plates for individual spoons, 2 per student Vaseline oil - 14 bottles with brushes Glass for kneading silicone mass - 14 Plasticine in different colors - 7 sets per group Cutters for plastic processing -14 15 sets of specialized furniture - tables under

Classroom type	Equipment of the classroom	Specialized educational / laboratory equipment, software and materials for mastering the discipline
		(if necessary)
	control and intermediate certification, equipped with a set of specialized furniture and equipment.	(if necessary) simulators and dental simulators "Saratoga S.p.a" (body made of steel, painted with powder enamel, countertop made of artificial stone, table lamp, Philips monitor, retractable units for the doctor [2 M4 turbine hoses] and assistant [multifunction gun, saliva suction, vacuum cleaner], multifunctional pedal , Venturi aspiration system with a centralized electric pump, FRASACO dental models- phantoms (Germany) on a minitorso with an articulator, FRASACO models of edentulous upper and lower jaws 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 places for vis-a-vis and 2 quadruple modules in the form of "chamomile" Wooden chair with a back on wheels for a dental technician -20 pcs Special sink made of stainless steel with two sinks and a gypsum trap. Gypsum tables for 14 jobs. Mobile trash bin with 250 liter lid. Dental chair with a lamp and a Frasaco phantom chair with an articulator, models of edentulous upper and lower jaws, a face mask and mechanical adjustment of the phantom position along 2 axes. Wall screen and multimedia projector Epson. Dell LCD panel with a diagonal of at least 120cm. <b>Specialized</b> educational/laboratory equipment and materials:
		Trimmer -1     Vacuum plaster mixer - 1

Classroom type	Equipment of the classroom	Specialized educational / laboratory equipment, software and materials for mastering the discipline (if necessary)
		<ul> <li>(if necessary)</li> <li>Scales for gypsum</li> <li>Steam-jet apparatus for cleaning dentures - 1</li> <li><i>Instruments:</i></li> <li>Disposable examination sets 400 sets</li> <li>Tips straight -14</li> <li>Cutters for plastics processing 14</li> <li>Models of edentulous upper and lower jaws - 14 sets</li> <li>Spatulas for kneading gypsum - 14</li> <li>Silicone flasks for mixing gypsum-14,</li> <li>Knife for plaster - 14</li> <li>Dental spatula - 14 pcs.</li> <li>Table lamps on brackets - 14 pieces</li> <li>Toothless impression trays for the upper and lower jaws, metal, perforated, 14 per subgroup</li> </ul>
		<ul> <li>Alginate mass 200 g per student</li> <li>Gypsum 2 class 500 g per student</li> <li>Garniture teeth for setting on the upper and lower jaws 28 pcs - 14 sets per group</li> <li>Articulating paper 100 microns thick - 2 sheets per student</li> </ul>
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 For independent	A computer class for conducting classes, group and individual consultations, current control and intermediate certification, equipped with personal computers (in the amount of 15_pcs.), a board (screen) and technical means of multimedia presentations. An auditorium for independent work of students (can be used for cominant	Software: • Microsoft Office: PowerPoint, Word

Classroom type	Equipment of the classroom	Specialized educational / laboratory equipment, software and materials for mastering the discipline (if necessary)
	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: textbook / S.D. Arutyunov, E.A. Bragin, S.I. Burlutskaya [and others]; edited by E.S. Kalivradjian, I.Yu. Lebedenko, E.A. Bragin, I.P. Ryzhova. - 3rd ed., Rev. and add. - M.: GEOTAR-Media, 2020 .-- 800 p. : ill. - ISBN 978-5-9704-5272-1: 2200.00.

2. A guide to practical exercises in prosthetic dentistry: for students of the 3rd year: Textbook for students, training. by special 060105 (040400) - Dentistry / Ed. I.Yu. Lebedenko.- M .: Practical medicine, 2012.- 368 p .: ill.

#### Additional literature

- 1. Recording and maintaining a medical record in the clinic of orthopedic dentistry: Textbook / Ed. T.I. Ibragimov. M .: GEOTAR Media, 2013. 223 p.
- 2. Orthopedic dentistry: national leadership / ed. I.Yu. Lebedenko, S. D. Arutyunova, A.N. Ryakhovsky. GEOTAR Media, 2016 .-- 824 p.
- 3. Zagorskiy V.A. Prosthetics with complete adentia: a guide for physicians.- M .: Medicine, 2008. 376p.
- Orthopedic treatment of patients with complete absence of teeth: textbook. allowance: [in the specialty 060105 (040400) "Dentistry"] / A. P. Voronov, I. Yu. Lebedenko, I. A. Voronov. 2nd ed., Rev. and add. Moscow: MEDpress-inform, 2009 .-- 343 p. : col. ill., tab. ISBN 5-98322-551-0

# 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 "Prosthodontics of edentulous patient":

- 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 «Prosthodontics of edentulous patient» 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

Head of the Department of prosthetic dentistry, professor

The head of EP HE, Deputy director MI on the specialty "Dentistry" professor Bykova M. V.

Lebedenko I. Yu.

Razumova S. N.

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

	Table № 1.
Assessment tools	Quantity
Control questions	40
Tasks in the test form	95
Case study	21

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 the test form (example)

#### 1. Morphological changes of jaws after complete loss of teeth

- 1) increase in amplitude and changing nature of the movements of a mandible
  - 2) atrophy of the alveolar process of the jaws
  - 3) anterior shift, inclined forward a mandible
  - 4) atrophy of a mandibular branches and body, increasing the angle of a mandible
  - 5) 1 + 2 + 3
  - 6) 2+3
  - 7) 1 + 2 + 3 + 4

# 2. Functional changes of jaws after complete loss of teeth

1) atrophy of the upper jaw, deepening of the canine fossa

- 2) increase in amplitude and changing nature of the movements of a mandible
- 3) atrophy of the alveolar process of the jaws
- 4) anterior shift, inclined forward a mandible
- 5) 1 + 2 + 3 + 4
- 6) 1 + 3
- 7) 2+4

# 3. With complete absence of teeth on the upper jaw, atrophy is more pronounced

- 1) on the vestibular slope of the alveolar process
- 2) on the palatal slope of the alveolar process
- 3) on the lingual surface of the alveolar process
- 4) on the vestibular and palatal slopes of the alveolar process

# 1.1.1. Situational task (example)

#### Task №1. (PC-5, 6, 8, 9)

Patient V., aged 60, went to a clinic with the purpose of prosthetics. There was a violation of chewing, speech, aesthetic deficiency of appearance, the expression of chin and nasolabial folds, complete absence of teeth, progenic ratio of jaws.

1. The reason of the expression of nasolabial and chin folds?

Answer: Decrease the height of the lower third of face

*Task 2.* (PC-5, 6, 8, 9) When examining the oral cavity in the patient D. was noted the presence of mobile strands of the mucous membrane, located longitudinally alveolar ridge and easily displaced with a slight touch. Conduct an assessment of the condition of the mucous membrane of the prosthetic support tissues on the basis of the classification of Supple.

#### Answer: 4 class

#### 1.1.2. Control questions

Assessment of the condition of the mucous membrane of the prosthetic support tissues on the basis of the classification of Supple. (PC-5, 6, 8, 9)

Answer: 4 class

#### 1.2. Procedure, criteria and scale of assessment of intermediate attestation

**Intermediate attestation** of the discipline is carried out in the form of exam. The exam consists of testing and the interview.

The order of carrying out the intermediate certification:

- 1. Testing of students
- 2. Interviewing

The exam is held at the end of 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. 10.

Таблица М	<u>1</u> ₪	0
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Score system of knowledge assessment						
Points of Score –Rating System	Traditional grades in RF	Points to transfer grades	Grades	ECTS grades		
86 - 100	5	95 - 100	5+	А		
		86 - 94	5	В		
69 - 85	4	69 - 85	4	С		
51 - 68	3	61 - 68	3+	D		
		51 - 60	3	Е		
0 50	2	31 - 50	2+	FX		
0 – 30		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.