Ministry of Health of Ukraine
Higher State Educational Institution of Ukraine
"Bukovinian State Medical University"

"APPROVE"
Vice-Rector of scientific and pedagogical work
Associate Professor
Gerush I.V.
"25" 08 2020 p.

STUDENT GUIDE
(SYLLABUS)
to study the discipline
«ORTOPEDIC DENTISTRY»

Knowledge area 22 Health care
(code and name of the knowledge area)

Specialty (direction) 221 Dentistry
(code and name of the specialty)

Educational degree master
(master, bachelor, junior bachelor)

Course III

Form of education full-time
(full-time, correspondence, remote)

Department Orthopedic dentistry
(name of the department)

Approved at the methodical session of the department of orthopedic dentistry
"17" June 2020 (Protocol № 21)

Head of the Department, M.D., professor Belikov O.B.

Approved by the subject methodical commission of disciplines of dental specialization
"24" June 2020 (Protocol № 5)

Head of the subject methodical commission
Kuzniak N.B.

Chernivtsi, 2020

1. GENERAL INFORMATION ABOUT SCIENTIFIC AND PEDAGOGICAL WORKERS WHO TEACH THE SUBJECT

Department	Orthopedic Dentistry
Surname, name of scientific and pedagogical staff, scientific degree, academic status	Belikov Oleksandr - head of the department, professor, doctor of medicine, belikov@bsmu.edu.ua; Belikova Nataliya – assistant of the department, candidate of medical sciences, belikova@bsmu.edu.ua; Alai Yana – assistant of the department, alai_iana@bsmu.edu.ua
Web page of the department on the official website of the university	https://www.bsmu.edu.ua/ortopedichnoyi-stomatologiyi/
Department website	http://ortstom.bsmu.edu.ua/
E-mail	dantist@bsmu.edu.ua
Address	Chernivtsi, Marka Vovchka str., 2
Contact phone	+38 (0372) 52-98-69

2. GENERAL INFORMATION ABOUT THE DISCIPLINE

Status of the discipline	normative
Number of credits	5.5
Total amount of hours	165
Lectures	20
Practical classes	100
Individual work	45
Type of final control	final module control/credit

3. DESCRIPTION OF THE DISCIPLINE (ANNOTATION)

Orthopedic dentistry – it is an academic discipline that allows students to master in the clinic certain dental manipulations used in the treatment of patients with defects of the crown of the tooth, with partial defects of the dentition. Acquired in this way special (professional) competencies students later use in the treatment of dental patients of orthopedic profile. Students get acquainted with the organization and work of clinical offices, documentation.

The subject of study of the discipline " Orthopedic dentistry" it is orthopedic treatment of diseases of the dental apparatus:

- defects of the coronal part of individual teeth
- partial loss of teeth

4. POLICY OF THE SUBJECT

4.1 List of normative documents:

- Regulations on the organization of the educational process (https://www.bsmu.edu.ua/wp-content/uploads/2020/03/polozhennya-pro-

organizacziyu-osvitnogo-proczesu-u-vdnzu-bukovinskij-derzhavnij-medichnij-universitet.pdf);

- Instructions for assessing the educational activities of BSMU students in the implementation of the European credit transfer system of the educational process (https://www.bsmu.edu.ua/wp-content/uploads/2020/03/bdmu-instrukcziya-shhodo-oczinyuvannya-%D1%94kts-2014-3.pdf);
- Regulations on the procedure for reworking missed and uncredited classes (https://www.bsmu.edu.ua/wp-content/uploads/2019/12/reworks.pdf);
- Regulations on the appeal of the results of the final control of knowledge of higher education (https://www.bsmu.edu.ua/wp-content/uploads/2020/07/polozhennya-pro-apelyacziyu-rezultativ-pidsumkovogo-kontrolyu-znan.pdf);
- Codex of Academic Integrity (https://www.bsmu.edu.ua/wp-content/uploads/2019/12/kodeks_academic_faith.pdf);
- Moral and ethical codex of students (https://www.bsmu.edu.ua/wp-content/uploads/2019/12/ethics_code.docx);
- Regulations on the prevention and detection of academic plagiarism (https://www.bsmu.edu.ua/wp-content/uploads/2019/12/antiplagiat-1.pdf);
- Regulations on the procedure and conditions for students to choose elective courses (https://www.bsmu.edu.ua/wp-content/uploads/2020/04/nakaz_polozhennyz_vybirkovi_dyscypliny_2020.pdf);
- Rules of internal labor regulations of the Higher State Educational Institution of Ukraine "Bucovynian State Medical University" (https://www.bsmu.edu.ua/wp-content/uploads/2020/03/17.1-bdmu-kolektivnij-dogovir-dodatok.doc).

4.2 Policy on adherence to the principles of academic integrity of higher education students:

-independent performance of educational tasks of current and final controls without the use of external sources of information;
- cheating during control of knowledge is prohibited;
- independent performance of individual tasks and correct registration of references to sources of information in case of borrowing of ideas, statements, information.

4.3 Policy on adherence to the principles and norms of ethics and deontology by higher education students:

- actions in professional and educational situations from the standpoint of academic integrity and professional ethics and deontology;
- compliance with the rules of internal regulations of the university, to be tolerant, friendly and balanced in communication with students and teachers, medical staff of health care institutions;
- awareness of the importance of examples of human behavior in accordance with the norms of academic integrity and medical ethics.

4.4 Attendance policy for higher education students:

- attendance at all training sessions (lectures, practical (seminar) classes, final modular control) is mandatory for the purpose of current and final assessment of knowledge (except for respectable reasons).

4.5. Deadline policy and completion of missed or uncredited classes by higher education students:

- reworks of missed classes are held according to the schedule of missed or uncredited classes and consultations.

5. PRECISIONS AND POST-REQUIREMENTS OF THE EDUCATIONAL DISCIPLINE (INTERDISCIPLINARY RELATIONS)

List of disciplines, on which the study is based academic discipline	List of disciplines, for which the basis is laid as a result of studying the discipline
human anatomy and physiology	prevention of dental diseases
histology, embryology and cytology	pediatric therapeutic dentistry
medical biology	therapeutic dentistry
medical chemistry, biological and bioorganic chemistry	surgical dentistry
microbiology, virology and immunology	orthodontics
Propaedeutics of orthopedic dentistry	management and marketing in dentistry
Propaedeutics of therapeutic dentistry	
materials science in dentistry	

6. PURPOSE AND TASKS OF THE EDDUCATIONAL DISCIPLINE:

6.1 The purpose of studying the discipline "Orthopedic dentistry" is the mastering patients' methods of performing certain dental manipulations used in the treatment of patients with defects of the crown of the tooth, with partial adentia, for the possibility of their further use in the treatment of patients and the formation of special (professional) competencies in orthopedic dentistry**.**

6.2 The main tasks of studying the discipline are:

- Examination of patients in the clinic of orthopedic dentistry
- Functional anatomy and clinical biomechanics of the dental apparatus
- Anesthesia in the clinic of orthopedic dentistry. Emergencies
- Clinical and laboratory stages of making artificial crowns
- Clinical and laboratory stages of manufacturing bridge-like prostheses

- Examination of patients with partial tooth loss. General characteristics and design planning of partial removable dentures
- Clinical and laboratory stages of manufacturing partial removable plate prostheses
- Clinical and laboratory stages of manufacturing clasp prostheses and prostheses with cast metal base
- Adaptation to removable dentures and the impact of dentures on oral tissues

7. COMPETENCIES, THE FORMATION OF WHICH IS CONTRIBUTED BY THE DISCIPLINE:

In accordance with the requirements of the standard, the discipline provides students with the acquisition of competencies:

7.1 Integral competence:

Ability to solve complex problems and problems in the field of health care in the specialty "Dentistry" in a professional activity or in the studying process, which involves research and / or innovation and is characterized by uncertainty of conditions and requirements.

7.2 General competencies:

GK1. Ability to abstract thinking, analysis and synthesis.

GK2. Knowledge and understanding of the subject area and understanding of professional activity.

GK3. Ability to apply knowledge in practice.

GK4. Ability to communicate in English both orally and in writing.

GK5. Skills in the use of information and communication technologies.

GK6. Ability to search, process and analyze information from various sources.

GK7. Ability to adapt and act in a new situation.

GK8. Ability to identify, make and solve problems.

GK9. Ability to be critical and self-critical.

GK10. Ability to work in a team.

GK11. The desire to preserve the environment.

7.3 Professional (special) competencies:

PC1. Recognize the moral, ethical and professional rules of the dentist.

PC2. Understand the moral and deontological principles of a medical specialist and the rules of professional subordination in the clinic of orthopedic dentistry.

PC3. Learn to promote a healthy psychological microclimate in the team; to master the legal norms of the dentist-patient relationship.

8. RESULTS OF STUDYING

As a result of studying the discipline student must**:**

8.1 To know:anatomical and physiological features of the dental apparatus after partial loss of teeth; biomechanics of bridges; the method of obtaining impressions for the manufacture of stamped and stamped-soldered prostheses; the sequence of application of the facial arch; methods of anesthesia during tooth preparation; types of gum retraction; the sequence of preparation of teeth under the stamped metal crown; under a solid metal and combined crown; sequence of checking the design of artificial crowns; the sequence of checking the design of the bridge; methods of removing crowns.

8.2 Be able to:

Establish a preliminary and final diagnosis based on survey data (clinical and laboratory).
Suggest a plan for orthopedic treatment.
Choose a plan to prepare the patient's mouth for prosthetics.
Perform the method of obtaining an imprint for the manufacture of solid non-removable structures.
Carry out the sequence of fixation of the central occlusion in 1 group of defects using occlusal blocks.
Determine the position of the upper jaw with a facial arch.
Plan the design of the bridge.
Plan the construction of clasp prostheses.

8.3 To demonstrate:

-Identify the subject and tasks in case of partial loss of teeth;
- Establish a preliminary and final diagnosis based on survey data (clinical and laboratory).
- Propose a plan for orthopedic treatment.
- Choose a plan to prepare the patient's mouth for prosthetics.
- Method of fixing crowns and bridges
- The sequence of obtaining an anatomical impression of the lower and upper jaws for the manufacture of partial removable dentures
- Methods for determining and fixing the Central ratio of the jaws in 2.3 groups of defects using occlusal rollers
- The sequence of plastering models in the articulator with a facial arc.
- Planning the design of a partial removable prosthesis.
- Stages of parallelometry of the diagnostic model and to plan the clamp fixation of the clasp prosthesis
- The sequence of checking the design of a partial removable prosthesis
- Correction of a partial removable prosthesis
- The sequence of relocation of a partial removable prosthesis.
-Distinguish the features of the application of the principles of asepsis and antiseptics in the clinic of orthopedic dentistry.
-to study modern requirements for sterilization of instruments in the clinic of orthopedic dentistry;
-realize the importance of following the rules of asepsis and antiseptics at the dentist;
-master the rules of control over the effectiveness of sterilization;
-identify methods to prevent conditions for the spread of infection in medical institutions.

9. INFORMATIONAL SCOPE OF THE DISCIPLINE

The study of the discipline is allocated165 academic hours, or 5.5 ECTS credits.
The curriculum is structured in a module:

Module 1 "Fixed prosthetics"

Content modules:

1. Examination of patients in the clinic of orthopedic dentistry
2. Functional anatomy and clinical biomechanics of the dental apparatus
3. Anesthesia in the clinic of orthopedic dentistry. Emergencies
4. Clinical and laboratory stages of making artificial crowns
5. Clinical and laboratory stages of manufacturing dental bridges

Module 2 "Partial removable prosthetics"

Content modules:

1. Examination of patients with partial tooth loss. General characteristics and design planning of partial removable dentures
2. Clinical and laboratory stages of manufacturing partial removable plate prostheses
3. Clinical and laboratory stages of manufacturing clasp prostheses and prostheses with cast metal base
4. Adaptation to removable prostheses and the effect of prostheses on oral tissues

Module 1 "Fixed prosthetics"

Content module 1. Examination of patients in the clinic of orthopedic dentistry.

Topic 1: Control of the initial level of knowledge. Examination of patients in the clinic of orthopedic dentistry. Basic clinical methods of examination. Examination of patients in the clinic of orthopedic dentistry – stages, basic and additional methods of diagnostics, medical documents. Subjective examination stage. Pathological conditions and somatic diseases that are risk factors at the dental office. Examination of the temporomandibular joint. Chewing muscle examination. Examination of the oral mucosa. Mobility and pliability of the mucous membrane, classification according to Suple. Examination of teeth and dentitions. Classifications of dentition defects according to Kennedy and Bethelman. Examination of periodontal tissues.

Topic 2: Additional (special) examination methods. Preliminary and final diagnosis. X-ray examination methods in orthopedic dentistry. Methods of recording movements of the lower jaw. Electromyography. Evaluation of occlusal ratios of dentitions. Occlusiography. Electronic analysis of T-Scan occlusion. Static and dynamic methods of chewing efficiency assessment. Preliminary and final diagnosis. Features of diagnosis in the clinic of orthopedic dentistry. Orthopedic treatment planning and pre-prosthetic preparation.

Content module 2. Functional anatomy of the dental apparatus.

Topic 3: Functional anatomy of the dental apparatus. Functional anatomy of the masticatory muscles. Synergism and coordinated antagonism, the state of relative physiological rest of the masticatory muscles. Innervation and reflex regulation of the dental apparatus. Functional anatomy of the temporomandibular joint. Periodontal tissue anatomy, structure of gingival junction. Reserve and residual endurance of periodontal tissues. Physiological and pathological mobility of teeth. Anatomy of dentitions, physiological and pathological occlusions. Factors that ensure the stability of the position of the teeth. Ways and mechanisms of redistribution of masticatory pressure, buttresses of the skull.

Topic 4: Biomechanics of the dental apparatus. Functional occlusion. Anatomy of the occlusal surface of dentitions and individual teeth, sagittal and transverse occlusal curves. Anatomical and functional occlusal surface, occlusal compass. Biomechanics of mandibular movements. Phases of masticatory movements according to Giza. Occlusion and articulation, types of occlusion, occlusion factors. The movement of the lower jaw in the vertical direction. Terminal hinge axis, Posset diagram. Parameters characterizing the movement of the mandible in the sagittal direction. Sagittal articular and incisal pathways, sagittal articular and incisal angles. Parameters characterizing the movement of the mandible in the transverse direction. Transverse articular and incisal pathways, Bennett's angle and movement, Gothic angle. Central occlusion, occlusal contacts are normal. Classification of antagonistic surfaces by Jenkelson, the concept of stable and unstable occlusal contacts. Anterior occlusion, normal contacts. Frontal guidance.

Bonville's three-point contact. Lateral occlusion, contact options (occlusal concepts). Supracontacts - etiology, classification.

Topic № 5:Apparatus that reproduce the movements of the lower jaw. Articulators - general characteristics and basics of work. Clinical analysis of occlusion. Apparatus that reproduce the movements of the lower jaw - classification, scope. The structure of articulators. Medium anatomical articulators - design features, indications for use. Adjustable articulators - design features, indications for use, methods of individual adjustment. Ways to transfer models to the articulator. Method of registration of the position of the upper jaw and transfer of models to the articulator using the facial arch. Anatomy of the occlusal surface of dentitions and individual teeth, sagittal and transverse occlusal curves. Anatomical and functional occlusal surface, occlusal compass.

Content module 3. Anesthesia in the clinic of orthopedic dentistry. Emergencies.

Topic № 6: Anesthesia in the clinic of orthopedic dentistry. Pain, mechanism of occurrence, ways of carrying out. Theories of toothache. Innervation of the maxillofacial area. Types of anesthesia in outpatient dental practice. Indications for local anesthesia in orthopedic dentistry. Conductive anesthesia on the upper jaw, methods. Conductive anesthesia on the lower jaw, methods. Methods of infiltration anesthesia in the oral cavity, indications. Anesthesia during the preparation of the front teeth of the upper jaw. Anesthesia during the preparation of the premolars of the upper jaw. Anesthesia during the preparation of the molars of the upper jaw. Anesthesia during the preparation of the front teeth of the mandible. Anesthesia during dissection of mandibular premolars. Anesthesia during dissection of mandibular molars. Modern local anesthetics - mechanism of action, classification, indications for use.

Topic № 7: Local and general complications of injectable anesthesia. Emergencies at the dental office. Common complications of injectable anesthesia - causes, ways to prevent. Local complications of injectable anesthesia - causes, ways to prevent. Urgent conditions at the dental office - allergic reactions of the immediate type. Clinical picture, first aid. Urgent conditions at the dental office - hypertensive crisis, angina pectoris, myocardial infarction. Clinical picture, first aid. Emergencies at the dental office - dizziness, collapse. Clinical picture, first aid. Emergencies at the dental office - an attack of bronchial asthma. Clinical picture, first aid.

Content module 4: Clinical and laboratory stages of making artificial crowns.

Topic № 8: Methods of replacement of defects of hard tissues of teeth, orthopedic constructions. Artificial crowns - types, indications for prosthetics. Etiology of defects of the crown of the teeth. Classifications of defects, Milikevich index. Types of orthopedic structures to replace defects of the coronal part of the teeth, indications. Artificial crowns - indications, classifications, comparative characteristics. Materials and technologies for making artificial crowns. Preparation of the oral cavity for prosthetics. Requirements for teeth that are used as a support for fixed orthopedic structures. Indications for depulping of abutment teeth. Indications for reinforcement of abutment teeth with pin structures.

Topic № 9: Preparation of teeth for artificial crowns - rules, techniques, tools, possible complications. Protection of vital teeth during and after preparation. Tools for tooth preparation for fixed orthopedic structures. Rules of tooth preparation for fixed orthopedic structures, safety measures, methods of controlling the depth of hard tissue preparation. Protection of vital teeth during and after preparation. Provisional structures, dentin sealants. Complications during and after tooth preparation - causes, consequences, ways to prevent. Methods of preparation of teeth for artificial crowns. Marginal adaptation of artificial crowns, options for friendly preparation, types of ledges. Gum retraction, types, methods, indications.

Topic № 10: Clinical stages of manufacturing stamped metal crowns. Stamped metal crowns - indications and contraindications, clinical stages of manufacture.

Topic № 11: Laboratory stages of manufacturing stamped metal crowns. Stamped metal crowns - indications and contraindications, clinical stages of manufacture.

Topic № 12: Provisional crowns - indications, manufacturing methods, materials. Direct method and laboratory methods of making temporary crowns. Provisional crowns - indications, purpose, types. Materials for the manufacture of temporary crowns. Methods of direct manufacture of temporary

structures. Laboratory method of making makeshift crowns. Acrylic plastics - composition, properties, phases and modes of polymerization of plastics.

Topic № 13: Clinical stages of manufacturing solid metal and combined crowns. Solid metal crowns - indications and contraindications, clinical stages of manufacture. Solid combined crowns - indications and contraindications, clinical stages of manufacture.

Topic № 14: Laboratory stages of manufacturing solid metal and combined crowns. Solid metal crowns are laboratory stages of production. Solid combined crowns - laboratory stages of manufacture. Metal alloys for the manufacture of fixed orthopedic structures - classifications, properties, application technologies.

Content module 5: Clinical and laboratory stages of manufacturing bridge-like prostheses.

Topic № 15: Bridge prostheses - indications for prosthetics. Design features and biomechanics of dental bridges. Bridge prostheses - indications, classifications, materials and methods of manufacture. Features of preparation of abutment teeth. Comparative characteristics of solid and stamped-brazed structures. Biomechanics of bridge prostheses, design features, types of support elements. The relationship of the intermediate part to the alveolar process.

Topic № 16: Clinical and laboratory stages of manufacturing stamped-soldered dental bridges. Indications, clinical stages of prosthetics stamped-soldered bridges. Laboratory stages of prosthetics stamped-soldered bridges. Technology of soldering of parts of stamped and soldered structures. Solders - types, composition, properties, requirements. Fluxes. Solderless connection of parts of bridges. Gypsum - types, composition, properties.

Topic № 17: Clinical and laboratory stages of manufacturing solid metal and combined dental bridges. Indications, clinical stages of prosthetics with cast bridges. Laboratory stages of prosthetics with solid bridge prostheses. Technology of casting frames of fixed orthopedic structures. Shrinkage of alloys and methods of its compensation. Foundry systems - types, rules of construction. Methods of melting and casting of metal alloys. Refractory masses - types, composition, properties.

Topic № 18: Factors that ensure the fixation of fixed prostheses. Materials for temporary and permanent fixation of orthopedic structures. Factors that ensure the fixation of fixed prostheses. Indications for temporary fixation of fixed structures. Materials for temporary fixation of orthopedic structures. Provisional cements. Zinc - phosphate cements - composition, physicochemical properties, indications and methods of application. Glass ionomer cements - composition, physicochemical properties, indications and methods of application. Composite cements - composition, physicochemical properties, indications and methods of application.

Topic № 19: Errors and complications in prosthetics with artificial crowns and dental bridges. Errors in examining patients and planning orthopedic treatment. Errors and complications in obtaining prints. Causes, consequences, ways of prevention. Errors and complications in tooth preparation. Causes, consequences, ways of prevention. Errors in the laboratory stages of manufacturing stamped crowns. Errors in the laboratory stages of manufacturing stamped and soldered bridges. Errors in the laboratory stages of making solid crowns. Errors in the laboratory stages of manufacturing solid bridges. Errors in the laboratory stage of making plastic crowns. Errors during the inspection of the structure and fixation of fixed orthopedic structures.

Module 2 "Partial removable prosthetics"

Content module 1. Examination of patients with partial tooth loss. Design planning of partial removable dentures.

Topic № 1: Examination of patients with partial tooth loss. Changes in the dental apparatus with partial loss of teeth. Basic and additional methods of examination of patients with partial tooth loss. Structural and functional changes of the dental apparatus with partial tooth loss. Anatomical formations of the oral cavity, which are important in removable prosthetics. Flexibility and mobility of the mucous membrane, their consideration in removable prosthetics. Assessment of the condition of alveolar processes in edentulous areas, Elbrecht classification. Preparation of the oral cavity for prosthetics with partial removable prostheses. Requirements for abutment teeth.

Topic № 2: Designs of partial removable prostheses - indications for prosthetics. Planning the fixation of partial removable dentures. Support teeth, clasp lines. Constructions of PRP, their components. Features of masticatory pressure transformation by different types of CNC. Partial removable plate prostheses - indications, clinical stages of manufacture. Partial removable plate prostheses with a metal base - indications, clinical stages of manufacture. Planning the design of dentures while maintaining single teeth on the jaws. ChZP fixation planning. Clasp lines. Factors influencing the choice of fixing elements in removable dentures.

Topic № 3: Methods of fixation of partial removable dentures. The concept of fixation, stabilization, balance of removable prostheses and the factors that provide them. Clamps - classifications, designs, manufacturing methods. Factors determining the choice of staple type. Lock fastenings (attachments) - classifications, constructions, indications.
Beam fastenings - types, designs, indications. Telescopic fastenings - types, constructions, indications.
Content module 2: Clinical and laboratory stages of manufacturing partial removable plate prostheses.
Topic № 4: Substantiation of construction of boundaries of bases of partial removable prostheses. Borders of the bases of partial removable plate prostheses on the upper and lower jaws.
Topic № 5: Determination and fixation of the ratio of the jaws in I, II, III groups of dentition defects. Groups of dentition defects according to Betelman, clinical characteristics.
Methods for determining and fixing the central ratio of the jaws in the second group of Betelman defects. Methods for determining and fixing the central ratio of the jaws in the third group of Betelman defects. Methods for determining the occlusal height. Methods for determining the central ratio of the jaws. Method of fixing the central occlusion with occlusal blocks and gypsum blocks. Technology of production of occlusal rollers, requirements to rollers. Methods of hot and cold methods of fixing the central ratio using occlusal rollers. Errors in determining and fixing the ratio of the jaws.
Topic № 6: Placement of teeth in partial removable dentures. Artificial teeth for removable dentures - materials, types. Comparative characteristics of porcelain, composite, acrylic teeth. Rules of selection of artificial teeth. Methods of placing artificial teeth in the PRP; options for placing teeth in the frontal area. Anatomical landmarks for teeth placement. Occlusal concepts in partial removable prosthetics.
Topic № 7: Checking the design of partial removable dentures. Checking the design of partial removable dentures. Sequence of actions. Errors, ways to eliminate them.
Topic № 8: Imposition and correction of partial removable dentures. Methods of imposition and correction of PRP, recommendations to the patient on prosthesis care. Phases of adaptation to removable prostheses according to Courland.
Topic № 9: Technology of making partial removable prostheses with plastic base. Compression and casting of plastics. Technology of compression pressing of plastics. Methods of plastering reproductions of prostheses in the cuvette. Technology of foundry pressing of plastics. Equipment, materials. Directed polymerization mode. Plastics for the manufacture of denture bases. Classifications, composition, properties. Types and modes of polymerization. Errors when working with plastic, types of porosity.
Content module 3: Clinical and laboratory stages of manufacturing clasp prostheses and prostheses with cast metal base.
Topic № 10: Clasp prostheses - design planning depending on clinical conditions. Types of fixing elements. Clasp prostheses - indications, design planning depending on clinical conditions. Selection of abutment teeth, requirements, training. Planning of fixing elements in clasp prostheses depending on clinical conditions. Calibration of models. Options for the location of the arches of clasp prostheses on the upper and lower jaws. Arc parameters.
Topic № 11: Parallelometry of diagnostic models. Parallelometry - purpose, tasks, methods.
Topic № 12: Fixation of clasp prostheses. Indications for the use of different types of mechanical fasteners. Support and holding brackets. Ney staple system, indications for use. Factors determining the choice of staple type. Lock fastenings (attachments) - classifications, constructions, indications. Beam fastenings - types, designs, indications. Telescopic fastenings - types, constructions, indications.
Topic № 13: Technological stages of manufacturing removable prostheses with solid metal frame. Duplication of working models. Preparation of models for duplication. Duplicate masses - types, composition, application technology. Production of refractory models.
Topic № 14: Compensation of shrinkage of alloys during casting. Molding masses. Modeling of wax reproductions of clasp prostheses and prostheses with metal base. Modeling of wax reproduction of the clasp prosthesis frame. Types of gutter system, construction rules. Classification of molding compounds, composition, properties, indications for use. Metal alloys for the manufacture of clasp prostheses and prostheses with a metal base. Cobalt-chromium alloy - composition, technological and physicochemical properties, temperature regime. Shrinkage of alloy during casting, types. Methods of compensation of alloy shrinkage during casting of frames of removable and non-removable structures.
Topic № 15: Technology of casting frames of clasp prostheses and prostheses with a metal base. Casting technology in dentistry. Methods of melting and casting of metals. Foundry systems - types, rules of construction.
Topic № 16: Checking the design of the clasp prosthesis. Imposition of a clasp prosthesis. Imposition of a clasp prosthesis. Checking the frames of arched prostheses. Sequence of actions. Errors, ways to eliminate.

Content module 4: Adaptation to removable dentures and the impact of dentures on oral tissues.

Topic № 17: Adaptation to removable prostheses, terms of use. Repair and relocation of prostheses. Phases of adaptation to removable prostheses according to Courland. Recommended terms of use of different types of FAQ. Indications for prosthesis replacement. Repair and relocation of prostheses. Relocation of removable dentures - indications, methods, materials. Denture repair (bracket replacement, tooth addition, base repair) - technology. Causes of fracture of bases.

Topic № 18: Errors and complications in prosthetics with partial removable prostheses. Errors at the stage of examination of patients and planning the design of the PRP. Errors in obtaining prints. Errors at the stage of fixing the ratio of the jaws and determining the occlusal height. Errors at the stage of manufacturing a plastic base. Errors at the stage of casting prosthesis frames. Errors in the imposition and correction of prostheses.

Topic № 19: Impact of bases of removable prostheses on the mucous membrane of the oral cavity. Prosthetic stomatitis. Factors of influence of prosthesis bases and prosthetic materials on prosthetic area tissues. Classifications of prosthetic stomatitis. Traumatic prosthetic stomatitis. Etiology, clinical manifestations, differential diagnosis and treatment. Toxic prosthetic stomatitis. Etiology, clinical manifestations, differential diagnosis and treatment. Allergic prosthetic stomatitis. Etiology, clinical manifestations, differential diagnosis and treatment. Additional laboratory methods of examination of patients with prosthetic stomatitis.

10. STRUCTURE OF EDUCATIONAL DISCIPLINE

Structure of educational discipline	**Quantity of hours**				**Course**	**Type of control**
	Total	**Classroom**		**Individual task**		
		Lectures	**Practical classes**			
Hours/credits ECTS	165 hours / 5.5 credits ECTS	20	100	45	3	
Module 1:	81 hours / 2,7 credits ECTS	10	50	21	3	Module control
Module 2:	84 hours / 2,8 credits ECTS	10	50	24	3	Module control

Назви змістових модулів і тем	*Quantity of hours*					
	Усього	*including*				
		Аудиторні		*Individual work*		*Individual task*
		Lec.	*Pract.*	*Lab. class*		
1	*2*	*3*	*4*	*5*	*6*	*7*
Module 1. "Fixed prosthetics"						
Content module 1. Examination of patients in the clinic of orthopedic dentistry.						
Topic № 1: Control of the initial level of knowledge. Examination of patients in the clinic of orthopedic dentistry. Basic clinical methods of examination		*1*	*2*		*0,5*	
Topic № 2: Additional (special) examination methods. Preliminary and final diagnosis		*1*	*2*		*0,5*	

Total on the content module №1		***2***	***4***		***1***	
Content module 2. Functional anatomy of the dental apparatus.						
Topic № 3: Functional anatomy of the dental apparatus			*2*		*0,5*	
Topic № 4: Biomechanics of the dental apparatus. Functional occlusion			*2*		*0,5*	
Topic № 5: Apparatus that reproduce the movements of the lower jaw. Articulators - general characteristics and basics of work. Clinical analysis of occlusion.			*4*		*4*	
Total on the content module №2			***8***		***5***	
Content module 3. Anesthesia in the clinic of orthopedic dentistry. Emergencies.						
Topic № 6: Anesthesia in the clinic of orthopedic dentistry		*1*	*2*		*1*	
Topic № 7: Local and general complications of injectable anesthesia. Emergencies at the dental office.		*1*	*2*		*1*	
Total on the content module №3		***2***	***4***		***2***	
Content module 4: Clinical and laboratory stages of making artificial crowns.						
Topic № 8: Methods of replacement of defects of hard tissues of teeth, orthopedic constructions. Artificial crowns - types, indications for prosthetics		*1*	*2*		*1*	
Topic № 9: Preparation of teeth for artificial crowns - rules, techniques, tools, possible complications. Protection of vital teeth during and after preparation.		*1*	*2*		*1*	
Topic № 10: Clinical stages of manufacturing stamped metal crowns			*2*		*1*	
Topic № 11: Laboratory stages of manufacturing stamped metal crowns			*2*		*1*	
Topic № 12: Provisional crowns - indications, manufacturing methods, materials. Direct method and laboratory methods of making temporary crowns.			*4*		*1*	
Topic № 13:			*2*		*0,5*	

Clinical stages of manufacturing solid metal and combined crowns						
Topic № 14: Laboratory stages of manufacturing solid metal and combined crowns			*2*		*0,5*	
Total on the content module №4		***2***	***16***		***6***	
Content module 5: Clinical and laboratory stages of manufacturing bridge prostheses.						
Topic № 15: Bridge prostheses - indications for prosthetics. Design features and biomechanics of dental bridges		*1*	*4*		*2*	
Topic № 16: Clinical and laboratory stages of manufacturing stamped-soldered dental bridges			*4*		*1*	
Topic № 17: Clinical and laboratory stages of manufacturing solid metal and combined dental bridges			*4*		*1*	
Topic № 18: Factors that ensure the fixation of fixed prostheses. Materials for temporary and permanent fixation of orthopedic structures		*1*	*4*		*1*	
Topic № 19: Errors and complications in prosthetics with artificial crowns and dental bridges		*2*	*2*		*2*	
Total on the content module №5		***4***	***18***		***7***	
Total for module 1	***81***	***10***	***50***		***21***	
FMC 1 . "Fixed prosthetics" ECTS – 2,7 **Max. numb. of points 19*6=114, Min. numb. of points 19*3,5= 66,5** **ISW = 6 points «5»- 6; «4» - 4,5; «3» - 3,5; «2» - 0**						
Module 2 "Partial removable prosthetics"						
Content module 1. Examination of patients with partial tooth loss. Design planning of partial removable dentures.						
Topic № 1: Examination of patients with partial tooth loss. Changes in the dental apparatus with partial loss of teeth.		*0,5*	*2*		*0,5*	
Topic № 2: Designs of partial removable prostheses - indications for prosthetics. Planning the fixation of partial removable dentures. Support teeth, clasp lines.		*0,5*	*2*		*0,5*	
Topic № 3: Methods of fixation of partial removable		*1*	*2*		*1*	

dentures.						
Total for module №1		***2***	***6***		***2***	
Content module 2: Clinical and laboratory stages of manufacturing partial removable plate prostheses.						
Topic № 4: Substantiation of construction of boundaries of bases of partial removable prostheses			*2*		*0,5*	
Topic № 5: Determination and fixation of the ratio of the jaws in I, II, III groups of dentition defects.		*1*	*2*		*0,5*	
Topic № 6: Placement of teeth in partial removable dentures .		*1*	*2*		*2*	
Topic № 7: Checking the design of partial removable dentures.		*1*	*2*		*1*	
Topic № 8: Imposition and correction of partial removable dentures.		*1*	*2*		*2*	
Topic № 9: Technology of making partial removable prostheses with plastic base. Compression and casting of plastics.			*4*		*2*	
Total for module №2		***4***	***14***		***6***	
Content module 3: Clinical and laboratory stages of manufacturing clasp prostheses and prostheses with cast metal base.						
Topic № 10: Clasp prostheses - design planning depending on clinical conditions. Types of fixing elements.		*0,5*	*4*		*2*	
Topic № 11: Parallelometry of diagnostic models .		*0,5*	*2*		*2*	
Topic № 12: Fixation of clasp prostheses. Indications for the use of different types of mechanical fasteners. Support and holding brackets.		*0,5*	*2*		*1*	
Topic № 13: Technological stages of manufacturing removable prostheses with solid metal frame. Duplication of working models.		*0,5*	*4*		*1*	
Topic № 14: Compensation of shrinkage of alloys during casting. Molding masses. Modeling of wax reproductions of clasp prostheses and prostheses with metal base.		*0,5*	*4*		*1*	
Topic № 15: Technology of casting frames of clasp prostheses and prostheses with a metal base.			*4*		*1*	
Topic № 16: Checking the design of the clasp prosthesis. Imposition of a clasp		*0,5*	*2*		*1*	

prosthesis.						
Total for module №3		***3***	***22***		***10***	
Content module 4: Adaptation to removable dentures and the impact of dentures on oral tissues.						
Topic № 17: Adaptation to removable prostheses, terms of use. Repair and relocation of prostheses.		*0,5*	*2*		*2*	
Topic № 18: Errors and complications in prosthetics with partial removable prostheses.		*0,5*	*4*		*2*	
Topic № 19: Impact of bases of removable prostheses on the mucous membrane of the oral cavity. Prosthetic stomatitis .		*1,0*	*2*		*2*	
Total for module №4		***2***	***8***		***6***	
Total for module 2	***84***	***10***	***50***		***24***	
FMC 2 "Partial removable prosthetics"ECTS – 2,8 **Max. numb. of points 19*6=114, Min. numb. of points 19*3,5= 66,5** **ISW = 6 points «5»- 6; «4» - 4,5; «4» - 3,5; «2» - 0**						
Total for 3 course	***165***	***20***	***100***		***45***	

11. THEMATIC PLAN OF LECTURES

№	Name of topic	Number of hours
Module 1. "Fixed prosthetics"		
Content module 1. Examination of patients in the clinic of orthopedic dentistry.		
1	Diagnosis in the clinic of orthopedic dentistry. Examination. Indications and contraindications to prosthetics and different types of dentures. Preparation of the oral cavity for rational prosthetics	2
Content module 3. Anesthesia in the clinic of orthopedic dentistry. Emergencies.		
2	Anesthesia in the clinic of orthopedic dentistry. Indications for the use of various types of analgesia. Technique. Characteristics of anesthetic groups. Mistakes and complications of local anesthesia.	2
Content module 4: Clinical and laboratory stages of making artificial crowns.		
3	Artificial crowns: classification, indications and contraindications for use. Features of clinical and laboratory stages of production.	2
Content module 5: Clinical and laboratory stages of manufacturing bridge prostheses.		
4	Bridge prostheses: classification. Features of clinical and laboratory stages of manufacturing of various designs.	2
	Total	**8**

№	Name of topic	Number of hours
Module 2 "Partial removable prosthetics"		
Content module 1. Examination of patients with partial tooth loss. Design planning of partial removable dentures.		
1	Replacement of partial defects of dentitions with removable plate dentures. Indications and contraindications to manufacture. Examination of patients with	2

	partial defects of the dentition.	
Content module 2: Clinical and laboratory stages of manufacturing partial removable plate prostheses.		
2	Clinical and laboratory stages of manufacturing partial removable plate prostheses. Features of determination of the central occlusion at various groups of defects according to Bethelman. Selection and placement of teeth in a partial removable denture.	2
3	Fixation and stabilization of partial removable plate prostheses. Clamps are their classification. Adaptation to removable dentures when replacing partial defects of the dentition.	2
Content module 3: Clinical and laboratory stages of manufacturing clasp prostheses and prostheses with cast metal base.		
4	Indications and contraindications to the manufacture of arched prostheses. Stapler system Her. Requirements for the clasp prosthesis arch. The choice of design depending on the defect of the dentition. Features of making an arch prosthesis on the upper and lower jaws.	2
5	Clinical and technological stages of arc prosthesis manufacturing. Duplicate model. Refractory masses. Methods of compensation of metal shrinkage.	2
Content module 4: Adaptation to removable dentures and the impact of dentures on oral tissues.		
6	Complications in the manufacture and use of fixed and removable dentures: clinic, diagnosis, prevention and treatment.	2
	Total	**12**

12. THEMATIC PLAN OF PRACTICAL (SEMINAR) CLASSES

№	Name of topic	Number of hours
Module 1. "Fixed prosthetics"		
Content module 1. Examination of patients in the clinic of orthopedic dentistry.		
1	Control of the initial level of knowledge. Examination of patients in the clinic of orthopedic dentistry. Basic clinical methods of examination	2
2	Additional (special) examination methods. Preliminary and final diagnosis	2
Content module 2. Functional anatomy of the dental apparatus.		
3	Functional anatomy of the dentition apparatus	2
4	Biomechanics of the dentition apparatus. Functional occlusion.	2
5	Devices that reproduce the movements of the mandible. Articulators - a general description and the basics of work. Clinical analysis of occlusion.	4
Content module 3. Anesthesia in the clinic of orthopedic dentistry. Emergencies.		
6	Anesthesia in clinic of orthopedic dentistry.	2
7	Local and general complications of injection pain relief. Emergency conditions at the dental appointment.	2
Content module 4: Clinical and laboratory stages of making artificial crowns.		
8	Methods of replacing defects in hard tissues of teeth, orthopedic designs. Artificial crowns – types, indications for prosthetics.	2
9	Preparation of teeth for artificial crowns - rules, techniques, tools, possible complications. Protection of vital teeth during and after preparation	2

10	Clinical stages of manufacturing stamped metal crowns	2
11	Laboratory stages of manufacturing stamped metal crowns	2
12	Temporary crowns - indications, manufacturing methods, materials. Direct method and laboratory methods of making temporary crowns	4
13	Clinical stages of production of all-cast metal and combined crowns	2
14	Laboratory stages of manufacturing solid metal and combined crown	2
Content module 5: Clinical and laboratory stages of manufacturing bridge prostheses.		
15	Bridges prostheses - indications for prosthetics. Design features and biomechanics of bridges	4
16	Clinical and laboratory stages of manufacturing stamped-soldered bridges	4
17	Clinical and laboratory stages of production of all-cast metal and combined bridges	4
18	Factors that ensure the fixation of fixed prostheses. Materials for temporary and permanent fixation of orthopedic structures	4
19	Errors and complications in prosthetics with artificial crowns and bridges	2
20	***Final module control №1***	
	Total	**50**

№ з/п	**Name of topic**	**Number of hours**
Module 2 "Partial removable prosthetics"		
Content module 1. Examination of patients with partial tooth loss. Design planning of partial removable dentures.		
1	Examination of patients with partial tooth loss. Changes in the dental apparatus with partial loss of teeth	2
2	Designs of partial removable prostheses - indications for prosthetics. Planning the fixation of partial removable dentures. Support teeth, clasp lines	2
3	Methods of fixation of partial removable prostheses	2
Content module 2: Clinical and laboratory stages of manufacturing partial removable plate prostheses.		
4	Substantiation of construction of borders of bases of partial removable prostheses	2
5	Determination and fixation of the ratio of the jaws in I, II, III groups of dentition defects	2
6	Placement of teeth in partial removable dentures	2
7	Checking the design of partial removable dentures	2
8	Imposition and correction of partial removable dentures	2
9	Technology of making partial removable prostheses with plastic base. Compression and casting of plastics	4
Content module 3: Clinical and laboratory stages of manufacturing clasp prostheses and prostheses with cast metal base.		
10	Clasp prostheses - design planning depending on clinical conditions. Types of fixing elements	4
11	Parallelometry of diagnostic models	2
12	Fixation of clasp prostheses. Indications for the use of different types of mechanical fasteners. Support and holding clasps	2
13	Technological stages of manufacturing removable prostheses with solid metal frame. Duplication of working models	4
14	Compensation of shrinkage of alloys during casting. Molding masses. Modeling of wax reproductions of clasp prostheses and prostheses with metal base	4
15	Technology of casting frames of clasp prostheses and prostheses with a metal base	4
16	Checking the design of the clasp prosthesis. Imposition of a clasp prosthesis	2
Content module 4: Adaptation to removable dentures and the impact of dentures on oral tissues.		
17	Adaptation to removable prostheses, terms of use. Repair and relocation of prostheses	2

18	Errors and complications in prosthetics with partial removable prostheses.	4
19	Impact of bases of removable prostheses on the mucous membrane of the oral cavity. Prosthetic stomatitis	4
20	***Final module control №2***	
	РАЗОМ	**50**

13. THEMATIC PLAN OF INDIVIDUAL WORK

Module 1. "Fixed prosthetics"

№	Name of topic	Number of hours
1	**Preparation for practical classes -** theoretical preparation, work on test tasks, albums and presentations	19
2	**Study of topics that are not included in the curriculum:**	
	Diagnostic wax modeling when planning orthopedic treatment using fixed structures	1
3	**Preparation for FMC**	1
	Total	**21**

Module 2 "Partial removable prosthetics"

№	Name of topic	Number of hours
1	**Preparation for practical classes -** theoretical preparation, work on test tasks, albums and presentations	19
2	**Study of topics that are not included in the curriculum:**	
	Clinical and laboratory stages of manufacturing partial removable prostheses with locking	1
	Modern materials for the manufacture of denture bases	1
3	**Preparation for FMC**	3
	Total	**24**

14. LIST OF INDIVIDUAL TASKS

- Speeches at the scientific student group.
- Participation in scientific conferences.
- Publication of reports in the form of abstracts and articles in periodicals (journals, collections of scientific papers).
- Production of visual aids according to educational programs (tables, models, visual aids, graphological schemes of practical classes).
- Writing essays

15. LIST OF THEORETICAL TASKS TO THE FINAL MODULE CONTROL

Module 1. "Fixed prosthetics"

1. Examination of patients in orthopedic dentistry - stages, basic and additional methods of examination, medical documentation

2. Stage of subjective examination. Pathological conditions and general somatic diseases that are risk factors for dental treatment
3. Examination of the temporomandibular joint (basic and additional methods)
4. Examination of the masticatory muscles (basic and additional methods).
5. Examination of the oral mucosa. Mobility and pliability of the mucous membrane, classification by Suplee.
6. Examination of teeth and dentitions (basic and additional methods). Classifications of dentition defects according to Kennedy and Bethelman
7. Examination of periodontal tissues (basic and additional methods)
8. X-ray examination methods in orthopedic dentistry
9. Methods of recording movements of the lower jaw
10. Electromyography
11. Evaluation of occlusal ratios of dentitions. Occlusiography. Electronic analysis of T-Scan occlusion
12. Static and dynamic methods of chewing efficiency assessment
13. Preliminary and final diagnosis. Features of diagnosis in the clinic of orthopedic dentistry. Planning orthopedic treatment and pre-prosthetic training
14. Functional anatomy of the masticatory muscles. Synergism and coordinated antagonism, the state of relative physiological rest of the masticatory muscles
15. Innervation and reflex regulation of the dental apparatus
16. Functional anatomy of the temporomandibular joint
17. Anatomy of periodontal tissues, structure of gingival junction. Reserve and residual endurance of periodontal tissues. Physiological and pathological mobility of teeth
18. Anatomy of dentitions, physiological and pathological bites. Factors that ensure the stability of the position of the teeth. Ways and mechanisms of redistribution of masticatory pressure, buttresses of the skull
19. Anatomy of the occlusal surface of the dentition and individual teeth, sagittal and transverse occlusal curves. Anatomical and functional occlusal surface, occlusal compass.
20. Biomechanics of mandibular movements. Phases of masticatory movements according to Giza. Occlusion and articulation, types of occlusion, occlusion factors
21. The movement of the lower jaw in the vertical direction. Terminal hinge axis, Posset diagram
22. Parameters that characterize the movement of the mandible in the sagittal direction.
23. Sagittal articular and incisal pathways, sagittal articular and incisal angles
24. Parameters that characterize the movement of the lower jaw in the transverse direction.
25. Transverse articular and incisal pathways, Bennett's angle and movement, Gothic angle
26. Central occlusion, occlusal contacts are normal. Classification of antagonistic surfaces by Jenkelson, the concept of stable and unstable occlusal contacts
27. Anterior occlusion, contacts are normal. Frontal guidance. Bonville three-point contact
28. Lateral occlusion, contact options (occlusal concepts)
29. Supracontacts - etiology, classification
30. Apparatus that reproduce the movements of the lower jaw - classification, scope
31. The structure of articulators. Medium anatomical articulators - design features, indications for use
32. Adjustable articulators - design features, indications for use, methods of individual adjustment
33. Ways to transfer models to the articulator
34. Method of registration of the position of the upper jaw and the transfer of models into the articulator using the facial arch
35. Pain, mechanism of occurrence, ways of carrying out. Theories of toothache. Innervation of the maxillofacial area
36. Types of anesthesia in outpatient dental practice. Indications for local anesthesia in orthopedic dentistry

37. Conductive anesthesia on the upper jaw, methods
38. Conductive anesthesia on the lower jaw, methods
39. Methods of infiltration anesthesia in the oral cavity, indications
40. Anesthesia during the preparation of the front teeth of the upper jaw.
41. Anesthesia during the preparation of the premolars of the upper jaw.
42. Anesthesia during the preparation of the molars of the upper jaw.
43. Anesthesia during the preparation of the front teeth of the lower jaw.
44. Anesthesia during the preparation of the premolars of the mandible.
45. Anesthesia during the preparation of the molars of the mandible.
46. Modern local anesthetics - mechanism of action, classification, indications for use
47. General complications of injectable anesthesia - causes, ways to prevent
48. Local complications of injectable anesthesia - causes, ways to prevent
49. Urgent conditions at the dental office - allergic reactions of the immediate type. Clinical picture, first aid
50. Urgent conditions at the dental office - hypertensive crisis, angina pectoris, myocardial infarction. Clinical picture, first aid
51. Emergencies at the dental office - dizziness, collapse. Clinical picture, first aid
52. Emergency conditions at the dental office - an attack of bronchial asthma. Clinical picture, first aid
53. Etiology of defects of the crown of the teeth. Classifications of defects, Milikevich index. Types of orthopedic structures to replace defects of the coronal part of the teeth, indications
54. Artificial crowns - indications, classifications, comparative characteristics. Materials and technologies for making artificial crowns
55. Preparation of the oral cavity for prosthetics. Requirements for teeth that are used as a support for fixed orthopedic structures
56. Indications for depulping of abutment teeth. Indications for reinforcement of abutment teeth with pin structures
57. Tools for preparation of teeth for fixed orthopedic structures
58. Rules of preparation of teeth for fixed orthopedic structures, safety measures, methods of control of depth of preparation of hard tissues
59. Protection of vital teeth during and after preparation. Provisional structures, dentin sealants
60. Complications during and after tooth preparation - causes, consequences, ways to prevent
61. Methods of preparation of teeth for artificial crowns
62. Marginal adaptation of artificial crowns, variants of incisal preparation, types of ledges
63. Retraction of gums, types, methods, indications
64. Stamped metal crowns - indications and contraindications, clinical stages of manufacture
65. Solid metal crowns - indications and contraindications, clinical stages of manufacture
66. Solid combined crowns - indications and contraindications, clinical stages of manufacture
67. Stamped metal crowns - laboratory stages of manufacture
68. Solid metal crowns - laboratory stages of manufacture
69. Solid combined crowns - laboratory stages of manufacture
70. Provisional crowns - indications, purpose, types. Materials for the manufacture of temporary crowns
71. Methods of direct manufacture of temporary structures
72. Laboratory method of making temporary crowns
73. Acrylic plastics - composition, properties, phases and modes of polymerization of plastics
74. Metal alloys for the manufacture of fixed orthopedic structures - classifications, properties, application technologies
75. Technology of casting frames of fixed orthopedic structures. Shrinkage of alloys and methods of its compensation
76. Foundry systems - types, rules of construction. Methods of melting and casting of metal alloys

77. Refractory masses - types, composition, properties

78. Technology of soldering parts of stamped and brazed structures. Solders - types, composition, properties, requirements. Fluxes. Solderless connection of parts of bridges

79. Gypsum - types, composition, properties

80. Alginate impression masses - composition, properties, indications, technology of application

81. Silicone impression masses - composition, properties, indications, methods of obtaining impressions

82. Bridge prostheses - indications, classifications, materials and methods of manufacture. Features of preparation of abutment teeth. Comparative characteristics of solid and stamped-brazed structures

83. Biomechanics of bridges, design features, types of support elements. The relationship of the intermediate part to the alveolar process

84. Indications, clinical stages of prosthetics with solid bridge prostheses

85. Indications, clinical stages of prosthetics stamped-soldered bridges

86. Laboratory stages of prosthetics with solid bridge prostheses

87. Laboratory stages of prosthetics stamped-soldered bridges

88. Factors that ensure the fixation of fixed prostheses.

89. Indications for temporary fixation of fixed structures. Materials for temporary fixation of orthopedic structures. Provisional cements

90. Zinc - phosphate cements - composition, physicochemical properties, indications and methods of application

91. Glass ionomer cements - composition, physicochemical properties, indications and methods of application

92. Composite cements - composition, physicochemical properties, indications and methods of application

93. Errors and complications in obtaining prints. Causes, consequences, ways of prevention

94. Errors and complications in tooth preparation. Causes, consequences, ways of prevention

95. Errors in the laboratory stages of manufacturing stamped crowns

96. Errors in the laboratory stages of manufacturing stamped-soldered bridges

97. Errors in the laboratory stages of manufacturing solid crowns

98. Errors in the laboratory stages of manufacturing solid bridges

99. Errors in the laboratory stage of manufacturing plastic crowns

100. Errors in the examination of patients and planning orthopedic treatment

101. Errors during the inspection of the structure and cementation of fixed orthopedic structures.

Module 2 "Partial removable prosthetics"

1. Basic and additional methods of examination of patients with partial tooth loss

2. Structural and functional changes of the dental apparatus with partial loss of teeth

3. Anatomical formations of the oral cavity, which are important in removable prosthetics. Flexibility and mobility of the mucous membrane, their consideration in removable prosthetics. Assessment of the condition of alveolar processes in edentulous areas, Elbrecht classification

4. Preparation of the oral cavity for prosthetics with partial removable dentures (PRD). Requirements for abutment teeth

5. Constructions of PRD, their constituent parts. Features of masticatory pressure transformation by different types of PRD

6. Partial removable plate prostheses - indications, clinical stages of manufacture

7. Partial removable plate prostheses with a metal base - indications, clinical stages of manufacture

8. Clasp prostheses - indications, design planning depending on clinical conditions. Selection of abutment teeth, requirements, training

9. Checking the design of partial removable dentures
10. Planning the design of dentures while maintaining single teeth on the jaws
11. Planning of fixing of PRD. Clasp lines. Factors influencing the choice of fixing elements in removable dentures
12. Obtaining working prints for the manufacture of PRD - materials and techniques. Indications for fingerprints with individual spoons
14. The concept of fixation, stabilization, balance of removable dentures and the factors that provide them
15. Clamps - classifications, designs, manufacturing methods. Factors determining the choice of staple type
16. Lock fastenings (attachments) - classifications, constructions, indications
17. Beam fastenings - types, designs, indications
18. Telescopic fastenings - types, structures, indications
19. Boundaries of the bases of partial removable plate prostheses on the upper and lower jaws
20. Options for the location of the arches of clasp prostheses on the upper and lower jaws. Arc parameters
21. Groups of dentition defects according to Betelman, clinical characteristics
22. Methods for determining and fixing the central ratio of the jaws in the second group of defects according to Bethelman
23. Methods for determining and fixing the central ratio of the jaws in the third group of defects according to Betelman. Methods for determining the occlusal height. Methods for determining the central ratio of the jaws
24. Method of fixing the central occlusion with occlusal blocks and gypsum blocks. Technology of production of occlusal rollers, requirements to rollers
25. Methods of hot and cold methods of fixing the central ratio using occlusal rollers
26. Errors in determining and fixing the ratio of the jaws
27. Artificial teeth for removable dentures - materials, types. Comparative characteristics of porcelain, composite, acrylic teeth. Rules of selection of artificial teeth
28. Methods of artificial teeth in the CNC; options for placing teeth in the frontal area. Anatomical landmarks for teeth placement. Occlusal concepts in partial removable prosthetics
29. Technology of compression molding of plastics. Methods of plastering reproductions of prostheses in the cuvette
30. Technology of foundry pressing of plastics. Equipment, materials. Directed polymerization mode.
31. Plastics for the manufacture of prosthetic bases. Classifications, composition, properties. Types and modes of polymerization
32. Errors when working with plastic, types of porosity
33. Methods of imposition and correction of PRP, recommendations to the patient on prosthesis care.
34. Phases of adaptation to removable prostheses according to Courland
35. Parallelometry - purpose, tasks, methods
36. Planning of fixing elements in clasp prostheses depending on clinical conditions. Calibration of models
37. Preparation of models for duplication. Duplicate masses - types, composition, application technology. Production of refractory models
38. Modeling of wax reproduction of the clasp prosthesis frame. Types of gutter system, construction rules
39. Ney staple system, indications for use
40. Classification of molding compounds, composition, properties, indications for use
41. Metal alloys for the manufacture of clasp prostheses and prostheses with a metal base. Cobalt-chromium alloy - composition, technological and physicochemical properties,

temperature regime

42. Shrinkage of the alloy during casting, types. Methods of compensation of alloy shrinkage during casting of frames of removable and non-removable structures
43. Casting technology in dentistry. Methods of melting and casting of metals. Foundry systems - types, rules of construction
44. Recommended terms of use of different types of PRD. Indications for prosthesis replacement. Relocation of removable dentures - indications, methods, materials
45. Repair of prostheses (replacement of a bracket, addition of a tooth, repair of basis) - technology. Causes of fracture of bases
46. Factors of influence of bases of prostheses and prosthetic materials on fabrics of a prosthetic bed. Classifications of prosthetic stomatitis
47. Traumatic prosthetic stomatitis. Etiology, clinical manifestations, differential diagnosis and treatment
48. Toxic prosthetic stomatitis. Etiology, clinical manifestations, differential diagnosis and treatment
49. Allergic prosthetic stomatitis. Etiology, clinical manifestations, differential diagnosis and treatment
50. Additional laboratory methods of examination of patients with prosthetic stomatitis
51. Errors at the stage of fixing the ratio of the jaws and determining the occlusal height
52. Errors in obtaining prints
53. Errors at the stage of manufacturing a plastic base
54. Errors at the stage of examination of patients and planning the design of the PRD
55. Errors at the stage of casting prosthesis frames
56. Errors in the imposition and correction of prostheses

16. LIST OF PRACTICAL SKILLS TO BE TESTED DURING THE FINAL MODULE CONTROL IN ORTHOPEDIC DENTISTRY

Module 1. "Fixed prosthetics"

1. Examine the patient. Establish a preliminary and final diagnosis based on survey data (clinical and laboratory).
2. To offer the plan of orthopedic treatment.
3. To offer the plan of preparation of an oral cavity of the patient for prosthetics.
4. Occludogram
5. Get an impression for the manufacture of solid non-removable structures
6. Obtaining prints for the manufacture of stamped and stamped-soldered prostheses
7. To fix the central occlusion at 1 group of defects by means of occlusal blocks
8. Determining the position of the upper jaw with a facial arch
9. Transfer of models to the articulator by means of a front arch
10. Analysis of occlusion on diagnostic models in the articulator.
11. Anesthesia during tooth preparation
12. Perform retraction of the gums
13. Preparation of teeth under a stamped metal crown.
14. Preparation of teeth for a solid metal and combined crown
15. Planning the design of a bridge
16. Check the design of artificial crowns
17. Checking the design of the bridge.
18. Fixation of crowns and bridges
19. Removal of crowns

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Module 2 "Partial removable prosthetics"

1. Examine the patient. Establish a preliminary and final diagnosis based on survey data (clinical and laboratory).
2. To offer the plan of orthopedic treatment.
3. To offer the plan of preparation of an oral cavity of the patient for prosthetics
4. Get an anatomical impression of the lower and upper jaws for the manufacture of partial removable dentures
5. Determine and fix the central occlusion of the jaws in 2.3 groups of defects using occlusal platen.
6. Planning the design of a partial removable prosthesis.
7. Carry out parallelometry of the diagnostic model and plan the clamp fixation of the clasp prosthesis
8. Check the design of a partial removable prosthesis
9. Correction of a partial removable prosthesis
10. Relocation of a partial removable prosthesis

17.METHODS AND FORMS OF CONTROL

During the study of the discipline, all types of student activities are subject to control, both current (at each lesson) and final (during control activities).

Modular control is a diagnosis of the student's assimilation of the module material (credit). The semester ends with a final module control.

The initial control of students' knowledge is carried out during practical classes and includes testing knowledge of theoretical and practical material studied in previous courses, conducted by frontal oral examination, or writing tests, which uses questions for tests.

The current learning activities of students are monitored in practical classes in accordance with specific objectives.

It is recommended to use the following tools to diagnose the level of preparation of students: computer tests, solving situational problems, examination of thematic patients, diagnosis, planning the scope of the examination, interpretation of their results; control of practical skills, others.

Intermediate control of students' knowledge is carried out during the final tests during the last lesson of the content module.

Final control of students' knowledge is carried out at the last practical lesson after the completion of the module in the form of final modular control. Students find out the knowledge of theoretical material (according to the list of questions). In addition, students perform practical work that is attached to the ticket and solve situational problems, which is also taken into account when assessing their knowledge. The current assessment of the student's learning activities in each practical lesson is carried out in accordance with the specific objectives of each topic. Assessment of current learning activities in the practical lesson consists of:

1) **Assessments of independent work of the student (ISW)** in preparation for practical training. It is done by checking the written performance of the tasks set out in the Workbook to prepare for each topic of Module 1. The share of the assessment for the syllabus with homework is 25% of the total assessment for classes in points. If the student has not completed the task for VTS and has not provided a syllabus for testing to the teacher, the traditional grade for the lesson will be lower by 1 point.
2) **Assessment of the initial level of knowledge of students** at the preparatory stage of the lesson, which is carried out by solving 15 test tasks of format A (level I-2) or assessment answers to control theoretical questions.

Grade "5" is given for this stage of the lesson, as if the student correctly answered 81-100% of the test tasks or gave the correct, complete answers to 3 control questions of the teacher.

Grade "4" is given when the student correctly answered 66-71% of the test tasks or gave correct,

complete answers to 2 control questions of the teacher and one incomplete or inaccurate answer - to the third.

Grade "3" is given when the student correctly answered 55-61% of the test tasks or gave the correct answer to one test question of the teacher and two incomplete or inaccurate answers - to two questions. Grade "2" is given when the student correctly answered less than 55% of the test tasks, gave the correct answer to only one or did not answer any test questions of the teacher.

3) Assessments of mastering practical skills in accordance with **professional algorithms** during the main stage of practical training. It is carried out during the development by the student of practical skills on a phantom or at written statement of algorithm of its performance.

Grade "5" is given for this stage of the lesson, when the student correctly, in accordance with the professional algorithm, performed on a phantom or model of the jaws dental manipulation, provided for the purpose of practical training.

Grade "4" is given when the student knows the sequence of actions according to the professional algorithm, with minor errors performed on a phantom or model of the jaws dental manipulation, provided for the purpose of practical training.

Grade "3" is given when the student does not fully know the professional algorithm for performing a particular manipulation.

Grade "2" is given when the student does not know the professional algorithm for performing dental manipulation, can not perform on a phantom or jaw model dental manipulation, provided for the purpose of practical training.

4) Assessment of the final level of knowledge of students at the final stage of the lesson, which is carried out by solving 15 test tasks of format **A (level I)** or assessment of responses to clinical situational problems.

A grade of "5" is given for this stage of the lesson in the case when the student correctly answered 81-100% of the test tasks, gave the correct, complete answers when solving a clinical situational problem.

Grade "4" is given when the student correctly answered 66-71% of the test tasks. When solving a clinical situational problem, he made minor mistakes or gave an incomplete answer to a separate question.

Grade "3" is given when the student correctly answered 55-61% of the test tasks, when solving a clinical situational problem made mistakes, gave incomplete or inaccurate answers to questions.

Grade "2" is given when the student correctly answered less than 55% of the test tasks or did not solve the clinical situational problem.

Each stage of practical withdrawal is evaluated separately, after which the grades are summed and the average grade for practical training in the usual (traditional) 4-point system is displayed, which is then converted into points according to the evaluation scale for each module.

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Assessment of individual student tasks

Points for individual tasks are awarded to the student only if they are successfully completed and defended.

The number of points awarded for different types of individual tasks depends on their scope and significance, but not more than 10-12 points. They are added to the amount of points earned by the student in the classroom during the current academic activity. **In no case may the total amount of points for current educational activities exceed 120 points.**

The program in the discipline "Orthopedic Dentistry" provides 6 additional points for assessing different types of individual independent work of the student for Module №1 and for Module №2.

Assessment of students' independent work

Independent work of students, which is provided by the topic of the lesson along with the classroom work, is assessed during the current control of the topic in the relevant lesson. Assimilation of topics that are submitted only for independent work is checked during the final module control.

Individual work of students

The maximum number of points that a student can score for the current activity during the study of the module is calculated by multiplying the number of points corresponding to the grade "5" by the number of topics in the module (last topic - final module control is not taken into account). student, but not more than 120 points.

Module 1. - (19 * 11) = 114+ 6 points for individual work = 120.

Module 2. - (19 * 11) = 114+ 6 points for individual work = 120.

The minimum number of points for the module, which must be scored by the student in his study for admission to the final module control, is calculated by multiplying the number of points corresponding to the grade "3" by the number of topics in the module.

Module 1. - (19 * 3,5) = 66,5+ 6 points for individual work = 72,5.

Module 2. - (19 * 3,5) = 66,5+ 6 points for individual work = 72,5.

Distribution of points for current activities

Module number number of study hours / number of ECTS credits	Number of content modules, their numbers	Number of practical classes	Conversion into scores of traditional grades								Minimum number of points *
			Traditional grades				Points for individual tasks				
			5	**4**	**3**	**2**	**5**	**4**	**3**	**2**	
Module 1 81/2,7	5 (№№ 1-5)	19	6	4,5	3,5	0	6	6	6	0	**72,5**
Module 2 84/2,8	4 (№№ 1-4)	19	6	4,5	3,5	0	6	6	6	0	**72,5**

The maximum number of points for students that a student can score when studying the module is calculated **120 = 19 x 6 + 6 (ISW)**

The minimum number of points for students that a student can score when studying the module is calculated by adding the number of points that correspond to the grade "satisfactory" in each class: **72,5 = 19 x 3.5 + 6 (ISW).**

Final modular control (FMC)

The final module control is carried out after the completion of the study of all topics of the module at the last control lesson from the module.

Students who have attended all the classes provided by the curriculum in the discipline and received positive grades ("5", "4", "3"), performed all types of work and scored a number of points during the study of the module are admitted to the final module control. not less than the minimum (72.5 points).

A student who, for valid or non-valid reasons, has missed classes is allowed to work off academic arrears until a certain deadline. Forms of final control should be standardized and include control of theoretical and practical training.

The maximum number of points that a student can score during the final module control is 80.

The final module control is considered credited if the student has scored ***at least 50 points.***

Assessment of the module and discipline

The grade for the module is defined as the sum of the final score for the current educational activity and the score for the final module control and is displayed on a 200-point scale.

The grade in the discipline is given only to students who have passed all modules in the discipline.

Regulations for the final modular control

Control measures during FMC in orthopedic dentistry take place in three stages:

Stage 1 - test control of knowledge *

Students give answers to standardized test tasks (on paper or electronic media), which include 10 tests (20 minutes). Each task has only one correct answer out of five (format A).

* Students who gave less than 60% of correct answers to test tasks are not allowed to compile the theoretical part of the FMC.

Stage 2 - written and oral examination

Each student is offered three questions from the list of control questions to the FMC; be sure to include questions from the sections:

1. Functional anatomy or biomechanics of the dental apparatus
2. Clinical and laboratory stages of orthopedic treatment of diseases of the dental apparatus.

Stage 3 - assessment of practical skills

Carried out in accordance with the approved algorithm of practical skills during the clinical admission of patients, or in conditions close to real - on phantoms, visual aids, diagnostic models. It can be held at the last practical lesson, which precedes the FMC

For each stage (performance of test tasks, oral answers and practical skills) the student is given a separate grade, which is converted into ECTS points.

Scheme of accrual and distribution of pain received by students
Scoring for current educational activities in the study of the discipline "orthopedic dentistry" in the 3rd year

Module number, quantity training hours / ECTS credits	**Number of content modules**	**Number of (topics in module)**	**Conversion into scores of traditional grades**					**Maximum / minimal Number of points**
			Traditional grades				**Points for use nanny individual dual foot task as a species ISW**	
			«5»	**«4»**	**«3»**	**«2»**		
Module 81/2,7	**5**	**19**	**6**	**4,5**	**3,5**	**0**	**6**	**19*6=114 +6 =120/ 19*3,5=66,5+6 =72,5**
Модуль Module 2 84/2,8	**4**	**19**	**6**	**4,5**	**3,5**	**0**	**6**	**19*6=114+6=120 / 19*3,5=66,5+6=72,5**

Assessment scale: national and ECTS

Score on a 200-point scale	**Score for 4-point scale**
From 180 to 200 балів	**«5»**
From 150 до 179 балів	**«4»**
From 149 to minimal number of points, which must be scored by the student	**«3»**
Lower than minimal number of points, which must be scored by the student	**«2»**

Notice *These criteria are also used in determining the grade for a module, as appropriate.* Students enrolled in one faculty, course, one specialty, based on the number of points scored in the discipline, are ranked on the ECTS scale as follows:

Grade ECTS	**Statistical indicator**
«A»	Best 10 % студентів
«B»	Next 25 % студентів
«C»	Next 30 % студентів
«D»	Next 25 % студентів
«E»	Residual 10 % студентів

Ranking with assignments of grades "A", "B", "C", "D", "E" is carried out by **deans offices** for students of the relevant course and faculty who study in one specialty and have **successfully** completed the discipline.

Students who receive grades "FX" and "F" ("2") are not included in the list of ranked students, even after re-taking the module. Such students automatically receive an "E" score after reassembly.

Grades in the discipline "FX", "F" ("2") are given to students who have not enrolled in at least one module of the discipline after completing its study.

The grade "FX" is given to students who have scored the minimum number of points for the current educational activity, but who do not pass the final module control. This category of students has the right to reschedule the final module control according to the approved schedule (but not later than the beginning of the next semester). Reassembly of the final module control is allowed no more than twice.

Grade "F" is given to students who have attended all classes of the module, but did not score the minimum number of points for the current educational activities and are not admitted to the final module control. This category of students has the right to re-study the module.

With the permission of the rector, the student can increase the grade in the discipline by rearranging the final module control (not more than three times during the entire period of study).

The ECTS grade is NOT converted to the traditional four-point scale, as the ECTS scale and the four-point scale are independent.

18. RECOMMENDED LITERATURE

18.1 Basic literature:

1. Rozhko M.M., Nespryad′ko V.P., Mykhaylenko T.N. ta in. Zuboprotezna tekhnika. – K.: Knyha-plyus, 2016. – 604 s.

2. Stomatolohiya. Pidruchnyk. U 2 kn. – Kn. 1 /M.M. Rozhko, Z.B. Popovych, V.D. Kuroyedova ta in..; za red. Prof. M.M. Rozhka. – K.: VSV «Medytsyna», 2013. – 872 s.

3. Hasyuk P. A. Al′manakh z ortopedychnoyi stomatolohiyi // P. A. Hasyuk, YE. YA. Kostenko, V. R. Machohan, S. O. Rosolovs′ka, A. B. Vorobets′ // Ternopil′: Bohdan – 2015. – 352s.

4. Hasyuk P. A. Tekhnolohichni aspekty vyhotovlennya ortopedychnykh konstruktsiy // P. A. Hasyuk, D. M. Korol′, S. O. Rosolovs′ka, L. S. Korobeynikov, V. B. Radchuk, R. V. Kozak // Ternopil′: FOP Parkhin R. A. – 2016. – 140s.

5. Korol′ D. M. Osnovy byuhel′noho protezuvannya / D. M. Korol′, D. D. Kindiy, L. S. Korobeynikov, O. D. Odzhubeys′ka, R. V. Kozak, T. P. Malyuchenko // Poltava. – 2016 – 139s.

6. Korol′ M. D. Stomatolohichne materialoznavstvo / M. D. Korol′, O. D. Odzhubeys′ka, D. M. Korol′, I. M. Tkachenko, V. M. Petrushanko, M. O. Ramus′, A. D. Dorubets′, D. D. Kindiy, L. S. Korobeynikov // Poltava: FOP Myron I. A. – 2018. – 176s.

7. Fastovets′ O. O. Neznimne zubne protezuvannya: navchal′no-metodychnyy posibnyk / O. O. Fastovets′, R. A. Kotelevs′kyy, S. S. Kobylyak // Dnipro: DMA. – 2013. – 212s.

18.2 Additional literature:

1. Golik VP All-ceramic restorations of hard tissues of teeth. Textbook / VP Golik; IV Yanishen, A. Yu. Nikonov, IO Pereshivailova // Kh .: KhNMU. - 2016. - 14p.

2. Golik VP Replacement of defects of hard tissues of a tooth by pin designs. Indications. Clinical and laboratory stages of production. Textbook / VP Golik; OS Maslovsky, IV Yanishen, OO Berezhna, AV Pogorila // Kh .: KhNMU. - 2015. - 27p.

3. Gasyuk AP Human odontology / AP Gasyuk, PA Gasyuk, TV Novoseltseva // Saarbrucken: LAMBERT Academic Publishing. - 2015. - 181p.

18.3 Information resource

1. Official Web-site Bogomolets National Medical University http://www.nmu.edu.ua/kaf59.php
2. Educational portal of Bogomolets National Medical University http://eduport.nmu.edu.ua/
3. Electronic information resources of the department: http://goo.gl/enEezy
4. Освітній портал НМУ імені О.О. Богомольця http://eduport.nmu.edu.ua/
5. Перший Український стоматологічний сервер www.ukrdental.com
6. Журнал «ДентАрт» www.dentart.org
7. Інформаційний ресурс про стоматологію в Україні www.dent.org.ua
8. MedWedi.ru – портал безкоштовної медичної літератури
9. Dic.academic.ru – словники і енциклопедії
10. Mediclab (medical information portal)
11. http: www. Swissimplant.ru/ glossary.php
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17. http://www.booksmed.com/stomatologiya/2393-propedevtika
18. http://dental-ss.org.ua/load/kniga_stomatologia/terapevticheskaja/8.
19. http://www.stomatkniga.ru/index.php?start=48.
20. http://stomatbook.blogspot.com/p/blog-page_14.html.
21. http://www.mosdental.ru/Pages/Page28.1.html.

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