Ministry of Health of Ukraine
Poltava State Medical University

Department of ORTHODONTICS

«AGREED»
Guarantor of the educational-professional program in specialty Dentistry
_____O. SHESHUKOVA

"____"__ _____2024

«APPROVED»
Chairman of the Academic Council of the International Faculty
_____ L. BURYA

Minutes as of _____ 2024 No.__

SYLLABUS

academic and professional level	the second (master's) level of higher education
field of knowledge	22 «Healthcare»
specialty	221 «Dentistry»
academic qualification	Master of Dentistry
professional qualification	Dentist
academic and professional program	221 «Dentistry»
mode of study	full-time
course and semester of study of the academic discipline	III course V-VI semesters IV course VII semester V course IX-X semesters

«**RESOLVED»**
at the meeting of the Department of Orthodontics

Head of the Department _____ L. SMAGLYUK

Minutes as 27 of august 2024 No. 1

Poltava-2024

INFORMATION ABOUT LECTURERS WHO DELIVER THE ACADEMIC DISCIPLINE

Surname, name, patronymic of teachers, scientific degree, academic title	Smaglyuk Lyubov Vikentiivna, Doctor of Medical Sciences, Professor Dmitrenko Maryna Ivanivna, Doctor of Medical Sciences, associated professor Karasiunok Anna Yevheniivna, Ph.D., associated professor Voronkova Anna Volodymyrivna, Ph.D., associated professor Lyakhovska Anastasia Vitaliyivna, Ph.D., associated professor Belous Alevtina Mykolayivna
Profile of the lecturer (lecturers)	https://orthodontic.pdmu.edu.ua Department of Orthodontics;
Contact phone	+38(0532) 53-25-22
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Department page at the website of PSMU	https://orthodontic.pdmu.edu.ua Department of Orthodontics

MAIN CHARACTERISTICS OF THE ACADEMIC DISCIPLINE

The scope of the academic discipline

The study of the discipline is given 300 hours, 10 ECTS credits. Of these, lectures - 26 hours, practical classes - 150 hours, independent work - 124 hours. To study Module 1 "Orthodontics. Diagnosis of dental anomalies and deformities "is given 120 hours, 4 ECTS credits. Of these, lectures - 8 hours (10 hours for SNTN), practical classes - 60 hours, independent work - 52 hours (50 hours for SNTN). The study of Module 2 "Anomalies and deformities of the dental apparatus" is given 90 hours, 3 ECTS credits. Of these, lectures - 10 hours, practical classes - 40 hours, independent work - 40 hours. For the study of Module 3 "Children's dental prosthetics. Congenital defects of the face and jaws "is given 90 hours, 3 ECTS credits. Of these, lectures - 8 hours, practical classes - 50 hours, independent work - 32 hours. Normative discipline.

DISCIPLINE POLICY

The policy of the academic discipline is regulated by a system of requirements that a lecturer imposes on a student in the study of the discipline and is based on the principles of academic integrity. Requirements may relate to attendance (prohibition of absences, delays, etc.); rules of conduct in the classroom (active participation, fulfillment of the required minimum of training activities, disconnection of mobile telephones, etc.); incentives and penalties (in what cases points can be accrued or deducted, etc.).

It is recommended to develop the policy of academic discipline taking into

account the norms of the legislation of Ukraine on academic integrity, the Statute, the Regulations of PSMU and other normative documents.

Regulation on the organization of the educational process at PSMU https://www.pdmu.edu.ua/storage/department-npr/docs_links/OaN2nwysLPFAUDRvuDPvFSpzM1j9E9CwQQkgr93b.pdf

Regulation on the organization of self-directed work of students at PSMU, Regulation on retaking missed classes and making up unsatisfactory grades by the recipients of higher education at PSMU https://www.pdmu.edu.ua/storage/department-npr/docs_links/d2v3WhcBOWnuedYRoBKRe7k1xnl4KtbB2r2NR2CG.pdf

Regulation on the appeal claim for the results of final control of academic performance for recipients of higher education, Regulation on rating the recipients of higher education at PSMU, Regulation on the financial incentives for academic success of students at PSMU and others.

DESCRIPTION OF THE EDUCATIONAL DISCIPLINE

Orthodontics is a science that studies the etiology, pathogenesis, clinic, diagnostics, methods of treatment and prevention of anomalies and deformities of the bite in children and adults. The study of the discipline allows us to consider the issue of antenatal and postnatal periods of development of the dental-jaw system, the anatomical and morphological features of the oral cavity of a newborn, the morpho-functional characteristics of the temporary, mixed and permanent periods of bite, study the methods of examining an orthodontic patient, understand the processes occurring in the tissues of the periodontium under the influence of orthodontic equipment; acquire the basic dental manipulations and research methods for orthodontic patients to put a diagnosis and choose the correct treatment method and study the existing methods of orthodontic patients treatment with various types of dental-jaw anomalies and deformities.

PREREQUISITES AND POST-REQUISITES OF THE EDUCATIONAL DISCIPLINE

- the study of the academic discipline is based on the previously obtained knowledge by students in human anatomy, histology, cytology and embryology, medical physics, medical biology, physiology, therapeutic dentistry propedeutics, orthopedic dentistry propedeutics, surgical dentistry propedeutics, pediatric therapeutic dentistry, pediatric surgical dentistry and dental prophylaxis diseases**.**

THE AIM AND TASKS OF THE ACADEMIC DISCIPLINE:

- To isolate and identify the leading clinical symptoms and syndromes according to standard methods, using the preliminary data of the patient's history, patient examination data, knowledge about the person, his organs and systems, establish a probable nosological or syndromic preliminary clinical diagnosis of a dental disease.
- Collect information about the general condition of the patient, evaluate the psychomotor and physical development of the patient, the state of the organs of the maxillofacial region, estimate information regarding the diagnosis based on the results of laboratory and instrumental examination.
- Assign and analyze laboratory, functional and / or instrumental examination of a

patient for differential diagnosis of diseases.
- Determine the final clinical diagnosis, adhering to the relevant ethical and legal standards, by making a decision and logical analysis of the obtained subjective and objective data of the clinical, additional examination, clarifying the diagnosis under the supervision of a doctor in a medical institution.
- To make a diagnosis of emergency conditions under any circumstances (at home, on the street, in a hospital), in an emergency, martial law, lack of information and limited time.
- Plan and implement measures for the prevention of dental diseases among the population to prevent the spread of dental diseases.
- Analyze the epidemiological state and carry out measures for mass and individual, general and local drug and non-drug prevention of dental diseases.
- Determine the plan of treatment of a dental disease by making an informed decision on the existing algorithms and standard schemes.
- Determine the nature, principles of the regime of work, rest and the necessary diet in the treatment of dental diseases on the basis of a previous or final clinical diagnosis by making a decision based on existing algorithms and standard schemes.
- Determine the tactics of patient treatment with somatic pathology by making a decision based on the existing algorithms and standard schemes.
- Carry out the treatment of main dental diseases based on existing algorithms and standard schemes under the supervision of doctor in a clinics.
- To organize the medical and evacuation measures among the population, military personnel, in an emergency, including martial law, during the deployment of stages of medical evacuation, taking into account the existing system of medical and evacuation support.
- Determine the tactics of providing emergency medical care using the recommended methods, in all circumstances, based on the diagnosis of an emergency in a limited time.
- Analyze and evaluate government, social and health information using standard approaches and computer information technology.
- Assess the influence of the environment on the health of the population in a medical institution using standard methods.

The main objective of studying the discipline is:

- conducting clinical and additional methods of orthodontic patients examining, filling out the medical history and other medical documentation, decoding Cephalometrics, interpreting photometric data, X-ray images, the ability to conduct and analyze the results of examining an orthodontic patient, justification and formulation of a preliminary and final diagnosis, making a treatment plan, correction and activation of orthodontic appliances, determination of the basis for the prevention of the most spread dental-jaw anomalies and deformities.

Competences and learning outcomes in accordance with the academic and professional program, the formation of which is facilitated by the discipline (integral, general, special).

According to the requirements of the standard, the discipline "Orthodontics" ensures that students acquire the following competencies:

Integral:

- The ability to solve complex problems and problems in the field of health care in the specialty "Dentistry" in the professional activity of an orthodontist or in the process of education, include research and / or innovation.

General:

1. Ability to abstract thinking, analysis and synthesis.
2. Knowledge and understanding of the subject area and understanding of professional activity.
3. Ability to apply knowledge in practice.
4. Ability to communicate in the state language both orally and in writing.
5. Ability to communicate in English. Ability to use international Greco-Latin terms, abbreviations and clichés in professional oral and written speech.
6. Skills in the using of information and communication technologies.
7. Ability to search process and analyze information from various sources.
8. Ability to adapt and act in a new situation.
9. Ability to identify, pose and solve problems.
10. Ability to be critical and self-critical.
11. Ability to work in a team.
12. Ability to act socially responsibly and consciously.
13. The ability to exercise their rights and responsibilities as a member of society, to realize the values of civil (free democratic) society and the need for its sustainable development, the rule of law, human rights and freedoms andcitizen in Ukraine.

- **Special:**

1. Ability to collect medical information about the patient and analyze clinical data.
2. Ability to interpret the results of laboratory and instrumental research.
3. Ability to diagnose: determine the preliminary, clinical, final, concomitant diagnosis, emergencies.
4. Ability to plan and implement measures for the prevention of diseases of organs and tissues of the oral cavity and maxillofacial region.
5. Ability to design the process of providing medical care: to determine the approaches, plan, types and principles of treatment of diseases of organs and tissues of the oral cavity and maxillofacial region.
6. Ability to determine the rational mode of work, rest, diet in patients in the treatment of diseases of organs and tissues of the oral cavity and maxillofacial region.
7. Ability to determine the tactics of patients' management with diseases of organs and tissues of the oral cavity and maxillofacial region with concomitant somatic diseases.
8. Ability to perform medical and dental manipulations.
9. Ability to treat major diseases of organs and tissues of the oral cavity and maxillofacial region.
10. Ability to determine tactics, methods and emergency medical care.
11. Ability to organize and conduct screening examinations in dentistry.
12. Ability to assess the impact of the environment on the population health (individual, family, population).
13. Ability to maintain regulatory medical records.
14. Processing of state, social and medical information.
15. Ability to organize and conduct rehabilitation measures and care for patients with

diseases of the oral cavity and SLE.
16. Ability to legally support their own professional activities.

Learning outcomes of the academic discipline:

upon completing their study in the academic discipline, students must

- know:

- growth and formation of jaw bones in terms of age;
- the concept of the norm in orthodontics;
- clinical methods of examination of patients with dental-jaw anomalies and deformities;
- anthropometric methods of examination;
- research methods of speech, respiratory, chewing and swallowing functions;
- X-ray examination methods;
- Cephalometrics techniques;
- basic principles and methods of treatment of patients with dental-jaw anomalies and deformities;
- classification of dento-jaw anomalies and deformities;
- modern concepts of etiology, pathogenesis, clinical manifestations of various anomalies and deformations of individual teeth, dentition and forms of malocclusion;
- methods of treatment and dental-jaw anomalies and deformities;
- dispensary groups for the supervision of orthodontic patients;
- main syndromes in orthodontics;
- prevention of risk factors of dental-jaw anomalies and deformities.

- be able to:

1. To analyze the results of examination of an orthodontic patient:
- with individual teeth anomalies (size, shape, number, structure, eruption);
- with anomalies in the position of individual teeth (vestibulo-oral, mesio-distal, supra- and infra-occlusion, torto-occlusion, crowding, etc.);
- with anomalies of the dentition (shape, size);
- with malocclusion (in the sagittal, vertical, transversal planes).
2. Determine the dispensary observation groups for orthodontic patients:
- with individual teeth anomalies (size, shape, number, structure, eruption);
- with anomalies in the position of individual teeth (vestibulo-oral, mesio-distal, supra- and infra-occlusion, torto-occlusion, crowding, etc.);
- with anomalies of the dentition (shape, size);
- with malocclusion (in the sagittal, vertical, transversal planes).
3. To prescribe preventive measures in a group with risk factors:
- with anomalies of individual teeth (size, shape, number, structure, eruption);
- with anomalies in the position of individual teeth (vestibulo-oral, mesio-distal, supra- and infra-occlusion, torto-occlusion, crowding, etc.);
- with anomalies of the dentition (shape, size);
- with malocclusion (in the sagittal, vertical, transversal planes).
4. Determine the leading symptoms in orthodontics:
- psycho-emotional state;
- violation of posture;
- facial asymmetry;
- violation of the proportionality of the face;

- violation of the face profile;
- shortening of the upper lip;
- the severity of the folds of the face;
- the state of the function of lips closing;
- the state of the chewing function;
- the state of the respiratory function;
- the state of the swallowing function;
- the state of the speech function;
- the state of the TMJ function;
- restriction in opening the mouth;
- periodontal disease;
- the condition of individual teeth;
- the position of individual teeth;
- violation of the shape of the dentition;
- malocclusion in the sagittal, vertical, transversal planes.

5. To identify congenital and acquired defects of the maxillofacial region.

6. Demonstrate moral and deontological principles of a medical specialist and the principles of professional subordination at an orthodontic appointment.

7. Substantiate and formulate a preliminary clinical diagnosis of dentoalveolar anomalies and deformities to the patient:
- with anomalies of individual teeth (size, shape, quantity, structure, eruption);
- with anomalies in the position of individual teeth (vestibulo-oral, mesio-distal, supra- and infra-occlusion, torto-occlusion, crowding, etc.);
- with anomalies of the dentition (shape, size);
- with malocclusion (in the sagittal, vertical, transversal planes).

8. Substantiate and formulate a syndromic diagnosis in orthodontic practice with:
- violation of posture;
- facial asymmetry;
- disorder of the proportionality of the face;
- disorder of the face profile;
- shortening of the upper lip;
- severity of natural facial folds;
- disorder of the function of lips closing;
- disorder of the function of chewing;
- respiratory dysfunction;
- dysfunction of swallowing;
- disorder of speech function;
- TMJ dysfunction;
- restriction in opening the mouth;
- periodontal disease;
- disorder of the condition of individual teeth;
- disorder of the position of individual teeth;
- disorder of the shape of the dentition;
- malocclusion in the sagittal, vertical, transversal planes.

9. To carry out differential diagnostics of diseases of the dental-jaw system:
- with anomalies in the size of individual teeth;

- with anomalies in the shape of individual teeth;
- with anomalies in the number of individual teeth;
- with diastema and trema;
- with crowded teeth;
- with tortoanomaly;
- with the vestibulo-oral position of the teeth;
- with prognathia (distal occlusion);
- with progeny (mesial occlusion);
- with an open bite;
- with a deep bite;
- with one - or two-sided cross bite.

10. Conduct differential diagnosis of somatic diseases, special management tactics for orthodontic patients with:
- heart defects;
- endocrine pathology;
- pathology of the musculoskeletal system;
- epilepsy;
- bronchial asthma;
- diabetes mellitus;
- HIV / AIDS;
- viral hepatitis;
- diphtheria;
- tuberculosis.

11. To examine the orthodontic patients:
- with anomalies of individual teeth (size, shape, quantity, structure, eruption)
- with anomalies in the position of individual teeth (vestibulo-oral, mesio-distal, supra- and infra-occlusion, torto-occlusion, crowding, etc.);
- with anomalies of the dentition (shape, size)
- with malocclusion (in the sagittal, vertical, transversal planes).

12. To carry out prevention of the most frequent dentoalveolar anomalies:
- with anomalies of individual teeth (size, shape, quantity, structure, eruption)
- with anomalies in the position of individual teeth (vestibulo-oral, mesio-distal, supra- and infra-occlusion, torto-occlusion, crowding, etc.);
- with anomalies of the dentition (shape, size)
- with malocclusion (in the sagittal, vertical, transversal planes).

THEMATIC PLAN OF LECTURES
indicating the main issues addressed in the lecture
MODULE №1.
«Orthodontia. Diagnostics of dento-gnathic anomalies and deformations».

№	The name of the topic	Number of hours
	Module 1. Orthodontics. Diagnosis of dental-jaw anomalies and deformities	
1	Orthodontics. Definition of the subject. Historical stages in the development of orthodontics. The role of domestic scientists in the development of the discipline. Features of the condition of teeth,	2

	dentition and occlusion, depending on age. A) Stages of development of orthodontics (characteristics of each). Orthodontic schools. Outstanding representatives and their contribution to science. Development of the national orthodontic school. Poltava School of Orthodontics. B) Embryogenesis of the maxillofacial region. Features of the structure of the oral cavity of the newborn. Condition of the temporomandibular joint. Functions of the baby's oral cavity. Morphological features of temporary and permanent teeth. C) Characteristics of the first, second and third periods of temporary bite. Characteristics of the periods of mixed bite. Stages of forming a permanent bite. Characteristics of periods of permanent bite. Angle, Andrews occlusion keys. Characteristics of the functions of the oral cavity in different age periods.	
2	Features of clinical examination of an orthodontic patient. Diagnosis and classification of dento-maxillary anomalies and deformities. Laboratory methods of examination of patients with dental-jaw anomalies and deformities. Orthodontic diagnosis. A) Stages of clinical examination (objective, subjective data). B) Classifications of dento-maxillary anomalies of Angle, Katz, Kalvelis, Betelman, WHO, Kurlyansky, ICD-10 Ilyina-Markosyan, Grigorieva. The advantages and disadvantages of each. The principles of constructing a preliminary orthodontic diagnosis. C) Laboratory methods of examination. Anthropometric and photometric method of face diagnostics. Morphometric measurements on CDM (Pon, Ton, Korgauz, Howley-Gerber-Herbst, Snagina, Dolgopolova). Functional examination methods (spirometry, masticiography, electromyography and others). X-ray methods: OPTG, CT, TRG, TMJ diagnostics and others. D) The principle of making the final diagnosis.	2
3	Methods of treating patients with dental-jaw anomalies and deformities depending on age. Mechanisms of growth and restructuring of the dento-maxillofacial complex. A) Age indications for orthodontic treatment. Dispensary groups. Biological method: means (myogymnastics with and without apparatus, massage, functional load) principles of carrying out. Rogers' principles of myogymnastics. B) Surgical treatment. Principles of use. Surgical interventions on soft tissues, teeth, alveolar arches and jaws. Skeletal Surgery. C) a prosthetic treatment method. Indications for use. Types of designs for children's prostheses. General requirements for structures. D) Instrumental method. Characteristics of the Khoroshilkina and Malygin apparatus. The principle of choosing the design of the device depending on the age of the patient and the type of anomaly. Mechanical, functional structural elements of removable and non-	2

	removable orthodontic appliances. E) The mechanisms of growth and development of the dentoalveolar system in different age periods (fontanelles, upper jaw, lower jaw, palate, base of the skull). Muscle function in activating the growth of the jaw bones. Factors that stimulate growth at different age periods.	
4	Prevention of dental-jaw anomalies and deformities in children, adolescents and adults. A) Determination of levels of prevention. Antenatal, postnatal. Classification of bad habits in children. Prevention means. Characteristics of the means used in different age periods (corresponding to 10 periods of the functioning of the Khoroshilkina dento-jaw system).	2
	Total	8

MODULE №2.
«Anomalies and deformation of dento-jaw region».

№	The name of the topic	Number of hours
	Module №2. «Anomalies and deformation of dento-jaw region».	8
Content module №1. Individual teeth anomalies		
1	Anomalies of individual teeth. Etiology, pathogenesis, clinical picture, diagnosis, prevention and treatment. a) Calvelis classification. Embryogenesis of teeth. Abnormalities in the number of teeth (adentia, supernumerary teeth. Etiology, pathogenesis, clinical picture, diagnosis, prevention and treatment). b) Anomalies in the size of teeth (macro-, microdentia. Etiology, pathogenesis, clinical picture, diagnosis, prevention and treatment). c) Abnormalities in the structure of hard tissues (fluorosis, hypoplasia, Stanton-Capdepon syndrome, ectodermal dysplasia) d) Teething anomalies (late, premature, persistent retention. Etiology, pathogenesis, clinical picture, diagnosis, prevention and treatment).	2
2	Anomalies in the position of individual teeth. Etiology, pathogenesis, clinical picture, diagnosis, prevention and treatment. A) dental embryogenesis. Characteristics of the physiological occlusion. Andrews' occlusion keys. Determination methods. B) Classifications of anomalies in the position of teeth: Engle, Kalvelis, Betelman. C) Vestibular position of the teeth: etiology, pathogenesis, clinical picture, diagnosis, degree of complexity, treatment methods depending on age. Selection of the device design depending on the clinical situation and the patient's age. D) the sky of the position of the teeth: etiology, pathogenesis, clinical picture, diagnosis, degree of complexity, methods of treatment depending on age. Selection of the device design	2

	depending on the clinical situation and the patient's age. E) lingual positions of teeth: etiology, pathogenesis, clinic, degree of complexity, treatment methods depending on age. Selection of the device design depending on the clinical situation and the patient's age. F) Torto-occlusion: etiology, pathogenesis, clinical picture, diagnosis, degree of complexity, methods of treatment depending on age. Selection of the device design depending on the clinical situation and the patient's age. G) Supra-occlusion of teeth: etiology, pathogenesis, clinical picture, diagnosis, degree of complexity, methods of treatment depending on age. Selection of the device design depending on the clinical situation and the patient's age. H) Infra-occlusion of teeth: etiology, pathogenesis, clinical picture, diagnosis, degree of complexity, methods of treatment depending on age. Selection of the device design depending on the clinical situation and the patient's age. I) mesial position of teeth: etiology, pathogenesis, clinical picture, diagnosis, degree of complexity, methods of treatment depending on age. Selection of the device design depending on the clinical situation and the patient's age. J) Distal arrangement of teeth: etiology, pathogenesis, clinic, degree of complexity, methods of treatment depending on age. Selection of the device design depending on the clinical situation and the patient's age. K) Dental crowding: etiology, pathogenesis, clinical picture, diagnosis, degree of complexity, treatment methods depending on age. Selection of the device design depending on the clinical situation and the patient's age. L) Diastema. Khoroshilkina types. Etiology, pathogenesis, clinical picture, diagnostics, degree of complexity, methods of treatment depending on age. Selection of the device design depending on the clinical situation and the patient's age. M) Tremas. Etiology, pathogenesis, clinical picture, diagnostics, degree of complexity, methods of treatment depending on age. Selection of the device design depending on the clinical situation and the patient's age. Prevention.	
	Content module №2. Bite anomalies.	
3	Sagittal occlusion anomalies. Etiology, pathogenesis, clinic, diagnosis, prevention and treatment. Mesial occlusion. Etiology, pathogenesis, Degrees of complexity according to Bagatsky. Forms of Betelman's anomaly. Methods for determining the forms of TRG. Calvelis classification, WHO. Methods of diagnosis of morphological, aesthetic and functional disorders. The choice of design of the device depending on a clinical situation and age of the patient. Prevention.	2

	Distal occlusion. Etiology, pathogenesis. Forms of Betelman's anomaly. Methods for determining the forms of TRG. WHO classification. Methods of diagnosis of morphological, aesthetic and functional disorders at different stages of formation of the dental-maxillary system. The choice of design of the device depending on a clinical situation and age of the patient. The role of breastfeeding and artificial feeding in the development of occlusion in the sagittal plane. Echler-Bitner clinical functional test and its prognostic value. The role of functional equipment in the treatment of distal occlusion. Prevention.	
4	Vertical occlusion anomalies. Etiology, pathogenesis, clinic, diagnosis, prevention and treatment. Open bite. Etiology, pathogenesis. Forms of Calvelis anomaly. Degrees of complexity of the Khoroshilkina anomaly. The role of bad habits in children in the formation of an open bite. Classification of bad habits by Okushko. Methods of diagnosis of morphological, aesthetic and functional disorders at different stages of formation of the dental-maxillary system. The choice of device design and method of treatment depending on the clinical situation and age of the patient. Forms of anomaly on TRG. Prevention. Deep bite. Etiology, pathogenesis. Forms of Calvelis anomaly. Degrees of complexity of the Khoroshilkina anomaly. The role of bad habits in children in the formation of an open bite. Classification of bad habits by Okushko. Methods of diagnosis of morphological, aesthetic and functional disorders at different stages of formation of the dental-maxillary system. The choice of device design and method of treatment depending on the clinical situation and age of the patient. Forms of anomaly on TRG. Prevention.	2
5	Transverse occlusion anomalies. Etiology, pathogenesis, clinic, diagnosis, treatment. Cross bite. Etiology, pathogenesis. Forms of anomaly according to Uzhumetsken. Clinical functional tests according to Ilyina-Markosyan. Methods of diagnosis of morphological, aesthetic and functional disorders at different stages of formation of the dental-maxillary system. The choice of device design and method of treatment depending on the clinical situation and age of the patient. Forms of anomaly on a direct TRG. Prevention.	2
	Total	10

MODULE №3.
«Children's dental prosthetics. Innate clefts of the face and jaws».

№	The name of the topic	Number of hours
1	Clinical and biological substantiation of children's dental prosthetics. Causes of defects of teeth and dentitions in children, their prevention. Features of determination of masticatory efficiency.	2

	Non-removable structures of children's dentures (crowns, inlays, cult and pin teeth, bridges) indications for their manufacture. A) Historical aspects of the development of the prosthetic method in Ukraine and the world. The contribution of domestic scientists to the development of orthopedic structures for children. Justification of the need for children's prosthetics. Requirements for children's prostheses. Materials for production. Terms of replacement depending on age periods. B) Determination of masticatory efficiency in children in different periods of bite formation. Loss depending on the location of the defect. Classifications of defects of individual teeth and dentitions in children. Advantages and disadvantages. C) The use of non-removable structures in children (crowns, inlays, cult and pin teeth, bridges) indications for their manufacture.	
2	Congenital malformations of the human face (slit defects). Stages of orthodontic treatment. A) Embryogenesis of the maxillofacial region. Etiology and pathogenesis of congenital malformations. Classification of congenital malformations of the face in Kharkov (2003). Classification of Kolesov nonunions. Terms and sequence of surgical interventions. McNeill method. Obturators, protective plates, shapers. Modern manufacturing technologies. B) Modern methods of diagnosing congenital malformations. C) Aesthetic treatment of adults. Combined method of treatment. Prosthetics on implants. D) Prevention of congenital malformations. Risk groups.	2
3	Macro-micro-mini-aesthetic analysis of the human face. The role of TRG research in the diagnosis and prognosis of orthodontic treatment. A) Anthropometric method of studying the face, significance in predicting the results of treatment. B) TRG diagnostics. Methods. Determination of the form of the anomaly. Prognosis of treatment. C) Mini-indicators of facial aesthetics. Characteristics of a smile, lips, cheek corridor. The role of indicators in the choice of treatment tactics. D) Micro-indicators of aesthetics. Condition of teeth, gums and other things. A comprehensive method of aesthetic analysis for the preparation of a treatment plan.	2
4	Interdisciplinary approach to the treatment of patients with dental anomalies at different ages. Definition of the concept of "integrated approach". On the example of clinical situations, options for a combination of different methods of eliminating dental anomalies depending on the age and severity of the anomaly are presented.	2
	Total	8

TOPICS OF SEMINAR CLASSES

№ п/п	The name of the topic	Number of hours
1	***Not provided by the work program for III, IV and V courses***	----

THEMATIC PLAN OF PRACTICAL CLASSES BY MODULES AND CONTENT MODULES, SPECIFYING THE BASIC ISSUES, WHICH ARE CONSIDERED AT THE PRACTICAL CLASS

MODULE №1.

«Orthodontia. Diagnostics of dento-gnathic anomalies and deformations».

№	The name of the topic	Number of hours
1	Stages of the dento-alveolar area development in the age aspect: prenatal, postnatal. Embryonic development of the face and jaws. Anatomical and physiological characteristics of the oral cavity and temporo-mandibular joint of newborn. Mechanisms of growth and development of maxillo-facial area at this period.	2
2	Morphological and functional features of the temporary occlusion. Main periods of the temporary occlusion. Symptom by Tsylinsky, its predictive value. Final planes by Schwarz. Mechanisms of growth and development of maxillo-facial area at this period.	2
3	Mixed bite. Morphological and functional characteristics. Bite increasing stages and jaw growth periods. Morpho-functional characteristics of permanent occlusion. Mechanisms of growth and development of maxillo-facial area at this period.	2
4	The concept of norm in orthodontics. Orthognatic bite, its characteristics. Keys of occlusion by Angle and Andrews. Physiological and pathological types of occlusion.	2
5	***The control content module №1.***	2
6	Clinical methods of patients' examination with malocclusion. Subjective examination. Objective examination.	2
7	Anthropometric measurements of the head in three perpendicular planes. Photometrics in orthodontia. The CDM' studies by Tonn, Pont, Korkhaus. Snagina method. Geometrically-graphic method of the dental arches shape study by Hawley-Herber-Herbst.	2
8	Methods of respiratory function' examination. Functional respiratory test. Samples of breath (Shtangeh's and Ghench's tests). Spirometry, vital capacity of lungs (VCL) in patients with malocclusion.	2
9	Methods of speech function' examination. Palatography method: direct and indirect. Features of articulation zones in patients with normal occlusion and with malocclusion. Features of swallowing types, their characteristics.	2
10	Mastication examination methods.	2

11	X-ray examination methods (panoramic, dental images, bone age determination, CT, MRI).	2
12	Cephalometric methods (straight and lateral). Decoding by Schwarz, Downs, Ricketts et al. Basic anthropometric landmarks.	2
13	X-ray classification of malocclusions based on data cephalometric research. Basic forms of malocclusion: gnathic (skeletal), dento-alveolar and mixed.	2
14	Classification of malocclusion. The principle of their construction, the advantages and disadvantages, and community differences. Classification by Angle, Betelman, Kalvelis, Grigorieva, WHO.	2
15	Etiology and pathogenesis of dento-jaw-facial abnormalities and deformities. Definitions «anomaly», «deformation», «congenital», «acquired», «hereditary».	2
16	The final diagnosis making. The role of classification in determining of the diagnosis.	2
17	***The control content module №2.***	2
18	Principles of orthodontic care for the population of Ukraine. Preventive orientation and complexity of orthodontic treatment. Ability to self-regulation of malocclusion. Choice of treatment methods taking into account the patient's age, severity of abnormality. Dispensary groups.	2
19	Methods of orthodontic patient's treatment. Indications for orthodontic treatment according to the age of patient.	2
20	Biological treatment method. Myogymnastic. Massage.	2
21	Complex of myogymnastic exercises without appliances and with it.	2
22	Complex of myogymnastic exercises for different malocclusion.	2
23	Instrumental method. General characteristic of the method. Classifications of orthodontic appliances.	2
24	Instrumental method. Elements of orthodontic appliances. Ways of orthodontic appliances making.	2
25	Instrumental method. Indications for use according to the patient's age.	2
26	Theories of periodontal tissues reconstructing (Flurence theory, Kingsley-Walkgof and Oppenheim theory). Biomechanics of tooth movement in three perpendicular planes. Morphological changes in periodontal tissues during the tooth movement.	2
27	Surgical methods of orthodontic patients' treatment. Surgical methods used in the treatment of orthodontic patients: 1) within the soft tissues of the oral cavity; 2) within the dentition; 3) within the alveolar process; 4) within the basal parts of the jaws and other parts of the skull.	2
28	Methods of orthodontic treatment acceleration.	2
29	****The control content module №3.***	2

30	**Final module control.**	2
	Total	60

MODULE №2. «Anomalies and deformation of dento-jaw region».

№	The name of the topic	Number of hours
	Module №2. Anomalies and deformation of dento-jaw region. ***Content module №1. Individual teeth anomalies.***	
1	Individual teeth anomalies.	1
2	Teeth number anomalies. Teeth eruption anomalies.	2
3	The individual teeth position anomalies.	3
4	Anomalies of the dental arches.	4
	Content module №2. Bite anomalies.	
5	Sagittal malocclusion. Mesial bite. Etiology, pathogenesis, prevention.	2
6	Clinical manifestation and diagnosis of mesial bite.	2
7	Comprehensive treatment of patients with mesial bite.	2
8	Distal bite. Etiology, pathogenesis, prevention.	2
9	Clinical manifestation and diagnosis of the distal bite.	2
10	Comprehensive treatment of patients with distal bite.	2
11	Vertical malocclusion. Deep bite. Etiology, pathogenesis, prevention.	2
12	Clinical manifestation and diagnosis of deep bite.	2
13	Comprehensive treatment of patients with deep bite.	2
14	Open bite. Etiology, pathogenesis, prevention.	2
15	Clinical manifestation and diagnosis of open bite.	2
16	Comprehensive treatment of patients with open bite.	2
17	Transversal malocclusion. Cross bite. Etiology, pathogenesis, prevention, clinical manifestation and diagnosis.	2
18	Comprehensive treatment of patients with cross bite.	2
19	*Computer control.	2
20	***Case report.**	2
	Total	40

MODULE №3.
«Children's dental prosthetics. Innate clefts of the face and jaws».

№ п/п	The name of the topic	Number of hours
1	Organization of orthodontic care for children and adolescents with defects of teeth and dental rows. Clinical and biological justification of child dental prosthetics. Types of prosthetics in children, adolescents and adults with anomalies of individual teeth. Types of prosthetics in children with dento-alveolar anomalies of I class by Angle.	2
2	Clinical and biological justification of child dental prosthetics. Types of prosthetics in children with dento-alveolar anomalies of II-nd class by Angle.	2

	Devices of dentures in children for the restoration of the anatomical shape of the teeth. Structures of removable dentures.	
3	Clinical and biological justification of child dental prosthetics. Types of prosthetics in children with dento-alveolar anomalies of III-rd class by Angle. Types of prosthetics in children with congenital development of teeth and jaws.	2
4	Clinical and biological justification of child dental prosthetics. Partial dentures at childhood. The using of complete dentures at children.	2
5	Traumatic dental injuries of the teeth and jaws at childhood.	2
6	Fixed orthodontic appliances.	2
7	Removable orthodontic appliances.	2
8	Changes of maxillo-dental system with endocrine pathology.	2
9	Etiology, pathogenesis, diagnosis and prevention of congenital defects of the face.	2
10	**Control content Module №1.**	6
11	Morphological and functional features of maxillo-dental system formation in the different age of the child and their clinical evaluation.	6
12	Methods of dento-gnathic anomalies diagnostics.	6
13	Features of local and general disturbances of the body in patients with malocclusions.	6
14	Orthodontic treatment planning.	6
15	***The final module control.**	
	Total	50

SELF-DIRECTED WORK
MODULE №1. «Orthodontia. Diagnostics of dento-gnathic anomalies and deformations».

№	**Content**	Number of hours
1	Preparation to practical classes – theoretical preparation and development of practical skills	26
2	Preparation to laboratory work	-
3	Writing an educational case report	-
4	Preparation of the control work, essay, preparation for current control measures	18
5	Preparation to the final modular control	6
6	Preparation to the exam	-
7	Elaboration of topics that are not included in the classroom lesson plan: "Technique of removable orthodontic appliances manufacturing" Questions about the topic: - Production of a working model (phantom).	2

	- Base plate modeling. - Plastering of the cuvette in the reverse way. - Plastering of the cuvette in a direct way. - Methods of manufacturing the base of the appliance from acrylic.	
	Total	52

MODULE №2. «Anomalies and deformation of dento-jaw region».

№	**Content**	Number of hours
1	Preparation for practical classes – theoretical preparation and development of practical skills	10
2	Preparation to laboratory work	-
3	Writing an educational case report	12
4	Preparation of the control work, essay, preparation for current control measures	-
5	Preparation for the final modular control	6
6	Preparation to the exam	12
7	Elaboration of topics that are not included in the classroom lesson plan	-
	Total	40

MODULE №3. «Children's dental prosthetics. Innate clefts of the face and jaws».

№	**Content**	Number of hours
1	Preparation for practical classes – theoretical preparation and development of practical skills	21
2	Preparation to laboratory work	-
3	Writing an educational case report	-
4	Preparation of the control work, essay, preparation for current control measures	5
5	Preparation for the final modular control	6
6	Preparation to the exam	-
7	Elaboration of topics that are not included in the classroom lesson plan	-

INDIVIDUAL STUDENT WORK

For students of all courses, participation in the work of the student society.

LIST OF THEORETICAL QUESTIONS
to the final module control
MODULE №1. «Orthodontia. Diagnostics of dento-gnathic anomalies and deformations».

1. Orthodontics – definition, purpose and tasks. Domestic and foreign scholars who contributed to the development of orthodontics.
2. Embryonic development of the face and jaws.
3. Features of the oral cavity and temporo-mandibular joint structure of the newborn. Their role in the process of formation of the dento-jaw area.
4. Factors that provide the growth and development of dento-jaw area.
5. Tsylinsky' symptom and its prognostic value.
6. Morphological and functional characteristics of temporary bite. Characteristics of its periods.
7. Features of the functional state of chewing and mimic muscles depending on the stage of bite development.
8. Morphological and functional characteristics of the dento-jaw area during the period of mixed bite.
9. Morphological characteristic of permanent bite.
10. Functional characteristic of the dento-jaw area during the period of permanent bite.
11. Keys of occlusion by Angle and Andrews.
12. Etiology and pathogenesis of dento-maxillofacial anomalies and deformations.
13. Classification of malocclusion and deformations by Engle and Katz, their distinctive features.
14. Classification of malocclusion and deformations by Kalvelis, Betelman. The principle of its construction.
15. Classification of malocclusion by Grigorieva, WHO.
16. Basic anthropometric measurements on diagnostic models and their diagnostic value.
17. Methods of study of speech and respiratory function.
18. Methods of study of chewing function and swallowing.
19. Photometry in orthodontics.
20. The main anthropometric guidelines when assessing the faces and profile of the patient's face. Analysis of results.
21. Radiological methods of research of dento-jaw area (sight, axial radiography of teeth, orthopantomography, cephalometrics, etc.).
22. Cephalometric analysis by Schwartz. Craniometric measurements, its purpose, diagnostic value.
23. Gnatometric measurements of cephalometrics by Schwartz. Their diagnostic value.
24. Profilometric measurements in cephalometrics analysis.
25. Role of cephalometrics in diagnosing and predicting the results of orthodontic treatment of patients with malocclusion.
26. General characteristic of orthodontic appliances. Age indications and

contraindications to their use.
27. Mechanically acting orthodontic appliances. Its varieties and principle of action.
28. Functionally-acting and functionally-directing orthodontic appliances and its distinctive features.
29. Indication for appliance, surgical and combined methods of treatment of patients with malocclusion depending on age.
30. Surgical intervention in the complex treatment of orthodontic patients.
31. Characteristics of forces used in orthodontics. The character of morphological and functional changes in periodontium with the use of small, medium, large, intermittent and continuous forces in orthodontics.
32. Theory of bone remodeling, which explains the process of orthodontic tooth movement (Flurence Kingsley-Walkgof and Oppenheim).
33. Modern theories of bone tissue changes under the influence of orthodontic appliances (Kalvelis, Rajsman, Pozdnyakova).
34. Methods of orthodontic treatment acceleration (surgical, physiotherapeutic, biological). Their essence, age indications.
35. Features of morphological and functional changes in parodontium with use of small, medium and large, intermittent and constant forces in orthodontics.

MODULE №3. «Children's dental prosthetics. Innate clefts of the face and jaws».

1. Orthodontics – definition. Goals and objectives. Domestic and foreign scientists who contributed to the development of orthodontics.
2. The main biological factors that ensure the growth and formation of the dento-jaw system.
3. Physic-chemical and clinic-biological properties of the main materials used for the manufacture of orthodontic appliances.
4. Determination of the degree of manifestation of morphological and functional disorders in the dento-jaw area and the difficulties of orthodontic treatment.
5. Planning of orthodontic treatment based on the patient's contact with the doctor (1-4 types of patients, depending on the behavior).
6. Causes of teeth and dentition defects in children, their diagnosis and classification (K.N. Shamsiev, E.Y. Simanovskaya, T.V. Sharova, L.M. Demner, Z.S. Vasilenko and S.I. Treel)
7. Clinic, diagnostics and treatment of defects of the crown part of the tooth in children. Rational design of dentures.
8. Methods of prosthetics of defects of the crown part of temporary teeth, indications for their use.
9. Anatomical and functional changes in the chewing appliances of children in the formation of defects in teeth and dentitions and their consequences.
10. Methods of orthopedic treatment in the absence of crown part of permanent teeth in children. Possible errors and their consequences.
11. Clinical and biological substantiation of children's dental prosthesis. Concepts of scientists regarding the feasibility of making dentures in children.
12. Indications, contraindications for replacement of dental defects in children with fixed prosthetics.
13. Features of dental defects replacing in children with removable denture.
14. Complete absence of teeth in children, its causes. Indications for the use of complete

removable prosthetics, features of their construction, methods of fixation, replacement times.
15. Effect of removable dentures on prosthetic tissue and periodontal disease, mucosal disease, caused by dentures, and their treatment.
16. Features of prosthetics treatment of complicated defects of dentition in children.
17. Features of complex orthopedic treatment of children with adentia.
18. Trauma of teeth and jaws in children, classification, etiology, diagnostics, treatment tactics.
19. Traumatic tooth injuries in children. Features of their clinic and diagnostics. Tactics of treatment. Terms of orthopedic surgery.
20. Clinical features of fractures of the upper jaw in children and their orthopedic treatment.
21. Orthopedic treatment of defects of the upper jaw in children after partial resection due to malignant tumor.
22. Mechanism of displacement of lower jaw fractures with one-sided mental fracture, methods of their orthopedic treatment in children.
23. The mechanism of displacement of lower jaw fractures with a bilateral fracture in the area of the angle and the peculiarities of their orthopedic treatment in children.
24. Mechanism of displacement of lower jaw fractures with a bilateral mental fracture, orthopedic treatment of them in children.
25. Congenital malformations, their causes, diagnosis, classification.
26. Morphological and functional disorders in the dento-jaw system with upper lip cleft, alveolar process cleft, hard and soft palate.
27. Characteristics of various construction of obturators and indications for their use in children with upper lip cleft, alveolar process cleft, hard and soft palate.
28. Clinical and laboratory stages of the production of Andersen-Houple appliances.
29. Constructive features, principle of action, indications for use.
30. Clinical and laboratory stages of manufacture of Frankle appliances 1-4 types, their design features, principle of operation, indications for use.
31. Morphological and functional disorders in the dento-jaw system associated with the pathology of the endocrine system.
32. Constructive features and principle of bracket systems.
33. The choice of the treatment methods of orthodontic patients, taking into account the type of behavior and the complexity of treatment.
34. Determination of difficulty degree of treatment.
35. Prevention of possible complications during orthodontic treatment.
36. Causes of relapse of orthodontic pathology.

LIST OF PRACTICAL TASKS AND WORKS
to the final module control in the discipline "Orthodontics"
MODULE №1. «Orthodontia. Diagnostics of dento-gnathic anomalies and deformations».

1. Make anthropometric measurements on the CDM by Tonn, Pont, Korkhaus, Snagina. Measurement of the height of the palatal arches using the Korkhaus method, Ilyina-Markosyan. Establishing of the proportionality of the development of dental segments by the Gerlah method. Geometric-graphical method for dental arch shape studying by Hawley-Herber-Herbst.

2. Determine articulation zones with implicit palatography.
3. Perform an analysis of the patient's face in a photo. Describe dental, axial images, orthopantomogram.
4. Decode the cephalometric image (face).
5. Decode the cephalometric profile image by Schwarz (gnatometric, craniometric, and profilometric measurements).
6. To establish and substantiate the preliminary and final diagnosis of the orthodontic patient based on the basic and additional research methods.
7. Record the clinical and dental formula by WHO.
8. Make a plan of orthodontic treatment of the presented patient.
9. To choose orthodontic appliances for treatment depending on the clinical situation. Determine the ratio of jaws.
10. Determine the shape of dental arches.
11. Analyze X-ray images, tomograms, and CT scanners.
12. Determine the lack of space in the dental arch for malposition tooth by Nanse; determine the degree of jaw contraction by Pont.
13. To formulate a preliminary diagnosis by the classification of Angle, Kalvelis, Betelman, Grigorieva, WHO.
14. Determine the degree of complexity of orthodontic treatment by Zibert-Maligin.
15. To indicate a complex of myogymnastic exercises for training of mimic and chewing muscles in open, deep, distal, mesial bites.
16. On the KDM and OPTG, determine the patient's dental age, the period of bite formation.
17. To give a description of an orthodontic appliance according to the classification by Khoroshilkina-Maligin.
18. On the OPTG determine the stage of formation of the root of the specified tooth by Tochilina.

MODULE №3. «Children's dental prosthetics. Innate clefts of the face and jaws».

1. To be able to determine the need for therapeutic, surgical, orthodontic care during dental examination of children and adolescents and to make a sequence of manipulations.
2. To be able to determine the indications for the choice of complex treatment of the orthodontic patient.
3. Be able to determine the degree of complexity of orthodontic treatment.
4. To be able to check up an orthodontic appliances or children's prosthesis at first visit.
5. To be able to correct and activate the orthodontic appliances.
6. To be able to fix removable and fixed children's dentures.
7. To be able to stimulate orthodontic treatment.
8. To be able to make selectively teeth abrasion.
9. To be able to make a plan of preventive measures to prevent orthodontic pathology.
10. To be able to define a group of the risk of orthodontic pathology.
11. To be able to model the basis of a removable orthodontic appliances.
12. To be able to recognize the syndromes of diseases of the endocrine system, which is manifested in the oral cavity.
13. To be able to provide orthodontic care to children with trauma of teeth and jaws depending on the age of the child, the characteristic of the injury and its term.

14. To be able to carry out orthodontic treatment for children with complicated defects of dentitions.
15. To be able to provide orthodontic care for upper lip cleft and alveolar process cleft.

QUESTIONS FOR SEMESTER FINAL CERTIFICATION
Control of theoretical training of students.

1. Embryonic development of the face and jaws.
2. Cross bite treatment according to type of anomaly by Uzhumetskene and according to patient's age.
3. Anatomical and physiological features of the structure of the newborn oral cavity.
4. Biological method of distal bite treatment.
5. Factors that ensure growth and development of human dentition areas.
6. Abnormalities of tooth sizes and shapes. Conical teeth as harbingers of adentia. Microdontia and macrodontia. Clinics, diagnostics and treatment.
7. Morphological and functional characteristic of dento-alveolar region during period of formation of temporal bite.
8. Etiology, pathogenesis, clinics, diagnostics, treatment of maxillary diastema.
9. Symptom of Tsylinskiy (mesial step) and its prognostic significance.
10. Teeth number anomalies (hyperdontia, hypodontia). Etiology, clinical features, diagnostic and treatment.
11. Morphologic and functional characteristic of dento-alveolar region during stable period of temporal bite.
12. Supernumerary teeth. It's shape, amount, position. Clinical and radiological diagnostics. Tactics of orthodontic treatment. Indications for saving them in the dental arch.
13. Morphological and functional characteristic of dento-alveolar region during third period of temporary bite.
14. Adentia. Types of adentia according to the number of missing teeth (partial, multiple, full). Clinical and radiological diagnosis of this anomaly. Extraoral and intraoral signs of multiple adentia.
15. Morphological and functional characteristic of dento-alveolar area during mixed bite.
16. Comprehensive treatment of patients with distal occlusion (form II1) in the period of mixed bite.
17. Physiological stages of height elevation of the bite.
18. Violation of teeth eruption: early and delay. Etiology, clinical features and treatment.
19. Mechanisms of the upper jaw growth.
20. Method of serial teeth extraction by Hotz.
21. Morphological and functional characteristic of dento-alveolar region during permanent bite.
22. Methods of teeth retention treatment: prosthetic, surgeon and combined (surgeon and appliance).
23. Clinical examination of patients with malocclusion. Determination of general physical patient' condition. The value of anamnestic data.
24. Etiology, pathogenesis, clinical features and treatment of patients with vestibular

positions of the upper jaw incisors (I class).
25. Clinical examination of orthodontic patients. Configuration of the patient' face, proportionality, type of profile. Study of the face configuration changes in clinical diagnostic tests by Eshler-Bitner.
26. Etiology, pathogenesis, clinical features and treatment of patients with palatal position of the upper jaw incisor.
27. Aesthetic standards in Orthodontics. Clinical diagnostic tests by Ilyina-Marcosyan.
28. Etiology, pathogenesis, clinical features and treatment of patients with lower incisors crowding (I class).
29. Antropometric measurements on study models by Pont.
30. Etiology, pathogenesis, clinical features and treatment of patients with vestibular position of upper jaw canines (I class).
31. Antropometric measurements on study models by Korkhaus.
32. Etiology, pathogenesis, clinical features and treatment of patients with tortooclusion of upper frontal teeth.
33. Antropometric measurements by Tonn.
34. Etiology, pathogenesis, clinical features and treatment of patients with supraoclusion of upper frontal teeth.
35. Anthropometric measurements of the jaws diagnostic models according to the method Snagina (Howes).
36. Etiology, pathogenesis, diagnostics and treatment of patients with mesio-distal teeth displacement on the upper jaw.
37. Determine the proportionality of dental arch segments by Gerlah.
38. Distal bite (II-1). Mechanism of distal occlusion formation as a result of artificial feeding. Biological method of treatment.
39. Influence of breathing function on development of dento-alveolar and facial part of the skull. Clinical and functional methods of breathing function examination.
40. Extraoral signs of distal bite. Value of clinical test by Eshler-Bitner.
41. Influence of swallowing function on bite condition. Clinical and laboratory methods of examination of swallowing function.
42. Forms of distal bite. Classification in which they are presented.
43. Geometrically-graphic method of the dental arches shape studying by Hawley-Herber-Herbst.
44. Treatment of patient with distal occlusion in temporal bite.
45. Influence of speech function on bite conditions. Clinical and laboratory methods of examination of tongue functions.
46. Treatment of patient with distal occlusion in mixed bite.
47. Types of X-ray examination of orthodontic patient.
48. Treatment and prevention of distal occlusion in permanent bite.
49. Requirements to cephalometric head examination technique. Cephalometric evaluation by Schwarz (craniometric measurement)
50. Clinics, diagnostics of III class by Angle.
51. Biological treatment method. Masticatory and mimic muscles like the object of functional treatment.
52. Etiology of mesial bite. Forms and degrees of severity.
53. Appliance method of treatment. Appliances of mechanical action.

54. Treatment of patients with mesial occlusion in mixed bite, its prevention.
55. Appliance method of treatment. Appliances of functional action.
56. Treatment of patients with mesial occlusion in permanent bite, its prevention.
57. Appliance method of treatment. Appliances of combined action.
58. Etiology, clinical presentation, treatment of patients with open bite in different age periods.
59. Theories of periodontal tissues reconstructing under the action of orthodontic force.
60. Etiology, clinical presentation, treatment of patients with deep bite in different age periods.
61. Surgical and physiotherapeutic methods of orthodontic treatment.
62. Etiology, clinical presentation, treatment of patients with cross bite, its prophylactics.
63. What studies Orthodontics. The concept of norm in Orthodontics.
64. Areas of growth and development of lower jaw.

Control of practical training of students.

1. Determine the dental age of child based on panoramic radiography.
2. Determine the root formation phase of tooth 45 based on panoramic radiography.
3. Determine stage of germ formation of tooth 18 (by Tochylyna T. A.).
4. Determine state of TMJ elements based on X-ray.
5. To make correction and activation of orthodontic appliance.
6. Determine the lack of space for displaced tooth on the jaws control model.
7. Determine stage of TMJ elements based on X-ray examination.
8. Determine symmetry of right and left part of the lower jaw based on panoramic radiography.
9. Determine stage of tooth 13 retention based on panoramic radiography.
10. Create a complex of myogymnastics exercises for patients with II1 class by Angle in the period of mixed bite.
11. Determine on the orthopantomogram the degree of retention of the tooth 47 (according to F.Y. Khoroshilkina).
12. Determine angle F based on cephalometry. Its prognostic value.
13. Determine angle I based on cephalometry. Its prognostic value.
14. Determine of horizontal angle based on cephalometrics by Shwartz. Its prognostic value.
15. Determine angle B based on cephalometrics. Its prognostic value.
16. Determine angle Ii based on cephalometrics. Its prognostic value.
17. Determine angle T based on cephalometrics. Its prognostic value.
18. Determine the size of the lower jaw on cephalometrics, and its prognostic value.
19. Determine bone state by X-ray of the hand.
20. Make measurements by Pont on upper dental arch.
21. Put diagnosis by Angle (according to diagnostic model).
22. Put diagnosis by Betelman (according to diagnostic model).
23. Put diagnosis by Kalvelis (according to diagnostic model).
24. Put diagnosis by Grigor'eva L.P. (according to diagnostic models of jaws).
25. Measure the width of lower dental arch on diagnostic model and analyze the results.
26. Put diagnosis by Angle (according to diagnostic model).
27. Determine dental age and period of bite formation on the model.

28. Put diagnosis by Angle (according the diagnostic model).
29. Determine the length of upper dental arch on the model and analyze the results.
30. Measure the length of upper and lower dental arches frontal part on diagnostic models and analyze the results.
31. Evaluate the proportionality of the facial part of the skull by cephalometry.
32. Determine the angles of the central incisor inclination of the upper and lower jaws by cephalometry.

TRAINING METHODS

- *Verbal* (lectures, explanations, stories, conversations, instructions).
- *Visual* (observation, illustrations, demonstrations).
- *Practical* (various types of exercises, graphic work, practice).

CONTROL METHODS

- oral control;
- written control;
- test control;
- graphic control;
- computer control;
- practical control;
- methods of self-control and self-assessment.

METHODOLOGICAL SUPPORT

1. Thematic plans of lectures and practical lessons.
2. Methodical instructions for independent work of students in preparation for a practical lesson and in the lesson.
3. Lectures designing.
4. Multimedia presentations for lectures.
5. Complexes of test items for practical training.
6. Cases with tasks for the current and final level of knowledge.

CONTROL FORMS
SYSTEMATIC CONTROL
SEMESTER FINAL CERTIFICATION
(provided by the work program in the VII semester)

Applicants take the semester exam during the examination session provided by the curriculum. The semester exam is held according to a separate schedule, which is approved by the first vice-rector for scientific and pedagogical work. Before the exam, the department organizes consultations. The schedule of pre-examination consultations, time and place of the examination the department informs the applicants for higher education not later than 2 weeks before the examination session.

Applicants are admitted to the exam who have no missed missed classes, scored a minimum of at least 72, defended a medical history, have positive test scores and received a mark in the individual curriculum for admission to the session of the dean of the faculty. Admission to the semester exam is not affected by academic arrears in other disciplines. Semester exams in UMSA are accepted by a commission, in accordance with the "Regulations on the examination commission". Examinations are open and

public. Grades obtained during the examination by the attested persons are set out in the "Statement of final semester control" and in the individual plans of students.

The examination ticket for the discipline contains three specific basic questions (2 theoretical and 1 practical), which are formulated in such a way that the reference answer of the applicant for each last up to 3-5 minutes. The questions cover the most important sections of the working curriculum, which are sufficiently covered in the literature sources recommended as the main in the study of the discipline. Examination tickets are approved by the faculty council to which the department is subordinated and signed by the dean. Each question of the examination ticket is evaluated within 0-20 points. As a result of passing the theoretical part of the exam, the student is given a total grade from 0 to 80 points, the conversion of points into the traditional grade is not carried out. If the applicant violates the rules of academic integrity, during the exam, the results are canceled, the student is given a grade of "unsatisfactory" (0 points).

In case of disagreement of the higher education applicant with the grade obtained for the exam, the higher education applicant has the right to file an appeal (in accordance with the "Regulations on the appeal of the results of final control of knowledge of higher education applicants"). Applicants for higher education who during the study of the discipline in which the exam is conducted, had an average score of 4.50 to 5.0 are exempt from the exam and automatically (by agreement) receive a final grade, while the presence of the applicant in the exam is mandatory. In case of disagreement with the assessment, the specified category of applicants for higher education takes the exam according to the general rules. The applicant of higher education has the right to retake the exam no more than 2 times and only during the examination session. Permission to retake the exam is issued by the dean in the form of "Personal statement of retaking the final control", which the student receives in the dean's office under a personal signature upon presentation of an individual curriculum. When organizing the re-examination of a group of applicants for higher education, a general statement is used. The result of re-taking the exam is certified by the signatures of all members of the commission in the test-examination statement. Applicants for higher education who have not passed the exam within the prescribed period are subject to expulsion from the academy.

SCHEME OF ACCRUAL AND DISTRIBUTION OF POINTS THAT STUDENTS RECEIVE FOR ACADEMIC PROGRESS

Ongoing control can be carried out in the form of oral interviews, solving situational tasks, assessment of manipulations, written control, written or software computer testing in practical classes, discussions, etc.

Assessment is carried out in each practical session in accordance with the specific objectives of each topic. When assessing the mastery of each topic of the module, the higher education seeker is given grades on a four-point (traditional) scale. Generalized criteria for assessing students' knowledge:

- "excellent" - the applicant has a knowledge of the topic at least 90%, both in the survey and in the test. Well versed in subject terminology. Clearly formulates answers

to questions. Practical work is performed in full;

- "good" - the applicant has a knowledge of the subject not less than 75-89%, makes insignificant mistakes, which he corrects by answering leading questions. When performing test tasks answers 75% of questions. Practical work is performed in full, minor errors are allowed;

- "satisfactory" - the applicant has a knowledge of the topic not less than 60-74%, when tested corresponds to not less than 60%. The answers are not accurate enough, the leading questions do not correct them. Practical work is not fully performed;

- "unsatisfactory" - the applicant did not master the required minimum knowledge of the subject and was tested within 59%. Unable to answer leading questions, operates with inaccurate formulations. Has no practical skills.

Table 1. Standardized generalized criteria for assessing the knowledge of higher education students in UMSA

For 4-point scale	Score in ECTS	Evaluation criteria
5 (excellent)	A	The student shows special creative abilities, is able to acquire knowledge independently, without the help of the teacher finds and processes the necessary information, is able to use the acquired knowledge and skills for decision-making in unusual situations, convincingly argues answers, independently reveals own talents and inclinations, possesses not less than 90 % of knowledge on the topic both during the survey and all types of control.
4 (good)	B	The student is fluent in the studied amount of material, applies it in practice, freely solves exercises and problems in standardized situations, independently corrects errors, the number of which is insignificant, has at least 85% knowledge of the topic as during the survey, and all types of control.
	C	The student is able to compare, generalize, to systematize the information under the guidance of the scientific and pedagogical worker, as a whole to apply it independently in practice, to control own activity; to correct mistakes, among which there are significant ones, to choose arguments to confirm opinions, has at least 75% of knowledge on the topic both during the survey and all types of control.
3 (satisfactory)	D	The student reproduces a significant part of theoretical material, shows knowledge and understanding of the basic provisions with the help of a researcher can analyze educational material, correct errors, among

		which there are a significant number of significant, has at least 65% knowledge of the topic, and during the survey, and all types of control.
	E	The student has the educational material at a level higher than the initial, a significant part of it reproduces at the reproductive level. has at least 60% knowledge of the topic both during the survey and all types of control.
2 (unsatisfactory)	F	The applicant has the material at the individual level fragments, which make up a small part of the material, have less than 60% knowledge of the topic both during the survey and all types of control.
	FX	The student has the material at the level of elementary recognition and reproduction of individual facts, elements, has less than 60% knowledge of the topic as during the survey, and all types of control.

Assessment of higher education seekers' success is integrated (all types of work are evaluated, both in preparation for the lesson and during the lesson). Conversion of the current grade, set on a traditional scale, in each lesson in multi-point is not carried out.

Conversion of the grade on the traditional 4-point scale into multi-point (maximum 120 points) - conversion of the total score of the current performance per module - is carried out only after the current lesson, which precedes the final module control. The conversion is performed according to the following algorithm:

- calculates the average student's grade on the traditional 4-point scale, obtained during the current classes belonging to this module (to the nearest hundredth point);

- to obtain a convertible multi-point total score of the current performance for the module, the average score obtained on the traditional 4-point scale must be multiplied by a factor of 24. Exceptions are cases where the average score on the traditional 4-point scale is 2 points. In this case, the applicant receives 0 points on a multi-point scale;

- the average score of current success is calculated on the total number of classes in the module, and not on the actual number of students.

Assessment per module is defined as the sum of assessments of current learning activities (in points) and assessment of final module control (in points), which is set when assessing theoretical knowledge and practical skills in accordance with the lists defined by the discipline program.

Table №2. Unified table of correspondence of scores for current performance, scores for PMK, exam, and traditional four-point score.

Average points for current progress (A)	Points for current success with module (A * 24)	Points for FMC with module (A*16)	Points for the module and / or exam (A*24 + A*16)	Category ECTS	By 4-point scale
2	48	32	80	F FX	2 unsatisfactory
2,1	50	34	84		

2,15	52	34	86		
2,2	53	35	88		
2,25	54	36	90		
2,3	55	37	92		
2,35	56	38	94		
2,4	58	38	96		
2,45	59	39	98		
2,5	60	40	100		
2,55	61	41	102		
2,6	62	42	104		
2,65	64	42	106		
2,7	65	43	108		
2,75	66	44	110		
2,8	67	45	112		
2,85	68	46	114		
2,9	70	46	116		
2,95	71	47	118		
3	72	50	122	E	2 satisfactory
3,05	73	50	123		
3,1	74	50	124		
3,15	76	50	126		
3,2	77	51	128		
3,25	78	52	130	D	
3,3	79	53	132		
3,35	80	54	134		
3,4	82	54	136		
3,45	83	55	138		
3,5	84	56	140	C	4 good
3,55	85	57	142		
3,6	86	58	144		
3,65	88	58	146		
3,7	89	59	148		
3,75	90	60	150		
3, 8	91	61	152		
3,85	92	62	154		
3,9	94	62	156		
3,95	95	63	158		
4	96	64	160	B	
4,05	97	65	162		
4,1	98	66	164		
4,15	100	66	166		
4,2	101	67	168		
4,25	102	68	170		
4,3	103	69	172		
4,35	104	70	174		
4,4	106	70	176		
4,45	107	71	178		
4,5	108	72	180	A	5 excellent
4,55	109	73	182		
4,6	110	74	184		
4,65	112	74	186		
4,7	113	75	188		

4,75	114	76	190		
4,8	115	77	192		
4,85	116	78	194		
4,9	118	78	196		
4,95	119	79	198		
5	120	80	200		

The maximum number of points assigned to applicants for higher education in mastering all topics of the module – 200, including for current educational activities - 120 points (60%), according to the results of the final control – 80 points (40%).

Criteria for assessing PMK are determined by the department and brought to the notice of students at the beginning of the discipline (the first practical lesson).

When assessing PMK, the marks for all control tasks are taken into account. The maximum number of points for testing is 30 points (1 point for 1 test task), the minimum number of points is 22 points, according to the passing criterion (75% of correct answers). The grade for the oral part, which consists of two theoretical questions, a clinical examination and an X-ray, is calculated as follows: the minimum number of points is 28 points, the maximum is 50 points. Each task (two theoretical questions, a clinical examination and an X-ray) is evaluated:

- 13-15 points - the student has at least 90% knowledge of the oral part. Well versed in subject terminology. Clearly formulates answers to questions. The practical task is performed in full.

- 10-12 points - the student has knowledge in the amount of not less than 80-89% on the oral part, makes insignificant mistakes, which he corrects. The practical task is performed in full, minor errors are allowed.

- 7-9 points - the student has knowledge on the topic in the amount of not less than 75-79% on the oral part. The answers are not accurate enough, the leading questions do not correct them. Does not fully perform a practical task.

- 0 points - the student did not show the required minimum knowledge within 74% of the oral part. Unable to answer leading questions, operates with inaccurate formulations. Has no practical skills.

The number of points for PMK is calculated by the formula:

Number of points for PMK = number of points for testing + number of points for the 1st theoretical question + number of points for the 2nd theoretical question + number of points clinical examination of the patient + number of points for the description of the X-ray.

Minimum number of points:

22 p. + 7 p. + 7 p. + 7 p. + 7 points = 50 points

Maximum number of points:

30 p. + 13 p. + 13 p. + 12 p. + 12 points = 80 points

Applicants for higher education, who have an average grade point average of 4.5 to 5.0 during their studies, are exempted from the PMC and automatically (with consent) receive a final grade in accordance with the table. Upon completion of the module, teachers of the department fill in the information and submit it to the dean's office.

The final modular control of Module 1 is carried out at the last practical lesson of the VI semester, subject to full attendance of the course of lectures and practical

classes. Students who have scored at least 72 points (the minimum number of points) for the current educational activity for the study of Module 1 are allowed to take the module.

The final modular control consists of two parts: theoretical and practical.

1. The theoretical part of the BCI is taken in the form:

- answers on a computer to 30 standardized test tasks covering all sections of the discipline "Orthodontics" included in Module 1. Each test task has only one correct answer.

- oral answer to 2 questions from the "List of Questions" to the BCI of Module # 1 on the discipline "Orthodontics".

2. The practical part of the BCI consists in the student's demonstration directly at the patient's chair of the ability to conduct a comprehensive assessment of the child's dental status, determine the need for orthodontic care and draw up an individual treatment plan for a child with dental, dentition and occlusion anomalies, based on the "List of Practical Skills" for PMC module number 1 on the discipline "Orthodontics".

3. Summing up and announcing the results.

4. Registration of documentation.

When assessing BCI, marks for all control tasks are taken into account. The maximum number of points for testing is equal to 30 points (1 point for 1 test task), the minimum number of points is 22 points, respectively, the passing criterion (75% of correct answers). The score for the oral part, which consists of two theoretical questions, a clinical examination and an X-ray image, is calculated as follows: the minimum number of points is 28 points, the maximum is 50 points. Each task (two theoretical questions, clinical examination and X-ray) is assessed:

- 13-15 points - the student possesses at least 90% of knowledge on the oral part. He is well versed in subject terminology. Clearly formulates the answers to the questions posed. The practical task is carried out in full.

- 10-12 points - the student has at least 80-89% of knowledge in the oral part, makes minor mistakes, which he corrects. The practical task is carried out in full, minor errors are allowed.

- 7-9 points - the student has knowledge of the topic in the amount of at least 75-79% in the oral part. The answers are not accurate enough, leading questions correct them. Does not complete the practical task in full.

- 0 points - the student did not show the required minimum knowledge within 74% in the oral part. Not able to answer leading questions, operates with imprecise wording. Has no practical skills.

The number of points for FMC is calculated by the formula:

The number of points for MVP = the number of points for testing + the number of points for the first theoretical question + the number of points for the second theoretical question + the number of points for the clinical examination of the patient + the number of points for the description of the X-ray image.

Minimum points:

22 p. + 7 p. + 7 p. + 7 p. + 7 p. = 50 p.

Maximum points:

30 p. + 13 p. + 13 p. + 12 p. + 12 p. = 80 p.

Assessment for the final modular control is integrated (all types of student work

are assessed). The results of the final modular control are converted on an 80-point scale.

MODULE №3**. «Children's dental prosthetics. Innate clefts of the face and jaws».**

The final modular control consists of two parts: theoretical and practical.

1. The theoretical part of the BCI is taken in the form:

- answers on a computer to 30 standardized test tasks covering all sections of the discipline "Orthodontics" included in Module 3. Each test task has only one correct answer.

- an oral answer to 2 questions from the "List of Questions" to the BCI of Module No. 3 on the discipline "Orthodontics".

2. The practical part of the BCI consists in the student's demonstration directly at the patient's chair of the ability to conduct a comprehensive assessment of the child's dental status, determine the need for orthodontic care and draw up an individual treatment plan for a child with dental, dentition and occlusion anomalies, based on the "List of Practical Skills" for PMC module number 3 on the discipline "Orthodontics".

3. Summing up and announcing the results.

4. Registration of documentation.

The evaluation principle is similar to Module №1.

ASSESSMENT

It is defined as the sum of the assessments of the current educational activity (in points) and the assessment of the final modular control (in points), given in the assessment of theoretical knowledge and practical skills in accordance with the lists determined by the discipline program.

The criteria for assessing the PMC are determined by the department and brought to the attention of students at the beginning of the study of the discipline (the first practical lesson).

The maximum number of points assigned to students upon mastering all the topics of the module is 200, including for current educational activities - 120 points (60%), according to the results of the final control - 80 points (40%). Upon completion of the study of the module, the teachers of the department fill in the information and submit them to the dean's office.

RECOMMENDED LITERATURE

The main literature

1. Смаглюк Л. В. Basic course of orthodontics: навчальний посібник / Л. В. Смаглюк, Г. В. Воронкова, А. В. Ляховська // – Полтава: Копі Центр А. Ткаліч, 2021. – 192 с.

2. Смаглюк Л. В. Academic History of Decease in Orthodontics / Л. В. Смаглюк, Н. В. Кулиш, Г. В. Воронкова // – Полтава: Бліц стійл, –2018. – 120 с.

3. Flis P. S. Orthodontics. – Kyiv, MEDICINE, 2008, – 336 p.

4. Flis P. S. Pediatric dental prosthetic. –Kyiv, MEDICINE, –2012. – 176 p.

Secondary literature

1. Смаглюк Л. В. Orthodontic treatment of patients with disorders of swallowing and speech functions (англійською мовою) / Л. В. Смаглюк, М. В. Трофименко//

Monograph. – Dnipro: Serednyak T.K. – 2019. – 98 c.
2. Смаглюк Л. В. Телерентгенографія голови (3-ма мовами) / Л. В. Смаглюк, О. І. Яценко, Г. В. Воронкова // Полтава: – 2016. – 58 с.
3. Ghafari J. Cephalometric superimposition on the cranial base: A review and comparison of four methods// A.J.O.:1987: 62: 403-413
4. Laura Mitchell, An introduction to orthodontics, 2013, – 244 p.
Melsen I.L. The cranial base//Acta Odontologica Scandinavica :1974:32:suppl.

Information resources:

1. Pubmed. – Режим доступу: http://www.ncbi.nlm.nih.gov/pubmed/
2. Google Scholar – Режим доступу: https://scholar.google.com.ua/
3. BASE. – Режим доступу: https://www.base-search.net/
4. European Journal of Orthodontics. – Mode of access: https: //academic.oup.com/ejo
5. Angle Orthodontist. – Mode of access: http://www.angle.org/?code=angf-site

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