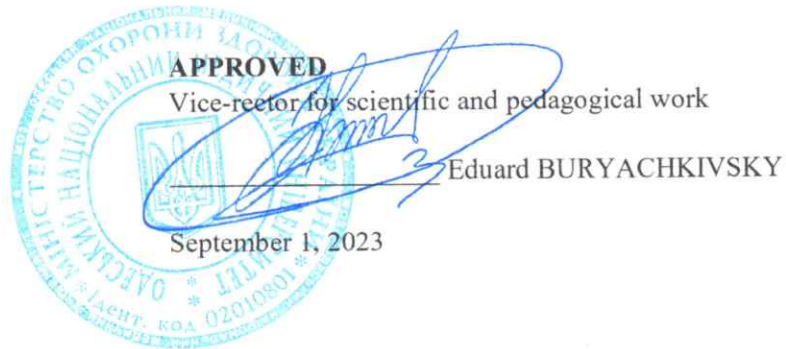


MINISTRY OF HEALTH OF UKRAINE  
ODESSA NATIONAL MEDICAL UNIVERSITY

Department of Orthodontics



**WORKING PROGRAM IN ORTHODONTIC DISCIPLINE**

**Level of higher education:** second (master's)

**Branch of knowledge:**22 "Health care"

**Specialty:**221 "Dentistry"

**Educational and professional program:**Dentistry

The program is based on the educational-professional program "Dentistry", training of the second (master's) level of higher education in the specialty 221 "Dentistry" in the field of knowledge 22 "Health", approved by the Academic Council of ONMedU (protocol No. 8 of June 29, 2023 ).

Developers:

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The work program was approved at the meeting of the Department of Orthodontics  
Protocol No. 113 from "30".06 2023

Head of the department \_\_\_\_\_ Volodymyr GOROKHIVSKY

Agreed with the guarantor of OPP \_\_\_\_\_ Anatoliy GULYUK

Approved by the subject cycle methodical commission for dental disciplines of ONMedU  
Protocol No. 1 from "28".08 2023

Head of the subject cycle methodical commission on dental disciplines of ONMedU

\_\_\_\_\_ Volodymyr KRYKLYAS

Reviewed and approved at a meeting of the department \_\_\_\_\_

Protocol No. \_\_\_ of "\_\_\_" \_\_\_\_\_ 20\_\_

Head of Department \_\_\_\_\_  
(signature) (First Name Surname)

Reviewed and approved at a meeting of the department \_\_\_\_\_

Protocol No. \_\_\_ of "\_\_\_" \_\_\_\_\_ 20\_\_

Head of Department \_\_\_\_\_  
(signature) (First Name Surname)

## 1. Description of the academic discipline

Name of indicators	Field of knowledge, specialty, specialization, level of higher education	Characteristics of the academic discipline	
		Full-time education	
The total number of:  Credits - 4 Hours – 120	Branch of knowledge 22 "Health care"  Specialty 221 "Dentistry"  The second level of higher education (master's)	Mandatory	
		Year of training 4	
		Semester	VII - VIII
		Lectures	10 hours
		Practical	70 hours
		Independent work	40 hours
		Including individual tasks	0
		Form final control	Exam

## 2. The purpose and tasks of the educational discipline, competences, program learning outcomes.

**Goal:** training of highly qualified specialists capable of using the acquired competences to solve complex problems and problems in the treatment of patients with dento-maxillofacial anomalies and deformations.

### **Task:**

1. Mastering the methods of examination and diagnosis of patients with dento-jaw anomalies and deformations.
2. Improving the skills of substantiation of clinical diagnosis, differential diagnosis.
3. Mastering the basic principles and methods of treatment, as well as the impact of orthodontic equipment on the tissues of the periodontium and temporomandibular joint.
4. Mastering the skills of examination and diagnosis of patients with congenital facial defects and defects of teeth and dental rows, basic principles and methods of their treatment, as well as rehabilitation of children with injuries of the maxillofacial area.

The process of studying the discipline is aimed at forming elements of the following competencies:

- **General (ZK):**

GC 1. Ability to abstract thinking, analysis and synthesis.

GC 2. Knowledge and understanding of the subject area and understanding

of professional activity.

GC 3. Ability to apply knowledge in practical activities.

GC 11. Ability to work in a team.

- **Special (SK):**

SK 1. Ability to collect medical information about the patient and analyze clinical data.

SC 2. Ability to interpret the results of laboratory and instrumental research.

SK 3. The ability to diagnose: determine preliminary, clinical, final, accompanying diagnosis, emergency conditions.

SC 5. Ability to design the process of providing medical care: determine the approaches, plan, types and principles of treatment of diseases of the organs and tissues of the oral cavity and maxillofacial region.

SK 6. The ability to determine a rational regimen of work, rest, and diet in patients in the treatment of diseases of the organs and tissues of the oral cavity and maxillofacial region.

SK 7. The ability to determine the management tactics of patients with diseases of the organs and tissues of the oral cavity and maxillofacial region with concomitant somatic diseases.

SK 8. Ability to perform medical and dental manipulations.

SK 12. Ability to organize and conduct a screening examination in dentistry.

SK 14. Ability to maintain regulatory medical documentation.

SK16. Ability to organize and carry out rehabilitation measures and care for patients with diseases of the oral cavity and ASHL.

**Program learning outcomes (PRL):**

PLO 2. Collect information about the patient's general condition, evaluate the patient's psychomotor and physical development, the condition of the maxillofacial organs, based on the results of laboratory and instrumental studies, evaluate information about the diagnosis (according to list 5)

PLO 3. Appoint and analyze additional (mandatory and optional) examination methods (laboratory, X-ray, functional and/or instrumental) according to list 5, patients with diseases of organs and fabricsoral cavity and maxillofacial region for differential diagnosis of diseases (according to list 2).

PLO 4. Determine the final clinical diagnosis in compliance with the relevant ethical and legal norms, by making a reasoned decision and logical analysis of the received subjective and objective data of clinical, additional examination, carrying out differential diagnosis under the control of the managing physician in the conditions of a medical institution (according to the list 2.1).

PLO 5 Diagnose urgent conditions under any circumstances (at home, on the street, in a medical institution), in conditions of emergency, martial law, lack of information and limited time (according to list 4)

PLO 8. Determine the approach, plan, type and principle of treatment of dental disease (according to list 2) by making a reasoned decision according to existing algorithms and standard schemes.

PLO 9. Determine the nature of the regime of work, rest and the necessary diet in the treatment of dental diseases (according to list 2) on the basis of a preliminary or final

clinical diagnosis by making a reasoned decision according to existing algorithms and standard schemes.

PLO 10. Determine the tactics of managing a dental patient with somatic pathology (according to list 3) by making a reasoned decision according to existing algorithms and standard schemes.

PLO 11. Carry out treatment of basic dental diseases according to existing algorithms and standard schemes under control

the head doctor in the conditions of a medical institution (according to list 2.1).

PLO 21. Perform medical manipulations on the basis of a preliminary and/or final clinical diagnosis (according to lists 2, 2.1) for different segments of the population and in different conditions (according to list 6).

PLO 22. To perform medical stomatological manipulations on the basis of a preliminary and/or final clinical diagnosis (according to lists 2, 2.1) for different segments of the population and in different conditions (according to list 7).

**As a result of studying the academic discipline, the student of higher education must:**

**Know:** Etiology, pathogenesis, clinic, diagnosis, differential diagnosis, treatment, prevention of anomalies and deformations of SCA in children of different ages.

**Be able:**

- Analyze the results examination the patient from dental and jaw anomalies and deformations
- Carry out preventive measures in the group with risk factors
- To determine the leading syndromes and symptoms in the orthodontic clinic
- Identify congenital and acquired defects of the maxillofacial area
- Demonstrate mastery of the moral and deontological principles of a medical specialist and the principles of professional subordination at an orthodontic appointment
- Justify and formulate a preliminary clinical diagnosis of dento-maxillofacial anomalies and deformations
- Justify and formulate a syndromic orthodontic diagnosis
- Conduct differential diagnosis of diseases in orthodontics
- Carry out differential diagnosis of somatic diseases that require special tactics of patient management in childhood
- Conduct examinations of orthodontic patients
- Conduct primary and secondary prevention of dental and jaw anomalies and deformations

### **3. Content of the academic discipline**

**Topic No. 1:**

Orthognathic bite, its characteristics. Keys of occlusion according to E. Engle and Andrews. Physiological and pathological bites, their general morphological and functional characteristics.

## **Topic #2:**

### ***Clinical methods examination children from maxillofacial anomalies and deformations***

Clinical examination of an orthodontic patient. Features of clinical examination. Study of anamnestic data: patient's complaints, mother's condition during pregnancy (toxicosis, infectious diseases, injuries, stress, work in hazardous production, etc.), course of childbirth; the presence of hereditary diseases in the child (compilation of the genealogy); nature of feeding infants, assessment of teething; the presence of bad habits in the patient, filling in the medical history.

Study of objective data of an orthodontic patient. Determination of the configuration of the face (the patient's profile, the proportionality of the parts of the face, the thickness and position of the lips, the shape and position of the chin.

Examination of the oral cavity. Study of the anatomical structure of the soft tissues of the oral cavity, attachment of the frenulum of the lips and tongue, etc.

Determination of the number of teeth, their condition and position relative to the dental row. The shape of the dental arches, their ratio in three mutually perpendicular directions. Physiological and pathological bites, their general morphological and functional characteristics.

Filling in medical history. Establishing a preliminary diagnosis based on clinical examination data. Its constituent parts.

## **Topic No. 3:**

### ***Methods of diagnosis of SCA and deformations in orthodontics.***

#### ***Anthropometric methods of examination of orthodontic patients.***

Anthropometric measurements on diagnostic models and in the oral cavity. Study of the dimensions of the crown part of temporary and permanent teeth (index P. Ton, Dolgoplova Z.I.). Measurement of the width of the dental arches according to the method of A. Pon. Determination of the length of tooth rows according to the method of H. Korkhhaus (indexes of A. Pon, G. Korkhhaus).

Determination of the degree of narrowing (expansion), shortening (elongation) of dental arches.

Measurement of the width and length of the tooth rows, the dimensions of the apical base according to the method of N.G. Snaginoi Determining the lack of space in the dental arch for an abnormally located tooth

#### ***Research methods of speech and respiratory function, chewing function and swallowing***

Signs of mouth breathing. The influence of impaired breathing on the formation of the jaw and jaw apparatus and the body as a whole.

Characteristics of language function. Methods of studying the state of language function. Methods of palatography: direct and indirect. Advantages of palatography in studying the state of speech function in patients with dento-jaw anomalies and deformations. Peculiarities of articulation zones in normal and malocclusion.

Research methods of masticatory function: static; dynamic; chewing samples; mastication, myotonometry, electromyography and others.

Features of the type of swallowing, their characteristics.

The role of swallowing in the development of the maxillofacial apparatus.

Diagnosis of swallowing disorders. Functional swallowing test.

*X-ray examination methods. Techniques of telerradiography (direct and*

*lateral).*

Indications for their use in orthodontic practice Types of X-ray examination of an orthodontic patient.

Target shots. Pictures in axial projection.

Methodology of orthopantomography. Features of the image of the object. Significance in the diagnosis of dental-maxillofacial anomalies. Bone and dental age of the child, their diagnostic significance.

Methodology of profile and face teleradiography.

Decoding teleroentgenograms according to A.M. Schwartz, Downs, E.M. Ricketts et al. Basic anthropometric landmarks. The value of teleradiography in the differential diagnosis of dento-maxillofacial anomalies and deformations, as well as in the prognosis of orthodontic treatment.

#### ***Topic No. 4:***

##### ***Modern methods of treatment of UHD.***

Indications for orthodontic treatment of children and adults. Methods used in the treatment of dental-maxillofacial anomalies and deformities.

Principles of organizing orthodontic care for the population. Preventive direction and complexity of orthodontic treatment. The possibility of self-regulation of maxillofacial anomalies. The choice of treatment methods taking into account the age of the patient, the severity of abnormalities. Dispensary groups.

*The use of facial and masticatory muscle gymnastics for the prevention and treatment of dento-jaw anomalies and deformations.*

Biological or functional method. Masticatory and facial muscles as an object of functional therapy. Preventive nature of the functional method. A set of myogymnastics exercises without apparatus and with apparatus.

*Hardware method. General characteristics of the method. Indications for use in different age periods.*

Classifications of orthodontic equipment.

Classification of orthodontic devices: according to the principle of action, according to the method and place of action, according to the type of resistance, according to the place of placement, according to the method of fixation, according to the type design, according to purpose.

*Surgical methods of treatment of orthodontic patients.*

Surgical methods used in the treatment of orthodontic patients: 1) intervention within the soft tissues of the oral cavity; 2) within the dental rows; 3) within the alveolar bud; 4) within the basal parts of the jaws and other parts of the skull.

*Physiotherapy methods of treatment of orthodontic patients.*

Non-medicinal: therapy, ultrasound, low-frequency therapeutic vibration, laser irradiation, galvanization and pulse electrical stimulation. Medicinal: electrophoresis, ultraphonophoresis. Effectiveness of massage and mechanotherapy in the treatment of orthodontic patients. Indications for use.

***Topic #5. Etiology, pathogenesis, clinic, diagnosis, treatment and prevention of dental anomalies (color, structure of hard tissues, shape, size), anomalies of the number of teeth (adentia, supernumerary teeth). Peculiarities of orthopedic treatment for multiple adentia. Prospects of implantation in adentia***

Etiology, pathogenesis, clinic, diagnosis, treatment of anomalies of color, structure of hard tissues of teeth, shape and size of teeth. Fused teeth. Features of treatment of fused teeth.

Etiology, pathogenesis, clinic, diagnosis, treatment and prevention. Forms of overcomplete teeth according to Bush. Tactics of orthodontic treatment in the presence of supernumerary teeth.

Adentiateeth Etiology, pathogenesis, clinic, diagnosis, treatment of adentia. Preparation of the oral cavity for dental prosthetics in persons with congenital absence of teeth.

***Topic #6. Etiology, pathogenesis, clinic, diagnosis, treatment and prevention of teething disorders. Clinical forms of tooth retention. Types of tooth retention, features and prognosis of their orthodontic treatment.*** Methods of treatment of anomalies. Etiology, pathogenesis, clinic, diagnosis, treatment and prevention of teething disorders. Forms of tooth retention according to F.Ya. Khoroshilkina and V.P. Slowly Types of retention.

***Topic #7. Etiology, pathogenesis, clinic, diagnosis, treatment and prevention of abnormalities in the position of the teeth. Peculiarities of treatment of canine dystopia and rotation of teeth around the axis.***

Etiology, pathogenesis, clinic, diagnosis, treatment and prevention of vestibulo-buccal, oral-lingual position of teeth, dystopia, transposition, diastema, treme, supra- and infraocclusion. Types of diastema. Peculiarities of treatment of rotation of teeth around their axis in the relevant aspect. Methods of treatment of anomalies

***Topic #8. Etiology, pathogenesis, clinic, diagnosis of dental anomalies.*** Etiology, pathogenesis, clinic, diagnosis, prevention and treatment of narrowing and expansion dental arc, dentoalveolar shortening and alveolar elongation.

***Topic #9. Prevention and complex treatment of dental anomalies during the period of temporary, variable and permanent bite***

Etiology, pathogenesis, clinic, diagnosis, prevention and treatment of narrowing and widening of dental arches, alveolar shortening and alveolar lengthening.

***Topic #10. Sagittal abnormalities of bite. Distal bite. Etiology, pathogenesis, prevention. Clinic and diagnosis of distal bite.***

Terms used to characterize prognathic bite forms. Etiological factors of occurrence of distal bite in the prenatal and postnatal periods. The role of pathological childbirth, artificial feeding, impaired nasal breathing in the occurrence of distal bite. "Adenoid" face type. Preventive measures to eliminate the occurrence of prognathia.

Diagnosis of distal bite.

Facial and intraoral signs. The concept of "sagittal cleft" and its significance for clinical signs. Morphological and functional disorders.



Eshler-Bitner clinical diagnostic test. Analysis of data from diagnostic models of jaws, facial photographs, lateral TRH for planning and prognosis of treatment of patients with distal bite.

***Topic #11. Complex treatment of distal bite.***

Peculiarities of treatment of distal bite in temporary, variable and permanent period of bite.

Functional methods of treatment. Hardware treatment with removable and non-removable orthodontic appliances. Treatment with extraction of individual teeth. Surgical methods, hardware-surgical methods. Physiotherapy application measures  
Role adjacent specialists for treatment distal bite.

***Topic #12 Etiology, pathogenesis, prevention. Clinic and diagnosis of mesial bite***

Terms used to characterize progenic forms of bite. Etiological factors contributing to the occurrence of this pathology (congenital and acquired).

Preventive measures for mesial bite. Diagnosis of mesial bite.

Physiological and pathological, false and true progeny. Facial and intraoral signs. Morphological and functional disorders of the mesial bite in different age periods and depending on the complication of anomalies in other planes.

Clinical diagnostic tests of L.V. Ilyinoy-Markosyan. Study of diagnostic models of jaws and photographs of the face, analysis of lateral TRH, orthopantomograms. The concept of "reverse sagittal cleft" and its diagnostic significance. Key of occlusion in mesial bite. The role of "wisdom" teeth in the appearance of mesial bite.

***Topic #13. Complex treatment of mesial bite and its prognosis.***

Peculiarities of treatment of forms of mesial bite depending on the clinical picture and age. Functional, hardware, hardware-surgical, prosthetic treatment.

***Topic #14. Deep bite. Etiology, pathogenesis, prevention. Clinic and diagnosis of deep bite***

Etiology of deepbite in the prenatal and postnatal periods. Prevention of deep bite.

Concepts of deep incisor overlap, deep bite, deep traumatic bite.

Facial and intraoral signs of deep bite. Morphological and functional disorders.

Clinical manifestations of a deep bite depending on its combination with a neutral, distal or mesial bite.

Analysis of data from the study of models of jaws of patients with deep bite, lateral TRH of the head, OPTG, photographs of the face in front and profile and their significance for treatment planning.

***Topic #15. Complex treatment of deep bite.***

The main tasks of deep bite treatment. Peculiarities of treatment in the period of temporary, variable and permanent periods of occlusion (timely children's prosthetics in case of loss of temporary teeth).

Orthodontic treatment of a deep bite with the occurrence and development of

sagittal anomalies of the bite. Prognosis of treatment.

***Topic #16. Open bite. Etiology, pathogenesis, prevention. Clinic and diagnosis of open bite.***

Classifications. Frontal open bite (symmetric, asymmetric), lateral (unilateral, bilateral). Traumatic and rachitic open bite. Etiological factors. Prevention. The role of the infantile type of swallowing and mouth breathing in the occurrence of an open bite.

Facial and intraoral signs of open bite. Morphological and functional disorders in patients with open bite. Analysis of anthropometric measurements, photometry data, TRH to establish a diagnosis.

***Topic No. 17. Complex methods of treatment of open bite.***

Treatment of an open bite in different age periods depending on its type, degree of complexity and period of formation. The importance of eliminating bad habits, normalizing the position of the tongue and lips, and normalizing the function of swallowing for successful treatment.

Features of orthodontic treatment of deep bite with removable and fixed appliances. Complex treatment (surgical, orthodontic, prosthetic).

Prognosis of treatment and prevention of relapse.

***Topic #18. Transverse bite anomalies. Cross bite. Etiology, pathogenesis, prevention, clinic and diagnostics.***

Terms characterizing crossbite. Crossbite classifications.

Etiology. Facial and intraoral signs of various forms of crossbite. Clinical diagnostic tests according to L.V. Ilyina-Markosyan and Kibkalo. Temporomandibular joint condition with transverse anomalies. Morphological and functional disorders.

***Topic #19. Comprehensive treatment of crossbite.***

Treatment of crossbite depending on its form, etiology and age of the patient. The role of preventive measures in the fight against etiological factors.

Features of the manufacture of orthodontic devices for the treatment of crossbite.

Combination of surgical interventions with orthodontic treatment.

Consolidation of the results of treatment with dental prosthetics.

***Topic #20. Orthodontic treatment planning***

Indications for orthodontic treatment, determination of age indicators and selection of orthodontic means of treatment. Complex methods of treatment (orthodontic, therapeutic, orthopedic, surgical, physiotherapeutic, prosthetic). The role of related specialists in the treatment of orthodontic patients: a dental therapist and a dental surgeon, pediatrician,

otolaryngologist, endocrinologist, psychoneurologist, musculoskeletal specialists, physical therapy doctors.

Names of topics	Number of hours					
	Total about	including				
		her lectures	seminars	practic and	the laboratory and	CRS
Topic 1. Orthognathic bite, its characteristics. Keys occlusions according to E. Engle and Andrews. Physiological and pathological types of bites.	6	0	0	4	0	2
Topic 2. Clinical methods of examination of children with dentomandibular disorders anomalies and deformations.	6	0	0	4	0	2
Topic 3. Methods of diagnosis of SCA and deformations in orthodontics	6	0	0	4	0	2
Topic 4. Modern method treatment of UHD	6	0	0	4	0	2
Topic 5. Etiology, pathogenesis, clinic, diagnosis, treatment and prevention of tooth anomalies (color, structure of hard tissues, shape, size), anomalies in the number of teeth (adentia, overcrowding teeth). Features orthopedic treatment for multiple adentia The prospects of implantation at adentia	8	2	0	4	0	2
Topic 6. Etiology, pathogenesis, clinic, diagnosis, treatment and prevention of teething disorders. Clinical forms of tooth retention. Types of tooth retention, their features and prognosis orthodontic treatment	4	0	0	4	0	0

Topic 7. Etiology, pathogenesis, clinic, diagnosis, treatment and prevention of tooth position anomalies. Features treatment dystopias of fangs and rotation of teeth around the axis.	6	2	0	2	0	2
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Topic 8. Etiology, pathogenesis, clinic, diagnosis of anomalies tooth rows.	4	0	0	2	0	2
Topic 9. Prevention and comprehensive treatment of dental abnormalities series in the period of temporary, variable and permanent bite	4	0	0	2	0	2
Topic 10. Etiology, pathogenesis and prevention of distal bite. Clinic and diagnosis distal bite	10	2	0	6	0	2
Topic 11. Complex treatment of distal bite in children during the period of temporary, variable and permanent bite and in adults	6		0	4	0	2
Topic 12. Etiology, pathogenesis and prevention of mesial bite. Clinic and diagnosis mesial bite	6		0	4	0	2
Topic 13. Complex treatment mesial bite in children during the period of temporary, variable and permanent bite and in adults	8		0	4	0	4
Topic 14. Etiology, pathogenesis and prevention of deep bite. Clinic and diagnosis deep bite	8		0	4	0	2
Topic 15. Complex treatment of deep bite in children during the period of temporary, variable and permanent bite and in adults	4	0	2	0	2	

Topic 16. Etiology, pathogenesis and prevention of open bite. Clinic and diagnosis open bite	6		0	4	0	2
Topic 17. Prevention and comprehensive treatment open bite in children during the period of temporary, variable and permanent bite and in adults	4		0	2	0	2
Topic 18. Etiology, pathogenesis and prevention of crossbite. Clinic and diagnosis cross bite	8	2	0	4	0	2
Topic 19. Complex treatment cross bite in children during the period of temporary, variable and permanent bite and in adults	4		0	2	0	2
Topic 20. Planning orthodontic treatment	6	0	0	4	0	2
<b>Only hours</b>	120	10	0	70	0	40

## 5. Topics of lectures / seminars / practical / laboratory classes

### 5.1. Topics of lectures

No	Name of the topic of the lecture and its content	Amount in hours
1.	Anomalies of individual teeth. Etiology, pathogenesis, clinic, diagnosis, prevention and treatment.	2
2.	Abnormalities in the position of individual teeth. Etiology, pathogenesis, clinic, diagnosis, prevention and treatment.	2
3.	Sagittal abnormalities of bite. Etiology, pathogenesis, clinic, diagnosis, prevention and treatment.	2
4.	Vertical bite anomalies. Etiology, pathogenesis, clinic, diagnosis, prevention and treatment.	2
5.	Transverse bite anomalies. Etiology, pathogenesis, clinic, diagnosis, treatment.	2
	Together	10

### 5.2. Topics of seminar classes

Seminar classes are not provided.

### 5.3. Topics of practical classes

No	The subject of the lesson	hours
1	Orthognathic bite, its characteristics. Keys occlusions according to E. Engle and Andrews. Physiological and pathological types of bites.	4
2	Clinical methods of examination of children with dentomandibular disease anomalies and deformations.	4
3	Methods of diagnosis of SCA and deformations in orthodontics	4
4	Modern methods of treatment of UHD	4
5	Etiology, pathogenesis, clinic, diagnosis, treatment and prevention of dental abnormalities (color, structure of hard tissues, shape, size), abnormalities of the number of teeth (adentia, supernumerary teeth). Peculiarities of orthopedic treatment in multiple adentia. Prospects of implantation in adentia	4
6	Etiology, pathogenesis, clinic, diagnosis, treatment and prevention of teething disorders. Clinical forms of tooth retention. Types of tooth retention, their features and prognosis orthodontic treatment	4
7	Etiology, pathogenesis, clinic, diagnosis, treatment and prevention of abnormalities in the position of the teeth. Peculiarities of treatment of canine dystopia and rotation of teeth around the axis.	2
8	Etiology, pathogenesis, clinic, diagnosis of dental anomalies rows	2
9	Prevention and complex treatment of dental anomalies during the period of temporary, variable and permanent bite	2
10	Etiology, pathogenesis and prevention of distal bite. Clinic and diagnosis of distal bite	6
11	Complex treatment of distal bite in children during the period of temporary, variable and permanent bite and in adults	4
12	Etiology, pathogenesis and prevention of mesial bite. Clinic and diagnosis of mesial bite	4
13	Complex treatment of mesial bite in children in the period of temporary, variable and permanent bite and in adults	4
14	Etiology, pathogenesis and prevention of deep bite. Clinic and diagnosis of deep bite	4
15	Complex treatment of deep bite in children in the period of temporary, variable and permanent bite and in adults	2
16	Etiology, pathogenesis and prevention of open bite. Clinic and diagnosis of open bite	4

17	Prevention and complex treatment of open bite in children during the period of temporary, variable and permanent bite and in adults	2
18	Etiology, pathogenesis and prevention of crossbite. Clinic and diagnosis of crossbite	4
19	Comprehensive treatment of crossbite in children during the period temporary, variable and permanent bite and in adults	2
20	Orthodontic treatment planning	4
	<b>In total</b>	<b>70</b>

#### 5.4. Topics of laboratory classes

Laboratory classes are not provided.

### 6. Independent work of a student of higher education

No	The content of the educational material presented at the SRS	hours
1	Orthognathic bite, its characteristics. Keys occlusions according to E. Engle and Andrews. Physiological and pathological types of bites.	2
2	Clinical methods of examination of children with dentomandibular disease anomalies and deformations.	2
3	Methods of diagnosis of SCA and deformations in orthodontics	2
4	Modern methods of treatment of UHD	2
5	Etiology, pathogenesis, clinic, diagnosis, treatment and prevention of dental abnormalities (color, structure of hard tissues, shape, size), abnormalities of the number of teeth (adentia, supernumerary teeth). Peculiarities of orthopedic treatment in multiple adentia. Prospects of implantation in adentia	2
7	Etiology, pathogenesis, clinic, diagnosis, treatment and prevention of abnormalities in the position of the teeth. Peculiarities of treatment of canine dystopia and rotation of teeth around the axis.	2
8	Etiology, pathogenesis, clinic, diagnosis of dental anomalies rows	2
9	Prevention and complex treatment of dental anomalies during the period of temporary, variable and permanent bite	2
10	Etiology, pathogenesis and prevention of distal bite. Clinic and diagnosis of distal bite	2
11	Complex treatment of distal bite in children during the period of temporary, variable and permanent bite and in adults	2
12	Etiology, pathogenesis and prevention of mesial bite. Clinic and diagnosis of mesial bite	2
13	Complex treatment of mesial bite in children in the period of temporary, variable and permanent bite and in adults	4

14	Etiology, pathogenesis and prevention of deep bite. Clinic and diagnosis of deep bite	2
15	Complex treatment of deep bite in children in the period of temporary, variable and permanent bite and in adults	2
16	Etiology, pathogenesis and prevention of open bite. Clinic and diagnosis of open bite	2
17	Prevention and complex treatment of open bite in children during the period of temporary, variable and permanent bite and in adults	2
18	Etiology, pathogenesis and prevention of crossbite. Clinic and diagnosis of crossbite	2
19	Comprehensive treatment of crossbite in children during the period temporary, variable and permanent bite and in adults	2
20	Orthodontic treatment planning	2
	<b>In total</b>	40

## 7. Teaching methods

**Practical training:** conversation, solving clinical situational problems, practicing patient examination skills, demonstrating and practicing manipulation skills according to list 5.

**Independent work:** independent work with the textbook, independent work with the bank of test tasks Step-2, independent solution of clinical tasks.

## 8. Forms of control and evaluation methods (including criteria for evaluating learning outcomes)

**Current control:** oral survey, testing, assessment of performance of practical skills, solution of situational clinical tasks, assessment of activity in class.

**Final control:** oral exam.

***The structure of the current assessment in the practical session:***

1. Evaluation of theoretical knowledge on the subject of the lesson:
  - methods: survey, solving a situational clinical problem;
  - the maximum score is 5, the minimum score is 3, the unsatisfactory score is 2.
2. Evaluation of practical skills and manipulations on the subject of the lesson:
  - methods: assessment of the correctness of the performance of practical skills
  - maximum score – 5, minimum score – 3, unsatisfactory score – 2;
3. Evaluation of work with a patient on the subject of the lesson:
  - methods: assessment of: a) communication skills of communicating with the patient and his parents, b) the correctness of the appointment and assessment of the main and additional research methods, c) compliance with the differential diagnosis algorithm, d) substantiation of the clinical diagnosis, e) drawing up a treatment plan



- maximum score – 5, minimum score – 3, unsatisfactory score – 2;

**Current assessment criteria for practical training:**

"5"	The applicant is fluent in the material, takes an active part in discussing and solving a situational clinical problem, confidently demonstrates practical skills during the examination of a sick child and the interpretation of clinical, laboratory and instrumental data research, expresses his opinion on the topic of the lesson, demonstrates clinical thinking.
"4"	The applicant has a good command of the material, takes part in the discussion and solution of a situational clinical problem, demonstrates practical skills during the examination of a sick child and the interpretation of clinical data, laboratory and instrumental studies with some errors, expresses his opinion on the topic of the lesson, demonstrates clinical thinking.
"3"	The acquirer does not have sufficient knowledge of the material, is unsure of participating in the discussion and solution of the situational clinical problem, demonstrates practical skills during the examination of a sick child and the interpretation of data clinical, laboratory and instrumental studies with significant errors.
"2"	The applicant does not possess the material, does not take part in the discussion and solution of the situational clinical problem, does not demonstrate practical skills during the examination of a sick child and the interpretation of clinical data, laboratory and instrumental research.

**The applicant is admitted to the exam on the condition that the requirements of the educational program are met and if he received at least 3.00 points for the current educational activity**

**Criteria for evaluating the learning outcomes of education seekers in the exam:**

The results of the academic performance of higher education applicants are presented in the form of an assessment on the national scale, 200-point scale and the ECTS scale and have standardized generalized criteria for assessing knowledge.

Evaluation of the results of the students' training during the final control - exam

The content of the evaluated activity	Scores
1. The answer to a theoretical question	1
2. The answer to a theoretical question	1
3. Solving a clinical problem	3

On a national scale:

— the grade "excellent" is given to a student of higher education who worked systematically during the semester, showed during the exam versatile and in-depth knowledge of the program material, is able to successfully perform the tasks provided for in the program, mastered the content of the main and additional literature, understood the relationship between individual sections of the discipline, their importance for the future profession, showed creative abilities in understanding and using educational program material, showed the ability to independently update and replenish knowledge; the level of competence is high (creative);

— the grade "good" is assigned to a higher education applicant who has demonstrated full knowledge of the curriculum material, successfully performs the tasks provided for by the program, has mastered the basic literature recommended by the program, has shown a sufficient level of knowledge in the discipline and is capable of their independent updating and renewal in the course of further training and professional activity; the level of competence is sufficient (constructive and variable);

— the grade "satisfactory" is assigned to a higher education applicant who has demonstrated knowledge of the main curriculum material to the extent necessary for further education and subsequent work in the profession, copes with the tasks provided for in the program, made individual errors in the answers to the exam and when completing the exam tasks, but has the necessary knowledge to overcome the mistakes made under the guidance of a scientific and pedagogical worker; the level of competence is average (reproductive);

— the grade "unsatisfactory" is assigned to a student of higher education who did not demonstrate sufficient knowledge of the main curriculum material, made fundamental mistakes in the performance of the tasks provided for by the program, cannot use the knowledge in further studies without the help of a teacher, did not manage to master the skills of independent work; the level of competence is low (receptive-productive).

### **9. Distribution of points received by students of higher education**

The obtained average score for the academic discipline for applicants who have successfully mastered the work program of the academic discipline is converted from a traditional four-point scale to points on a 200-point scale, as shown in the table:

**Conversion table of a traditional assessment into a multi-point scale**

<b>Traditional four-point scale</b>	<b>Multipoint 200-point scale</b>
Excellent ("5")	185 - 200

Good ("4")	151 - 184
Satisfactory ("3")	120-150
Unsatisfactory ("2")	Below 120

A multi-point scale (200-point scale) characterizes the actual success of each applicant in learning the educational component. The conversion of the traditional grade (average score for the academic discipline) into a 200-point grade is performed by the information and technical department of the University.

According to the obtained points on a 200-point scale, the achievements of the applicants are evaluated according to the ECTS rating scale. Further ranking according to the ECTS rating scale allows you to evaluate the achievements of students from the educational component who are studying in the same course of the same specialty, according to the points they received.

The ECTS scale is a relative-comparative rating, which establishes the applicant's belonging to the group of better or worse among the reference group of fellow students (faculty, specialty). An "A" grade on the ECTS scale cannot be equal to an "excellent" grade, a "B" grade to a "good" grade, etc. When converting from a multi-point scale, the limits of grades "A", "B", "C", "D", "E" according to the ECTS scale do not coincide with the limits of grades "5", "4", "3" according to the traditional scale. Acquirers who have received grades of "FX" and "F" ("2") are not included in the list of ranked acquirers. The grade "FX" is awarded to students who have obtained the minimum number of points for the current learning activity, but who have not passed the final examination. A grade of "F" is assigned to students who have attended all classes in the discipline, but have not achieved a grade point average (3.00) for the current academic activity and are not admitted to the final examination.

Applicants who study in one course (one specialty), based on the number of points scored in the discipline, are ranked on the ECTS scale as follows:

#### **Conversion of the traditional grade from the discipline and the sum of points on the ECTS scale**

<b>Evaluation on the ECTS scale</b>	<b>Statistical indicator</b>
AND	Top 10% achievers
IN	The next 25% of earners
WITH	The next 30% of earners
D	The next 25% of earners
IS	The next 10% of earners

#### **10. Methodological support:**

- Working program of the academic discipline
- Syllabus on academic discipline
- Multimedia presentations
- Situational clinical tasks
- Methodical development of practical classes
- Electronic bank of test tasks by subdivisions of the discipline.

#### **11. LIST OF THEORETICAL QUESTIONS for the exam in the discipline "Orthodontics"**

1. Classification of anomalies of individual teeth.
2. Causes of tooth color abnormalities. Etiology, pathogenesis, clinic, treatment.
3. Anomalies of the shape of the teeth. Etiological factors of occurrence.  
Differential diagnosis with anatomical variants of the norm.
4. Needle-shaped teeth. Etiology of occurrence, clinic, treatment.
5. Fused teeth. Etiology, pathogenesis, clinic, diagnosis.

6. Types of dental fusion. Features of orthodontic treatment.
7. The influence of overflow teeth on the process of formation of dental arches and bite.
8. Overcomplete teeth. Clinical and X-ray diagnostics. Tactics of orthodontic treatment.
9. Adentia. Classification. Diagnostics. Intraoral and extraoral signs in multiple and complete adentia.
10. Methods of treatment of adentia.
11. Reasons for disruption of the teething process. Types and forms of retention.
12. Methods of removing teeth from retention. Indications for their use.
13. Classifications of abnormalities in the position of individual teeth. Etiology, pathogenesis.
14. Cake occlusion. Etiology, pathogenesis. Features of treatment.
15. Diastemas. Clinical and radiological classification. Causes of occurrence.
16. Treatment of diastema. Design features of removable and non-removable devices used for the treatment of diastemas.
17. Vestibular position of teeth. Etiology, pathogenesis, clinic, treatment.
18. Palatal position of teeth. Etiology, pathogenesis, clinic, treatment.
19. Crowded teeth. Etiology, pathogenesis, clinic, treatment.
20. Indications for serial tooth extraction.
21. Peculiarities of treatment of dystopias and transpositions of teeth.
22. Abnormalities of dental arches. Etiology, pathogenesis, clinic, treatment.

### **"Bite anomalies".**

1. The role of pathology of the upper respiratory tract and rickets in the development of bite deformations, methods of their prevention.
2. The role of artificial feeding in the development of malocclusion.
3. Harmful habits in children, their role in the pathogenesis of dental and jaw deformities.
4. Endogenous and exogenous factors that negatively affect the development of the dental and jaw apparatus.
5. Etiology, pathogenesis, clinic, diagnosis, prevention and treatment of distal bite in the temporary period.
6. Etiology, pathogenesis, clinic, diagnosis, prevention and treatment of distal occlusion in variable period. The effectiveness of the use of stimulating therapy.
7. Features of orthodontic treatment of distal bite in the permanent period in children and adults. Possible complications. Indications for tooth extraction and other surgical interventions.
8. Etiology, pathogenesis, clinic, diagnosis, prevention and treatment of mesial bite in the temporary period. The role of heredity in the occurrence of this anomaly.
9. Clinical and radiological forms of mesial bite. In which classifications are they displayed. Peculiarities of treatment of this anomaly in the variable period of occlusion.
10. Peculiarities of orthodontic treatment of mesial bite forms in the permanent period in children and adults. Indications for surgical interventions.
11. Etiology, pathogenesis, clinic, diagnosis, prevention and treatment of deep bite

in the temporary period. Features of treatment.

12. Clinical and radiological forms of deep bite. In which classifications are they displayed. Advantages of the hardware method of treatment in the variable period of occlusion.

13. Peculiarities of deep bite treatment in the permanent period in children and adults.

14. Etiology, pathogenesis, clinic, prevention, diagnosis and treatment of open bite in the temporary period. The role of normalization of nasal breathing in the prognosis of orthodontic treatment.

15. Clinical and radiological forms open bite their diagnosis, treatment in a variable period.

16. Peculiarities of open bite treatment in the permanent period. Tactics of treatment in children and adults. Indications for surgical interventions.

17. Etiology, pathogenesis, clinic, diagnosis, prevention and treatment crossbite in the interim period.

18. Classifications in which cross bite forms are displayed. Value of clinical diagnostic tests.

19. Peculiarities of treatment of crossbite in the permanent period.

20. Eshler-Bitner clinical diagnostic tests. their meaning.

21. Clinical diagnostic tests L.V. Ilshoi-Markosyan. their meaning.

22. Surgical interventions in the complex treatment of orthodontic patients.

23. Methods stimulation orthodontic treatment (surgical, physiotherapeutic, biological), their essence, age indications.

## **LIST OF PRACTICAL TASKS AND WORKS**

### **"Anomalies and deformations of the maxillofacial apparatus"**

1. Be able to examine an orthodontic patient with anomalies of individual teeth and bite.
2. Be able to draw up an outpatient medical history.
3. To be able to fill out an outfit in a dental laboratory.
4. To be able to diagnose and carry out differential diagnosis of anomalies of individual teeth and bite.
5. Be able get imprint with upper and lower jaw different printing materials.
6. Be able to fix a constructive bite.
7. Be able to cast jaw models.
8. Be able to measure the sagittal and vertical gap.
9. To be able to carry out clinical diagnostic tests of Eshler-Bitner, L.V. Ilyinoi-Markosyan.
10. Be able to spend anthropometric methods research by Ponom, Korkhhaus, Gerlach, Snagina and analyze these studies.
11. Be able to decipher and analyze the data of lateral TRH.
12. Be able to describe dental, axial X-ray snapshots and orthopantomograms.
13. Be able to establish a preliminary diagnosis of an orthodontic patient.
14. To be able to establish the final diagnosis of an orthodontic patient.
15. Be able to draw up an orthodontic treatment

plan.

16. To be able to determine the design of the orthodontic apparatus. 17. Be able to fit and hand over orthodontic apparatus.

18. Be able to correct and activate the orthodontic apparatus.

19. Be able to draw up a preventive planmeasures to prevent the occurrence of dental and jaw anomalies and deformations.

## **12. Recommended literature**

### **Main:**

1. Flis P.S. Orthodontics. Vinnytsia: "New Book", 2019. 308 p.

2. Flis P.S., Leonenko G.P., Filonenko V.V., Doroshenko N.M. Under the editorship Flisa P.S. "Orthodontics. Dentognathic Anomalies and Deformations". "Medicine", Kyiv 2015. 176 p.

3. Flis P.S., Vlasenko A.Z., Chupina A.O. The technology of manufacturing orthodontic and orthopedic structures in children's vits". Kyiv: "Medicine", 2013. 256 p.

### **ADDITIONAL LITERATURE:**

1. Stefan Williams. A brief guide to telentgenography. Under the editorship Prof. PS Fleece. Lviv, 2006.

2. Laura Mitchell, "An introduction to orthodontics", Oxford University Press, 2019 - 368 p.

3. Padhraig Fleming, Jadbinder Seehra Fixed orthodontic appliances, Springer nature Switzerland AG, 2019 – 166p

4. Adrian Becker Orthodontic treatment of impacted teeth, Wiley-blackwell, 2012 - 456 p.

## **13. Information resources**

1. State Expert Center of the Ministry of Health of Ukraine <http://www.dec.gov.ua/index.php/ua/>

2. [Laura Mitchell](#), "An introduction to orthodontics", 2013 - 336 p.

3. National Scientific Medical Library of Ukraine <http://library.gov.ua/>

4. National Library of Ukraine named after V.I. Vernadskyi <http://www.nbuv.gov.ua/>