

**PRIVATE HIGHER EDUCATIONAL INSTITUTION  
"INTERNATIONAL ACADEMY OF ECOLOGY AND MEDICINE"  
Department of Dentistry**

**"APPROVED"**

Acting Head of the Department

 Oleksandr BIDA

**WORKING PROGRAM OF EDUCATIONAL DISCIPLINE**

**"Orthodontics"**

**LEVEL OF HIGHER EDUCATION** Second (master's) level

**DEGREE OF HIGHER EDUCATION** Master's degree

**BRANCH OF KNOWLEDGE** 22 Healthcare

**SPECIALTY** 221 Dentistry

**COURSE** 4

Reviewed and approved  
at the meeting of the Department of Dentistry  
Protocol No. 1 of "31". 08. 2022

**Kyiv 2022**

Working program of educational discipline “Orthodontics” for the training of students of the second (master's) level of higher education in the specialty 221 Dentistry.

**Developers:** Doctor of Medicine, Prof. Kuts V.P. , assistant V.V. Shabranska

Approved by the Central Methodical Council of the Academy Protocol No. 1 of 31.08 2022

Agreed

First Vice-Rector



Oleksandra SOROKA

## INTRODUCTION

**The working study program was compiled in accordance with the following normative documents :**

the Law of Ukraine "On Higher Education" dated 07.1.2014 No. 1556-VII; by the order of the Ministry of Education and Culture of Ukraine of June 24, 2019 No. 879 "On approval of the standard of higher education in specialty 221 "Dentistry" for the second (master's) level of higher education"; the educational and professional program (OPP) of specialist training in specialty 221 "Dentistry" for the second (master's) level of higher education; the educational program of the educational discipline " Orthodontics ".

### DESCRIPTION OF THE EDUCATIONAL DISCIPLINE

**The name, code of the module and/or academic discipline and the number of credits assigned to its study**

<b>Course: preparation <i>masters</i></b>	<b>Field of knowledge, specialty, degree of higher education</b>	<b>Characteristics of the academic discipline</b>
Number of credits corresponding to ECTS: 3	Code and name of the field of knowledge - <i>22 Healthcare</i>	Normative
Modules: 2	Code and name of specialty - <i>221 Dentistry</i>	Year: 4
Content modules: (1/1)	The degree of higher education is <i>a master's degree</i>	Semester: 7/8
Total number of hours: 90		Lectures 10 hours (6/4)
		Practical classes: 40 hours. (24/16)
		Independent work: 40 hours. (30/10)
		Type of control: diff. exam

#### 1. The purpose and tasks of the educational discipline

### THE PURPOSE OF STUDYING THE EDUCATIONAL DISCIPLINE

The purpose of studying orthodontics is determined by **the final goals** , which are established on the basis of the OPP of training a doctor by specialty in accordance with the block of its content modules (natural and scientific training), and is the basis for building the content of the educational discipline. The description of goals is formulated through skills in the form of target tasks (actions). On the basis of the final goals, **specific goals** are

formulated for each module or content module in the form of certain skills (actions), target tasks that ensure the achievement of the final goal of studying the discipline.

In accordance with Appendix B of the OPP, the ultimate goals of studying *orthodontics* are:

- PP.009 - Analyze the results of the examination of a patient with dento-maxillofacial anomalies and deformations
- PP.0020 - Determine dispensary groups for the supervision of orthodontic patients and carry out preventive measures in the group with risk factors
- PP.0053 - To determine the leading syndromes and symptoms in the orthodontic clinic
- PP.0072 - Identify congenital and acquired defects of the maxillofacial area
- PP.0090 - Demonstrate mastery of the moral and deontological principles of a medical specialist and the principles of professional subordination at an orthodontic appointment
- PP.00154 - Justify and formulate a preliminary clinical diagnosis of dento-jaw anomalies and deformations
- PP.00158 - Justify and formulate a syndromic orthodontic diagnosis
- PP.00180 - Conduct differential diagnosis of diseases in orthodontics
- PP.00187 - Carry out differential diagnosis of somatic diseases that require special tactics of patient management in childhood
- PP.00190 - Conduct examinations of orthodontic patients
- PP.00202 - Carry out primary and secondary prevention of dento-jaw anomalies and deformations

**Task:** Based on the knowledge gained by students at the general biological, general clinical, dental departments and the department of children's diseases, to teach students the peculiarities of determining the etiology, pathogenesis, clinic, diagnosis, prevention and treatment of anomalies of color, structure of hard tissues of teeth, shape and size, quantity, pathology eruption, position of teeth, anomalies of dental arches, as well as sagittal, vertical and transverse bite pathologies.

As a result of studying the academic discipline, the student must

**to know:** classifications, modern concepts of etiology and pathogenesis, the occurrence and patterns of clinical manifestations of various anomalies of individual teeth, the position of individual teeth and pathological bites depending on the class and form, and methods of prevention and their treatment.

**to be able to:** conduct and analyze the results of the examination of orthodontic patients with anomalies of individual teeth, anomalies of the position of individual teeth, pathological bites; determine the etiological factors of their occurrence; substantiate and formulate a preliminary and final clinical diagnosis. Carry out differential diagnosis of diseases. Carry out treatment and prevention of anomalies of teeth, dental rows and bite in the sagittal, vertical and transversal planes, depending on age and clinical manifestations.

#### **Matrix of competences**

No	Competence	Knowledge	Skill	Communication	Autonomy and responsibility
General competences					
1	Ability to think abstractly; analysis; to learn to have modern informative and communication technologies.	Know modern development trends in industry and indicators that their characterize	Be able to conduct analysis of professional information, accept substantiated decision to acquire modern knowledge.	Establish relevant connections to achieve goals	Carry responsibility for timely acquisition of knowledge
2	Ability to understand objective and professions in a region.	Know the features of professional doctor's activities dentist	Be able to carry out professional activity that needs update and integration of knowledge.	Form communication strategy in professional activity	Carry responsibility for continuous development with high level autonomy.
3	Ability to apply knowledge in practical situations	Know the methods of implementation of knowledge in solutions practical tasks	Be able to use professional knowledge for solution practical tasks	Establish connections with subjects practical activity	Carry responsibility for reasonableness decisions made.
4	Ability to communicate in state and (foreign) language	Know the state language, including professional direction. Have in a foreign language at the level enough for professional communication.	Be able to use state and in a foreign language for implementation professional activities and communication.	Form communication strategy in professional activity	Carry responsibility for continuous professional development with high level autonomy.
5	Ability to search, processing analysis from different Ukrainian sources and	Mothers are necessary knowledge in the field of informative technologies that are used in professional	Be able to use informative technologies in professional field to search	Use informative technologies in professional activity	Carry responsibility for continuous development professional knowledge and skill

	in foreign languages.	activity Ukrainian and in a foreign language.	processing and analysis of the new information from various		Ukrainian and in a foreign language.
--	-----------------------	---	---	--	--------------------------------------

			sources and different languages		
6	Ability and action in adaptation s in new situation.	Know the methods implementation of knowledge in solutions practical tasks	Be able to use professional knowledge for adaptation and actions in new situation.	Establish connections with subjects practical activity	Carry responsibility for performance quality professional tasks in the new situations
7	Ability work autonomously, to show the ability and put solve problems	Know the methods implementation of knowledge in detection, staging and solving problems professional activity	Be able to use professional knowledge for detection, productions and problem solving professional activity	Establish connections with subjects practical activity with a goal detection, productions and problem solving professional activity	Carry responsibility for reasonableness decisions made regarding the solution problems professional activity
8	Ability to of choice strategies communication.	Know the methods implementation of knowledge in choosing a strategy communication with patients and colleagues	Be able to use knowledge to choose strategies communication with patients and colleagues	Form communication strategy in professional activity	Carry responsibility for continuous professional development with high level autonomy.
9	Ability work team in	Know the ways collective interaction during work in a team.	Be able to use knowledge to choose strategies communication during collective interaction	Form communication strategy in professional activity	Carry responsibility for continuous professional development.
10	Cooperation skills wi th colleagues and patients	Know the ways interpersonal interaction with communication with colleagues and patients	Be able to use knowledge to choose strategies communication during collective interaction	Form communication strategy in professional activity	Carry responsibility for continuous professional development with high level autonomy.
11	Ability act on basis ethical considerations	To know morally ethical principles medical specialist and rules professional subordination	Use in practical activity moral and ethical principles medical specialist and rules professional subordination	To comply with professional time activity moral and ethical principles medical specialist and professional rules subordination	Carry personal responsibility for compliance moral and ethical principles medical specialist and professional rules subordination
12	Skills carrying out safe	Ability assess the level dangers with	Be able to carry out professional activity with	Provide quality performance professional work	carry a personal responsibility for compliance with the rules

	activity	performance professional tasks	compliance safety rules.	with compliance safety rules.	security at performance professional tasks
13	Ability and evaluate and provide quality of conducted works	Ability evaluate and provide quality at performance professional tasks	Know the methods assessment quality indicators activity	Be able provide quality performance professional work	Establish connections

**Special (professional competences)**

1	Recognize morally-ethical and professional rules activity an orthodontist.	Know the main ones position Code of Ethics dentist	Use in practical activity Code of ethics dentist	To comply with communication time with patients and colleagues of the provisions Ethical doctor's code dentist	Carry personal responsibility for observance of practical activity provisions Code of Ethics dentist
2	Realize morally-deontological medical principles specialist and rules professional subordination in dentistry clinic.	To know morally deontological principles medical specialist and rules professional subordination in dentistry clinic and in working with children.	Use in practical activity morally-deontological principles medical specialist and rules professional subordination in dentistry clinic and in working with children.	To comply with professional time activity morally-deontological principles medical specialist and rules professional subordination in dentistry clinic and in working with children.	Carry personal responsibility for compliance morally-deontological principles medical specialist and rules professional subordination in dentistry clinic and in working with children.
3	To learn promote healthy psychological microclimate in team, foundati ons norms of mutual relations orthodontist patient (child). →	Know the current legal norms relationship "the doctor is a dentist - orthodontist → patient (child)".	Use in practical legal activities norms relationship "a doctor is a dentist orthodontist → patient (baby)". Be able to shape healthy psychological microclimate in team	To comply with professional time activity valid legal norms relationship "a doctor is a dentist orthodontist → patient (baby)". Support healthy psychological microclimate in team	Carry personal responsibility for compliance current legal norms relationship "the doctor is a dentist - orthodontist → patient (child)".
4	Know different classification maxillofacial anomaly and deformations: - to study	Know different classification maxillofacial anomalies and deformations, to know physiological species	Be able characterize maxillofacial anomalies and deformations; determine	Interact with a patient (child) and parents for detailed collection history,	Carry personal responsibility for the correctness of the collection history, carrying out examination and

	<p>classification England; - to study</p> <p>classification</p> <p>Kalvelias;</p> <p>- to study six keys occlusion by Andrews;</p>	<p>bite, signs orthognathic bite</p>	<p>physiological species bite, signs orthognathic bite</p>	<p>carrying out examination and detection maxillofacial</p> <p>anomalies and deformations</p>	<p>detection basic maxillofacial anomalies and deformations</p>
5	<p>To master basic knowledge about classification anomaly individual teeth, anomaly sizes and cutting teeth, anomaly position teeth, anomaly specie dental rows, s diastema:</p> <p>- to study the main ones</p>	<p>Know classification anomaly individual teeth, anomaly quantities, sizes and dentition, anomaly position of teeth, anomaly dental rows, types of diastemas; main etiologi cal ones factors risk developm ent anomaly;</p>	<p>Be able to spend examination orthodontic patient, identify species anomalies and deformations, to determine etiologi cal factors, conduct the main and additional methods diagnostics;</p>	<p>Realize importance carrying out basic and additional methods examination for installation correct diagnosis with next drawing up a plan prevention and treatment.</p>	<p>Carry personal responsibility for correctness execution of stages examination orthodontic the patient and carrying out additional methods examination, installation diagnosis and appointment treatment.</p>
	<p>etiologi cal risk factors development anomaly;</p> <p>- to study methods prevention;</p> <p>- to know basic and additional diagnostic methods;</p> <p>- to study the main clinical signs of anomalies;</p> <p>- to study complex methods treatment;</p>	<p>methods prevention and diagnostics; the main ones clinical signs of abnormalities and methods of treatment.</p>	<p>determine the main ones signs of abnormalities and deformations;</p> <p>assign methods prevention and treatment.</p>		
6	<p>Master the basics knowledge about sagittal, vertical and transversal Bite anomalies:</p> <p>- to study the main ones etiologi cal factors developme nt anomaly;</p>	<p>Know classification sagittal, vertical and transversal anomaly bite ; main etiologi cal ones factors risk developm ent anomaly; methods prevention and diagnostics;</p>	<p>Be able to spend examination orthodontic patient, identify species anomalies and deformations, to determine etiologi cal factors, conduct the main and additional methods</p>	<p>Realize importance carrying out basic and additional methods examination for installation correct diagnosis with next drawing up a plan prevention and</p>	<p>Carry personal responsibility for correctness execution of stages examination orthodontic the patient and carrying out additional methods examination, installation diagnosis and</p>

- to study methods prevention; - know the main ones and additional methods diagnostics; - to study the main clinical signs of anomalies; - to study complex methods treatment;	the main ones clinical signs of abnormalities and methods of treatment.	diagnostics; determine the main ones signs of abnormalities and deformations; assign methods prevention and treatment.	treatment.	appointment treatment.
7 Master the basics knowledge of filling medical history orthodontic the patient	Know sections medical history.	Be able to collect anamnesis, conduct the main and additional methods diagnostics, make a diagnosis make a plan treatment and prevention, write all required sections medical history.	Realize importance and necessity correct management and filling in history diseases	Carry personal responsibility for correctness filling in history.

Learning outcomes:

**Integrative final program learning outcomes, the formation of which is facilitated by the study discipline "Orthodontics"**

1. Demonstrate the moral and ethical and professional rules of activity of an orthodontist.
2. Know different classifications of maxillofacial anomalies and deformations: Engel's classification;
  - Kalvelias classification;
  - six keys of occlusion according to Andrews;
  - Betelman's classification;
3. Demonstrate knowledge of the classification of anomalies of individual teeth, anomalies of the number, size and eruption of teeth, anomalies of the position of teeth, anomalies of dental rows, types of diastemas:
  - to know the main etiological risk factors for the development of anomalies;
  - prevention methods;
  - basic and additional diagnostic methods;
  - main clinical signs of abnormalities;
  - complex methods of treatment;
4. To have knowledge about sagittal, vertical and transversal bite anomalies:
  - the main etiological risk factors for the development of anomalies;
  - prevention methods;
  - basic and additional diagnostic methods;
  - main clinical signs of abnormalities;
  - complex methods of treatment;

5. Have knowledge of filling out the medical history of an orthodontic patient.

**Learning outcomes for the discipline:**

As a result of studying the educational discipline "Orthodontics" (diagnosis of dento-jaw anomalies and deformations), the student should know:

1. Know the classification of anomalies of individual teeth.
2. Conduct an examination of an orthodontic patient:
  - with abnormalities in the size of individual teeth;
  - with abnormalities in the shape of individual teeth;
  - with abnormalities in the number of individual teeth;
  - with diastemas and treams;
  - with crowded teeth;
  - with cake anomalies;
  - with the vestibulo-oral position of the teeth.
3. To analyze the prevalence and intensity of anomalies of individual teeth and the position of individual teeth and to determine the factors affecting these indicators.
4. Analyze the results of an orthodontic patient examination:
  - with abnormalities in the size of individual teeth;
  - with abnormalities in the shape of individual teeth;
  - with abnormalities in the number of individual teeth;
  - with diastemas and treams;
  - with crowded teeth;
  - with cake anomalies;
  - with the vestibulo-oral position of the teeth.
5. Justify and formulate a clinical diagnosis:
  - with abnormalities in the size of individual teeth;
  - with abnormalities in the shape of individual teeth;
  - with abnormalities in the number of individual teeth;
  - with diastemas and treams;
  - with crowded teeth;
  - with cake anomalies;
  - with the vestibulo-oral position of the teeth.
6. Carry out differential diagnosis of diseases:
  - with abnormalities in the size of individual teeth;
  - with abnormalities in the shape of individual teeth;
  - with abnormalities in the number of individual teeth;
  - with diastemas and treams;
  - with crowded teeth;
  - with cake anomalies;
  - with the vestibulo-oral position of the teeth.
7. Determine the changed color of the teeth.
8. To conduct an examination of an orthodontic patient with abnormalities of the shape of the tooth rows:
  - expansion of tooth rows;
  - narrowing of tooth rows;
  - tooth alveolar elongation;
  - alveolar shortening;
  - crowding of teeth;
  - protrusion (protraction) of tooth rows;
  - retraction (retrusion) of tooth rows;
9. Conduct an examination of an orthodontic patient with anomalies and bite deformation:
  - distal bite forms;
  - mesial bite forms;
  - open bite;
  - deep bite;
  - unilateral or bilateral crossbite.

9. Analyze the results of the examination of an orthodontic patient:

- distal bite forms;
- mesial bite forms;
- open bite;
- deep bite;
- unilateral or bilateral crossbite

10. Know the classifications of bite pathology.

11. To know modern ideas about the etiology and pathogenesis of anomalies of the bite.

12. To know the patterns of clinical manifestations of various pathological bites depending on the class and form.

13. Justify and formulate a clinical diagnosis:

- distal bite forms;
- mesial bite forms;
- open bite;
- deep bite;
- unilateral or bilateral crossbite.

Carry out differential diagnosis of bite anomalies:

- with distal bite forms;
- with mesial bite forms;
- open bite;
- crossbite.

As a result of studying the academic discipline "Orthodontics", the student should be able to:

- Analyze the results of the examination of a patient with dento-maxillofacial anomalies and deformations
- Determine dispensary groups for the supervision of orthodontic patients and carry out preventive measures in the group with risk factors
- To determine the leading syndromes and symptoms in the orthodontic clinic
- 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 clinical diagnosis of dento-jaw 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
- Carry out primary and secondary prevention of dento-jaw anomalies and deformations

## **CONTENTS OF THE PROGRAM**

### **Clinic, diagnosis and treatment of nosological forms of dento-jaw anomalies**

#### **Anomalies of individual teeth.**

**Abnormalities of tooth color.** The reasons for their appearance. Differential diagnosis of hereditary anomalous tooth color from acquired. Treatment of this anomaly.

**Anomalies of the shape of the teeth.** Microdonts, macrodonts. Differential diagnosis of them with anatomical variants of the norm.

Spiny teeth as harbingers of adentia. Correction of the anatomical shape of the teeth with the help of prosthetic interventions.

Etiology, pathogenesis, clinic, diagnosis and treatment of overflowing teeth (giant, fused, double). The nature of the fusion of temporary and permanent teeth. Types of tooth fusion according to S.I. Doroshenko. (1991). The influence of overflow teeth on the process of formation of dental arches and bite. Peculiarities of orthodontic treatment in the presence of draining teeth.

**Abnormalities in the number of teeth** (overcomplete, adentia). The role of heredity in the occurrence of these anomalies. Negative impact on the state of the dental plate and tooth buds of high temperature, radiation exposure, endocrine disorders, etc.

**Supernumerary teeth**. Their shape, number, location.

Clinical and X-ray diagnostics. Tactics of orthodontic treatment in the presence of supernumerary teeth. Indications for keeping them in the dental row.

**Adentia**. Types of adentia according to the number of missing teeth (partial, multiple, complete). Clinical and X-ray diagnosis of this anomaly. Extraoral and intraoral signs in multiple and complete adentia. Methods of treatment of this anomaly. Prospects for use in adentia, implantation and transplantation of tooth buds.

**Disturbances in the teething process:** premature eruption, delayed eruption or retention. Reasons for disruption of the teething process.

Types of retention depending on the number of unerupted teeth. Forms of tooth retention depending on the position and direction of eruption. Ways of removing teeth from retention: prosthetic, surgical, surgical-apparatus, biological - with the use of physiotherapeutic methods. Indications for their use.

**Anomalies of the position of the teeth.** Etiology and pathogenesis of tooth position abnormalities. Their clinical and X-ray diagnosis. Determining the lack of space in the dentition for an abnormally located tooth. The value of this diagnostic test to determine the method of treatment. Method of "serial" removal of teeth. The value of the "cosmetic six" to ensure the aesthetic optimum of the maxillofacial apparatus.

Indications for the expansion of the tooth rows and the creation of space for an abnormally located tooth. Drawing up an orthodontic treatment plan. The choice of a rational design of the device. The most common devices used in the treatment of abnormalities in the position of individual teeth. Methods of stimulation of hardware correction of dental rows.

Peculiarities of treatment of rotation of teeth around the axis (torsoanomaly). Age indications for choosing a treatment method. Causes of relapses in older age. Morphological reconstruction of the periodontium during orthodontic reversal of the tooth.

**Diastemas.** Causes of true and false diastema. Clinical and radiological diagnosis of the type of diastema, inclination and position of the roots of the incisors, age of the patient. Design features of removable and non-removable devices used in the treatment of diastemas.

Features of treatment of dystopia and transposition of teeth. Indications for tooth extraction in dystopia, taking into account their functional adequacy and aesthetic requirements. Peculiarities of mesial-distal movement of teeth. Rational designs of devices.

**Bite anomalies.**

**Distal bite.** Its prevalence. Etiology and pathogenesis. The main etiological factors that contribute to the development of this anomaly. Mechanism of occurrence of distal occlusion during artificial feeding. The significance of the lactation period in the formation of the maxillofacial apparatus.

**Clinical diagnosis.** Extraoral signs of distal occlusion. Value of clinical diagnostic test of Eshler-Bitner.

Intraoral signs, character of overlapping teeth. Violations of the mesiodistal relationship between tooth rows of varying degrees of severity, possible complications in other directions (transversally and vertically). Features of the forms of dental arches.

The most characteristic functional disorders: speech, breathing, chewing, swallowing.

Forms of distal bite. Classifications in which they are displayed. Establishing a diagnosis based on clinical and auxiliary research methods. Prognosis of treatment of forms of distal occlusion.

Preventive measures: the role of proper feeding of babies, fight against bad habits. The importance of the position of the head during sleep, sanitation of the oral cavity and ENT organs, as well as timely replacement of dental defects.

### **Treatment of distal bite in temporary bite.**

Its preventive nature. The use of preventive devices in order to combat bad habits and regulate nasal breathing. Complexes of myogymnastics without apparatus and with apparatus. Logopedic gymnastics. Normalization of swallowing.

Treatment of distal bite complicated by open bite. Hardware treatment of a distal bite complicated by a deep bite. Devices for mesial shift of the lower jaw; for mesial shift of the lower jaw and elimination of alveolar protrusion of the upper front teeth. Regulators of the Frenkel function of type I and II, their characteristics, principle of action.

Removable and non-removable devices that are used in a variable bite period. Appliances with extraoral traction.

Stimulating therapy in the complex treatment of patients with distal bite, its advantages. Indications for surgical methods. Appliances during treatment in the permanent bite period. Errors and complications during hardware treatment are possible. The value of the retention period and its term.

The possibility of using prosthetic methods of treatment.

**Mesial bite.** Etiological factors that can contribute to the occurrence of mesial bite. The role of heredity, bad habits, early loss of temporary and permanent teeth, as well as surgical interventions.

Clinical diagnosis. Extraoral signs of mesial bite. The role of a diagnostic clinical test in determining the severity of the anomaly and the prognosis of its treatment.

Intraoral signs of mesial bite. Violation of the ratio between the rows of teeth in the front and side areas.

Functional disorders: decrease in masticatory efficiency (according to masticatory tests), as well as the biopotential of masticatory muscles. Violation of the pronunciation of consonant sounds.

Forms of mesial bite. Classification of maxillofacial anomalies in which they are reflected. Establishing a diagnosis, according to existing examinations. Prognosis of treatment. Preventive measures. Polishing of temporary canines on the lower jaw. Treatment of mesial bite in the temporary period. The use of preventive devices in order to combat bad habits and normalize breathing and swallowing. Plastic surgery of the shortened frenulum of the tongue. Logopedic gymnastics. Indications for the use of caps with a chin sling. The possibility of using mechanical appliances in this period of occlusion.

Treatment tactics in a variable period depending on the form of the mesial bite and the age of the patient. The most common orthodontic devices. Indications for the removal of individual teeth or serial removal in order to inhibit the growth of the lower jaw and reduce the dentition.

Peculiarities of treatment in the permanent bite period. Appliances used in this period of occlusion, their characteristics and purpose.

Causes of recurrence of anomalies.

The possibility of using a prosthetic method of treating mesial bite in adults.

**Open bite.** The main etiological factors that contribute to the development of an open bite. Mechanism of occurrence of open bite in case of nasal breathing disorders, rickets and macroglossia.

**Clinical diagnosis.** Extraoral signs of open bite. Diagnostic test for detection of impaired breathing, features of its implementation.

Intraoral signs of frontal and lateral open bites. Ratio of first permanent molars in open bite, depending on violations in sagittal and transversal directions.

Functional disorders: difficult biting of food, reduced chewing efficiency; decrease in biopotential of masticatory and facial muscles, infantile type of swallowing; impaired speech function.

Morphofunctional disorders in the temporomandibular joints during open bite. Forms of open bite. Classifications of dento-jaw deformities in which this anomaly is reflected. Establishing a diagnosis. Drawing up an orthodontic treatment plan. Prognosis of treatment.

**Preventive measures.** The role of rational and balanced nutrition, prevention of childhood diseases, consumption of solid food. Treatment of an open bite in the temporary period. Polishing of temporary molars, adjustment of impaired functions, as well as the fight against bad habits with the help of preventive devices. Myogymnastic exercises without apparatus and with apparatus. Logopedic myogymnastics. Plastic surgery of the shortened frenulum of the tongue. Sling cap with vertical pull.

**Treatment at the beginning of variable bite:** its features. Use of orthodontic devices and methods of functional therapy. Tactics of treatment of open bite in variable period of occlusion. The mechanism of "stabbing" the teeth. Indications for the use of orthodontic screws, fixed devices with monomaxillary and intermaxillary vertical traction. Features of correction of the shape of dental arches with fixed appliances.

**Treatment in the permanent bite period:** its prospects. Indications for the use of removable and non-removable structures of orthodontic appliances. Complex treatment of open bite. Retention period.

**Deep bite.** Etiological factors that contribute to the occurrence of a deep bite.

**Clinic, diagnosis.** Extraoral signs of deep bite. Variations of extraoral signs depending on the form of a deep bite and accompanying dento-jaw deformations. Intraoral signs. Functional disorders. Differential diagnosis.

Classifications of dento-jaw deformities in which this bite anomaly is reflected. Establishing a diagnosis. Prognosis of treatment.

**Preventive measures.** The role of timely rehabilitation of teeth and replacement of dental row defects. Treatment of deep bite in the temporary period. Using devices to combat bad habits. Complexes of myogymnastic exercises. Logopedic gymnastics. Therapeutic and preventive devices.

Treatment in the alternating period of occlusion. The most common orthodontic appliances. Prospects of hardware treatment of this anomaly in the variable period of occlusion. The value of the stages of formation of bite height in the prognosis of treatment.

Features of deep bite treatment in the permanent period. Indications for the use of removable and non-removable orthodontic appliances. Errors are possible in the treatment of this anomaly in adults.

**Cross bite or oblique bite.** Causes of crossbite. Clinic, diagnosis, the most characteristic extraoral signs of a cross (oblique) bite. Diagnostic, clinical tests, detection of the articular form of oblique bite.

**Intraoral signs.** The nature of the relationships between tooth rows along the transversal on the lateral sections. Variants of ratios between tooth rows in the front area depending on the complication of bite anomalies in other directions (sagittally and vertically). The most characteristic forms of dental arches in a cross (oblique) bite.

Forms of cross (oblique) bite. Classification of dento-jaw anomalies in which a cross (oblique) bite is displayed. Prognosis of treatment.

**Preventive measures:** correct position of the child's head during sleep; fight against bad habits; prevention of childhood diseases and their complications. **Treatment during the temporary bite period.** Tactics of hardware treatment. The most common orthodontic appliances.

**Treatment in the initial period of variable bite.** The effectiveness of the use of Andresen-Goepl devices, Frenkel function regulators of various types.

**Peculiarities of treatment of crossbite in the permanent period.** The most effective devices: non-removable mechanically acting devices for expanding or narrowing individual areas of the dental arches using intermaxillary traction. Indications for removal of individual teeth and compactosteotomy. Expediency of using removable equipment. Terms of use of retention devices. Prosthetic treatment.

### **3. Program of educational discipline**

The course of orthodontics is divided into 3 modules:

In the 4th year, Module No. 2 is studied. Anomalies and deformations of the human maxillofacial apparatus.

Content module #1. Anomalies of individual teeth.

Content module #2. Bite anomalies.

#### **Module #2.**

**"Anomalies and deformations of the human maxillofacial system".  
4th year of study.**

#### **Content module #1.**

***Anomalies of individual teeth.***

#### **Specific goals:**

1. Conduct an examination of an orthodontic patient:
  - with abnormalities in the size of individual teeth;
  - with abnormalities in the shape of individual teeth;
  - with abnormalities in the number of individual teeth;
  - with diastemas and treads;
  - with crowded teeth;
  - with cake anomalies;
  - with the vestibulo-oral position of the teeth.
2. Know the classification of anomalies of individual teeth.

3. To analyze the prevalence and intensity of anomalies of individual teeth and the position of individual teeth and to determine the factors affecting these indicators.
4. Analyze the results of the examination of an orthodontic patient:
  - with abnormalities in the size of individual teeth;
  - with abnormalities in the shape of individual teeth;
  - with abnormalities in the number of individual teeth;
  - with diastemas and treme;
  - with crowded teeth;
  - with cleft anomalies;
  - with the vestibulo-oral position of the teeth.
5. Justify and formulate a preliminary clinical diagnosis:
  - with abnormalities in the size of individual teeth;
  - with abnormalities in the shape of individual teeth;
  - with abnormalities in the number of individual teeth;
  - with diastemas and treme;
  - with crowded teeth;
  - with cleft anomalies;
  - with the vestibulo-oral position of the teeth.
6. Carry out differential diagnosis of diseases:
  - with abnormalities in the size of individual teeth;
  - with abnormalities in the shape of individual teeth;
  - with abnormalities in the number of individual teeth;
  - with diastemas and treme;
  - with crowded teeth;
  - with cleft anomalies;
  - with the vestibulo-oral position of the teeth.
7. Determine the changed color of the teeth.

***Topic #1. Anomalies of individual teeth. Abnormalities in the number of teeth. Overcomplete teeth. Anomalies of teething.***

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.

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

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 #2. Anomalies of the position of the teeth. Abnormalities of dental arches.***

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

Etiology, pathogenesis, clinic, diagnosis, prevention and treatment of dental arch narrowing and widening, dentoalveolar shortening and dentoalveolar lengthening.

## **Content module #2.**

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

#### **Specific goals:**

1. Conduct an examination of an orthodontic patient:
  - prognathic bite forms;
  - progenic forms of bite;
  - open bite;
  - deep bite;
  - unilateral or bilateral crossbite.
2. Analyze the results of the examination of an orthodontic patient:
  - prognathic bite forms;
  - progenic forms of bite;
  - open bite;
  - deep bite;
  - unilateral or bilateral crossbite.
3. Know the classification of bite pathology.
4. To know modern ideas about the etiology and pathogenesis of anomalies of the bite.
5. To know the patterns of clinical manifestations of various pathological bites depending on the class and form.
6. Justify and formulate a preliminary clinical diagnosis:
  - prognathic bite forms;
  - progenic forms of bite;
  - open bite;
  - deep bite;
  - unilateral or bilateral crossbite.
7. Carry out differential diagnosis of diseases:
  - with prognathic bite forms;
  - with progenic forms of bite;
  - open bite;
  - deep bite;
  - unilateral or bilateral crossbite.
8. Carry out treatment of bite anomalies in the sagittal, vertical and transversal planes depending on age and clinical manifestations.

### ***Topic #3. Sagittal abnormalities of bite. Mesial bite. Etiology, pathogenesis, prevention. Clinic and diagnostics. Complex treatment of mesial bite and its prognosis.***

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

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.

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

#### ***Topic #4. Sagittal abnormalities of bite. Distal bite. Etiology, pathogenesis, prevention. Clinic and diagnostics. Comprehensive treatment.***

Terms used to characterize prognathic bite forms. Classifications in which this pathology occurs. 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.

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. Application of physiotherapeutic measures.

The role of related specialists in the treatment of distal bite.

#### ***Topic #5. Vertical bite anomalies. Deep bite. Etiology, pathogenesis, prevention. Clinic and diagnostics. Comprehensive treatment.***

Classifications in which there is a deep bite. Etiology of deep bite in 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.

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 #6. Vertical bite anomalies. Open bite. Etiology, pathogenesis, prevention. Clinic and diagnostics. Complex methods of treatment.**

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.

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 #7. Transverse bite anomalies. Cross bite. Etiology, pathogenesis, prevention, clinic and diagnostics. Comprehensive treatment. Final modular control of PMK No. 2.**

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.

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.

#### 4. Structure of the academic discipline, 7th semester

Names of content modules and topics	Number of hours					
	Full-time					
	In total	including				
1		p	lab	ind.	s.s.	
1	2	3	4	5	6	7
<b>Module 1</b>						
1 Anomalies of individual teeth. Etiology, pathogenesis, clinic, diagnosis, prevention, treatment. Abnormalities in the number of teeth. Overcomplete teeth, adentia. Etiology, pathogenesis, clinic, diagnosis, prevention, treatment.	7	1	3			3

Anomalies of teething. Etiology, pathogenesis, clinic, diagnosis, prevention, treatment. Treatment of patients.						
2 Abnormalities in the position of the teeth. Etiology. Etiology, pathogenesis, clinic, diagnosis, prevention, treatment. Abnormalities of dental arches. Etiology, pathogenesis, clinic, diagnosis, prevention, treatment.	7	1	3			3
3 Sagittal abnormalities of bite. Progeny. Etiology, pathogenesis, prevention. Clinic and diagnostics.	7	1	3			3
4 Sagittal abnormalities of bite. Program _ Complex treatment in temporary and permanent periods of bite.	7	1	3			3
5 Sagittal abnormalities of bite. Prognathia Etiology, pathogenesis, prevention. Clinic and diagnostics.	6		3			3
6 Sagittal abnormalities of bite. Complex treatment in temporary and permanent periods of bite.	7	1	3			3
7 Transversal malocclusion. Cross bite. Etiology, pathogenesis, prevention, clinic and diagnostics. Comprehensive treatment.	7	1	3			3
8 Diff. test	12		3			9
Total per semester	60	6	24			30

#### 4. Structure of the academic discipline, 8th semester

Names of content modules and topics	Number of hours					
	Full-time					
	In total	including				
1		p	lab	ind.	s.s.	
1	2	3	4	5	6	7
<b>Module 1</b>						
1 Vertical bite anomalies. Deep bite. Etiology, pathogenesis, clinic, diagnosis /	7	1	3			3
2 Vertical anomalies of bite. Deep bite, treatment, prevention.	7	1	3			3
3 Vertical anomalies of bite. Open bite. Etiology, pathogenesis, clinic, diagnosis.	7	1	3			3
4 Vertical malocclusions. Open bite, treatment, prevention.	6	1	3			2
<b>5 Diff. tests</b>	6		4			2
<b>Total per semester</b>	30	4	16			10
<b>Together for a year</b>	90	10	40			40

**Thematic plan of lectures on orthodontics**  
**For students of the 4th year of the 7th semester of the Faculty of Dentistry**  
**2022 - 2023**

No.	Topic of lectures	hours
1	Etiology, pathogenesis, clinic, diagnosis, prevention and treatment of anomalies of individual teeth, color, structure of hard tissues of the tooth, quantity (adentia, supernumerary teeth).	2
2	Mesial bite. Frequency, classification, etiology, differential diagnosis, treatment, prevention.	2
3	Distal bite. Frequency, classification, etiology, differential diagnosis, treatment, prevention.	2
	<b>In total</b>	<b>6</b>

**Thematic plan of practical classes in orthodontics**  
**for students of IAEM 4th year 7th semester 2022 -2023**

1	Anomalies of individual teeth. Etiology, pathogenesis, clinic, diagnosis, prevention, treatment. Abnormalities in the number of teeth. Overcomplete teeth, adentia. Etiology, pathogenesis, clinic, diagnosis, prevention, treatment. Anomalies of teething. Etiology, pathogenesis, clinic, diagnosis, prevention, treatment. Treatment of patients.	3
2	Anomalies of the position of the teeth. Etiology. Etiology, pathogenesis, clinic, diagnosis, prevention, treatment. Abnormalities of dental arches. Etiology, pathogenesis, clinic, diagnosis, prevention, treatment.	3
3	Sagittal abnormalities of bite. Progeny. Etiology, pathogenesis, prevention. Clinic and diagnostics.	3
4	Sagittal abnormalities of bite. Program _ Complex treatment in temporary and permanent periods of bite.	3
5	Sagittal abnormalities of bite. Prognathia Etiology, pathogenesis, prevention. Clinic and diagnostics.	3
6	Sagittal abnormalities of bite. Complex treatment in temporary and permanent periods of bite.	3
7	Transverse bite anomalies. Cross bite. Etiology, pathogenesis, prevention, clinic and diagnostics. Comprehensive treatment.	3
8	Diff. test	3
	<b>Total:</b>	<b>24</b>

**Thematic plan of lectures**  
**from the discipline "Orthodontics"**  
**for students of the 4th year, 8th semester 2022-2023**

No	The topic of the lecture	hours
----	--------------------------	-------

1.	Vertical bite anomalies. Deep bite. Etiology, pathogenesis, clinic, diagnosis, prevention, treatment.	2
2.	Vertical bite anomalies. Open bite. Etiology, pathogenesis, clinic, diagnosis, prevention, treatment.	2

**Thematic plan of practical classes in the discipline " Orthodontics"  
for students of the 4th year, 8th semester 2022-2023**

No	Topic name	Number hours
<b>MODULE 1</b>		
1	Vertical bite anomalies. Deep bite. Etiology, pathogenesis, clinic, diagnosis /	3
2	Vertical bite anomalies. Deep bite, treatment, prevention.	3
3	Vertical bite anomalies. Open bite. Etiology, pathogenesis, clinic, diagnosis.	3
4	Vertical bite anomalies. Open bite, treatment, prevention.	3
5	<b>Diff. test</b>	4
	<b>In total</b>	16

**Thematic plan of students' independent out-of-classroom work  
from the discipline of therapeutic dentistry for children  
For students of the Department of Dentistry IAEM 2022- 23  
Independent work of students of 7-8 semesters**

No	Subject of classes	Number hours	Types of control
1.	<p align="center">Self-study of topics:</p> <p>1. Prevalence and treatment of anomalies of individual teeth depending on the period of bite formation.</p> <p>2. The frequency of progenic forms of bite in different regions of Ukraine</p> <p>3. Justification of the frequency of mesial and distal bites in modern civilizational conditions.</p>	9	Abstracts, presentations

2.	1. Organization of a conference on orthodontics at the department of dentistry on the topic "Vertical malocclusions"	11	Abstracts, presentations, models.
	2. Self-obtaining and manufacturing control models with deep and open bite.	10	
	3. Anthropometric measurement of control models in 3 planes (according to Pon, Ton, Korkhaus, etc.).	10	
<i>Total hours for 7-8 semesters:</i>		40	

## 7. Individual tasks

Individual work of students is a form of organization of education with the aim of deepening, generalizing and consolidating the knowledge that students acquire in the process of learning, as well as applying this knowledge in practice, that is, an individual educational and research task.

## 8. Teaching methods

- ***Explanatory and illustrative method or informational and receptive.***

Students acquire knowledge at lectures, from educational or methodical literature, through an on-screen guide in a "ready" form, lectures, discussions.

- ***Reproductive method (reproduction - reproduction)***

Students' activities in practical classes are algorithmic in nature, that is, they are carried out according to instructions, prescriptions, rules in similar situations, similar to the sample shown, at the outpatient reception of patients.

- ***Problem presentation method.***

In practical classes, the teacher poses a problem, formulates a cognitive task based on various sources and means, and students become witnesses and co-participants of scientific research, take part in the department's GDR.

- ***Partial search, or heuristic, method.***

It consists in the organization of an active search for a solution to the proposed cognitive tasks during self-study.

The work takes place under the guidance of the teacher, or based on heuristic programs and instructions.

- ***Research method.***

Students independently study literature, sources, conduct observations, work on the Internet and perform other activities of a search nature.

- ***Business game as a method of active learning.***

Thematic plans of lectures, practical classes, SRS ensure the implementation in the educational process of all topics included in the meaningful modules.

## 9. Control methods

### Methods of evaluating current educational activities

**Evaluation** is one of the final stages of the student's educational activity and determination of the success of the study. The evaluation procedure and methodology significantly affect the final results, the possibility of analysis, and the statistical reliability of the evaluations. That is why standardized methods should be preferred in the evaluation: testing, structured written works, structured according to the procedure of control of practical skills in conditions close to real ones. According to the content, it is necessary to evaluate the level of formation of abilities and skills, which are defined in the educational and qualification characteristics and reflected in the curriculum of the relevant academic discipline.

The procedure for evaluating the educational activity of students in the disciplines studied under the KMSNP is determined by the "Temporary Instruction on evaluating the educational activity of students on the implementation of the credit-module system of the organization of the educational process" (Letter of the Ministry of Health of Ukraine dated 16.06.2005 No. 08.01-22/1258) and recommended changes to Temporary instructions on the evaluation of educational activities (letter of the Ministry of Health of Ukraine dated January 21, 2008 No. 08.01-22/65\*).

The grade for the module is defined as **the sum of the grades** of the current educational activity (in points) and the final module control grade (in points), which is given when evaluating theoretical knowledge and practical skills in accordance with the lists determined by the discipline program.

The maximum number of points awarded to students for mastering all topics of the module (credit) is 200, including 120 points (60%) for the current educational activity, 80 points (40%) based on the results of the final control.

**Correspondence of the average score of the current academic performance according to the traditional one**

**4-point scale to the total evaluation of the current success rate for the module**

The minimum converted sum of current success points for all modules of the discipline is **72 points**.

The average score of the current academic performance on a traditional 4-point scale	Points for current performance after GPA conversion
2.00	0
2.05	49
2.10	50
2.15	52
2.20	53
2.25	54
2.30	55
2.35	56
2.40	58
2.45	59
2.50	60
2.55	61
2.60	62
2.65	64
2.70	65
2.75	66

2.80	67
2.85	69
2.90	70
2.95	71
3.00	72
3.05	73
3.10	74
3.15	75
3.20	77
3.25	78
3.30	79
3.35	80
3.40	82
3.45	83
3.50	84
3.55	85
3.60	86
3.65	87
3.70	89
3.75	90
3.80	92
3.85	93
3.90	94
3.95	95
4.00	96
4.05	97
4.10	98
4.15	99
4.20	101
4.25	102
4.30	103
4.35	104
4.40	106
4.45	107
4.50	108
4.55	109
4.60	110
4.65	111
4.70	113
4.75	114
4.80	115
4.85	116
4.90	118
4.95	119
5.00	120

The result of the final module control is evaluated in points (the traditional 4-point evaluation is not assigned). The maximum number of points of the final modular control is 80 points. The minimum number of points of the final module control, at which the control is considered passed, is 50 points.

The maximum number of points per module is 200 points. The diff. test assessment criteria are determined by the department, approved by the cyclic methodical commission on the implementation of the credit-module system of education and brought to the attention of students at the beginning of the study of the discipline (the first lecture and practical session).

## 2. Assessments of mastering practical skills in accordance with **professional algorithms** during the main stage of practical training.

It is carried out during the independent curation of the patient by the student or during the written teaching of the algorithm for performing one or another dental manipulation.

*The grade "5"* is given for this stage of the lesson in the case when the student correctly, in accordance with the professional algorithm, carried out a dental examination of the child, diagnosis, differential diagnosis, a certain stage of treatment of anomalies of individual teeth or anomalies of bite, carried out preventive measures. Under the guidance of the teacher, he correctly filled out the sections of the dental patient's medical card.

*The grade "4"* is given when the student knows the sequence of actions according to the professional algorithm, performed a dental examination of the child with minor errors, diagnosis, differential diagnosis, a certain stage of treatment of anomalies of individual teeth or anomalies of bite, carried out preventive measures. Under the guidance of the teacher, he correctly filled out the sections of the dental patient's medical card.

*The grade "3"* is given when the student does not fully know the professional algorithm for performing this or that manipulation, carries out a dental examination of the child, diagnosis, differential diagnosis, a certain stage of treatment of anomalies of individual teeth or anomalies of bite, carried out preventive measures. Errors are allowed when filling out medical documentation.

*Grade "2"* is assigned when the student does not know the professional algorithm for performing dental manipulation, cannot conduct a dental examination of a child, diagnosis, differential diagnosis, a certain stage of treatment of anomalies of individual teeth or anomalies of bite, has not carried out preventive measures. When filling out methodological documentation, gross errors are assumed.

## 3. Assessments of the final level of students' knowledge at the final stage of the lesson, which is carried out by solving 10 test tasks of format A (**level $\alpha_3$** ) or evaluating answers to clinical situational tasks.

*A grade of "5"* is given for this stage of the lesson if the student correctly answered 91-100% of the test tasks, gave correct, complete answers when solving the clinical situational problem.

*The grade "4"* is given when the student answered 81-90% of the test tasks correctly, made insignificant mistakes when solving the clinical situational problem or gave an incomplete answer to a separate question.

*The grade "3"* is assigned when the student answered 71-80% of the test tasks correctly, made mistakes when solving the clinical situational problem, gave incomplete or inaccurate answers to questions.

*The grade "2"* is assigned when the student correctly answered less than 70% of the test tasks or did not solve the clinical situation problem.

Each stage of the practical exam is evaluated separately, after which the grades are summed up and the average grade for the practical session is derived in the usual (traditional) 4-point system, which is converted into points according to the scale for the module.

The overall evaluation of the student's educational activity in each lesson is comprehensive and is entered by the teacher at the final stage of the lesson in the "Journal of students' attendance and performance records".

*Evaluation of the student's individual independent work (individual tasks):*

The number of points for various types of individual research work of a student (IDRS) depends on its scope and significance. Points for individual tasks are awarded to the student only if they are successfully completed and defended. These points are added to the total points earned by the student for the current cumulative activity. The program in the discipline "Orthodontics" provides for **8 additional points** - for Module #2.

*Assessment of the student's independent work:*

Assessment of students' independent work provided for in the topic for independent preparation for the lesson is carried out during the ongoing control of the topic in the corresponding classroom lesson. The quality of the student's preparation for the practical lesson is evidenced by the quality of the synopsis prepared by him with the tasks provided for in the methodical instructions (developments) for each topic of the module.

The learning of topics that are assigned only to independent work and are not included in the classroom training plan is monitored during the final module control.

**LIST OF THEORETICAL QUESTIONS  
to the final modular control in the discipline "Orthodontics"  
to Module No. 2 :**

**" Anomalies and deformations of the maxillofacial apparatus "  
Content module No. 1  
*"Anomalies of individual teeth".***

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 dentition.
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. Classification of abnormalities in the position of individual teeth. Etiology, pathogenesis.
14. Cross 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. The palatal position of the teeth. Etiology, pathogenesis, clinic, treatment.
19. Crowding of 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.

## **Content module #2.**

### ***"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. Peculiarities 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 prognosis orthodontic treatment.
15. Clinical and radiological forms of open bite, their diagnosis, treatment in the 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 of crossbite in the temporary 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 of stimulation of orthodontic treatment (surgical, physiotherapeutic, biological), their essence, age indications.

## **LIST OF PRACTICAL SKILLS AND JOBS**

### **to the final modular control in the discipline "Orthodontics"**

#### **MODULE No. 2: " 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 complete 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 to take an impression from the upper and lower jaws with different impression 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 conduct clinical diagnostic tests of Eshler-Bitner, L.V. Ilyinoi-Markosyan, Kibkalo.
10. To be able to conduct anthropometric research methods according to Pon, Korchhaus, 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 images and orthopantomograms.
13. Be able to establish a preliminary diagnosis of an orthodontic patient.
14. 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 an orthodontic appliance.
18. Be able to correct and activate the orthodontic apparatus.
19. Be able to draw up a plan of preventive measures to prevent the occurrence of dental and jaw anomalies and deformations.

#### ***Final modular control***

The final module control is conducted after the completion of the study of all topics of the module **in the last - control session - of the Module.**

Students who have completed all types of work provided for by the curriculum and have scored at least the minimum number of points during the module are admitted to the final module control.

The form of conducting the final modular control should be standardized and include control of theoretical and practical training. Specific forms of the final modular control in children's therapeutic dentistry are defined in the work curriculum.

The maximum number of points of the final module control is **80 points** . The final module test is considered passed if the student scored **at least 50 points**.

**Regulation of final modular control**

**Module No. 2 from the discipline "Orthodontics"**

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

The final module control of Module No. 2 in the discipline "Orthodontics" is held at the last practical session of the **VII semester** , subject to full attendance of the course of lectures and practical sessions. Students who have scored **at least 56 points** (minimum number of points) for the current educational activity of studying Module No. 2 are allowed to take the module .

The final module control of Module No. 2 of the discipline "Orthodontics" consists of two parts: theoretical and practical.

1. *The theoretical part of PMK* is accepted in the form:

- written solution of 20 standardized test tasks of format A, covering all sections of the discipline "Orthodontics", included in Module No. 2. Each test task has only one correct answer. The term of written work is **20 minutes** ;
- written answer to 3 questions from the "List of questions" to PMK Module No. 2 from the discipline "Orthodontics". The term of written work is **20 minutes**.

2. *The practical part of PMK* consists in demonstrating the student's ability to carry out a comprehensive assessment of the child's dental status, determine the need for orthodontic assistance, and draw up an individual treatment and prevention plan for a child with anomalies of the teeth, dentition and bite, based on the "List of practical skills" directly at the patient's chair. for PMK Module No. 2 in the discipline "Orthodontics". The duration of the practical part of the PMK is **120 minutes**.

3. Summary and announcement of results - **20 minutes**.

4. Completion of documentation - **20 minutes**.

**Evaluation method of final modular control**

**Module No. 2 from the discipline "Orthodontics"**

Test control	Written answers	Learning practical skills	Total points
<b>"5" - 30 points</b> (91-100% correct answers)	<b>"5" - 25 points</b>	<b>"5" - 25 points</b>	<b>"5" - 80</b>
<b>"4" - 25 points</b> (81-90% of correct answers)	<b>"4" - 20 points</b>	<b>"4" - 20 points</b>	<b>"4" - 65</b>
<b>"3" - 20 points</b>	<b>"3"-15 points</b>	<b>"3" - 15 points</b>	<b>"3" - 50</b>

(71-80% of correct answers)			
<b>"2"-0 points</b> (less than 70% correct answers)	<b>"2" - 0 points</b>	<b>"2" - 0 points</b>	<b>Less than 50</b>

When evaluating a discipline, a score equal to the arithmetic mean of the results of Module #1 and the results of Module #2 is calculated.

#### **Rating scale: national and ECTS**

The sum of points for all types of educational activities	Evaluation on a national scale
	for an exam, course project (work), practice
200-180, A	perfectly
179-160, B	fine
159-150, C	
149-130, D	satisfactorily
122-129, E	
<122, FX	unsatisfactory with the possibility of reassembly
F	unsatisfactory with mandatory repeated study of the discipline

### **10. Methodological support**

The department has created and uses methodological developments for students and teachers to prepare for the current control and methodological developments for independent work of students in Ukrainian and English languages.

### **11. Recommended literature**

#### **BASIC LITERATURE:**

1. 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.
2. Flis P.S., Vlasenko A.Z., Chupina A.O. "Technology of manufacturing orthodontic and orthopedic structures in childhood". - Kyiv: "Medicine", 2013 - 256 c.
3. [Laura Mitchell](#) , " An introduction to orthodontics " , 2013 - 336 p.
4. Laura Mitchell, "Basic Orthodontics", 2017 - 376 p.

#### **ADDITIONAL LITERATURE :**

1. Flis P.S., Tril S.I., Vozniuk V.P. "Children's dental prosthetics". - Kyiv: "Medicine", 2011 - 200 p.
2. Flis P.S. Orthodontics. - Vinnytsia: "New Book", 2007. - 308 p.

3. Stefan Williams. A brief guide to telentgenography. Under the editorship Prof. PS Fleece. - Lviv, 2006.
4. Doroshenko S.I., Kulginskyi E.A. Basics of teleradiography. - K.: Zdorovya, 2007. - 70 p.
5. Kuroedova V.D., Zhdan V.N., Halych L.B. et al. Atlas of orthodontic appliances. - Poltava: "Divosvit", 2011 - 156 p.
6. Flis P.S., Omelchuk M.A., Rashchenko N.V. etc. Orthodontics. - K.: "Medicine", 2008 - 360 p.
7. Flys P.S., Omelchuk N.A., Rashchenko N.V. etc. Orthodontics. - K.: "Medicine", 2008 - 336 p.
8. Flis P.S., Tril S.I., Voznyuk V.P., Leonenko H.P. Children's dental prosthetics. - Kyiv: "Medicine", 2011 - 192 p.
9. Flis P.S., Tril S.I., Voznyuk V.P., Leonenko H.P. Pediatric Dental Prosthetics - Kyiv: "Medicine", 2012 - 176 p.
10. Bennett J., R. McLoughlin under the editorship of Prof. Flysa P.S. "Mechanics of orthodontic treatment with straight arch technique", Lviv: "GalDent", 2001.
11. Golovko N.V. Prevention of dento-jaw anomalies. – Vinnytsia: New Book, 2005.
12. Golovko N.V. Orthodontics. – Vinnytsia: Nova kniga, 2008. – 220 p.
13. Declan Millett, Richard Welbury. Solving problems in orthodontics and pediatric dentistry. - M.: MEDpress-Inform, 2009. - 199 p.
14. Kanyura O.A., Savychuk N.O., Golubchikov M.V. The main directions of reforming the children's dental service. - Kyiv: "Medicine", 2010.
15. Kuroyedova V.D., Dmytrenko M.I. Modern methods of prevention of maxillofacial anomalies and deformations// World of Orthodontics. - Kyiv: Visnyk Stomatologii, 2003. - No. 1(4), p. 6-9
16. McLaughlin R., J. Bennett, X. Trevisi / under the editorship of Prof. Flysa P.S. Systematized mechanics of orthodontic treatment. - Lviv: GalDent, 2005.
17. Malanchuk V.O., Borysenko A.V., Flis P.S. etc. Basics of stomatology. - Kyiv: "Medicine", 2009.
18. Persin L.S. Orthodontics M. OJSC "Medicina", 2004.
19. Persin L.S. Orthodontics. Modern methods of diagnosis of maxillofacial anomalies. Guide for doctors. - M.: LLC "IZPC "Informknyga", 2007. - 248 p.
20. Ravinda Nanda. Biomechanics and aesthetics in clinical orthodontics. - M.: MEDpress-Inform, 2009. - 386 p.
21. Stefan Williams. A brief guide to telentgenography. Under the editorship Prof. PS Fleece. - Lviv, 2006.
22. Stanislav V. Majevski. Dental gnathology. - Lviv: GalDent, 2008.
23. William R. Proffitt. Modern orthodontics. - M.: MEDpress-Inform, 2006. - 559 p.
24. Flis P.S., Vlasenko A.Z., Chupina A.O. Technology of manufacturing orthodontic and orthopedic structures in childhood. - Kyiv: "Medicine", 2013 - 256 c.
25. Frank Netzel, Christian Schulz. Practical guide to orthodontic diagnostics. Analysis and tables for use in practice / Nauch. ed. ed. in Russian I'm from. Ph.D. M.S. Dragomiretskaya. Trans. with German - Lviv: GalDent, 2006. - 176 p.

## **12. Information resources**

1. National textbooks in Ukrainian and English.
2. Electronic textbook.
3. A workbook.
4. Methods.
5. Reference books.
6. Academy website.