

MINISTRY OF HEALTH OF UKRAINE
ODESSA NATIONAL MEDICAL UNIVERSITY

Department of Orthodontics

APPROVED

Vice-rector for scientific and pedagogical work

Eduard BURYACHKIVSKY

September 1, 2023



WORKING PROGRAM IN THE DISCIPLINE
“MODERN TECHNOLOGIES OF NON-REMOVABLE
ORTHODONTICS TREATMENT”

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 _____

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1. Description of the academic discipline

Name of indicators	Field of knowledge, specialty, specialization, level of higher education	Characteristic academic discipline
The total number of: Credits: 3 Hours: 90	Branch of knowledge 22 "Health care" Specialty 221 "Dentistry" Level of higher education second (master's)	<i>Full-time form of education</i> <i>Elective discipline</i>
		<i>Year of training 4</i>
		<i>Semester VII-VIII</i>
		<i>Lectures (0 hours)</i>
		<i>Seminars (0 hours)</i>
		<i>Practical (30 hours)</i>
		<i>Laboratory (0 hours)</i>
		<i>Independent work (60 hours)</i> <i>including individual tasks (0 hours)</i>
		<i>Final control formtest</i>

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

Goal: Training of highly qualified specialists who are able to use acquired competences to solve complex problems and problems in the field of dentistry

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

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

- **General (ZK):**

ZK2. - Knowledge and understanding of the subject area and understanding of professional activity.

ZK3. - Ability to apply knowledge in practical activities. ZK9. - Ability to identify, pose and solve problems.

- **Special (SK):**

SK1 - The ability to collect medical information about the patient and analyze clinical data.

SK2. - Ability to interpret laboratory and instrumental research results.

SK3. - Ability to diagnose: determine preliminary, clinical, final, accompanying diagnosis, emergency conditions.

SK5. - Ability to the design of the process of providing medical care: determine approaches, plan, species and principles treatment/diseases of the organs and tissues of the oral cavity and maxillofacial area.

SK8. - Ability to perform medical and dental manipulations. SK9. - The ability to treat the main diseases of the organs and tissues of the oral cavity and maxillofacial area.

Program learning outcomes (PRL):

PRN 1. To highlight and identify leading clinical symptoms and syndromes (for list 1); according to standard methods, using the previous data of the patient's history, the data of the patient's examination, knowledge about the person, his organs and systems, establish a probable nosological or syndromic preliminary clinical diagnosis of a dental disease (according to list 2)

PRN 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 fabrics oral cavities and maxillofacial region for carrying out differential diagnosis diseases (according to list 2).

PRN 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 supervising physician in the conditions medical institution (according to list 2.1).

PRN 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.

PRN 11. Conduct treatment basic dental diseases according to the existing ones algorithms and standard schemes under control the head doctor in conditions medical institutions (by list 2.1).

PRN 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).

PRN 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:

- growth and formation of jaw bones in the age aspect;
- concept of norm in orthodontics;
- to have basic and additional methods of diagnosis of patients with dentition anomalies and deformations at an early age;
- clinical and biological bases of orthodontic treatment;
- peculiarities of the action algorithm during orthodontic treatment;
- classification of orthodontic equipment, indications and contraindications for the use of devices with different mechanisms of action;
- retention period, its duration and rationale; types of retention devices, features of the retention period after completion of early orthodontic treatment;
- basic principles and methods of orthodontic treatment of patients with dento-jaw anomalies and deformities

Be able:

- analyze the results of the examination of a patient with dento-maxillofacial anomalies and deformations;
- to determine maxillofacial anomalies and deformations according to classification; Six keys to occlusion according to Andrews.
- to have basic and additional methods of diagnosis of patients with dentition anomalies and deformations;
- determine indications for complex methods of treatment of orthodontic patients;
- determine indications and contraindications for the use of devices with different mechanisms of action;
- determine the retention period, its duration and rationale; types of retention devices;

3. Content of the academic discipline

Topic 1. Hardware method of treatment. General characteristics of the method. Indications for use in different age periods.

Topic 2. The history of the development of braces - technique. Indications and contraindications for treatment and preparation of orthodontic patients using the brace system. Bracket components - systems. Fixation methods. Characteristics of orthodontic arches, their types and applications.

Topic 3. Orthodontic accessories, characteristics and their use in treatment with braces (ligatures, elastics, separators, springs, elastic chains). Characteristics of orthodontic tools, their functional purpose

Topic 4. Anchorage (support) during orthodontic treatment. Types of support

Topic 5.Apparatus for rapid expansion of the palatal seam. Devices for distalization of teeth.

Topic 6.Concept of retention period. Factors that ensure the stability of treatment results (aesthetic, functional, morphological). Removable and non-removable retention devices, their advantages and disadvantages. The concept of recurrent disease.

Topic 7.Complications during treatment with fixed equipment. Violation of fixation of braces. Their analysis and methods of elimination.

4. The structure of the academic discipline

Topic name	Number of hours					
	That's all	Including				
Topic	That's all	Lectures	Seminars	Practicaly not	Laboratory no	SRS
Content module 1.						
Topic No. 1 Hardware method of treatment. General characteristics of the method. Indications for use in different age periods	12	0	0	4	0	8
Topic No. 2. The history of the development of braces - technique. Indications and contraindications to treatment and preparation of orthodontic patients using braces systems. Bracket components - systems. Fixation methods. Characteristics of orthodontic arches, their types and applications.	14	0	0	6	0	8

Topic 3. Orthodontic accessories, characteristics and their application in the treatment of braces technique (ligatures, rubber bands, separators, springs, elastic chains). Characteristics of orthodontics	12	0	0	4	0	8
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tools, their functional purpose						
Topic 4. Anchorage (support) in orthodontics treatment Types of support	12	0	0	4	0	8
Topic 5. Apparatus for rapid expansion of the palatal suture. Devices for distalization of teeth.	12	0	0	4	0	8
Topic 6. The concept of retention period. Factors that ensure the stability of treatment results (aesthetic, functional, morphological). Removable and non-removable retention devices, their advantages and disadvantages The concept of disease recurrence.	14	0	0	4	0	10
Topic 7. Complications during permanent treatment technique Violation fixation of braces. Their analysis and methods of elimination.	14	0	0	4	0	10
In total	90	0	0	30	0	60

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

5.1. Topics of lectures

Lectures are not provided.

5.2. Topics of seminar classes

Seminar classes are not provided.

5.3. Topics of practical classes

No topics	Lesson content	Number of hours
1	Topic 1 Hardware method of treatment. General characteristics method Indications for use in different age periods.	4
2	Topic 2. The history of the development of braces - technique. Indications and contraindications for treatment and preparation of orthodontic patients using the brace system. Bracket components - systems. Fixation methods. Characteristics of orthodontic arches, their types and applications	6
3	Topic 3 Orthodontic accessories, characteristics and their use in treatment with braces (ligatures, rubber bands, separators, springs, elastic chains). Characteristics of orthodontic tools, their functional purpose	4
4	Topic 4. Anchorage (support) during orthodontic treatment. <u>Kinds supportand</u>	4
5	Topic 5. Apparatus for rapid expansion of the palatal seam. Devices for distalization of teeth.	4
6	Topic 6. Concept of retention period. Factors that ensure stability of treatment results (aesthetic, functional, morphological). Removable and non-removable retention devices, their advantages and disadvantages. The concept of relapse disease.	4
7	Topic 7. Complications during treatment with fixed equipment. Violation of fixation of braces. Their analysis and methods of elimination.	4
	In total	30

5.4. Topics of laboratory classes

Laboratory classes are not provided.

6. Independent work of a student of higher education

No. z/p	Topic	Number hours
1.	Topic 1. Preparation for practical classes 1-4	8
2.	Topic 2. Preparation for practical classes 5-8	8

3.	Topic 3. Preparation for practical classes 9-12	8
4.	Topic 4. Preparation for practical classes 13-16	8

5.	Topic 5. Preparation for seminar classes 17-20	8
6.	Topic 6. Preparation for seminar classes 21-25	10
7.	Topic 7. Preparation for seminar classes 25-30	10
	In total	60

7. Teaching methods

Practical training: conversation, discussion of problematic situations, discussion of clinical situations, role-playing games, solving clinical situational problems, practicing patient examination skills, instruction and practicing skills on simulation dummies.

Independent work: independent work with recommended basic and additional literature, with electronic information resources. Independent practice of practical skills.

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

Current control: oral survey, testing, assessment of performance of practical skills, assessment of communication skills during role-playing, solving situational clinical tasks, assessment of activity in class.

Final control: test.

Evaluation of the current educational activity in a practical session

Assessment
success

the study of subjects of the discipline is carried out according to the traditional 4-point scale. At the end of the study of the discipline, the current success rate is calculated as the average current score, that is, the arithmetic average of all the grades received by the graduate student on a traditional scale, rounded to a whole number.

Current evaluation criteria in practical training

Rating	Evaluation criteria
"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 research data, expresses his opinion on the subject of the lesson, demonstrates clinical thinking.

"4"	The applicant has a good command of the material, participates 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, laboratory and instrumental research data with some errors, expresses his opinion on the subject of the lesson, demonstrates clinical thinking.
"3"	The applicant 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 clinical, laboratory and instrumental data studies with significant errors.
"2"	The acquirer does not possess the material, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate practical skills during the examination of a sick child and interpretation of data clinical, laboratory and instrumental research.

Credit is given to the applicant who completed all tasks of the work program of the academic discipline, took an active part in practical classes, completed and defended an individual assignment and has an average current grade of at least 3.0 and has no academic debt.

Assessment is carried out: at the last lesson before the beginning of the examination session - with the tape system of learning, at the last lesson - with the cyclical system of learning. The credit score is the arithmetic mean of all components according to the traditional four-point scale and has a value that is rounded according to the statistics method with two decimal places after the decimal point.

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

Traditional four-point scale	Multipoint 200-point scale
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

Evaluation on the ECTS scale	Statistical indicator
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. Methodical support

- Working program of the academic discipline
- Syllabus
- Methodical developments for practical classes
- Multimedia presentations
- Situational clinical tasks

11. List of theoretical questions

1. Development of the maxillofacial device in the intrauterine period. Features of the formation of the hard palate.
2. Periods of intrauterine placement of temporary and permanent teeth.
3. Peculiarities of the oral cavity of a newborn and their importance in the process of formation of the dental-mandibular apparatus.
4. Morpho-functional characteristics of temporary bite.
5. Periods of temporary bite.
6. Tsilinsky's symptom and its prognostic value
7. Morpho-functional characteristics of the variable bite period.
8. Features of the development of chewing muscles in children.
9. Peculiarities of the structure of the temporomandibular joints in children, gradual improvement of the movements of the lower jaw.
10. Factors ensuring the growth and development of jaws.
11. Features of the clinical examination of patients with dental and jaw anomalies and deformations.
12. Methods of conducting direct and indirect palatography.
13. Characteristic of language functions in norms and at anomalies and deformations of the dental and jaw apparatus.
14. The influence of impaired nasal breathing on the formation of the jaw and jaw apparatus and the body as a whole.
15. Breath test method
16. Features of the type of swallowing, their characteristics.

17. The role of swallowing in the development of maxillofacial anomalies. Diagnosis of impaired swallowing.
18. X-ray methods of studying the dental and jaw apparatus in children. Aiming and axial radiography of teeth, orthopantomography, teleroentgenography.
19. The role of teleradiography in diagnosis and forecasting the results of orthodontic treatment.
20. Classifications of orthodontic equipment.
21. Functional orthodontic equipment, its characteristics and purpose.
22. Functionally guiding orthodontic equipment, its characteristics and purpose.
23. Mechanically operating equipment, its characteristics and purpose.
24. Orthodontic devices of combined action, its characteristics and appointment.
25. Morphological changes in periodontal tissues during tooth movement.
26. Basic principles and methods of orthodontic treatment of maxillofacial disorders anomalies and deformations.
27. Characteristics of the biological method of treatment.
28. Characteristics of the hardware method of treatment.
29. Characteristics of surgical treatment methods.
30. Physiotherapy methods of treatment of orthodontic patients, indications for use.
31. The main methods of preventing the occurrence of dental and jaw anomalies and deformations.
32. Dispensation of children of preschool children's institutions according to risk groups.
33. The role of heredity, bad habits, the state of the ENT organs in the occurrence orthodontic pathology.

12. Recommended literature

Basic (basic):

1. N.V. Golovko-Orthodontics.-Poltava.-2015. - with. 128-132.
2. 3. L. V. Smagliuk Basic course in orthodontics / L. V. Smagliuk, A. E. Karasyunok,
3. A. M. Bilous. – Poltava: Blitz Style, 2019. – P.173-184.
4. 4. Flis P.S. et al., Orthodontics: a textbook for Dental Students
5. faculties of higher medical institutions of education IV level of accreditation - Kyiv, 2019,
6. Flis P. S. Technology of manufacturing orthodontic and orthopedic structures in childhood: a textbook / P. S. Flis, A. Z. Vlasenko, A. O. Chupina. - K.: Medicine, 2013. - 255 p. : ill., tab.

Additional literature

1. V. Golovko ORTHODONTIC APPLIANCES.- Vinnytsia NEW BOOK, 2006
2. Nanda R. Biomechanics and aesthetics in clinical orthodontics. - Kyiv, 2016
3. Bhalajhi SI., et al. "Orthodontics: The art and science". Sixth edition. Arya (Medi)
4. Publication (2015)
5. William R Proffitt., et al. "Patient Interaction in Planning". In: Contemporary
6. Orthodontics Elsevier Ltd (2019): 138.

7. 5. Ramy Ishaq. "The Orthodontic Patient: Examination and Diagnosis".
EC 8. DentalScience 18.5 (2019): 975-988

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/>