**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 DISCIPLINE
# "SIMULATIO DENTISTRY: ORTHODONTICS"

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

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

**Specialty:**221 "Dentistry"

**Educational and professional program:**Dentistry

**2023**

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. 13 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 "29". 08 2023

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

_____ Volodymyr KRYKLYAS

Reviewed and approved at a meeting of the department _____
_____
Protocol No. ___ of "___" _____ 20__

Head of Department _____ _____
*(signature) (First Name Surname)*

Reviewed and approved at a meeting of the department _____
_____
Protocol No. ___ of "___" _____ 20__

Head of Department _____ _____
*(signature) (First Name Surname)*

## 1. Description of the academic discipline

<table>
<tr><td rowspan="2">Name of indicators</td><td>Field of knowledge, specialty, specialization, level of higher education</td><td colspan="2">Characteristics of the academic discipline</td></tr>
<tr><td></td><td colspan="2">Full-time education</td></tr>
<tr><td rowspan="10">The total number of:<br><br>Credits - 7<br>Hours – 210</td><td rowspan="10">Branch of knowledge 22 "Health care"<br><br>Specialty 221 "Dentistry"<br><br>The second level of higher education (master's)</td><td colspan="2">Mandatory</td></tr>
<tr><td colspan="2">Year of training 5</td></tr>
<tr><td>Semester</td><td>IX - X</td></tr>
<tr><td>Lectures</td><td>0 hours</td></tr>
<tr><td>Practical</td><td>140 hours</td></tr>
<tr><td>Independent work</td><td>70 hours</td></tr>
<tr><td>Including individual tasks</td><td>0</td></tr>
<tr><td>Form final control</td><td>Diff. test</td></tr>
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## 2. The purpose and tasks of the educational discipline, competences, program learning outcomes.

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

**Task:**

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

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

- **General (ZK):**

ZK3. Ability to apply knowledge in practical activities.
ZK 6. Skills of using information communication technologies
ZK 8. Ability to adapt and act in a new situation.

ZK 9. The ability to identify, pose and solve problems. ZK 10.
The ability to be critical and self-critical.
ZK 11. Ability to work in a team.

- **Special (SK):**

SK 1. Ability to collect medical information about the patient and analyze clinical data.
SC 2. Ability to interpret the results of laboratory and instrumental research.
SK 3. The ability to diagnose: determine preliminary, clinical, final, accompanying diagnosis, emergency conditions.
SK 4. Ability to plan and carry out preventive measures diseases of the organs and tissues of the oral cavity and maxillofacial area.
SK 6. The ability to determine a rational regimen of work, rest, and diet in patients in the treatment of diseases of the organs and tissues of the oral cavity and maxillofacial region.
SK 7. The ability to determine the management tactics of patients with diseases of the organs and tissues of the oral cavity and maxillofacial region with concomitant somatic diseases.
SK 8. Ability to perform medical and dental manipulations. SK 9. Ability to treat the main diseases of the organs and tissues of the oral cavity and maxillofacial area.
SK 13. The ability to assess the impact of the environment on the state of health of the population (individual, family, population).

**Program learning outcomes (PRL):**

PRN 2 Collect information about the patient's general condition, evaluate the patient's psychomotor and physical development, the condition of the maxillofacial organs, based on the results of laboratory and instrumental studies, evaluate information about the diagnosis (according to list 5).
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 fabricsoral cavity and maxillofacial region for differential diagnosis of 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 6 Plan and implement dental disease prevention measures among the population to prevent the spread of dental diseases
PRN 7 Analyze the epidemiological situation and carry out measures of mass and individual, general and local medicinal and non-medicinal prevention of dental diseases.
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. Carry out treatment of basic dental diseases according to existing algorithms and standard schemes under control

the head doctor in the conditions of a medical institution (according to list 2.1).
PRN 14 Analyze and evaluate government, social and medical information using standard approaches and computer information technologies.
PRN 16 To form goals and determine the structure of personal activity based on the result of the analysis of certain social and personal needs.
PRN 17 Maintain a healthy lifestyle, use self-regulation and self-control techniques
PRN 20 To organize the necessary level of individual safety (own and the persons they care about) in case of typical dangerous situations in the individual field of activity
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. Perform medical dental manipulations based on preliminary and/or final clinical diagnosis (according to lists 2, 2.1) for different layers
population and in different conditions (according to list 7).

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

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

**Be able:**

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

## 3. Content of the academic discipline

**Topic #1.**

**Causes of teeth and dentition defects in children, their prevalence among children. Targeted preventive measures. Clinical and biological justification of children's dental prosthetics.**

**Topic #2. Designs of dental prostheses in children to restore the anatomical shape of the teeth. Replacement of dental defects in children and adolescents with fixed dentures.**

Indications for use and features of manufacturing inlays, artificial crowns and

pin teeth in children. Terms of use. The choice of the design of a dental prosthesis in children taking into account the age of the patient, the degree of formation or resorption of the roots, the state of the periodontium. Prevention of complications. The main purposes of fixed structures of dental prostheses. Indications for use. Requirements Manufacturing features. The value of the state of the periodontal tissues of the abutment teeth when determining the structure of the prosthesis.

Crown with spacer, bridge-like sliding prostheses.

**Topic #3 Partial removable prostheses in children. Complete removable prostheses in children. Peculiarities of orthodontic treatment of children with complicated dental defects.**

Indications for the manufacture of partial dentures in children and adolescents. The choice of the design of dental prostheses taking into account the age of the patient, the localization and extent of defects in the dental rows, the nature of the limitation of the defect and its

topography Design features, fixing methods, replacement procedure, complications and their causes. Materials used in the manufacture of partial children's prostheses and requirements for them.

Indications for the manufacture of complete removable prostheses in children, the order of replacement, complications and their causes. Requirements for materials used in the manufacture of children's complete prostheses.

Defects of teethand dentitions complicated and uncomplicated by maxillofacial anomalies and deformations. Preparation of the oral cavity for dental prosthetics: therapeutic, surgical, orthodontic. Prevention of complicated dental defects in children.

**Topic #4. Traumatic injuries of teeth and jaws in children. Clinic and treatment of tooth dislocations in children.**

Classification of traumatic injuries of teeth and jaws in children. Diagnostics. Causes of injury, their prevalence among children. Features of trauma in children. Clinic and orthopedic treatment of tooth dislocations in children depending on the age of the child, the nature of the injury and its antiquity.

**Topic #5. Clinic and treatment of tooth fractures.**

Clinic, diagnostics. and treatment of tooth fractures in children depending on the age of the child, the nature of the injury and its antiquity.

**Topic #6. Etiology, pathogenesis, diagnosis and prevention of congenital facial defects. Morphological and functional disorders of the maxillofacial apparatus and the body as a whole. Classification of congenital nonunions of the maxillofacial area.**

**Topic #7 Orthopedic treatment of congenital malformations of the hard and soft palate. Complex staged treatment of children with non-union of the upper lip, alveolar process and palate. The role of orthodontic treatment in the rehabilitation of children with congenital defects of facial development.**

**Topic No. 8 Fixed and removable orthodontic appliances.**

Design features of fixed orthodontic appliances. Principles of operation, main details of fixed orthodontic appliances. The technology of their individual and industrial production (for support and fixation of fixed appliances – individual and standard stamped crowns, rings, mouthpieces, fixing devices for arch orthodontic appliances, locking devices; additional supporting and fixing elements, arches, principles). Methods of connection and processing of metal parts.

The main design features of removable orthodontic devices, manufacturing stages, principles of operation, correction and activation. Details of intraoral removable orthodontic appliances and their manufacturing technology. Clamps, their elements, groups. Adams clamps, Schwartz arrow-shaped clamps, vestibular and lingual arches, springs, levers, orthodontic screws.

Stages of production of basic plastic. The method of hot and cold polymerization, the method of casting and pressing plastic.

**Topic #9. Morphological and functional age-related features of the development and formation of the child's maxillofacial apparatus and their clinical assessment. Changes in the maxillofacial apparatus in endocrine pathology.**

The period of intrauterine development, features of the oral cavity of a newborn, characteristics of temporary, variable and permanent bite. Functional anatomy of the chewing apparatus. Morphological and functional disorders in the dental and jaw apparatus associated with the pathology of the endocrine system in humans. Orthodontic help for a child. Syndromes of diseases manifested in the oral cavity (Shereshevsky-Turner, Apert-Cruzon, Papillon-Lefebvre, Albright, Stainton-Capdepon).

Characteristics of orthognathic and pathological types of bites.
Classification of maxillofacial anomalies.

**Topic #10. Methods of diagnosis of maxillofacial anomalies.**

Clinical and additional methods of examination of a patient with dento-maxillary anomalies and deformations. Study of diagnostic models of jaws in transverse, sagittal and vertical planes. X-ray and photometric examination methods, functional methods. Establishment of preliminary and final diagnoses. Drawing up a treatment plan. Clinical diagnostic tests of Eshler-Bitner, Ilyina-Markosyan and Kipkalo.

**Topic #11. Physiological and biomorphological changes of the maxillofacial apparatus under the influence of orthodontic equipment.**

Classification of orthodontic equipment. The influence of orthodontic appliances on periodontal tissues, changes in the temporomandibular joint under the influence of orthodontic appliances.

**Topic #12. Peculiarities of local and general disorders of the state of the body with dento-jaw anomalies.**

Violations of the psycho-emotional state, the state of the gastrointestinal tract, musculoskeletal system, respiratory, cardiovascular systems, with dental and jaw anomalies. Prevention of their occurrence.

**Topic #13. Clinical examination of an orthodontic patient.**

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

Study of objective data of an orthodontic patient. Determination of the configuration of the face (the patient's profile, the proportionality of the parts of the

face, the thickness and position of the lips, the shape and position of the chin.

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

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

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

**Topic #14. Anthropometric research methods**

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

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

Korkhhauza, L.V. Ilyinoi-Markosyan and others. Establishing the proportionality of the development of dental segments according to the method of H.G. Gerlach. Geometrical and graphic method of studying the shape of dental arches by Hawley-Ts. Herbert-E. Herbst.

**Topic #15. X-ray examination methods**

Types of X-ray examination of an orthodontic patient.

Target shots. Pictures in axial projection.

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

Techniques of computer tomography, magnetic resonance imaging (MRI). Radiographic studies of the temporomandibular joint.

Methodology of profile and face teleroentgenography. Interpretation of teleroentgenograms according to A.M. Schwartz, Downs, E.M. Ricketts et al. Basic anthropometric landmarks.

Basic cranio-, gnatho- and profilometric measurements. Value teleroentgenography in the differential diagnosis of dento-maxillofacial anomalies and deformations, as well as in the prognosis of orthodontic treatment.

Radiological classification of maxillofacial anomalies based on the data of teleroentgenographic studies. The main forms of bite anomalies: gnathic (skeletal), tooth-alveolar and mixed. The role of classification in determining the diagnosis.

**Topic #16. Orthodontic treatment planning.**

Indications for orthodontic treatment, determination of age indicators and selection of orthodontic means of treatment. Complex methods of treatment (orthodontic, therapeutic, orthopedic, surgical, physiotherapeutic, prosthetic). The role

of related specialists in the treatment of orthodontic patients: a dental therapist and a dental surgeon, pediatrician,otolaryngologist, endocrinologist, psychoneurologist, musculoskeletal specialists, physical therapy doctors.

Determination of the degree of expression of morphological and functional disorders of the maxillofacial apparatus and the difficulty of their elimination using the Siebert-Malygin method. Selection of the treatment plan and design of orthodontic devices depending on the patient's behavior according to P. Herren.

**Topic #17.Fixation and activation of orthodontic appliances**

Classifications of orthodontic equipment.

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

**Topic #18.Fixation of orthodontic rings, thin-walled crowns, crowns with a spacer**

Design features of fixed orthodontic appliances. Principles of operation, main details of fixed orthodontic appliances. The technology of their individual and industrial production (for support and fixation of fixed appliances – individual and standard stamped crowns, rings, mouthpieces, fixing devices for arch orthodontic appliances, locking devices; additional supporting and fixing elements, arches, principles). Methods of connection and processing of metal parts.

## 4. The structure of the academic discipline

| Names of topics | Number of hours | | | | | |
|---|---|---|---|---|---|---|
| | Total about | including | | | | |
| | | lectures | seminares | practical | good luck rni | CRS |
| Topic 1. Causes of teeth and dentition defects in children, their prevalence among children. Targeted preventive measures. Clinical and biological substantiation of children's dental prosthesis. | 6 | 0 | 0 | 4 | 0 | 2 |
| Topic 2. Designs of dental prostheses in children to restore the anatomical shape of teeth. Defects of dental rows in children and their replacement fixed structures of dental prostheses. | 6 | 0 | 0 | 4 | 0 | 2 |
| Topic 3. Partial removable prostheses in children. Complete removable prostheses in children. Peculiarities of orthodontic treatment of children with complicated dental defects rows | 6 | 0 | 0 | 4 | 0 | 2 |
| Topic 4. Traumatic injuries of teeth and jaws in children. Clinic and treatment dislocation of teeth in children. | 8 | 0 | 0 | 6 | 0 | 2 |
| Topic 5. Clinic and treatment of tooth fractures. | 6 | 0 | 0 | 4 | 0 | 2 |
| Topic 6. Etiology, pathogenesis, diagnosis and prevention of congenital facial defects. Morphological and functional disorders of the maxillofacial apparatus and the body as a whole. Classification innate non-union of the maxillofacial area. | 6 | 0 | 0 | 4 | 0 | 2 |
| Topic 7. Orthopedic treatment of hard and soft congenital malformations palate. | 4 | 0 | 0 | 2 | 0 | 2 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Comprehensive | | | | | | |

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|---|---|---|---|---|---|---|
| staged treatment of children with non-union of the upper lip, alveolar process and palate. Roleorthodontic treatment in rehabilitation children withcongenital malformations face. | | | | | | |
| Topic 8. Unremovable and removable orthodontic appliances. | 8 | 0 | 0 | 6 | 0 | 2 |
| Topic 9. Morphological and functional agedpeculiarities of the development and formation of the child's maxillofacial apparatus and their clinical assessment. Changes in the maxillofacial apparatus with endocrine pathologies. | 8 | 0 | 0 | 6 | 0 | 2 |
| Topic 10. Diagnostic methods dentomandibular anomalies. | 10 | 0 | 0 | 8 | 0 | 2 |
| Topic 11. Physiological and biomorphological changes maxillofacial apparatus under the influence orthodontic equipment | 8 | 0 | 0 | 6 | 0 | 2 |
| Topic 12. Peculiarities of local and general disorders of the body's condition with dentomandibular anomalies. | 6 | 0 | 0 | 4 | 0 | 2 |
| Final control | 8 | 0 | 0 | 2 | 0 | 6 |
| Topic 13. Clinical examination of an orthodontic patient | 14 | 0 | 0 | 10 | 0 | 4 |
| Topic 14. Anthropometric research methods | 18 | 0 | 0 | 14 | 0 | 4 |
| Topic 15. X-ray examination methods | 18 | 0 | 0 | 14 | 0 | 4 |
| Topic 16. Planning of orthodontic treatment | 18 | 0 | 0 | 14 | 0 | 6 |
| Topic 17.Fixation and activation of orthodontic appliances | 16 | 0 | 0 | 12 | 0 | 4 |
| Topic 18.Fixation of orthodontic rings, thin-walled crowns, crowns with a spacer | 18 | 0 | 0 | 12 | 0 | 4 |
| **Final control** | 8 | 0 | 0 | 2 | 0 | 6 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Differential calculation** | 10 | 0 | 0 | 2 | 0 | 8 |
| **Only hours** | 210 | 0 | 6 | 140 | 0 | 70 |

## 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 | Topic | Quantity h hours |
|---|---|---|
| 1 | Topic #1. Causes of teeth and dentition defects in children, their prevalence among children. Targeted preventive measures. Clinical and biological substantiation of children's dental prosthesis. | 4 |
| 2 | Topic #2. Designs of dental prostheses in children to restore the anatomical shape of the teeth. Defects of dentition in children and their replacement with fixed dentures. | 4 |
| 3 | Topic #3. Partial removable prostheses in children. Complete removable prostheses in children. Peculiarities of orthodontic treatment of children with complicated dental defects. | 4 |
| 4 | Topic #4. Traumatic injuries of teeth and jaws in children. Clinic and treatment of tooth dislocations in children. | 6 |
| 5 | Topic #5. Clinic and treatment of tooth fractures. | 4 |
| 6 | Topic #6. Etiology, pathogenesis, diagnosis and prevention of congenital facial defects. Morphological and functional disorders of the maxillofacial apparatus and the body as a whole. Classification of congenital nonunions of the maxillofacial area. | 4 |
| 7 | Topic #7. Orthopedic treatment of congenital malformations of the hard and soft palate. Complex staged treatment of children with non-union of the upper lip, alveolar process and palate. The role of orthodontic treatment in the rehabilitation of children with congenital defects of facial development. | 2 |
| 8 | Topic #8. Fixed and removable orthodontic appliances. | 6 |
| 9 | Topic #9. Morphological and functional age-related features of the development and formation of the child's maxillofacial apparatus and their clinical assessment. Changes in the maxillofacial apparatus in endocrine pathology. | 6 |

| | | |
|---|---|---|
| 10 | Topic #10. Methods of diagnosis of maxillofacial anomalies. | 8 |
| 11 | Topic #11. Physiological and biomorphological changes of the maxillofacial apparatus under the influence of orthodontic equipment. | 6 |
| 12 | Topic #12. Peculiarities of local and general disorders of the state of the body with dento-jaw anomalies. | 4 |
| 14 | Final control 1 | 2 |
| 15 | Topic #13. Clinical examination of an orthodontic patient. | 12 |
| 16 | Topic #14. Anthropometric research methods | 12 |
| 17 | Topic #15. X-ray methods<br><br>examination | 12 |
| 18 | Topic #16. Orthodontic treatment planning | 12 |
| 19 | Topic #17.Fixation and activation of orthodontic appliances | 14 |
| 20 | Topic #18.Fixation of orthodontic rings, thin-walled crowns, crowns with a spacer | 14 |
| 21 | Final control 2 | 2 |
| 22 | Differential calculation | 2 |
| | **In total** | **140** |

**5.4. Topics of laboratory classes**

Laboratory classes are not provided.

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

| No | Subject of classes | Quantity h |
|---|---|---|
| 1. | Preparation for practical (theoretical, development of practical skills, abilities), topics No. 1 - 18 | 50 |
| 2. | Preparation for final control (PC 1, PC 2) | 12 |
| 3. | Preparation for differential assessment | 8 |
| | **In total** | **44** |

## 7. Teaching methods

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

to list 5.
**Independent work:**independent work with the textbook, independent work with the bank of test tasks Step-2, independent solution of clinical tasks.

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

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

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

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

### Current assessment criteria for practical training:

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

| | |
|---|---|
| | laboratory and instrumental research. |

Only those applicants who have fulfilled the requirements of the training program in the discipline, have no academic debt, their average score for the current educational activity in the discipline is at least 3.00, and they have passed the test control according to the tests "KROK - 2" by at least 90% (50 tasks).

The test control is conducted in the Educational and Production Complex of Innovative Technologies of Learning, Informatization and Internal Monitoring of the Quality of Education of the University in the last class before the exam.

**The applicant is admitted to the differential credit on the condition that the requirements of the educational program are met and if he received at least 3.00 points for the current educational activity and passed the test control of the "Step-2" tests with at least 90% (50 tasks). The test control is conducted in the Educational and production complex of innovative technologies of learning, informatization and continuous education of ONMedU in the last session on the eve of the exam. offset**

Evaluation of the results of the students' training during the final control - differentiated assessment

| The content of the evaluated activity | Number |
|---|---|
| Solving a clinical problem | 2 |
| Practical task according to the OSKI type | 3 |

**Criteria for evaluating the learning outcomes of education seekers during differential assessment:**

| | |
|---|---|
| "5" | Exhibited acquirer which systematically worked forsemester, showed under time examversatile and deep knowledge |
| | program material, is able to successfully perform the tasks provided for by the program, has mastered the content of the main and additional literature, has realized the interrelationship of individual sections of the discipline, their importance for the future profession, has shown creative abilities in understanding and using the educational program material, has shown the ability to independently update and replenishment of knowledge; the level of competence is high (creative); |
| "4" | It is presented to the applicant who has demonstrated full knowledge of the curriculum material, successfully completes the tasks provided for by the program, has mastered the basic literature recommended by the program, has shown a sufficient level of knowledge in the discipline and is capable of their independent updating and renewal during further training and professional activity; the level of competence is sufficient (constructive variable) |

| | |
|---|---|
| "3" | It is presented to the applicant who has demonstrated knowledge of the main curriculum material in the amount necessary for further education and subsequent work in the profession, copes with the tasks provided for by the program, made some mistakes in the answers on the exam and when completing the exam tasks, but possesses the necessary knowledge for overcoming mistakes made under the guidance of a scientific and pedagogical worker; the level of competence is average (reproductive) |
| "2" | It is presented to the applicant who did not demonstrate sufficient knowledge of the main educational program material, made fundamental mistakes in the performance of tasks provided for by the program, cannot use the knowledge in further studies without the help of a teacher, did not manage to master the skills of independent work; level of competence - low (receptive-productive) |

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

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

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

| 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. Methodological support:

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

## 11.LIST OF THEORETICAL QUESTIONS for differential assessment

1. Orthodontics - definition. Goals and objectives. Domestic and foreign scientists who contributed to the development of orthodontics.
2. The main biological factors that ensure the growth and formation of the dental and jaw apparatus.
3. Physico-chemical and clinical-biological properties of the main materials used for the manufacture of orthodontic appliances.
4. Determining the degree of manifestation of morphological and functional disorders in the dental and oral apparatus and the difficulties of orthodontic treatment.
5. Planning of orthodontic treatment taking into account the contact of the patient with the doctor (1-4 types of patients, depending on behavior).
6. Causes of teeth and dentition defects in children, their diagnosis and classification (K.N. Shamsieva, E.Yu. Symanovskaia, T.V. Sharova, L.M. Demner, Z.S. Vasilenko and S.I. Trilia) .
7. Clinic, diagnosis and treatment of defects of the crown part of the tooth in children. Rational designs of dental prostheses.
8. Methods prosthesis defects crown parts temporary teeth,indications for their use.
9. Anatomical and functional changes in the chewing apparatus of children during the formation of defects of teeth and dental rows and their consequences.
10. Methods of orthopedic treatment in the complete absence of the crown part of permanent teeth in children. Possible errors and their consequences.
11. Clinical and biological justification of children's dental prosthetics. Concepts of scientists regarding the expediency of manufacturing dental prostheses in children.
12. Indications, contraindications for replacement of defects of the dentition in children with fixed structures of prostheses.
13. Features replacement defects dental rows in children removableconstructions of prostheses.
14. Complete absence of teeth in children, its causes. Indications for the use of complete removable prostheses, features of their construction, methods of fixation, terms of replacement.
15. The effect of removable prostheseson tissues of the prosthetic field and periodontium, diseases of the mucous membrane of the oral cavity caused by prostheses, their treatment.
16. Peculiarities of prosthetics of complicated dentition defects in children. 17.

Features of complex orthopedic treatment of children with adentia.

18. Injury of teeth and jaws in children, classification, etiology, diagnosis, treatment tactics.
19. Traumatic injuries of teeth in children. Peculiarities of their clinic and diagnosis. Tactics of treatment. Terms of orthopedic interventions.
20. Clinical features of fractures of the upper jaw in children and their orthopedic treatment.
21. Orthopedic treatment of defects of the upper jaw in children after its partial resection due to malignant neoplasms.

22. Congenital defects of the maxillofacial area, their causes, diagnosis, classification.
23. Morphological and functional changes in the maxillofacial apparatus with non-union of the upper lip, alveolar bud, hard and soft palate.
24. Characteristics of various obturator designs and indications for their use in children with nonunions of the upper lip, alveolar bud, hard and soft palate.
25. Kliniko - laboratory stages of the manufacture of Andresen-Hoiple devices.
26. Design features, principle of action, indications for use.
27. Clinical and laboratory stages of manufacturing Frenkel devices 1-4 types, their design features, principle of action, indications for use.
28. Morphological and functional disorders in the dental and jaw apparatus associated with the pathology of the endocrine system in humans.
29. Design features and principle of operation of bracket systems.
30. The choice of methods of treatment of orthodontic patients taking into account the type of behavior and the complexity of the treatment.
31. Determining the degree of treatment difficulties.
32. Prevention of possible complications during orthodontic treatment. 33. Causes of occurrence relapses orthodontic pathology.

## LIST OF PRACTICAL TASKS AND WORKS

### to the exam in the discipline "Orthodontics" for Graduates of the 5th year of the Faculty of Dentistry

1. Examine the orthodontic patient and fill in the medical history:
- collectanamnesis;
- conduct clinicalmethods of examining an orthodontic patient;
- to conduct auxiliarymethods of examining an orthodontic patient;
- set the previous onediagnosis.
2. Get control models.
3. Carry out clinical diagnostic tests.
4. Conduct auxiliary methods research on Mrs. Corkhouse,Gerlahu, M.G. Snaginius
5. Decipher the lateral teleroentgenogram.
6. Describe dental, axial X-rays and orthopantomogram.
7. Determine indication to of choice complex treatmentorthodontic patient.
8. Establish a final diagnosis.
9. Make an orthodontic treatment plan.
10. Get impressions with alginate impression materials, get models.
11. Determine the construction of orthodontic apparatus, children's dental or maxillofacial prosthesis.
12. Fit and hand over orthodontic apparatus, children's prosthesis.
13. To be able to determine the need for therapeutic, surgical, orthodontic assistance during the dental examination of children and adolescents and to make a sequence of manipulations.
14. Be able to correct and activate the orthodontic apparatus.
15. Be able to fit and fix fixed and non-removable designs of children's dentures.

16. Be able to carry out selective grinding of teeth.
17. Be able to draw up a plan of preventive measures to prevent the occurrence of orthodontic pathology.
18. Be able to model the base of a removable orthodontic appliance.
19. Be able identify syndromes diseases endocrine systems, whatmanifests itself in the oral cavity.
20. Be able to provide orthodontic care to children with injuries to the teeth and jaws, depending on the age of the child, the nature of the injury and its duration
21. To be able to carry out orthodontic treatment for children with complicated by dental defects.

## 12. Recommended literature

**Main:**


1. Flis P.S. Orthodontics. Vinnytsia: "New Book", 2019. 308 p.
2. Flis P.S., Leonenko G.P., Filonenko V.V., Doroshenko N.M. Under the editorship Flisa P.S. "Orthodontics. Dentognathic Anomalies and Deformations". "Medicine", Kyiv 2015. 176 p.
3. Flis P.S., Vlasenko A.Z., Chupina A.O. The technology of manufacturing orthodontic and orthopedic structures in children's vits". Kyiv: "Medicine", 2013. 256 p.


**ADDITIONAL LITERATURE:**


1. Flis P.S., Tril S.I., Vozniuk V.P. "Children's dental prosthetics". Kyiv: "Medicine", 2011. 200 p.
2. Stefan Williams. A brief guide to telentgenography. Under the editorship Prof. PS Fleece. Lviv, 2006.
3. Kuroedova V.D., Zhdan V.N., Halych L.B. et al. Atlas of orthodontic appliances. Poltava: "Divosvit", 2011. 156 p.
4. Laura Mitchell, "An introduction to orthodontics", Oxford University Press, 2019 - 368 p.
5. Suslova O. V., Stetsenko D. V., Kordonets E. L. Zheliznyak N. A. Biometric methods of research in orthodontics (educational and methodological manual). Odessa: Odessa National Medical University, 2018. 37 p.
6. Padhraig Fleming, Jadbinder Seehra Fixed orthodontic appliances, Springer nature Switzerland AG, 2019 – 166p
7. Cousley Richard R. J. Clinical reference book on orthodontic mini-implants / Richard R. J. Cousley; scientific editors: M. S. Drogomyretskaya, M. M. Uhryn. - Lviv: GalDent, 2014. - 184 p.
8. Adrian Becker Orthodontic treatment of impacted teeth, Wiley-blackwell, 2012 - 456 p.


## 13. Information resources

1. State Expert Center of the Ministry of Health of Ukrainehttp://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/