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

# SYLLABUS
# EDUCATIONAL DISCIPLINE

## «Orthodontics»

**LEVEL OF HIGHER EDUCATION** The second (master's) level

**DEGREE OF HIGHER EDUCATION** Master

**FIELD OF KNOWLEDGE** 22 Healthcare

**SPECIALTY** 221 Dentistry

***COURSE _5__***

Considered and approved
at a meeting of the Department of Dentistry
Protocol № 1 from «01» 09 2020 p.
Acting head of the department _____
MD, prof. _____ Kuts P.V.

**Kiev 2020**

| 1. General information | |
|---|---|
| **Subject** | **Orthodontics** |
| **Lector** | Acting Head of the Department,<br>Doctor of Medical Sciences, Professor,<br>Kuts P.V.<br>Zvolynska A.M., Ph.D.<br>Goropatska A-M.O.<br>Polishchuk I.S. |
| **Teacher's e-mail** | forum-for-me@bigmir.net |
| **Discipline format** | Normative discipline. |
| **The volume of the discipline** | 90 hours , 3 ECTS |
| **Link to the distance learning site** | maem.kiev.ua |
| **Consultations** | Web conferences in various programs (Zoom, Skype, Myit, Jitsy, Teams, Viber, Facebook, Cisco Webs).<br>Exchange tasks via e-mail, Wandrive |

**2. Annotation to the course**

Orthodontics is a discipline that allows students to master the knowledge of etiology, pathogenesis, clinic, diagnosis, prevention and treatment of dental anomalies and deformities, as well as dentition defects. Ability to examine a dental patient, study the leading syndromes and symptoms in orthodontics, justification and formulation of a preliminary diagnosis; ability to analyze the results of the examination and make a differential diagnosis, make a final diagnosis of major diseases, detect and identify manifestations of somatic diseases in the oral cavity, determine the principles of comprehensive treatment in orthodontics, identify different clinical variants and complications of the most common orthodontic diseases in children.

**3. Purpose and objectives of the course**

-study of the stages of formation of the dental system in children, risk factors that lead to the development of anomalies and methods of their elimination, mastering the basic and additional methods of diagnosis in orthodontics, early detection of oral pathology requiring orthopedic, surgical intervention, acquaintance with basic orthodontic treatments patients, classification of orthodontic equipment, for the possibility of their further use during the clinical admission of patients and the formation of special (professional) competencies in the orthodontics clinic.

The main tasks of studying the discipline:

- students study the peculiarities of the formation of the dental system in children, the main risk factors for anomalies and deformities, methods of prevention and elimination; - preparing students to work in a clinical dental office by studying the basic and additional methods of examination of an orthodontic patient; - mastering the main methods of treatment used in orthodontics on phantoms.

**4. Competencies and learning outcomes**

| Learning outcomes | Teaching methods |
|---|---|
| Have modern methods of prevention, diagnosis and treatment of orthodontic pathologies | Lectures, practices, oral interviews, tests, dialogue with applicants for higher education, creative work with the creation of multimedia presentations and their presentation, independent work with literary sources |

Integral:

Ability to solve problems and problems in the field of health care in the specialty "Dentistry" in a professional activity or in the learning process, which involves research and / or innovation and is characterized by uncertainty of conditions and requirements.

General:

1. Ability to abstract thinking, search, analysis, synthesis; processing information from various sources, basics of evidence-based medicine. 2. Ability to lifelong learning. 3. Knowledge and understanding of the subject area and understanding of the profession. 4. Ability to implement knowledge in practice. 5. Ability to communicate orally and in writing in the state language. Ability

to communicate in a foreign language. 6. Ability to effectively professional and interpersonal communication and use of information and communication technologies. 7. The ability to adapt to new conditions and situations and the ability to act autonomously in them. 8. Ability to identify and solve problems. 9. Ability to work in a team, including interdisciplinary and international. 10. Observance of deontological norms in professional activity. 11. Ability to implement a system of knowledge and practical skills to ensure a healthy lifestyle and patients. 12. Ability to self-assess their own achievements and increase their level. 13. Ability to assess the state of the environment, to help eliminate its negative effects on health. 14. Ability to act socially responsible and civic conscious. 15. Ability to organize legal support and management of professional activities. 16. Leadership in the development and implementation of innovations and their use in professional activities. 17. The ability to exercise their rights and responsibilities as a member of society, to realize the need for its sustainable development, the rule of law. 18. The ability to preserve and multiply moral, cultural, scientific values and achievements of society.

Special (professional, subject):

1. Recognize the moral, ethical and professional rules of the orthodontist. 2. Understand the moral and deontological principles of a medical specialist and the rules of professional subordination in the dental clinic. 3. Learn to promote a healthy psychological microclimate in the team, learn the basics of legal norms of the relationship between orthodontist → patient (child). 4. To know age features of development of the dental apparatus of the person. - to study the embryogenesis of the dental area; - anatomical and physiological features of the oral cavity of the newborn; - features of milk bite formation in the first (0.5-2.5 years), second (3.5-5 years) and third (5-6 years) periods of milk bite; - anatomical and physiological features of early variable (6-9 years) and late variable (9-12 years) bite; - anatomical and physiological features of the formation of permanent occlusion (12-15 years); - risk factors that affect the formation of dental anomalies in the antenatal and postnatal periods of child development, ways to eliminate them; - physiological types of occlusion, the main signs of orthognathic occlusion. 5. Have the methods of examination of a patient with dental anomalies and deformities. - features of examination of an orthodontic patient; - anthropometric survey methods; - functional methods of examination; - X-ray examination methods; - methods of teleradiography. 6. Master the basic principles and methods of treatment of patients with dental anomalies and deformities. - methods of treatment of orthodontic patients; - classification of orthodontic equipment, their characteristics, impact on periodontal tissues; - theories of bone remodeling during instrumental movement of teeth; - organization of work on prevention of dental anomalies and deformations among medical staff of nurseries, kindergartens, schools; orthodontic dispensary groups.

**5. Organization of course training**

*The volume of the course*

| Type of lesson | ***Total amount of hours*** |
|---|---|
| Lectures | 10 |
| Practical classes | 50 |
| Independent work | 30 |

*Course signs*

| Semester 9-10 | Specialty<br>221 Dentistry | Course (year of study) 5 | Normative discipline |
|---|---|---|---|

*Course thematics*

## THEMATIC PLAN OF LECTURES
**by orthodontic dentistry for IX semester**

| № | Topic plan | Hours |
|---|---|---|
| 1 | Children's dental prosthetics. Clinical and biological substantiation. Defects of dentitions and hard tissues of the tooth in children. Causes, their prevention. Non-removable structures of children's dentures (crowns, inlays, stumps and pin teeth, bridges), indications for their manufacture. | 2 |
| 2 | Prosthetics with removable prostheses. Materials, clinical and laboratory stages. Indications for the manufacture of removable children's prostheses. Replacement terms. | 2 |
| 3 | Traumatic injuries in children, their orthopedic treatment. | 2 |
| 4 | Congenital malunions in children. Etiopathogenesis, clinic, treatment, prevention. | 2 |
| 5 | Instrumental and non-instrumental orthodontic treatment of children with dental and maxillary anomalies. | 2 |
| | Total | 10 |

## THEMATIC PLAN OF PRACTICAL CLASSES
in the discipline "Orthodontics" for 5th year students of the 9th semester

| № | Topic plan | Hours |
|---|---|---|
| 1 | Indications and contraindications for the use of fixed structures in children and adolescents inlays, artificial crowns and pin teeth. Designs of dentures in children to restore the anatomical shape of teeth. | 3 |
| 2 | Replacement of dentition defects in children and adolescents with fixed (bridge-like) structures of dentures. The main purpose of fixed bridge structures of dentures. Indication. Requirements. Features of production. The value of the condition of periodontal tissues of abutment teeth in determining the design of the prosthesis. Crown with strut, bridge-like sliding prostheses. | 3 |
| 3 | Traumatic injuries of teeth and jaws in children. | 3 |
| 4 | Partial removable dentures in children. Complete removable dentures in children. | 3 |
| 5 | Fixed orthodontic appliances. Removable orthodontic appliances. Technologies for the manufacture of orthodontic appliances. The state of SOPR in orthodontic treatment. | 3 |
| 6 | Etiology, pathogenesis, diagnosis, prevention and orthodontic treatment of congenital facial defects. Diff. test | 3 |

| | | |
|---|---|---|
| 7 | Control | 2 |
| | Total | 20 |

**Thematic plan of practical classes**
**in the discipline "Orthodontics"**
**for 5th year students 10 semester**

| № | TOPIC | Hours |
|---|---|---|
| 1. | Organization of orthodontic care for children and adolescents with defects of teeth and dentition.<br>Morphological and functional age features of development and formation of the child's dental apparatus and their clinical evaluation. | 3 |
| 2. | Functional anatomy of the masticatory apparatus. Characteristics of orthognathic and pathological types of bites. | 3 |
| 3. | Classification of dental anomalies.<br>Methods of diagnosis of dental anomalies. | 3 |
| 4. | X-ray, photometric and functional methods of examination. Establishment of preliminary and final diagnoses. Drawing up a treatment plan. Clinical diagnostic tests of Eschler-Bitner, Ilyina-Markosyan and Kibkalo. | 3 |
| 5. | Hygiene of PR in orthodontic treatment. Features of local and general disorders of the body with dental anomalies. | 3 |
| 6. | Planning orthodontic treatment.<br>The role of related specialists in the treatment of orthodontic patients: dentist and dental surgeon, pediatrician, otolaryngologist, endocrinologist, psychoneurologist, musculoskeletal specialists, exercise therapy doctors. | 3 |
| 7. | Syndromes of diseases manifested in the oral cavity (Shereshevsky-Turner, Apert-Cruzon, Papillon-Lefebvre, Albright, Stainton-Capdepon). | 3 |
| 8. | Bad habits in children and hygiene of PR in orthodontic treatment. Prevention of orthodontic pathology according to the age of the child (formation of skills and abilities). | 3 |
| 9. | Protection of medical history | 3 |
| 10. | Difzalik | 3 |
| **Total for 10 semesters** | | **30** |

**Thematic plan of independent work**
**in the discipline of "Orthodontics"**
**for students of the 5th year (9-10 semester)**

| № | Topic | Number of hours |
|---|---|---|
| 1. | Independent working of themes:<br>1. Actual ways of prevention strains with current conditions for children not covered by the measures in organized groups.<br>2. The evolution of the formation of the US at the stages of human development.<br>3. Independent production of orthodontic appliances in the conditions of dental orthodontic laboratory.<br>4. Retrospective study of the frequency of appeals of children with injuries of teeth and soft tissues of the facial area of the children's clinic.<br>5. Prepare speeches on the prevention of STDs caused by bad habits. | 15 |

| | | |
|---|---|---|
| 2. | Prepare and make a film-presentation on the delivery of orthodontic appliances in the clinic. | 15 |
| | **Total 30** | **30** |

## 6. Course evaluation system

General course evaluation system

**Current control** is performed based on the control of theoretical knowledge, skills and abilities in practical classes. Independent study students are assessed in practical classes, and is an integral part of the final grade of the student. Current control is performed during the training sessions and aims at checking the assimilation of students learning the material. Forms of current control are:

a) test tasks with a choice of one correct answer, with the definition of the correct sequence of actions, with determination of the conformity, defining the specific portion of the photo or diagram ("detection");

b) individual oral questioning, interview;

c) the solution of typical situational tasks;

g) control of practical skills;

Grades on the national scale ("excellent" - 5, "good" - 4, "satisfactory" - 3, "unsatisfactory" - 2), received by students, are displayed in the journals of attendance and academic group performance.

**Final control**

The final control is the form of a differentiated credit at the end of the 1st semester and at the end of the 2nd semester upon completion of the course of medical biology.

The semester exam is a form of final control of mastering by the student of theoretical and practical material on academic discipline. The final control (exam) is carried out at the last control lesson.

Students are admitted to the FC who have attended all the classes provided by the curriculum in the discipline and while studying the module scored the number of points not less than the minimum (**72 points**). A student who, for good or bad reasons, has missed classes, is allowed to rework academic debt for a certain period of time.

**Evaluation of current educational activities.** During the assessment of mastering each topic for the current educational activity of the student scores are set on a 4-point (national) assessment scale. This takes into account all types of work provided by the discipline program. The student must receive a score on each topic. Scores on the traditional scale are converted into points. The final assessment of the current academic activity is the arithmetic mean (the sum of scores for each lesson is divided by the number of lessons per semester) and translated into points according to **Table 2.**

**Table 2. Conversion of the average score for the current activity into a multi-point scale (for disciplines completed by diff.credit, exam)**

| 4-point scale | 120-point scale | 4-point scale | 120-point scale | 4-point scale | 120-point scale | 4-point scale | 120-point scale |
|---|---|---|---|---|---|---|---|
| 5 | 120 | 4,45 | 107 | 3,91 | 94 | 3,37 | 81 |
| 4,95 | 119 | 4,41 | 106 | 3,87 | 93 | 3,33 | 80 |
| 4,91 | 118 | 4,37 | 105 | 3,83 | 92 | 3,29 | 79 |
| 4,87 | 117 | 4,33 | 104 | 3,79 | 91 | 3,25 | 78 |
| 4,83 | 116 | 4,29 | 103 | 3,74 | 90 | 3,2 | 77 |
| 4,79 | 115 | 4,25 | 102 | 3,7 | 89 | 3,16 | 76 |
| 4,75 | 114 | 4,2 | 101 | 3,66 | 88 | 3,12 | 75 |
| 4,7 | 113 | 4,16 | 100 | 3,62 | 87 | 3,08 | 74 |
| 4,66 | 112 | 4,12 | 99 | 3,58 | 86 | 3,04 | 73 |
| 4,62 | 111 | 4,08 | 98 | 3,54 | 85 | 3 | **72** |
| 4,58 | 110 | 4,04 | 97 | 3,49 | 84 | <3 | Not enough |
| 4,54 | 109 | 3,99 | 96 | 3,45 | 83 | | |
| 4,5 | 108 | 3,95 | 95 | 3,41 | 82 | | |

***The maximum number** of points that a student can collect for current educational activity during semester in order to be admitted to the exam is **120 points.***

***The minimum number** of points that a student can collect for current educational activity during semester in order to be admitted to the exam is **72 points.***

Calculating of the number of points is based on obtained marks of student according to traditional scale while learning subject during the semester, by calculating the arithmetic mean (AM) that is rounded to two signs after comma.

***Evaluation of independent work of students.*** Independent work of students, which is provided by the topic of the lesson together with the classroom work, is evaluated during the current control of the topic in the relevant lesson. Assimilation of topics that are submitted only for independent work is checked during the final module control.

***Evaluation of final control.***

**The maximum number** of points that a student can score during the exam is **80 points.**

The final control is considered credited if the student scored at least 60% of the maximum amount of points (for a 200-point scale - at least **50 points**).

***Determining the number of points that a student scored in the discipline:*** the number of points that a student scored in the discipline is defined as the sum of points for the current academic activity (Table1) and for the final control (diff.credit, exam) (Table 3).

**Table 3. Scale of assessment of differentiated (exam) credit:**

| Traditional scale | Points |
|---|---|
| «5» | **70-80** |
| «4» | **60-69** |
| «3» | **50-59** |

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|---|---|
| Requirements for written work | The final written work is performed in the form of a test. |
| Practical classes | Classroom work |

***The 1st semester***

Classroom work - score from 2 to 5 for each topic.

*Differentiated credit (semester control)* Semester control at the end of the 1st semester is provided in the form of Differentiated credit. (Table 2) Provides a final grade on a 120-point scale as the sum of grades for the current control of knowledge (oral examination, written survey, Practical work, abstracts).
Semester control includes control of theoretical and practical training.

Amount: minimum 72 + 50 = 122, maximum 120 + 80 = 200

***The 2nd semester***

Classroom work - score from 2 to 5 for each topic.

Final module control is evaluated from 50 to 80 points and consists of:
Test control - 40 tests = 40 points (1 point for the correct answer to 1 test).
Answer to 2 theoretical questions of 20 points for each = 40 points. Amount: 80.

Amount: minimum 72 + 50 = 122, maximum 120 + 80 = 200

**The list of theoretical questions to prepare students for the exam.**

1. Orthodontics - definition, purpose and objectives. Domestic and foreign scientists who have contributed to the development of orthodontics. 2. The relationship and interdependence of the form and function of the masticatory apparatus, temporomandibular joints, occlusion. 3. Age features of the structure of the temporomandibular joints in children. 4. Features of the oral

cavity of the newborn and their importance in the process of formation of the dental-maxillary apparatus. 5. The main stages of formation of the masticatory apparatus. Development of the maxillofacial area in the embryonic period. Features of the formation of the hard palate. 6. Classification of dental-facial deformities and anomalies in children according to Engle and A.Ya. Katz. Their features. 7. Classification of maxillofacial deformities and anomalies DA Calvelis, A.I. Betelman, V.Yu. Courland, LV Ilyina-Markosyan. The principle of their construction. 8. Advantages of the classification of dental anomalies proposed by the WHO. 9. Basic anthropometric measurements on diagnostic models and their diagnostic value. 10. Features of measuring the length of the dentition by the method of Korkhaus and NG Snagina, their diagnostic value. 11. Methods of research of function of chewing at children Their diagnostic value. 12. X-ray methods of examination of the dental and maxillofacial apparatus in children (sighting and axial radiography of teeth, orthopantomography, teleradiography, etc.). 13. Methods of conducting profile teleradiography. 14. Deciphering teleradiograms by A.M. Schwartz. Craniometric measurements, their purpose and diagnostic values. 15. Gnatometric measurements by A.M. Schwartz, their diagnostic value. 16. The role of teleradiography in the diagnosis and prediction of the results of orthodontic treatment. 17. Profilometric measurements when decoding teleradiograms. Differential diagnosis of abnormal facial profile. 18. Etiology, clinic, diagnosis and treatment of anomalies of color, shape, quantity, structure of hard tissues of individual teeth. 19. Etiology, clinic, diagnosis and treatment of abnormalities in the position of the teeth. In what classifications are they reflected? 20. Features of treatment of turns of teeth (tortoanomalies). 21. Features of treatment of congestion of teeth in different age periods of formation of a bite. 22. General characteristics of orthodontic equipment, age indications and contraindications to its use. 23. Theories of bone remodeling, explaining the process of moving teeth in hardware treatment (Flurence, Walkhoff-Kingsley, Oppenheim, DA Calvelis, etc.). 24. Mechanically operating orthodontic equipment, its varieties and principle of operation. 25. General characteristics of Frenkel devices, their types and principle of operation. 26. Functionally operating and functionally directing orthodontic equipment, its excellent properties. 27. Etiology, clinic, diagnosis, prevention and treatment of distal occlusion. Prognosis of treatment. 28. Etiology, clinic, diagnosis, prevention and treatment of mesial occlusion. Prognosis of treatment. 29. Etiology, clinic, diagnosis, prevention and treatment of deep occlusion. Prognosis of treatment. 30. Etiology, clinic, diagnosis, prevention and treatment of open bite. Prognosis of treatment. 31. Etiology, clinic, diagnosis, prevention and treatment of cross (oblique) occlusion. Prognosis of treatment. 32. Methods of stimulation of orthodontic treatment, their essence and indications for use. 33. Surgical interventions in the complex treatment of orthodontic patients. 34. Serial removal of teeth according to Hotz. 35. Indications for the removal of individual teeth in orthodontic treatment. 36. Etiology, pathogenesis, clinic, diagnosis and treatment of retinal teeth. Types and forms of retention. 37. Etiology, pathogenesis, clinic, diagnosis of overcomplete teeth. Features of orthodontic treatment for this anomaly. 38. Etiology, pathogenesis, clinic, diagnosis and treatment of diastema. 39. Differential diagnosis of gnatic (skeletal) and dentoalveolar forms of abnormal occlusion. 40. Influence of orthodontic equipment on tissues and organs of the masticatory apparatus. 41. Bad habits in children, their role in the pathogenesis of dental deformities and control. 42. The nature of morphological and functional changes in the periodontium with the use of small, medium, large intermittent and permanent forces in orthodontics. 43. The role of pathology of the upper tract and rickets in the development of occlusal deformities, methods of their prevention. 44. The role of artificial feeding in the development of occlusion anomalies. 45. Anatomical and functional characteristics of physiological occlusions. 46. Organization of primary prevention and treatment of maxillofacial anomalies and deformities in children. 47. Factors that ensure the growth and development of tissues and organs of the masticatory apparatus in children. 48. The role of myogymnastics in the complex of measures of primary prevention of dental deformities in children. 49. A set of preventive measures to combat dental anomalies and deformities in the anti-and postnatal periods of the child's life. 50. The scope and methods of primary prevention of dental deformities in the milk, variable and permanent periods of occlusion in children. 51.

Anomalies in the development of soft tissues of the oral cavity: dorsum, bottom, bridles of the lips and tongue, the consequences of their treatment. 52. Periods of formation of occlusion height, their implementation in the treatment of vertical occlusion anomalies. 53. Clinical diagnostic tests (Eschler-Bitner, Ilyina-Markosyan), their importance in the diagnosis of dental anomalies and deformities. 54. Methods of combating bad habits in children. 55. Features of growth of jaw bones in different age periods. 56. Morphological changes in the temporomandibular joints during orthodontic treatment. 57. Features of growth of ruminant and facial muscles in children. 58. Tsilinsky's symptom and its prognostic value. 59. "Final" plane according to VOIME and its variants. 60. Features of the manufacture of Andresen-Goipl devices, the mechanism of their action and indications for use. 61. Design features of the manufacture of Frenkel devices I-IV types, the principle of their operation. 62. Indications for the use of inclined planes in orthodontic appliances on the upper jaw in the treatment of dental anomalies and deformities. 63. Design features and principle of operation of bracket systems.

**The list of practical skills for final module control**

1. Examine the orthodontic patient and fill in the medical history: - collect anamnesis; - to conduct clinical methods of examination of an orthodontic patient; - to conduct auxiliary methods of examination of an orthodontic patient; - establish a preliminary diagnosis; 2. Get control models. 3. Conduct clinical diagnostic tests. 4. Carry out auxiliary research methods according to Pon, Korkhaus, Gerlach, Snagina. 5. Decipher the teleradiogram. 6. Describe dental, axial X-rays and orthopantomograms. 7. Determine the indications for choosing a comprehensive orthodontic treatment the patient. 8. Establish a final diagnosis. 9. Determine the degree of difficulty of orthodontic treatment. 10. Make a plan of orthodontic treatment. 11. Get prints with reflective materials, get models. 12. Determine the design of the orthodontic appliance, pediatric or maxillofacial prosthesis. 13. Fit and hand over the orthodontic appliance, children's prosthesis. 14. Fill the outfit in the dental laboratory. 15. Carry out correction and actuation of the orthodontic appliance. 16. To carry out preparation of teeth at children under fixed designs of prostheses. 17. Fit and fix fixed and removable structures of children's dentures 18. Stimulate orthodontic treatment 19. Determination of the deficit of space in the dentition for abnormally located teeth on radiographs 20. Determination of the depth and condition of the rudiments or rattinated teeth on radiographs. 21. Determining the individual profile of the patient's face, as well as the degree of development of the jaws. 22. Selective grinding of teeth. 23. Make a plan of preventive measures to prevent dental, maxillofacial anomalies and deformities. 24. Determine the risk group of dental-maxillofacial anomalies and deformities. 25. To make the necessary complex of myogymnastic exercises 26. To determine a set of preventive measures aimed at preventing the development of persistent dental-maxillofacial deformities.

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|---|---|
| **Circumstance of admission to the final control** | 1. Semester control at the end of the 1st semester is provided in the form of a differential credit. (Table 2) Provides a final score on a 120-point scale as the sum of scores for the current control of knowledge (oral examination, written survey, tests, verification of identification of micropreparations, abstracts), the results of 2 content modules.<br>2. Students are allowed to take the differentiated credit, exam only if there is no debt for the implementation of the curriculum. |

**7. Course policy**

The organization of the educational process is carried out with the use of the European Credit Transfer System (ECTS) to assess student performance. The points gained in the current survey, independent work and points of the final control are credited. This must take into account the student's presence in class and his activity during practical work. Inadmissible: absences and late classes; use of a mobile phone, tablet or other mobile devices during the lesson (except for the cases provided by the curriculum and methodical recommendations of the teacher); copying and plagiarism; untimely performance of the task, the presence of unsatisfactory grades for 50% or more of the submitted theoretical and practical material.

**8. RECOMMENDED LITERATURE**

**1.Basic:**
1.FlisPS Orthodontics. -Vinnytsia: "New Book", 2006. -308 p.2.Schmut GPF, Holtgrave EA, Drescher D. Practical orthodontics. Ed. prof. P.S. Flis. Per. with him. -Lviv: GalDent, 1999.3.Stephen Williams. A short guide to telegraphy. Ed. prof. P.S. Flis. -Lviv, 2006.4.Sharova GV, Rogozhnikov GI Pediatric orthopedic dentistry. M., "Medicine", 1991. p. 289.5.Khoroshilkina F.Ya. Orthodontics. Defects of teeth, dentitions, occlusion anomalies, morphofunctional disorders in the maxillofacial region and their complex treatment Medical Information Agency (MIA), 2010, -592p.6.Flis PS, Omelchuk NA, Rashchenko NV et al. Orthodontics. -K .: Medicine, 2008 p. -336 c.7.Doroshenko SI, Kulginsky EA Fundamentals of teleradiography K .: Health, 2007. -72 p.

**Additional:**
1. Bennett J., R. McLowlin, ed. FlisP.S. "Bag of orthodontic treatment by the technique of a straight arch", Lviv: "GalDent", 2001.2. Golovko NV Prevention of dental anomalies. -Vinnytsia: Nova Kniga, 2005.-271p.3. Declan Millet, Richard Welbury. Solving problems in orthodontics and pediatric dentistry. -M .: MEDpress-Inform, 2009. -199 p.4. Doroshenko SI, Kulginsky EA Fundamentals of teleradiography. -K .: Zdorovja, 2007. -70 p.5. Kanyura OA, Savichuk NO, Golubchikov MV The main directions of reforming the children's dental service. -Kyiv: Medicine, 2010.6. Kuroyedova VD, Dmitrenko MI Modern methods of prevention of dental anomalies and deformations // World of Orthodontics. -Kyiv: Visnyk stomatologii, 2003. -No1 (4), p. 6-97.McLaughlin R., J. Bennett, X. Treviso / ed. FlisP.S. "Systematized mechanics of orthodontic treatment", Lviv: "GalDent", 2005.8.Malanchuk VO, Borisenko AV, FlisPS etc. Fundamentals of dentistry. -Kyiv: "Medicine", 2009.9.Persin LS Orthodontics M.OJSC "Medicine", 2004.10.Persin LS Orthodontics. Modern methods for diagnosing maxillofacial anomalies. A guide for doctors. -M .: OOO «Informknyga», 2007. –248p.11.Stephen Williams. A short guide to telegraphy. Ed. prof. P.S. Flis. -Lviv, 2006.12.Stanislav V. Maevski. Dental gnathology. -Lviv: GalDent, 2008.13.William R. Profit. Modern orthodontics. -M .: MEDpress-Inform, 2006. -559 p.14. Kuroedova VD, Zhdan VN, Galich LB etc. Atlas of orthodontic appliances. -Poltava: "Dyvosvit", 2011 -156 p.15. Ravindra Nanda, Sunil Kapila. Current therapy in orthodontics. -Mosby, 2010. -396p.

**Lector** _____ Goropatska A-M.O.