



## SYLLABUS ON THE DISCIPLINE "Orthodontics" for 3rd year students.

<b>1. General information</b>	
Name of faculty	Dentistry
Educational program (branch, speciality, level of higher education, form of education)	Field of knowledge 22 «Health care» Speciality 221 «Dentistry» second (master's) level of higher education, full-time
Academic year	2021-2022
Name of discipline, code	Orthodontics (diagnostics of malocclusion), OK-53 kaf_orthodontics@meduniv.lviv.ua
Department	Orthodontics Dental center of Danylo Halytskyi Lviv National Medical University, Lviv, Pekarska street 69b Tel.+38 (032) 275-59-87 "Arden Plus" Lviv, Shota Rustaveli street 32/1 +38(032)276-76-38
Chief of department	Prof. Chukhray N.L. <a href="mailto:nchukhray@gmail.com">nchukhray@gmail.com</a>
Year of study	3
semester	V-VI
Type of discipline/ module	Required
Teachers	Prof. Bezvushko E.V. <a href="mailto:elvira7773131@gmail.com">elvira7773131@gmail.com</a> Assos. Prof. Musij-Sementsiv Kh.H. <a href="mailto:sementsivk@gmail.com">sementsivk@gmail.com</a> Assos. Prof. Dubetska-Hrabous I.S. <a href="mailto:dubetskaira@gmail.com">dubetskaira@gmail.com</a>
Erasmus yes/no	No
Person responsible for syllabus	Assos.prof Musij-Sementsiv Kh.H.
Number of credits ECTS	4
Number of hours (lectures/practical classes/individual work of student)	120 (10/70/40)
Language of studying	English
Information for consultation	Consultations are held in accordance with the schedule of consultations approved by the head of the department
Adress, telephone and schedule of clinical base	Dental center of Danylo Halytskyi Lviv National Medical University, Lviv, Pekarska street 69b Tel.+38 (032) 275-59-87 "Arden Plus" Lviv, Shota Rustaveli street 32/1 +38(032)276-76-38 (9.00-18.00)
<b>2. Short annotation to the course</b>	
<p><b>Orthodontics (diagnosis of dental anomalies and deformities)</b> is a discipline that allows students to get acquainted with the definition of "Orthodontics" as a subject, to acquire knowledge about the norm and pathology in orthodontics. To study the concepts of dental anomalies and deformities (anomalies of teeth, dentition, occlusion), features of antenatal and postnatal periods</p>	

of development and formation of teeth, jaws and face, as well as how these processes affect the health of the mother and child, various negative factors that can lead to the emergence and development of abnormalities and deformations of the dental apparatus. Students get acquainted with the features of clinical examination of an orthodontic patient, basic and additional methods of diagnosis, treatment methods and classification of orthodontic equipment.

### **3. The purpose and objectives of the course**

1. The purpose of teaching the discipline "Orthodontics" (diagnosis of dental anomalies and deformities) is to study the stages of formation of the dental system in children, risk factors leading to the development of anomalies and methods of their elimination, mastering basic and additional diagnostic methods in orthodontics, early detection of pathology oral cavity, which requires orthopedic, surgical intervention, acquaintance with the main methods of treatment of orthodontic patients, classification of orthodontic equipment, for the possibility of their further use during clinical admission of patients and the formation of special (professional) competencies in orthodontics.

2. Learning objectives:

- to study students the peculiarities of the formation of the dental system in children, the main risk factors for anomalies and deformities, methods of prevention and elimination;
- to prepare students for work in the clinical dental office by studying the basic and additional methods of examination of an orthodontic patient;
- to study the classification of orthodontic equipment and the main methods of treatment of orthodontic patients.

3. Competences and learning outcomes (general and special competencies):

#### **General:**

1. Ability to abstract thinking and analysis; ability to learn and master modern information and communication technologies.
2. Ability and understanding of the subject area and profession.
3. Ability to apply knowledge in practical situations.
4. Ability to communicate in the state language and the second (foreign) language.
5. Ability to search, process and analyze information from various sources.
6. Ability to adapt and act in a new situation.
7. Ability to work autonomously, show skills and pose and solve problems.
8. Ability to choose a communication strategy.
9. Ability to work in a team.
10. Skills of cooperation with colleagues and patients.
11. Ability to act on ethical considerations.
12. Skills for safe activities.

13. Ability to evaluate and ensure the quality of work performed.

#### **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 the legal norms of the relationship between orthodontist → paramedics → patient (child) → parents.

4. To know the age features of the development of the human maxillofacial apparatus and risk factors that affect the formation of dental anomalies in the antenatal and postnatal periods of child development, ways to eliminate them;
5. To have methods of examination of a patient with dental anomalies and deformities, to know anthropometric, functional, radiological methods of examination.
6. Master the basic principles and methods of prevention of patients with dental anomalies and deformities, know the classification of treatment methods in orthodontics, indications and contraindications to their use.

**4. Prerequisites of the course**

**"Orthodontics"** as a discipline

- a) is based on previous study of human anatomy, histology, embryology and cytology, medical biology, medical chemistry, biological and bioorganic chemistry, physiology and pathological physiology, medical physics and integrates with these disciplines;
- b) lays the foundations for students to study such clinical disciplines as orthodontics, prevention of dental diseases, pediatric therapeutic dentistry, surgical dentistry;
- c) is based on the study of propaedeutics of orthopedic dentistry by students and integrates with this discipline;
- d) forms an idea of the need to prevent dental anomalies and deformities.

**5. Program learning outcomes**

**List of learning outcomes**

Learning outcome code	The content of the learning outcome	Reference to the competency matrix code
Kn-1,2,3,4,5,8,9,10, 11; S-2,3,4; C-5;	Know the peculiarities of development and be able to determine the risk factors of malocclusions in the antenatal and postnatal period; know the features of the examination and be able to conduct a clinical examination of an orthodontic patient, know and be able to prescribe basic and additional methods of examination.	PRKn-2
Kn-8,9,10,11; S-2,3,4; C-5;	Be able to examine orthodontic patients; analyze the results of basic and additional methods of examination of patients with dental anomalies and deformities; know the indications and contraindications to the use of various treatments in orthodontics.	PRKn -3
Kn-14; S-6,7; C-6;	Know the features of prevention of dental anomalies and deformities, orthodontic dispensary groups. Be able to conduct primary and know the features of secondary prevention of dental anomalies and deformities.	PRKn -6
Kn-6; S-6; C-4;	To know the age features of human dental development and risk factors that affect the formation of dental anomalies in the antenatal and postnatal periods of child development, ways to eliminate them; Be able to identify dispensary groups for the	PRKn -15

	supervision of orthodontic patients and carry out preventive measures in a group with risk factors;	
S-1; C-1,2,3;	Demonstrate mastery and awareness of moral and deontological principles of a medical specialist and the principles of professional subordination in orthodontic reception; Learn to promote a healthy psychological microclimate in the team, learn the basics of the legal norms of the relationship between orthodontist → paramedics → patient (child) → parents.	PRKn -19

#### 6. Format and scope of the course

Course format	Eye	
Kind of occupations	Number of hours	Number of groups
Lectures	10	
Practical classes	70	
Seminars		
Individual work	40	

#### 7. Topics and content of the course

Code type to borrow	Topic	Content of training	Code learning outcome	Teacher
L-1 (lecture-1)	Orthodontics: definition, stages of development, problems, structure. Brief historical background. The concept of "norm" and "pathology" in orthodontics. Physiological bites, their characteristics. Pathological bites. Terminology.	Know the classification of dental anomalies and deformities, characteristics of orthognathic occlusion, physiological and pathological types of occlusion.	Kn-2,7 ;	Prof. Chukhray N.L.  Assos. Prof. Dubetska-Hrabous I.S.(engl)
L-2	Anatomical and physiological features of the dental system in the age aspect. Periods of growth of the dental system. Classification of dental anomalies, their characteristics.	To know the age features of human dental development and risk factors that affect the formation of dental anomalies in the antenatal and postnatal periods of child development, ways to eliminate them; classification	Kn-1,2, 3,4,5,6; S-2,3; C-4.	Prof.Mirchuk B.M.  Assos. Prof. Dubetska-Hrabous I.S. (engl)

		of dental anomalies and deformities.		
L-3	Auxiliary methods of examination in orthodontics, biometrics of diagnostic models, craniometry, photometry, palatinography, radiography, etc. Diagnosis and classification of dental anomalies and deformities. The role of teleradiography in the diagnosis and prognosis of orthodontic treatment.	Know the indications and contraindications to the main and additional methods of examination in orthodontics. Know the features of the analysis of the results of the main and additional methods of examination of patients with dental anomalies and deformities	Kn-8,9, 10,11; S-3,4; C-5.	Prof.Mirchuk B.M.  Prof. Chukhray N.L. (engl)
L-4	Characteristics of treatment methods used in orthodontics: biological, instrumental, surgical, combined and orthopedic. Influence of orthodontic equipment on changes in the tissues surrounding the teeth, palatal suture and temporomandibular joint.	Know the methods of treatment of orthodontic patients, general characteristics of orthodontic equipment. Mechanically operating, functionally operating and functionally guiding orthodontic appliances: design features, age indications and contraindications to its use.	Kn-12, 13; S-4,5; C-6.	Prof.Mirchuk B.M.  Prof. Bezvushko E.V. (engl)
L-5	Prevention of dental anomalies and deformities. The role of pediatric dentist and family doctor (pediatrician) in the prevention of dental anomalies and deformities. Myogymnastics as a method of prevention and treatment of dental anomalies and deformities, indications, monitoring of effectiveness.	Be able to identify dispensary groups for the supervision of orthodontic patients and carry out preventive measures in a group with risk factors.	Kn-14; S-6,7; C-6.	Assos.Prof. Pylypiv N.V.  Prof. Bezvushko E.V. (engl)

P-1 (practical class 1)	Definition of orthodontics as a subject. Norm and pathology in orthodontics. Relationship and interdependence of form and function.	Be able to conduct primary and know the features of secondary prevention of dental anomalies and deformities.	S-1; C – 1,2;	Prof. Bezvushko E.V. Assos. Prof. Musij-Sementsiv Kh.H. Assos. Prof. Dubetska-Hrabou s I.S.
P-2	The concept of dental anomalies and deformities: anomalies of individual teeth, dental arches and occlusion. Risk factors, their classification.	Know the classification of dental anomalies and deformities; be able to determine the risk factors.	Kn – 2; S – 1,8; C – 4.	
P-3	Embryogenesis. Risk factors that affect the occurrence of dental anomalies during pregnancy.	To know the age features of the development of the human dental apparatus and risk factors that affect the formation of dental anomalies in the antenatal and postnatal periods of child development, ways to eliminate them	Kn – 1,6; S – 8; C – 4.	
P-4	Features of prevention of dental anomalies in the antenatal period. Congenital anomalies, their prevention.	Know the features of prevention of dental anomalies and deformities, orthodontic dispensary groups. Be able to identify dispensary groups for the supervision of orthodontic patients and carry out preventive measures in a group with risk factors.	Kn – 14; S – 6,7; C – 6.	
P-5	Anatomical and physiological features of newborn's oral cavity. Risk factors that contribute to the development of dental anomalies up to 6 months child's life.	To know the age features of the development of the human dental apparatus and risk factors that affect the formation of dental anomalies in the antenatal and	Kn – 1,6; S – 8; C – 4.	

		postnatal periods of child development, ways to eliminate them		
P-6	The main means of prevention of dental anomalies in the postnatal period.	Master the basic principles and methods of prevention of dental anomalies and deformities, indications and contraindications to their use.	Kn – 14; S – 7; C – 6.	
P-7	Features of the formation of primary occlusion in the first period (0.5-2.5 years). Risk factors in this period. Pathology of teeth eruption and preventive measures.	To know the age features of the development of the human dental apparatus and risk factors that affect the formation of dental anomalies in the antenatal and postnatal periods of child development, ways to eliminate them	Kn – 3,6,14; S – 7,8; C – 4,6.	
P-8	Features of formation of primary occlusion in the second period (3.5-5 years). Risk factors, their definition. Bad habits, their elimination: psychoprophylactic measures.	To know the age features of the development of the human dental apparatus and risk factors that affect the formation of dental anomalies in the antenatal and postnatal periods of child development, ways to eliminate them	Kn – 3,6,14; S – 7,8; C – 4,6.	
P-9	Anatomical and physiological features of the third period of primary occlusion (5-6 years). Violation of the physiological development of the dental system during this period (violation of eruption, lack of physiological diastemas and tremas, Tsilinsky's step, etc.). Elimination of risk factors.	To know the age features of the development of the human dental apparatus and risk factors that affect the formation of dental anomalies in the antenatal and postnatal periods of child development,	Kn – 3,6,14; S – 7,8; C – 4,6.	

		ways to eliminate them		
P-10	Anatomical and physiological features of early mixed dentition (6-9 years). Risk factors. Caries and its complications as favorable factors for the development of dental anomalies.	To know the age features of the development of the human dental apparatus and risk factors that affect the formation of dental anomalies in the antenatal and postnatal periods of child development, ways to eliminate them	Kn – 4,6,14; S – 7,8; C – 4,6.	
P-11	Anatomical and physiological features of late mixed occlusion (9-12 years). The concept of chronological, bone and dental age, their dependence on sex, hormonal balance, general development of the child.	To know the age features of the development of the human dental apparatus and risk factors that affect the formation of dental anomalies in the antenatal and postnatal periods of child development, ways to eliminate them	Kn – 4; C – 4.	
P-12	Risk factors in the late mixed dentition, their elimination	Know the risk factors that affect the formation of dental anomalies in the antenatal and postnatal periods of child development, ways to eliminate them;	Kn – 6,14; S – 6,7,8; C – 4,6.	
P-13	Anatomical and physiological features of the formation of permanent occlusion (12-15 years). Risk factors in this period, their elimination. Ways to eliminate risk factors.	To know the age features of the development of the human dental apparatus and risk factors that affect the formation of dental anomalies in the antenatal and postnatal periods of child development, ways to eliminate them	Kn – 5,6,14; S – 6,8; C – 4,6.	



P-14	Risk factors in the permanent dentition, their elimination. Ways to eliminate risk factors.	Know the risk factors that affect the formation of dental anomalies in the antenatal and postnatal periods of child development, ways to eliminate them;	Kn – 6,14; S – 6,8; C – 4,6.	
P-15	Physiological types of occlusion. The main signs of orthognathic occlusion depending on age.	Know the main signs of orthognathic occlusion, physiological and pathological types of occlusion.	Kn – 7; C – 2,3.	
P-16	Clinical examination of an orthodontic patient, its features. Establishing a preliminary diagnosis. Filling in the medical history.	Know the features of the clinical examination of an orthodontic patient. Learn to promote a healthy psychological microclimate in the team, learn the basics of the legal norms of the relationship between orthodontist → paramedics → patient (child) → parents.	Kn – 8; S – 2; C – 3.	
P-17	Anthropometric methods of examination: craniometry, photometry, biometric measurements of diagnostic models according to Pont, Korkhaus. Definition of Tone, Dolgopolova indices.	Know and have the basic anthropometric measurements on diagnostic models, methods of conducting them, their diagnostic value.	Kn – 9; S – 2,3; C – 5.	
P-18	Measurement of the width and length of dental arches, the size of the apical base by the method of Snagina. Determination of the deficit of space in the dental arch for an abnormally located tooth. Determination of segments of the dentition according to Gerlach, construction of the	Know and have the basic anthropometric measurements on diagnostic models, methods of conducting them, their diagnostic value.	Kn – 9; S – 3; C – 5.	

	Howley-Gerber-Herbst diagram.			
P-19	Functions of chewing, swallowing, breathing and speech, their varieties. Violation of these functions as a risk factor for dental anomalies. Normalization of the functions of the dental system as an element of prevention of dental anomalies.	Know the main risk factors that affect the formation of dental anomalies in the antenatal and postnatal periods of child development, ways to eliminate them;	Kn – 10; S – 2; C – 4.	
P-20	Functional methods of examination: mastication, chewing tests, electromyography, myotonometry, rheoparodontography.	Know and be able to conduct basic methods of studying the function of chewing in children and their diagnostic value.	Kn – 10; S – 2,3; C – 5.	
P-21	X-ray examination methods: targeted radiography, orthopantomography, hand radiography, TRG.	Know the basic radiological methods of examination of the dental apparatus in children (sighting, axial radiography of teeth, orthopantomography teleradiography, etc.). Indications for conducting, evaluation of results.	Kn – 11; S – 2,3; C – 5.	
P-22	Teleraentgenography. Methods of teleraentgenography, deciphering teleradiography according to Schwartz.	Know the basic radiological methods of examination of the dental apparatus in children (sighting, axial radiography of teeth, orthopantomography teleradiography, etc.). Indications for conducting, evaluation of results.	Kn – 11; S – 2,3; C – 5.	
P-23	The role of oral pathology in the development of dental anomalies. Premature tooth extraction as a risk factor. Changes in the dental area with premature tooth	Know the main risk factors that affect the formation of dental anomalies in the antenatal and postnatal periods of child development,	S – 8; C – 6.	

	extraction. Classification of dentition defects.	ways to eliminate them;		
P-24	Prosthetics in children as a factor in the prevention of dental anomalies. Indications for prosthetics. Clinical and radiological indications for prosthetics in children. The main requirements for children's dentures.	Know the main risk factors that affect the formation of dental anomalies in the antenatal and postnatal periods of child development, ways to eliminate them; Master the basic principles and methods of prevention of dental anomalies and deformities, know the basic methods of treatment in orthodontics, indications and contraindications to their use.	Kn – 6,12; S – 4; C – 6.	
P-25	Risk factors that require timely surgery: frenulotomy, deepening of the vestibulum and bottom of the oral cavity, supernumerary teeth, retained teeth, etc.	Know the main risk factors that affect the formation of dental anomalies in the antenatal and postnatal periods of child development, ways to eliminate them; Master the basic principles and methods of prevention of dental anomalies and deformities, know the basic methods of treatment in orthodontics, indications and contraindications to their use.	Kn – 6,12; S – 4; C – 6.	
P-26	Anatomical and physiological features of masticatory and facial muscles. The concept of muscle balance. Myogymnastics as an integral part of exercise therapy. Rationale for the use of myogymnastics, the	Know the main risk factors of malocclusions. Master the basic principles and methods of prevention of dental anomalies and	Kn – 1,12; S – 4; C – 6.	

	principles of its use for the prevention of dental anomalies.	deformities, know the basic methods of treatment in orthodontics, indications and contraindications to their use.		
P-27	Muscle imbalance as a risk factor for dental anomalies. The basic complexes of myogymnastic exercises for restoration of muscular balance in separate muscular groups.	Know the main risk factors of malocclusions. Master the basic principles and methods of prevention of dental anomalies and deformities, know the basic methods of treatment in orthodontics, indications and contraindications to their use.	Kn – 12; S – 4; C – 6.	
P-28	Methods of treatment of orthodontic patients: biological, instrumental, surgical, physiotherapeutic, combined.	Master the basic methods of treatment in orthodontics, know the indications and contraindications to their use.	Kn – 12; S – 5; C – 6.	
P-29	Surgical method of treatment. Serial teeth extraction by Hotz.	Master the basic methods of treatment in orthodontics, know the indications and contraindications to their use.	Kn – 12; S – 5; C – 6.	
P-30	Classification of orthodontic equipment, its characteristics, impact on periodontal tissues.	Know the classification of orthodontic equipment, design features, indications and contraindications to their use. Know the general characteristics of orthodontic equipment. Mechanically	Kn – 13; S – 5; C – 6.	

		operating, functionally operating and functionally guiding orthodontic appliances: design features, age indications and contraindications to its use.		
P-31	Modern theories of periodontal tissue rebuilding under the influence of orthodontic equipment.	Know the classification of orthodontic equipment, design features, indications and contraindications to their use.	S – 5; C – 6.	
P-32	Theories of bone remodeling during instrumental movement of teeth: Flurence, Walkhof-Kingsley, Oppenheim, Calvelis. Age indications for the use of certain types of orthodontic equipment.	Know the classification of orthodontic equipment, design features, indications and contraindications to their use.	S – 5; C – 6.	
P-33	Orthodontic dispensary groups, their brief characteristics. I and II dispensary groups. The main preventive measures in these groups.	Be able to identify dispensary groups for the supervision of orthodontic patients and carry out preventive measures in a group with risk factors;	Kn – 14; S– 6,7; C – 6.	
P-34	Organization of work on prevention of dental anomalies and deformations among medical staff of nurseries, kindergartens and schools. Coordination of preventive work of the pediatric dentist with other specialists.	Be able to identify dispensary groups for the supervision of orthodontic patients and carry out preventive measures in a group with risk factors; Be able to conduct primary and know the features of secondary prevention of	Kn – 14; S – 6,7; C – 6.	

		dental anomalies and deformities.		
P-35	Final lesson. Assessment of practical skills.	Conduct an assessment of the student's practical skills according to the proposed list and presentation of independent work.		
Ind-1 (individual work - 1)	Embryogenesis of the dental area.	Write down the features of the development of the maxillofacial area in the antenatal and postnatal period.	Kn – 1; C – 4.	
Ind-2	Morpho-functional features of primary dentition.	Write down the anatomical and physiological features of the formation of primary dentition in different periods of development.	Kn – 3; C – 4.	
Ind-3	Morpho-functional features of mixed dentition.	Write down the anatomical and physiological features of early and late mixed dentition.	Kn – 4; C – 4.	
Ind-4	Morpho-functional features of permanent dentition.	Write down the anatomical and physiological features of the formation of permanent dentition.	Kn – 5; C – 4.	
Ind-5	Write down the signs of orthognathic occlusion and draw anomalies of individual teeth, dental arches and occlusion.	Use the picture to show the signs of orthognathic occlusion and anomalies of individual teeth, dental arches and occlusion.	Kn – 7; C – 4.	
Ind-6	Record the order and sequence of clinical examination of an orthodontic patient.	To structure features of clinical inspection of the orthodontic patient.	Kn – 8; S – 2; C – 1,2,3,5.	
Ind-7	Draw and describe biometric research methods: Pont, Korkhouse, Gerlach methods,	With the help of a drawing to visualize the features of	Kn – 9; S – 2,3,4; C – 5.	

	Howlley-Gerber-Herbst diagram.	anthropometric research.		
Ind-8	Describe the methods of functional diagnostics: chewing tests, EMG.	Using a brief description, write down the methods of EMG and chewing tests.	Kn – 10; S – 2,3,4; C – 5.	
Ind-9	Draw and describe the methods of decoding TRG by Schwartz: profilometry, craniometry, gnatometry.	With the help of drawing to understand the essence and methods of conducting TRG, ways to decipher it.	Kn – 11; S – 2,3,4; C – 5.	
Ind-10	Write down the classification of orthodontic appliances according to Malign. Draw the palatal plate with a Coffin spring, bracket (schematic).	Use the picture to depict the structural elements of the plates and braces.	Kn – 13; S – 5; C – 6.	
Ind-11	Write theories of periodontal tissue rearrangement in orthodontic movement of teeth: Flurence, Walkhof-Kingsley, Oppenheim, Calvelis.	With the help of a short synopsis to master the knowledge of the reconstruction of periodontal tissues in orthodontic treatment.	Kn – 1; C – 4.	
Ind-12	Write orthodontic dispensary groups according to Osadchy.	With the help of a synopsis to acquire knowledge about orthodontic dispensary groups.	Kn – 14; S – 6; C – 6.	
Ind-13	Describe measures for the prevention of dental anomalies and deformities in 1 and 2 dispensary groups.	With the help of the synopsis to master the knowledge about measures for prevention of dental anomalies and deformations in 1 and 2 dispensary groups.	Kn – 14; S – 6,7; C – 6.	
Ind-14	Development of a presentation on one of the proposed topics.	With the help of a presentation, flyer, poster, stand or video to present one of the proposed topics for the prevention of malocclusions.		

- 1) Test control of knowledge;
- 2) Oral questioning and discussion of the topic;
- 3) Multimedia presentations;
- 4) Video materials;
- 5) Practice of practical skills with the help of plaster models, radiographs, decoding of TRG with the help of Audax Ceph program, clinical examination on each other (with the use of dental instruments, impression materials), EMG.

### 8. Verification of learning outcomes

#### Current control

Learning outcome code	Code type to borrow	Method of verifying learning outcomes	Enrollment criteria
S-1; C – 1,2; S-1; C – 1,2;	P-1, L-1	Test control of knowledge; Oral interview and discussion of the topic.	Evaluation: Test control: 50-60% - "satisfactory", 70-80% - "good", 90-100% - "excellent";
Kn – 2; S – 1,8; C – 4.	P-2, L-1	Test control of knowledge; Oral questioning and discussion of the topic; Multimedia presentation about dental anomalies and deformities.	Situational tasks (includes three questions): <b>"excellent"</b> - gave correct, complete answers to 3 control questions; <b>"Good"</b> - gave correct, complete answers to 2 control questions and one incomplete or inaccurate answer - to the third; <b>"Satisfactory"</b> - gave the correct answer to one control question and two incomplete or inaccurate answers - to two questions.
Kn – 1,6; S – 8; C – 4.	P-3, L-2, Ind-1	Test control of knowledge; Oral questioning and discussion of the topic; Multimedia presentation on embryogenesis of the thyroid gland.	Practical experience: Credited / not credited
Kn – 14; S – 6,7; C – 6.	P-4, L-2	Test control of knowledge; Oral questioning and discussion of the topic;	
Kn – 1,6; S – 8; C – 4.	P-5, L-2	Test control of knowledge; Oral questioning and discussion of the topic; Multimedia presentation about the features of the oral cavity of the	



		newborn, risk factors in this period.	
Kn – 14; S – 7; C – 6.	P-6, L-2	Test control of knowledge; Oral questioning and discussion of the topic;	
Kn – 3,6,14; S – 7,8; C – 4,6.	P-7, L-2, Ind-2	Test control of knowledge; Oral questioning and discussion of the topic; Multimedia presentation about the peculiarities of the formation of primary occlusion in the first period, risk factors in this period.	
Kn – 3,6,14; S – 7,8; C – 4,6.	P-8, L-2, Ind-2	Test control of knowledge; Oral questioning and discussion of the topic; Multimedia presentation on the peculiarities of the formation of primary dentition in the second period, risk factors in this period.	
Kn – 3,6,14; S – 7,8; C – 4,6.	P-9, L-2, Ind-2	Test control of knowledge; Oral questioning and discussion of the topic; Multimedia presentation on the peculiarities of the formation of primary dentition in the third period, risk factors in this period.	
Kn – 4,6,14; S – 7,8; C – 4,6.	P-10, L-2, Ind-3	Test control of knowledge;	

		Oral questioning and discussion of the topic; Multimedia presentation on the features of early mixed dentition (6-9 years). Risk factors.	
Kn – 4; C – 4.	P-11, L-2, Ind-3	Test control of knowledge; Oral questioning and discussion of the topic; Multimedia presentation on anatomical and physiological features of late mixed dentition (9-12 years). Radiographs of the hand.	
Kn – 6,14; S – 6,7,8; C – 4,6.	P-12, L-2	Test control of knowledge; Oral questioning and discussion of the topic;	
Kn – 5,6,14; S – 6,8; C – 4,6.	P-13, L-2, Ind-4	Test control of knowledge; Oral questioning and discussion of the topic; Multimedia presentation on the anatomical and physiological features of the formation of permanent occlusion (12-15 years). Risk factors during this period	
Kn – 6,14; S – 6,8; C – 4,6.	P-14, L-2	Test control of knowledge; Oral questioning and discussion of the topic;	
Kn – 7; C – 2,3.	P-15, L-2, Ind-5	Test control of knowledge;	

		Oral questioning and discussion of the topic; Determination of types of occlusion on gypsum models.	
Kn – 8; S – 2; C – 3.	P-16, L-3, Ind-6	Test control of knowledge; Oral questioning and discussion of the topic; Clinical examination of each other.	
Kn – 9; S – 2,3; C – 5.	P-17, L-3, Ind-7	Test control of knowledge; Oral questioning and discussion of the topic; Anthropometric measurements on gypsum models.	
Kn – 9; S – 3; C – 5.	P-18, L-3, Ind-7	Test control of knowledge; Oral questioning and discussion of the topic; Video materials for charting and anthropometric measurements.	
Kn – 10; S – 2; C – 4.	P-19, L-3, Ind-8	Test control of knowledge; Oral questioning and discussion of the topic;	
Kn – 10; S – 2,3; C – 5.	P-20, L-3, Ind-8	Test control of knowledge; Oral questioning and discussion of the topic; Conducting EMG on students.	
Kn – 11; S – 2,3; C – 5.	P-21, L-3	Test control of knowledge; Oral questioning and discussion of the topic; Analysis of sighting radiographs,	

		orthopantomograms, CT.
Kn – 11; S – 2,3; C – 5.	P-22, L-3, Ind-9	Test control of knowledge; Oral questioning and discussion of the topic; Decryption of TRG using the program Audax Ceph.
S – 8; C – 6.	P-23	Test control of knowledge; Oral questioning and discussion of the topic
Kn – 6,12; S – 4; C – 6.	P-24	Test control of knowledge; Oral questioning and discussion of the topic; Multimedia presentation on prosthetics in children.
Kn – 6,12; S – 4; C – 6.	P-25	Test control of knowledge; Oral questioning and discussion of the topic
Kn – 1,12; S – 4; C – 6.	P-26	Test control of knowledge; Oral questioning and discussion of the topic
Kn – 12; S – 4; C – 6.	P-27	Test control of knowledge; Oral questioning and discussion of the topic
Kn – 12; S – 5; C – 6.	P-28	Test control of knowledge; Oral questioning and discussion of the topic
Kn – 12; S – 5; C – 6.	P-29, L-4,	Test control of knowledge; Oral questioning and discussion of the topic; Multimedia

		presentation on orthodontic appliances. Demonstration of orthodontic appliances.	
Kn – 13; S – 5; C – 6.	P-30, L-4 Ind-10	Test control of knowledge; Oral questioning and discussion of the topic;	
S – 5; C – 6.	P-31, L-4, Ind-11	Test control of knowledge; Oral questioning and discussion of the topic;	
S – 5; C – 6.	P-32, L-4, Ind-11	Test control of knowledge; Oral questioning and discussion of the topic; Presentation of independent work on one of the proposed topics.	
Kn – 14; S – 6,7; C – 6.	P-33, L-5, Ind-12,13	Test control of knowledge; Oral questioning and discussion of the topic; Presentation of independent work on one of the proposed topics.	
Kn – 14; S – 6,7; C – 6.	P-34, L-5, Ind-14	Test control of knowledge; Oral questioning and discussion of the topic; Presentation of independent work on one of the proposed topics.	
	P-35	Assessment (credit / no credit) of practical skills.	
<b>Final control</b>			
General evaluation system		Participation in the work during the semester / exam - 60% / 40% on a 200-point scale	

Rating scales	traditional 4-point scale, multi-point (200-point) scale, ECTS rating scale	
Conditions of admission to the final control	The student attended all practical (laboratory, seminar) classes and received at least 120 points for current performance	
Type of final control	Methods of summary control	Enrollment criteria
Test	All topics submitted for current control must be included. Grades from the 4-point scale are converted into points on a multi-point (200-point) scale in accordance with the Regulation "Criteria, rules and procedures for evaluating the results of student learning activities"	The maximum number of points is 200. The minimum number of points is 120

### **9. Course policy**

Indicates the policies of academic integrity, the specific policies of the program that are relevant to the course

The policy of the discipline is determined by certain requirements for the student in the study of the discipline "Orthodontics" and is based on the principles of academic integrity. The importance of acquiring new knowledge, academic norms that must be followed, their importance, what is academic integrity, what are its values and functions are discussed with students. The essence, features and reasons of inadmissibility of academic plagiarism are explained, applicants of higher education are encouraged to independently perform tasks, correct reference to sources of information in case of borrowing ideas. The policy of the discipline is: mandatory observance of academic integrity by students, namely: - independent performance of all types of work, tasks, forms of control provided by the working program of the discipline;

Adherence to the principles and norms of ethics and deontology by higher education students:

- actions in professional and educational situations, taking into account academic integrity and professional ethics and deontology;
- compliance with the rules of internal regulations of the clinical base of the department, to be tolerant, friendly and balanced in communication with students and teachers, patients, medical staff of health care institutions.

Attending classes by higher education students:

- Attendance at all classes is mandatory for the purpose of current and final assessment of knowledge (except for good reasons).

Practice of missed classes by applicants for higher education:

- practice of missed classes is according to the schedule of practice
- rearrangement of the topic of the lesson, for which the student received a negative grade, is carried out at a convenient time for the teacher and the student outside the classroom, maximum score - "good"
- rearrangement of the topic during the current training and final control in order to increase the assessment is not allowed

### **10. literature**

Required

1. Flis PS 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 MA, Rashchenko NV etc. Orthodontics. - K .: "Medicine", 2008. - 360 p.
7. Doroshenko SI, Kulginsky EA Fundamentals of teleradiography K .: Health, 2007. - 72 p.

Additional:

1. Bennett J., R. McLaughlin, ed. Flis P.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.
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 .: 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. - №1 (4), p. 6-9
7. McLaughlin R., J. Bennett, X. Treviso / ed. Flis P.S. "Systematized mechanics of orthodontic treatment", Lviv: "GalDent", 2005.
8. Malanchuk VO, Borisenko AV, Flis PS etc. Fundamentals of dentistry. - Kyiv: "Medicine", 2009.
9. Persin LS Orthodontics M. OJSC "Medicine", 2004.
10. Persin LS Orthodontics. Modern methods of diagnosis of maxillofacial anomalies. A guide for doctors. – M,2007. - 248 p.
11. Ravinda Nanda. Biomechanics and aesthetics in clinical orthodontics. - M .: MEDpress-Inform, 2009. - 386 p.
12. Stephen Williams. A short guide to telegraphy. Ed. prof. P.S. Flis. - Lviv, 2006.
13. Stanislav V. Maevski. Dental gnathology. - Lviv: GalDent, 2008.
14. William R. Profit. Modern orthodontics. - M .: MEDpress-Inform, 2006. - 559 p.
15. Kuroedova VD, Zhdan VN, Galich LB etc. Atlas of orthodontic appliances. - Poltava: "Dyvosvit", 2011 - 156 p.
16. Ravindra Nanda, Sunil Kapila. Current therapy in orthodontics. – Mosby, 2010. – 396p.
17. RavindaNanda, Flavio Andres Ubire. Temporary Anhorage Devises in orthodontis. – Mosby, 2008. – 432p.
18. Alexander R.G. The 20 principles of the ALEXANDER DISIPLINE. - Quintessence Publishing Co., 2008. – 236p.

### **11. Equipment, logistics and software of the discipline / course**

#### **Methodical support of the lecture course:**

1. Abstracts of lectures.
2. Lecture presentations.

#### **Methodical support of practical classes:**

1. Methodical instructions of practical classes for teachers.
2. Methodical instructions for practical classes for students.

3. Test questions and tasks to check the initial level of knowledge on each topic and the final control.

4. Situational tasks.

5. Video materials in accordance with the subject of classes.

Logistics

1. Electromyograph.

2. Computer program for decoding TRG (Audax Ceph).

3. A set of radiographs.

4. A set of plaster models.

5. A set of orthodontic appliances.

6. Impression masses and spoons for imprinting.

Plaster for casting models.

## **12. Additional Information**

All other information important for the student, which is not included in the standard description, for example, contact details of the person responsible for the educational process at the department, information about the scientific circle of the department, information about routes, information about the need to equip themselves with occupational safety; information about the place of classes; links to website / department pages, etc.