EDUCATIONAL COMPONENT SYLLABUS

ORTHODONTICS

Specialty: **221 "Dentistry"**
Educational and professional program: **Dentistry**
Component code in the educational program: **OK 31**
Level of higher education: **second (master's)**
Form of education: **full-time (full-time)**
Year of study : **3**
Semester(s): **VI (spring)**
Type of educational component: **mandatory**
Academic year: **2026 -2027**

Volume: **4 ECTS credits (120 hours)**
Training sessions: **lectures** , **practical classes** , **consultations**
Final control: **HDI**
Prerequisites :**human anatomy; histology, embryology and cytology; medical biology; medical chemistry; biological and bioorganic chemistry; microbiology, virology and immunology; therapeutic dentistry; orthopedic dentistry; surgical dentistry; pediatric therapeutic dentistry; pediatric surgical dentistry.**

Department/division: **Department of Pediatric Dentistry and Implantology,** 51 Peremohy Ave., 5th floor
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Educational component page in the KNMU Distance Learning System (Moodle): https://distance.knmu.edu.ua/course/view.php?id=2685

DESCRIPTION OF THE EDUCATIONAL COMPONENT

The educational discipline "Orthodontics" is aimed at students mastering diagnostic techniques and manipulations for the treatment and prevention of dental and jaw anomalies at different stages of a child's development.

OBJECTIVE :is determined **by the final goals** established on the basis of the OPP for the training of a doctor by specialty in accordance with the block of its sections (natural science training), and is the basis for building the content of the academic discipline.

LEARNING OUTCOMES:

1. Analyze the results of an examination of an orthodontic patient:
- with anomalies in the size of individual teeth;
- with anomalies in the shape of individual teeth;
- with anomalies in the number of individual teeth;
- with diastemas and tremas ;
- with crowded teeth;
- with tortoanomalies ;
- with vestibulo -oral position of teeth;
- with prognathia (distal bite);
- with progeny (mesial bite);
- with an open bite;
- with a deep bite;
- with unilateral or bilateral crossbite;
- dentoalveolar forms of occlusion anomalies;
- gnathic forms of bite anomalies.

2. Identify dispensary groups for monitoring orthodontic patients and preventive measures in the group with risk factors:

- with anomalies in the size of individual teeth;
- with anomalies in the shape of individual teeth;
- with anomalies in the number of individual teeth;
- with diastemas and tremas ;
- with crowded teeth;
- with the vestibulo -oral position of the teeth;
- with prognathia (distal bite);
- with progeny (mesial bite);
- with one- or two-sided crossbite.

CONTENT OF THE EDUCATIONAL COMPONENT

of lecture topics (10 hours):

1. Characteristics of temporary, variable and permanent types of occlusion. Physiological and abnormal types of occlusion.
2.Prevention of dental anomalies and deformities in children and adults.
3.Clinical and anthropometric methods for diagnosing dentofacial anomalies.
4.Radiological methods for diagnosing dentofacial anomalies.
5.Principles of treatment of patients with dentofacial anomalies. Orthodontic apparatus.

List of topics for practical classes (60 hours) :

1.Stages of development of the dento-maxillary apparatus: intrauterine, postnatal. Anatomical and physiological features of the oral cavity and temporomandibular joint
newborn.
2.Growth and formation of the jaws
bones in the age aspect. Peculiarities of the development of chewing muscles in children.
Morphofunctional characteristics of temporary, mixed and permanent occlusion.
3.The concept of the norm in orthodontics. Orthognathic bite, its
Characteristics. Occlusion keys according to E.Engle and Andrews . Physiological and pathological types of bites. Periods of formation of bite height. The significance of Tsylinsky's symptom in the process of forming a permanent bite. Final planes according to LJ Boume and A.M.Schwarz .
4.Clinical methods of examination of children with dentofacial anomalies and deformities.
5.Anthropometric methods of examination of orthodontic patients.
6.Methods of researching the functions of the oral cavity.
7.Photometry in orthodontics.
8.Radiological examination methods.
9.Teleradiography techniques (direct and lateral).
10.Classification of dentofacial anomalies and deformities.
11.Classifications of orthodontic equipment. Mechanical devices.
12.Functional and combined action devices. Retention devices.
13.Theories of bone, periodontal, and temporomandibular joint remodeling under the influence of orthodontic appliances.
14.Methods of treatment of orthodontic patients.
Hardware treatment. Surgical methods of treatment of orthodontic patients. Physiotherapy methods of treatment of orthodontic patients.
15.Principles of organizing orthodontic care for the population. **Final lesson**

List of topics for student independent work (50 hours)

1.Preparation for practical classes (theoretical, development of practical skills and abilities)
2.History of the development of domestic orthodontics. The formation of orthodontics as an independent clinical discipline. Modern content, goals and objectives of the specialty.
3.Development of the oral cavity and face in embryogenesis.
4.Etiology of dentofacial anomalies and deformations (endogenous and exogenous factors).
5.Anthropometric examination of the patient's face and head. Assessment of facial proportions according to Garson and Izard G. Transverse and vertical facial proportions. Assessment of head shape.
6.Production of standardized photographs. Analysis of soft facial tissues in diagnosis and planning of orthodontic treatment (facial profile, smiles).
7.Anthropometric measurements of jaw models according to the method of Bolton, Nance, W. Fuss and A. Schwartz. Rotation of the first molars according to E.M. Ricketts.
8.Measurement of the apical base and palate.
9.Auxiliary methods for examining orthodontic patients.
10.Photosymmetroscopy and symmetrography.
10.Decoding of TRG in direct projection.
11.Decoding of TRG according to the method of E.M. Ricketts.
12.Interpretation and evaluation of TMJ tomography.
13.Methods of studying the condition of the TMJ (arthrophonography, rheography, angiography).
14.Types of jaw growth.
15.Definition of skeletal ossification. Evolution of hand radiographs hands.
16.The role of the tongue in the implementation of the functions of the dento-maxillary system. Methods of studying the shape of the tongue. Types of the frenulum of the tongue according to F.Ya. Khoroshilkina.

VTS is aimed at deepening and consolidating theoretical knowledge obtained during classroom training and contributes to the formation of professional competencies. The results of VTS are subject to control and are included in the final knowledge control.

Consultations: online, with prior registration on the course page in the Distance Learning System.

Teaching methods: lecture, exercises and practical work, solving situational tasks and cases, standardized patient method

EVALUATION

Current educational activity (PND). Assessment of the success of education seekers is carried out in accordance with the Instructions for assessing the educational activity of higher education seekers at KhNMU (https://knmu.edu.ua/documents/normatyvni-dokumenty-navchalnogo-proczesu/). The assessment for a practical or final lesson is from2 to 5 points. Submitting assignments late for unwarranted reasons entails a reduction in the grade in accordance with the percentage of delay in time from the time of completing the assignment. Assignments are checked within 24 hours. Grades are posted in the electronic journal. Unsatisfactory grades are worked out in accordance with the Regulations on the procedure for working out academic classes by students of KNMU (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_vidprac_zaniat.pdf).
At the end of the semester, the average grade for the semester is converted into a multiple-point grade (70 – 120 points) in accordance with Table 1 of the Grading Instructions (see above).
Individual tasks(I) are rated up to 10 points.
Final control. The condition for admission to the exam is to score 70 points on the CIS. The exam score is from 50 to 80 points.
Discipline grade (OD). OD = ZND + IZ + exam. It is given in the 4th year, in the spring semester.
Appealing the results of the final control is carried out in accordance with the procedure established at the KhNMU (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_apel_kontrol.pdf).

EDUCATION COMPONENT POLICIES

Recommendations for course work: actively participate in all forms of work in classes, devote 1-2 hours daily to independent work and preparation for classes, ask questions during classes , attend consultations, submit assignments on time , and complete all forms of control.

Attendance at classes. Attendance at lectures and practical classes is mandatory. The uniform during offline classes is a white medical gown. If you are more than 5 minutes late, you may not be allowed to attend the class. Missed classes are made up in accordance with the Regulations on the procedure for students of KNMU to complete classes (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_vidprac_zaniat.pdf).

Academic integrity. KhNMUstandson positions of zero tolerance for manifestations of academic dishonesty . Any violations of the principles of academic integrity entail liability in accordance with the procedure established at KNMU (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_ad-1.pdf).

The use of electronic gadgets and artificial intelligence tools is permitted only with the permission of the teacher.

Policy on individuals with special educational needs. Applicants with special educational needs should contact a teacher to develop an individual educational trajectory.

Teacher response time: 24 hours.

Technical requirements for working on the course:

- access to a computer, laptop, tablet or smartphone
- Google account with your own photo
- Google skillsWorkspace (Google)Meet , Docs , Sheets , Slides , Forms) and Moodle

Technical support:ASU (ev.shevtsov@knmu.edu.ua), Google (tehotdelknmu@gmail.com), Moodle (al.korol@knmu.edu.ua)

RECOMMENDED SOURCES

1. Flis P.S. Orthodontics. - Vinnytsia: "New Book", 2019. - 312 p.
2. Children's dental prosthetics: textbook / P.S. Flis, S.I. Tril, V.P. Voznyuk; edited by Prof. P.S. Flis. — 2nd ed., corrected — K.: VSV “Medicina”, 2015. — 200 p.

3.M. Saadia , R. Valencia« Dentofacial Orthopedics in the Growing Child : Understanding Craniofacial Growthinthe Management of Malocclusions ", 2022 - 896 p.

1. B. Melsen , C. Luzi« AdultOrthodontics 2nd Edition ", 2022 - 480 p.

4.Standard of medical care for bite anomalies (mesial occlusion, open bite, deep) https://www.dec.gov.ua/wp-content/uploads/2025/03/dn_360_03032025_dod.pdf

5.Orthodontics and maxillofacial orthopedics evidence-based clinical guidelines https://www.dec.gov.ua/wp-content/uploads/2025/03/2023_620_kn-ortodontiya.pdf

6.Medical care standards distal occlusion https://www.dec.gov.ua/wp-content/uploads/2023/04/smd_620_03042023.pdf

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