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 :fifth
Semester(s): **I X (fall),X (spring)**
Type of educational component: **mandatory**
Academic year: **2028 -2029**

Volume: **2 ECTS credits (60 hours)**
Training sessions: **lectures** , **practical classes** , **consultations**
Final control: **DC,DC**
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.**

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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. Identify the leading syndromes and symptoms in orthodontic practice:
- facial asymmetry;
- pain in the bones of the face;
- shortening of the upper lip;
- shortening of the soft palate;
- humming (open and closed);
- deformation of the bones of the facial skeleton;
- changed tooth color;
- changes in the interalveolar space;
- damaged teeth;
- convergence (divergence) of teeth;
- periodontal disease;
- presence of cleft facial defects;
- limitation in opening the mouth;
- TMJ dysfunction;
- violation of facial proportions;

- movable teeth;
- posture disorders;
- psycho-emotional state.

2. Identify congenital and acquired defects of the maxillofacial region.
3. Demonstrate mastery of the moral and deontological principles of a medical professional and the principles of professional subordination at an orthodontic appointment
4. To substantiate and formulate a preliminary clinical diagnosis of dentofacial anomalies and deformities:

- anomalies in the size of individual teeth;
- anomalies in the shape of individual teeth;
- anomalies in the number of individual teeth;
- diastema and trema;
- crowding of teeth;
- tortoanomalies;
- vestibulo-oral position of the teeth;
- prognathia (distal bite);
- progeny (mesial bite);
- open bite;
- deep bite;
- unilateral or bilateral crossbite.

5. To substantiate and formulate a syndromic diagnosis in orthodontic practice:

- with facial asymmetry;
- if pain occurs in the bones of the face;
- with shortening of the upper lip;
- with shortening of the soft palate;
- with hoarseness (open and closed);
- with deformations of the bones of the facial skeleton;
- with changed tooth color;
- when changing the interalveolar space;
- with damaged teeth;
- with convergence (divergence) of teeth;
- in the presence of cleft facial defects;
- with restriction in opening the mouth;
- in case of violations of facial proportions;
- with tooth mobility.

6. Conduct differential diagnosis of diseases of the dentofacial apparatus:

- 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 tremors;
- with crowding of teeth;
- with tortoanomalies;
- with vestibulo-oral position of the teeth;
- with prognathia (distal bite);
- with progeny (mesial bite);

- with an open bite;
- with a deep bite;
- with unilateral or bilateral crossbite.

7. Conduct differential diagnostics of somatic diseases that require special management tactics for patients with:

- heart defects;
- endocrine pathology;
- pathology of the musculoskeletal system;
- epilepsy;
- bronchial asthma;
- diabetes;
- HIV infection/AIDS;
- viral hepatitis;
- diphtheria;
- tuberculosis.

8. Conduct examinations of orthodontic patients:

- 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 the vestibulo-oral position of the teeth;
- with prognathia (distal bite);
- with progeny (mesial bite);
- with an open bite;
- with a deep bite;
- with one- or two-sided crossbite.

9. Conduct primary and secondary prevention of the most common dental and jaw anomalies and deformities:

- anomalies in the size of individual teeth;
- anomalies in the shape of individual teeth;
- anomalies in the number of individual teeth;
- diastema and trema;
- crowding of teeth;
- tortoanomalies;
- vestibulo-oral position of the teeth;
- prognathia (distal bite);
- progeny (mesial bite);
- open bite;
- deep bite;
- unilateral or bilateral crossbite.

CONTENT OF THE EDUCATIONAL COMPONENT

Lecture topics (10 hours):

1.Etiology, pathogenesis, clinical classification of defects of teeth and dentition in children.
2.Filling defects in teeth and dentition with permanent fillings designs of children's dentures (inlays, crowns, stumps and pin teeth, bridges), indications for their use.
3.Filling of defects of teeth and dentition with removable denture structures (partial and complete). Indications for their use, design features, fixation methods, replacement times, possible complications.
4.Traumatic injuries to teeth and jaw bones in children.
5.Etiology, pathogenesis, diagnosis and orthodontic treatment of congenital anomalies of the dentofacial system.

List of topics for practical classes (30 hours) :

1.Clinical and biological justification of children's dental prosthetics. Replacement of defects of teeth and dentition in children with fixed orthopedic structures (inlays, artificial crowns and pin teeth)taking into account the patient's age, the degree of root formation or resorption, and the condition of the periodontium.
2.Removable dentures in children. Selection of denture design taking into account the patient's age, localization and extent of dentition defects, nature of defect limitation and its topography.
3.Etiology, pathogenesis, diagnosis, prevention and orthodontic treatment of congenital facial defects . Morphological and functional disorders in the dentofacial apparatus associated with pathology of the endocrine system in humans.
4.Traumatic injuries of teeth and jaws in children. Clinic and orthopedic treatment depending on the age of the child, the nature of the injury and its duration. Differentiated credit.
5.Orthodontic planning. Treatment. Indications for orthodontic treatment, determination of age indicators and selection of orthodontic treatment methods.
6.Fixed orthodontic appliances. Features of designing fixed orthodontic appliances . Technology of their individual and industrial production (for support and fixation of fixed appliances – individual and standard stamped crowns, rings, caps, fixing devices for arch orthodontic appliances, locking devices; additional support and fixing elements, arches, their characteristics).
7.Removable orthodontic appliances . Characteristics of basic orthodontic appliances. Methods of their manufacture. Characteristics of removable orthodontic appliances. Structural elements, stages of manufacture, principles of action, correction and activation. Differentiated assessment.

List of topics for student independent work (20 hours)

1.Preparation for practical classes and differentiated assessment (theoretical, development of practical skills and abilities)
2.Defects of teeth and dentition complicated and uncomplicated by dentofacial anomalies and deformations. Preparation of the child's oral cavity for dental prosthetics: therapeutic, surgical, orthodontic.
3.Methods of manufacturing orthodontic appliances for nonunions of the upper lip, alveolar process, and through-going nonunions.
4.Features of trauma in children. Possible complications, orthopedic treatment. Determination of the timing of orthopedic treatment and rational designs of dental appliances.
5.Possibilities of using intraoral scanning and CAD/CAM technologies in the practice of an orthodontist
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 Assessment Instructions (see above). The arithmetic average of the PND for both semesters constitutes **the total learning activity (GNA)** .
Individual tasks(I) are rated up to 10 points.
Final control. The condition for admission to the differential test is to obtain 70 points of the CIS. The grade for the differential test is from 50 to 80 points.
Discipline grade (OD). OD = ZND + IZ + exam.
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 admitted to 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 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
- corporate Google account with your own photo
- skills in working with Google Workspace (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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